



**COLLEGE OF BUSINESS AND ECONOMICS  
DEPARTMENT OF PROJECT MANAGEMENT**

**ASSESSMENT OF PROJECT MANAGEMENT MATURITY IN  
TEKLEBERHAN AMBAYE CONSTRUCTION Plc**

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**Addis Ababa, Ethiopia**

**Addis Ababa University**

**School of Commerce**

**Assessment of Project Management Maturity in Tekleberhan Ambaye  
Construction Plc**

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Master of Arts in Project Management**

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### **Statement of Declaration**

I, Eriste Alemayehu, declare that the thesis entitled **Assessment of Project Management Maturity in Tekleberhan Ambaye Construction Plc** is my own work and has not been presented for any Degree or Master program in this or any other institution. All sources of materials used for this thesis have been properly acknowledged. It is offered for the award of Degree of Master of Arts in Project Management with guidance and support of the research advisor Wubeshet Bekalu (PhD)

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### **Advisor's approval**

This project work has been submitted for examination with my approval as a university advisor

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### **Statement of Certification**

This is to certify that Eriste Alemayehu has conducted this research work on the topic entitled “Assessment of Project Management Maturity in Tekleberhan Ambaye Construction Plc” under my supervision. This work is original in nature and it is sufficient for submission for the partial fulfillment for the award of Degree of Master of Arts in Project and Management

**Wubeshet Bekalu (PhD)**

**Signature**\_\_\_\_\_

**Date** \_\_\_\_\_

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## **Acronyms/Abbreviations**

GDP: Gross Domestic Product

ISO: International Organization for Standardization

MOC: Ministry of Commerce

PM: Project Management

PMBOK: Project Management Body of Knowledge

WBS: Work Breakdown Structure

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### **Abstract**

*In almost all organizations project management is practiced, the only difference is how well it is practiced. in today's complex world, project management is very decisive to all organizations especially to those that are project driven. Their success is realized through the successful delivery of their projects. The purpose of this paper is to assess the Project Management Maturity Level of Tekleberhan Ambaye Construction Plc (TACON). To assess the project management practice of the projects, ten knowledge areas were selected from the project management body of knowledge guide. Semi-structured questionnaires were devised based on the literature for the assessment. In order to secure the reliability of the collected data, triangulation was conducted by administering interviews. The data were analyzed with Microsoft excel. Average for each knowledge area is calculated. Average for TACON as a whole, was also analyzed and found that TACON is at Level 4 in PM maturity. Therefore, the researcher concluded that most of the knowledge areas were practiced formally. Low level of maturity is recorded in stakeholder management, while a high level of maturity is recorded in schedule management. Repetition and in project execution and integration among work units has led to the high maturity level of knowledge areas. Creating awareness among stakeholders and participating key stakeholders during planning, providing training to project managers and project teams, collect and compiling project data for future reference and for distributing lesson learned have been recommended as rooms of improvement in reaching to the highest maturity level.*

**Key words: project management, project management maturity, project management maturity level, project management knowledge areas**

# CHAPTER ONE

## Introduction

### 1.1. Background of the study

There are myriad definitions of project given by different authors. A project, as described by PMI (2013), is a temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates that a project has a definite beginning and end. The end is reached when the project's objectives have been achieved or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists.

The guide further explains that projects are closed if the client (customer, sponsor, or champion) wishes to terminate the project. Temporary does not necessarily mean the duration of the project is short. It refers to the project's engagement and its longevity. Temporary does not typically apply to the product, service, or result created by the project; most projects are undertaken to create a lasting outcome. For example, a project to build a national monument will create a result expected to last for centuries. Projects can also have social, economic, and environmental impacts that far outlive the projects themselves. As Jason Westland (2006) described it in short, project management is a series of processes, tools and skills that are required to successfully implement a project.

A construction project, sometimes just referred to as 'project', is the organized process of constructing, renovating, refurbishing, etc., a building, structure or infrastructure. The project process typically starts with an overarching requirement which is developed through the creation of a brief, feasibility studies, option studies, design, financing and construction. They are typically one offs. That is a project team, brief and financing are put together to produce a unique design that delivers a single project. Once the project is complete the team is disbanded and sometimes will not work together again. Typically, a construction project comprises many smaller projects which require a wide range of different discipline working in collaboration. ([www.Designingbuildings.co.uk](http://www.Designingbuildings.co.uk), retrieved on August 12, 2019)

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. Project management is accomplished through the

appropriate application and integration of the 47 logically grouped Project Management processes, which are categorized into five Process Groups. These five Process Groups (PMI, 2013) are, Initiate, Plan, Execute, Monitor, Control and Close the project.

PMI (2017) identified ten project management areas of knowledge. These are: scope, time, cost, risk, quality, human resource, communication, procurement, integration and stakeholder management. Using project management generally helps: to clarify goals and identify problem areas; to isolates activities and easily monitor outcomes.

Construction project management could be defined as the direction, regulation, and supervision of a project from early development to completion. The ultimate goal of construction project management is the full satisfaction of the client's demands for a viable project both in terms of functionality and budget. There is a wide range of construction project types, such as commercial, residential, industrial and heavy civil. The main concept of construction PM is closely connected to technical parameters like budget and execution but it also requires solid communication between all the agents, i.e., stakeholders, contractors, community ([www.GenieBeltblog.com](http://www.GenieBeltblog.com), retrieved on July 20, 2019).

Paulk, Curtis, Chrissis, & Weber (1993) described Maturity as the extent to which a specific process is explicitly defined, managed, measured, controlled, and effective. Maturity implies a potential for growth in capability and indicates both the richness of an organization's project management process and the consistency with which it is applied in projects throughout the organization.”

PMI (2003) as cited in Yimam (2011) described maturity as “The degree to which an organization practices project management measured by the ability of an organization to successfully initiate, plan, execute, monitor and control individual projects.”

Project management maturity (Crowford, 2007) refers to the progressive development of an enterprise-wide project management approach, methodology, strategy, and decision making process. The appropriate level of maturity will vary for each organization based on its specific goals, strategies, resource capabilities, scope, and needs.

In a research made on Management Control of Project in Construction Industry (Hailemeske Tefera, 2013) key challenges in the construction sector were identified. These were shortage of skilled labor, machineries, and tools, absence of appropriate standards and guidelines, lack of strong institutional capacity to oversee the industry, lack of construction project management and control skills. The research further explained the challenges listed above resulted in cost overrun and implantation delays and poor quality.

## **1.2. Background of the Organization**

Tekleberhan Ambaye Construction Plc (TACON), established in 1993 G.C, is one of the most known construction companies undertaking various construction projects in different parts of Ethiopia. The organization is currently registered as a Class 1 general contractor, with a capital exceeding Birr 1 Billion.

TACON has a vision of becoming a cross-border, reputable construction company. It operates with a mission of quality service to the public and reasonable profit to the owner. Core values that govern the organization include client satisfaction, professionalism, integrity, quality and social responsibility. To assure this the company has put into operation a Quality Management System and has passed the ISO 9001:2000 certification audits by ZDH ZERT Company.

The company is involved in civil works of massive earthworks, industrial plants, and specialist pile-foundation excavation service, water work projects, railways, highways, and airport runways. Evidently, the company works close with government infrastructure construction and has scored an average growth of revenue by 1,167% and average rate of 167% by the year 2018.

TACON has undertaken various projects in different parts of Ethiopia. To mention a few: Oromia Region, Oromia President's Office at Adama, Robe stadium, Jimma Agricultural College, Jimma University, RTTI, and Limu Genet Hospital projects were undertaken by TACON. In Addis Ababa the Forestry Gene Bank Building, the African Union upgrading works and Tse-Tse Fly Eradication projects were carried out by TACON; in Somali Region, the Kebribeyah Customs Office, Gode Rural Technology Center and others. In the Southern Region, agricultural project buildings and in Benishangul Gumz the Gilgel Beles Education Bureau, low cost houses, and prison administration buildings were constructed by TACON. In Amhara Region the Woreta Agriculture College and Gondar OPD, in Gambella Region TVET College,

and in Tigray Region Air Force Staff Apartment projects were constructed by TACON. It has currently about ten projects in different parts of the country including the capital Addis Ababa. ([www.ethioconstruction.net](http://www.ethioconstruction.net), 2017 retrieved on July 25, 2019)

The organization currently has 20 active projects scattered in the country where 16 of them are located in Addis Ababa. According to the site visit conducted, some of the projects are Drug Quality Control Laboratory & Office Building completed, Africa Insurance Mixed Use Building, and National Data Repository Building.

The company has currently shifted into a growth strategy that aims at to gain competitive advantage and demonstrate institutional effectiveness by enhancing financial, customer and market and internal processes. The company management received technical support from Ernst & Young (EY) and started employing Project Management for improving its internal efficiency ([www.taconplc.com](http://www.taconplc.com) and [www.2merkato.com](http://www.2merkato.com), retrieved on August 16, 2019).

According to interviews conducted, TACON currently has more than 3,000 employees, where this figure may escalate as high as 25,000 during its peak time of work. Presently, it has 20 active projects in Ethiopia where twenty project managers supervise each.

### **1.3.Statement of the problem**

In developing countries (Yimam, 2011) PM is implemented in a discouraging environment. Factors affecting the environment in which PM is practiced include poor support of infrastructures, low level of technology, incapable-implementing institutions, scarce resources, unreliable communication, poor and protracted documentation, high turnover of leadership and workers, considerable political instability, low level or absence of accountability and transparency, and long and tedious formal decision-making procedure are typical condition. Hence, majority of the above factors affect the practice of Project Management, and the majority of them are either non-existent or not common in the developed countries where Project Management is developed and thrived.

Hence, it was evident that (from the 21 GC 1), PM maturity of construction companies in Ethiopia was at low level or underdeveloped; where some performed PM informally while few have formal way of applying. Majority of construction in Ethiopia face schedule delay and cost overrun. This problem not only relates to the working environment of the organizations but also

mainly relates to the internal integration and management of critical PM knowledge areas. Although high maturity may not guarantee absolute success, inefficient utilization of the PM knowledge areas directly creates gaps in execution of projects.

It is to be noted here that knowledge areas of project management exist in almost all organizations. The difference is how well are they utilized, i.e., how mature they are. The different maturity models may not precisely measure uniformly in all organizations, but it is a generic form of measuring tool.

Currently, TACON has identified the need for professionals in the construction sector. For this cause, the company has opened a center of excellence at its own premises at CMC, Addis Ababa. It is currently providing training for young future professionals.

Therefore, this study is to identify the current project management maturity level of TACON to show its areas of strengths and areas of weaknesses in implementing the knowledge areas based on the current practices. Finally, it is to recommend possible ways of improvement in its PM practice to reach higher level of maturity for successful project delivery.

## **1.4. General and Specific Objectives of the study**

### **1.4.1. General objective**

To assess the current practice and level of project management maturity in TACON Plc

### **1.4.2. Specific objective**

To assess the current practice of PM in the organization under the project management body of knowledge areas

To determine the maturity level of the organization

## **1.1. Research question**

How are PM knowledge areas practiced in Tekleberhan Ambaye Construction Plc in managing its projects?

What is the current project management level of maturity of Tekleberhan Ambaye Const. Plc?

## **1.2. Significance of the study**

The significance of this study is-

- It can be used to identify strengths and weaknesses of project management of TACON's projects so as to identify room for future improvement
- Other organizations can benchmark the study to assess their own project management maturity level

## **1.5. Research Scope and Limitations**

This research on maturity of project management in TACON Plc is limited in scope to the following:

- The study is limited to the PM maturity in the construction sector, specifically, TACON,
- Although, the PM maturity could be a different situation in the client's organization side, the study is limited to only the contractor's (TACON's) perspective,
- The research is conducted by using structured questionnaires. The questionnaires are limited to the ten knowledge areas of project management,

- Timeliness of respondents was a challenge
- even though other industry/sector-specific standard may have been used, due to time limitation the researcher implemented only PMI's standards

### **1.6. Organization of the research report**

This paper comprised five chapters in which the first part illustrates the study backgrounds, statements of the problem, basic research questions, objectives, significance, scope and limitation of the study. The second chapter deals with review of related literature; the third chapter describes research design and methodology of the study and the analysis used. Results and discussion will be discussed in the fourth chapter; finally, the last chapter will be dealing with the research summary, conclusion, and recommendations.

## **CHAPTER TWO**

### **Review of Related Literature**

#### **2.1.Introduction**

This chapter is organized into three sections; theoretical review, empirical review of related literature and conceptual framework. Under the theoretical review section, definition of terms is discussed. Under empirical review section, related literatures on PMBOK and PM Maturity Models are discussed. Under the conceptual framework section, the theoretical relationship between PM Maturity levels and the knowledge areas of PM with project success is discussed.

#### **2.2.Theoretical Review**

When we speak about projects, it is imperative to mention project management, portfolio management and program management. All (PMI, 2013) share a common behavior that they all are driven by organizational strategies but the way each contributes to the strategic goals is what differentiates them. General description of each concept is discussed below.

##### **2.2.1. Project**

Project is a temporary organization which has a purpose of delivering one or more business products based on agreed and documented business case developed by stakeholders or project sponsors(Prince2, 2009).

A project (Olaf Passenheim, 2004) is a temporary work carried out to generate a distinctive product, service, or result. A project will deliver business and/or technical objectives and is made up of defined processes & tasks, will run for a set of period, and has budget and resources.

##### **2.2.2. Portfolio management**

Portfolio is defined as a group of projects, programs and operations that have strategic objectives, whose scopes change according to these objectives. Portfolio management is, therefore, a centralized management of projects/programs/operations to prioritize and allocate scarce resources to achieve strategic organizational objectives (PMI, 2017).

##### **2.2.3. Program management**

Program as described by PMI (2017) is a collection of projects, activities, or subprograms, which are harmonized for a better result than individually managing them. Thus, program management

is the use of different skills, knowledge, techniques, etc, to manage program requirements to achieve better result than managing individual project.

#### **2.2.4. Project Management**

Various descriptions of PM exist. Kerzner (2003) described PM as the activity of planning, organizing, directing and controlling of project activities (and resources) in order to achieve objectives of an organization within the given time, cost and scope to ultimately meet the expectations of the customer.

Managing a project (Soota, 2005) is complex and challenging task that requires identification and commitment of resources to ensure completion of the project, hence, meeting of organizational objectives. PMI (2003) also defines project management as application and integration of logically grouped processes which are grouped into five divisions as Initiating, Planning, Executing, Monitoring &Controlling and Closing stages, performed within a given scope, quality, schedule, budget, resources and risk.

#### **2.2.5. Project management knowledge areas**

PMI, in its PMBOK Guide, divided the large field of PM into ten manageable vertical, chronological knowledge areas. These are; project integration, scope, time/schedule, cost, quality, HR, communication, risk, and procurement management and stakeholder. These knowledge areas correspond with the PM divisions, which are project initiation, project planning, project execution, monitoring and controlling, and project closing. Although PM knowledge areas are applicable to almost all organizations, application may differ from one organization to the other.

##### **i. Project Integration Management (PIM)**

According to PMI (2017), integration management is the consolidation of various activities with PM activities within the PM process group. It holds the project together, for instance by developing a project charter created at initiation phase, the project with the project manager.

##### **ii. Project Scope Management (PSM)**

Project scope is related to the work of the project itself. Scope usually tends to change through a course of time (PMBOK 4<sup>th</sup> edition). Scope answers the question “what will be done) It is one of the project constraints. It involves the processes of identification requirement, defining the scope,

creating WBS (Work Breakdown Structure), verifying the scope, and controlling the scope. So, the management of scope involves processes that ensure the project scope is accurately defined and mapped. It is delineating what should and should not be part of the project scope.

**iii. Project Time Management (PTM)**

A project (PMI, 2017) is divided into tasks, which are scheduled with start dates and deadlines, which are subject to change through time. Time is one of the project constraints, which includes processes like planning schedule, defining, sequencing, and estimating duration of activities, developing and controlling schedule.

**iv. Project Cost Management (PCM)**

Yimam (2011) describes cost as the third component of the project triangle. Managing cost involves estimating, budgeting and controlling costs of activities, resources, etc., in order to achieve project objectives within the limited (approved) budget.

**v. Project Quality Management (PQM)**

PQM insures that the project deliverables are according to the stakeholders' objectives by undertaking activities like plan quality, perform quality assurance, and by controlling quality (PMI, 2017). The management of quality involves incorporating the organization's quality policy in performing the major PM activities of planning, managing and controlling.

A project can come in on time and within budget, but if the quality is not up to the standard set, then the project is a failure. According to PMI, PQM includes the processes: Plan Quality, Perform Quality Assurance and Perform Quality control. Hence, it is the process of determining quality policies, objectives, and responsibilities that the project will satisfy needs.

**vi. Project Human Resource Management (PHRM)**

As Yimam (2011) puts it, one of the major resources of a project is the project team. PHRM involves activities like organize, manage, and lead this decisive resource. Managing the human resources indirectly implies managing the project. Assembling the best team and tracking their performance and productivity ensures the project is progressing as planned. Therefore, Develop Human Resource Plan, Acquire Project Team, Develop Project Team, and Manage Project Team are the major processes of managing the HR in project concept.

### **vii. Project Communication Management (PCoM)**

Although all knowledge areas (PMI, 2017) are important to projects, communication might be dominant as it informs every aspect of the project. This area includes processes of Stakeholder Identification, Plan communication, Distribute Information, Manage Stakeholder Expectations, and Report Performance. By formulating and implementing exchange strategy, the project and its stakeholders are supplied with timely and quality information.

As Ambaw (2017) put it, communication management in project case includes timely and appropriate planning, collection, creation, and distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information.

### **viii. Project Risk Management (PRM)**

Projects operate in a changing environment, which is full of risks. At execution stage significant risks occur. Management of these risks requires registering possible risks, classifying their likelihood & impact and qualitative analysis of risks. Risks are then prioritized to qualitatively analyze them according to their impact on the project (like on budget and schedule). Like all management activities, risks are controlled by recurrently crosschecking with the risk register to make sure they are already under control. Generally, PRM includes the process of planning, identification, analysis, response planning, and monitoring and control of project risk in order to increase the probability of positive risks and decrease the probability of negative risks (PMI, 2017).

### **ix. Project Procurement Management (PPM)**

Activities of PPM include contracts, purchase orders, of Plan Procurements, Conduct Procurement, Administer, and Close Procurement in order to fulfill the needs of outside procurement of projects. Outside procurement may include hiring subcontractors, purchase or acquire products, services, or results needed from outside the project team. This has high impact on schedule and budget. The process requires identification of the needs of outside procurement, identification of ways to involve contractors, monitoring and controlling the process of procurement and finally closing the activity by making sure all stakeholders are satisfied (PMI, 2017).

#### **x. Project Stakeholder Management (PStM)**

Stakeholder is an integral part of a project. People, groups or organizations that could influence or be influenced by a project or origination is considered as stakeholder. Managing these stakeholders involves several activities like other knowledge areas. The first activity is identification and prioritizing them according to their concerns. Stakeholders need to be engaged and monitor & controlled to make sure their need are met.

#### **2.2.6. Maturity models and levels**

##### **A. Maturity models**

PM solutions developed a tool that measures the PM maturity of an organization project, which serves as plan to improve PM. There are numerous maturity models. These models differ from one another in the concepts they embody and the suggestions they make as to how the path to maturity looks like. Supic (2005), as cited in Yimam (2011) “A generic goal of project management maturity models is to create strategic plan, for moving project management forward”. Therefore, the models do not show the ‘how’ and the ‘who’, only ‘what’. Some of the most well known models are discussed hereunder.

##### **i. Organizational Project Maturity Model (OPM3)**

This model is the product of PMI where PM consultants and practitioners from industries of all over the world voluntarily developed participated. This model ties to integrate project management, program management and portfolio management by defining improvement process, knowledge, and assessment. It has five defined levels like other models for the assessment of project, portfolio, and program management (PMI). These steps are:

##### **Level 1: None**

##### **Level 2: standardize**

Executing those projects which are documented and communicated throughout the organization in a standardized process

##### **Level 3: measure**

Standardize process is practiced by projects where all processes’ effectiveness can be measured and evaluated.

**Level 4: control:** poor application of standard practice is measured and corrected. High and low limits are established and the process is analyzed.

**Level 5: improve**

At this stage, continuous improvement of process exists, and best standard is incurred

*ii. Capability Maturity Model (CMM)*

Software Engineering Institute at Carnegie Mellon University developed Capability Maturity Model (CMM) for software engineering that became a standard for software development profession. Later on, it was tailored to fit project management that formed Project Management Maturity Model (PMMM)

This model is the first model to be developed ever. It was developed for improving a process of software development. The model particularly evaluated contract administration capability of contractors. Eventually, not only Project Management, but also other areas like procurement and software engineering developed models of their own. This model has five maturity levels that are capable of assessing the technical PM parts, and the whole software development process. It describes the level of maturity of an organization, but it does not mention the 'how' of improvement (Paulk et al., 1993). A characteristic of each level of maturity is discussed hereunder.

**Level 1: Initial**

At this stage few processes are defined where success depends on individual effort. It is also characterized as ad hoc

**Level 2: Repeatable**

At this stage, process of tracking cost schedule and functionality exist, where previous successes are repeated

**Level 3: Defined**

Documentation, standardization of management and engineering activities is executed through software processes, activities are integrated to standard software process and projects are also approved

#### **Level 4: managed**

Software and project quality is collected and measured; then, it is quantitatively reasoned and controlled.

#### **Level 5: optimizing**

Continuous process improvement is attained through innovating ideas and quantitative feedback from processes.

#### ***iii. Micro Frame's Self-Assessment Tool...check internet***

The Micro frame Technologies and the Project Management technologies have developed self-assessment tool for maturity in project management and let it available on the Internet. This tool has 50 multiple-choice questions (Enterprise Planning Associates, 2000). This tool is handy as it is not expensive and does not require complex processes (Endale, 2017). It resembles PM maturity, which made the author to choose this tool for the present study. The result of this quick self-evaluation tool is a ranking in one of the five following levels:

**Level 1 –Ad-hoc;** the project management process is described as disorganized, and occasionally even chaotic. Systems and data processes are not defined. Project success depends on individual effort; Chronic cost and schedule problems.

**Level 2 –Abbreviated;** Some project management processes and systems are established to track cost, schedule, and performance. However, Underlying disciplines are not well understood or consistently followed. Project success is largely unpredictable and cost and schedule problems are the norm

**Level 3 –Organized;** project management processes and systems are documented,

Standardized, and integrated into an end-to-end process for the company. Project success is more predictable. Cost and schedule performance is improved.

**Level 4 -Managed;**-Detailed measures of the effectiveness of project management are collected and used by management. The process is understood and controlled. Project success is more uniform. Cost and schedule performance conforms to plan.

**Level 5 –Adaptive;** -Continuous improvement of the project management process is enabled by feedback from the process and from piloting innovative ideas and technologies. Project success is the norm. Cost and schedule performance is continuously improving.

*iv. Kerzner's Project Management Maturity Model (PMMM)*

Apart from other maturity models, this model benchmarks the fourth level of its model. Though the properties of its levels are slightly different from other models, like most maturity models, it has five levels of maturity stages, which are cited by different names.

**Level 1: initial process -Common Language**

This is the first stage, although some process and tools of PM may exist, everyone is basically doing what they want. Though management is aware of project definitions, there is no accountability of project managers, no training for managers, and no proper documentation (Wysocki,2003).

**Level 2: repeatable process - Common Processes**

At this stage, structured process, standards, and documentation exist. Although, the data collection is done manually, project costs, schedule, and technical performances are tracked without consistent understanding or involvement, nor organizational authorization, management supports implementation of PM.

Large and visible projects are usually executed systematically where at this point functional management is involved. Pennypacker (2001) distinguishes this level from the previous level in that the PM documented process is used at the discretion of the project manager.

**Level 3: defined process - Singular Methodology**

According to Wysocki (2001) at this level, there is sign that PM is integrated with other business processes. Documentation of PM process exists, senior management recognize PM as critical for the success of the organization. Project Support Office is officially established and staffed. An enterprise-wide methodology is enforced while making training program available.

Pennypacker (2001) describes this level as ‘Organizational Standards and Institutionalized Process’ because all PM processes are present at the appropriate standards of the organization. Clients are considered as primary members of the projects. Management is involved in decision

making regarding key project matters. Conventional processes and standards with formal documentation exist.

#### **Level 4: managed process - Benchmarking**

At this stage, a contrast of previous undertaking of projects against what to expect in the future is considered. Projects are evaluated based on benchmark of cost estimates, baseline estimates, and earned value. Management makes decisions concerning the project by using efficiency and effectiveness system of measure while noting the impact of the decision on other projects. Based on the different styles and PM requirements for different sizes/complexities of projects, management clearly understands their role, and executes its duty in the project (Pennypacker, 2001). At this stage, PM standard and processes are incorporated with other corporate systems.

#### **Level 5: optimized process - Continuous Improvement**

According to Wysocki (2003), there is a noticeable and measured PM utilization. At this stage, lessons learned are recorded and used to improve PM efforts. A process of improvement exists to control processes (Kevin P. Grant & James S. Pennypacker, 2006). PM processes are continuously improved, and are fully understood. The data are optimized and sustained (Kwak & Ibbs, 2002).

#### ***v. Processes Maturity Model (PM2)***

This model is developed to evaluate PM maturity of an organization by separating PM process and practice into PM phases and of PM knowledge areas. It has five maturity stages and was formulated by Kwak & Ibbs (2002).

#### **Level 1: Ad-hoc stage**

There are no consistent practices or processes of PM in place. There is not consistent data collection analysis either. Functional units are isolated to individual effort. Poor definition of projects; no formal procedure of project execution; cost estimates are at low standard.

#### **Level 2: Planned stage**

Informal PM processes and problems are identified, informal data are collected. Projects are managed at informal and incomplete procedures; strength of organizations is in repeatedly executing similar project work.

### **Level 3: Managed (at project) stage**

There are formal planning and data which are controlled and managed. The organization is team oriented. There are also formal PM skills trainings. PM problems are informally identified and documented.

### **Level 4: Integrated stage**

Here there are integrated data, which are quantitatively analyzed, and measured. Formal training is given to project team. Multiple projects are efficiently managed, integrated, and controlled.

### **Level 5: sustained stage**

Here there is clear understanding of PM, which are continuously improved, data are optimized and sustained.

### ***vi. Project Management Solution's Maturity Model***

This model evaluates the knowledge areas at each maturity level. It studies implementation of PM throughout the ten PM knowledge areas. It mirrors PMBOK knowledge areas with CMM 5 level maturity stage (Yimam, 2011).

### **Level 1: Initial process**

Characteristic of processes at this level is ad hoc. There is management awareness and process is ad hoc.

### **Level 2: Structured processes and standards**

At level 2, there are no standards, there are only basic processes. These processes are applied on large and highly visible projects. Processes are encouraged by management. Information is a mix of intermediate and summary level. Expert knowledge and generic tools are used for estimates and schedules. Most processes are project-focused.

### **Level 3: organizational standards and institutionalized process**

Processes are repeatable and institutionalized and are used as a standard for all projects. Summary and detailed information/data are informally collected. Project performance is informally analyzed. Industry standards are used for estimated and schedules. Most processes are organization-focused.

#### **Level 4: managed processes**

Organizational processes are integrated with corporate processes. Compliance is the mandate of management where the latter has organizational entity view. Reliable and stable performance analysis is conducted. Estimates and schedules are normally based on organization and management makes decision based on data.

#### **Level 5: optimizing process**

Project effectiveness and efficiency are measured through formal processes where these processes are in place to bring about improvement in project performance. Management works and focuses on continuous improvement.

### **2.3. Empirical review**

Voropajev (1998), as cited in Sabbir Hossain Bhuiyan (2015), “in developing countries where resources are scarce, PM is exceptionally necessary than in developed nations for the achievement of project objectives. Many external factors (external to the project) negatively influence projects in developing countries.

According to Cusworth & Franks (1993), regular and swift change of the environment and its nature of unpredictability cause challenges to implementation of PM. Although, it is believed that the main reason for project failure is scarcity of resources and finance, it is evident that the real reason behind is the lack or absence of proper project management capability.

Project management maturity in construction industry as studied in developing countries is found at low level especially for G-1 contractors where there is poor practice of PM in the overall industry (Bhaskar Pawar, S.S. Deshmukh and Aradhana Chavan, 2016).

In an assessment conducted by Kwak and Ibbs (2013), it was found out that conducting PM maturity assessment offers reliable and measurable PM practice in different industries. The maturity assessment was made concerning eight knowledge areas and six project phases in 38 different companies within four different industries. Even though score of each company varied, the average result showed the PM maturity level was 3.26, within a range of 1 to 5 levels. Comparatively, level of the aggregate industries revealed that of all the eight knowledge areas, cost management scored highest level while risk management scored the least level. Concerning the PM processes, project planning and execution scored the highest and the lowest respectively.

The construction sector in the World holds about 6% of the total world GDP, which is 10 trillion USD. Especially in developing countries like Ethiopia, the sector plays a great role in influencing the society, the economy, and the environment as a whole. In 2016, in Ethiopia, of the total GDP, 9.5% is accounted for this sector. In Ethiopia, the construction sector creates high urban employment opportunity. Given the fact that Ethiopia has a vision of becoming a middle-income country by 2025, the sector plays a vital role of providing reliable construction industry to deliver services. The sector also provides infrastructure for public use and supports the socio-economic development of the country. Furthermore, the sector opens doors to the participation of suppliers, consultants, and contractors as well (MOC, 2018). According to the Ministry (2018), the construction sector faces major quality gaps, time delays and cost overrun in its performance. Not only these gaps, the sector lacks proper project management system to accommodate all aspects of construction projects.

According to Yimam (2011), on average, Grade 1 contractors in Ethiopia practice a more traditional way that they do not have formal way of performing the PM knowledge areas. Furthermore, the research found out that almost half of the contractors do not undertake the necessary processes of project management.

According to a study conducted by Nieto-Rodriguez and Evrard (2004), it was revealed that there was a positive interdependence between performance of a project and project maturity. The study was conducted on 200 respondents from 30 different countries. The maturity level was 2.5. Hence, the study implicated the higher the maturity, the higher the project performance (delivery).

Project management maturity assessment conducted by Girma (2015), in Landsvirkjun-power projects department division. The case study was conducted using PM solutions maturity model. Criteria of five maturity levels were used to capture the practice of each knowledge area. A mixed data analysis was conducted and the result showed most PMBOK were applied to all projects and the knowledge areas achieved organizational standard and processes. Furthermore, it was found that there were some cases the knowledge areas were not completely standardized and thus processes were applied unproductively.

## 2.4. Conceptual frame work

Independent Variables

Dependent Variable

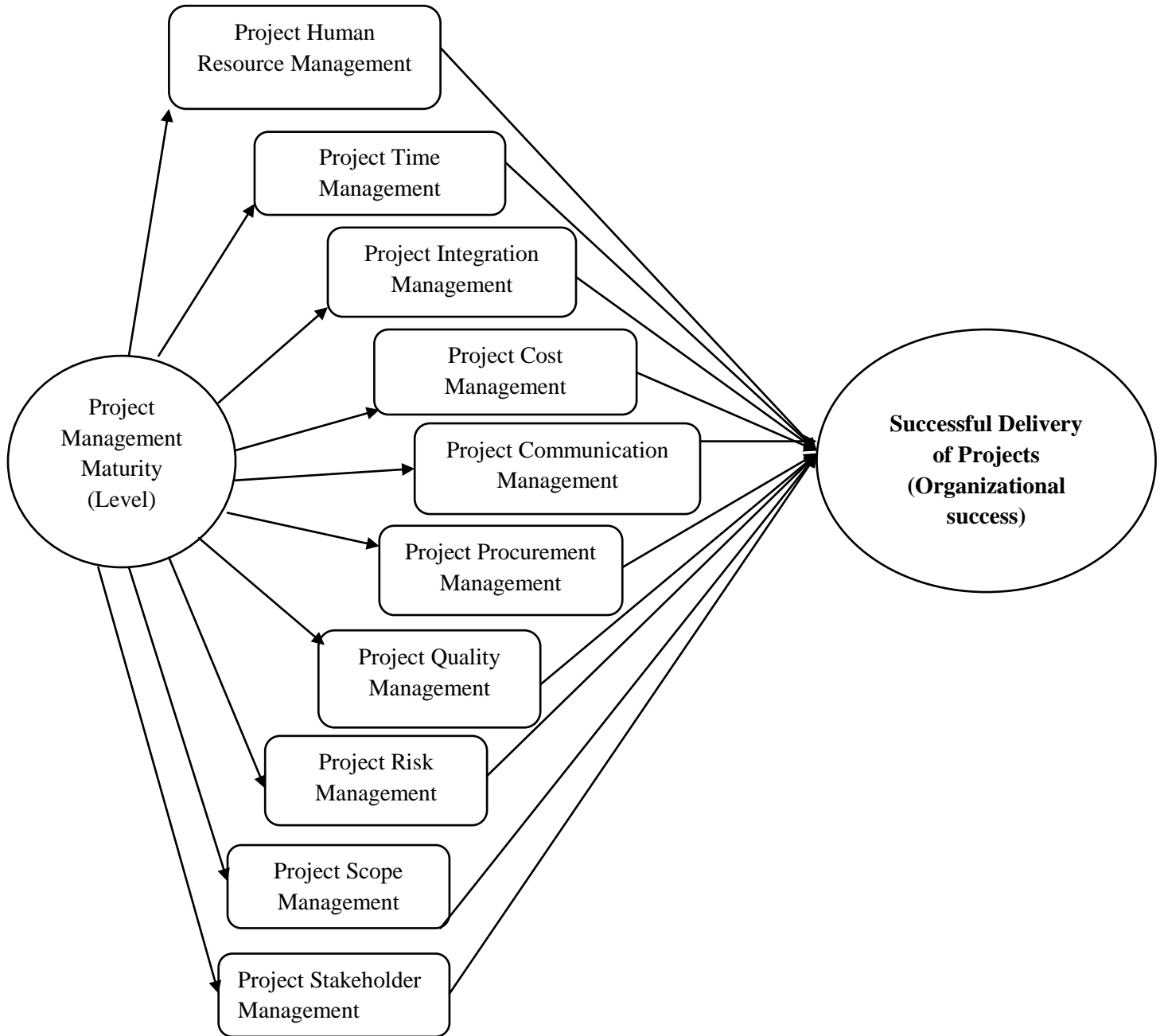


Figure 1: Conceptual Framework

Developed by the researcher based on literature review, 2019

## **CHAPTER THREE**

### **Research Methodology**

#### **3.1.Introduction**

Project management maturity of TACON is assessed through a model consisting five stages (1 to 5) where each level has distinctive characteristics. The model assessed the ten knowledge areas of PM. Structured questionnaires were issued which consisted the ten PM knowledge areas. The questionnaires had levels, 1 to 5. The respondent made a self-assessment and leveled his own (organization's) practice.

#### **3.2.Research Design**

The research design is descriptive. The study focuses on the project management maturity level of Tekleberhan Ambaye Construction Plc. In order to assess the level of the PM in the organization, questionnaires were developed and issued to a total of 20 project managers. Data are analyzed by using MS excel, and then the results are explained to know their experience and perspective towards the subject.

#### **3.3.Sampling method, sample size and sample design**

As obtained from an interview, the company has closed and delivered more than 30 projects. It currently has 20 on-going projects. Therefore, as the population number is small, the total population, (20 project managers) were considered for the study. Hence, structured and standardized questionnaires were issued to the project managers.

#### **3.4.Data type**

The research type is quantitative. These quantitative data will be collected through mainly questionnaires and interviews.

#### **3.5.Data Source**

Primary data is collected by using research questionnaires and providing them to the project managers. The questionnaires were sent through e-mail to a liaison (purposely-assigned member of top management). Hence, the liaison distributed the questionnaires and made collection of responses. The researcher was obliged to administer an interview to four of the respondents who came for annual meetings; their projects were located far outside of the capital.

### **3.6. Research Measurement instrument**

Questionnaires were the major instrument used to undertake the research. The questionnaires will be close-ended where all the ten knowledge areas were incorporated. The questionnaires were developed by referring to PMI's PMBOK Guide, and customizing similar questionnaires prepared by Yimam (2011) and Endale (2017).

### **3.7. Data collection procedure**

The researcher formally acquired acceptance from TACON (senior executive's office located in Addis Ababa). Then, structured questionnaires were distributed and collected and interviews were conducted parallel to physical site visit.

### **3.8. Data analysis method**

The research is descriptive where the PM maturity level of TACON is depicted. Average level of maturity of the 10 knowledge areas was assessed. Analysis of average level of maturity for the aggregate knowledge areas was undertaken using MS excel. Data were qualitatively analyzed by comparing results with the theoretical and empirical literature. Data were also quantitatively analyzed by calculating average level of project management maturity. Therefore, based on PMI's PMBOK guidelines, the average levels were compared with the standard.

### **3.9. Validity and reliability**

Reliability in research is whether the same findings will be acquired again if the research is undertaken at another time by another researcher. If this is so, then one can say the instrument employed is reliable (Lincon and Guba, 1985). In order maintain reliability of the data, triangulation method was adopted. Hence, the researcher conducted interviews to four of randomly selected project managers.

## CHAPTER FOUR

### Results and Discussion

#### 4.1. Introduction

The main purpose of this thesis is to assess the maturity level of project management in TACON and to primarily show the areas that need improvement. The chapter discusses the analysis of the results. The discussion is presented by using tables and charts. Background of the respondents is also discussed. Maturity level of each knowledge area is computed. Accordingly, the characteristics of each knowledge area with respect to the maturity level are discussed.

#### 4.2. General information

Twenty questionnaires were dispatched to a total of 20 project managers under Tekleberhan Ambaye Construction Plc. All twenty project managers filled and returned back the questionnaires.

According to the responses, 30% (6) of the respondents had work experience of more than twenty years. 60% (12) had work experience between 16 to 20 years while only 10% (2) had work experience between 11 and 15 years as illustrated in figure 2 below.

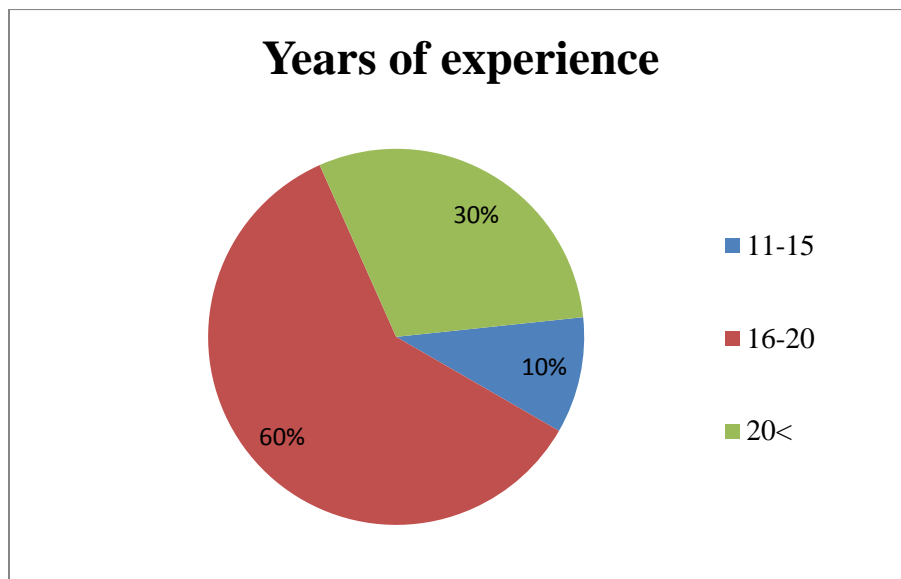


Figure 2: Years of experience

Similarly, the education level was assessed. Ten of the respondents (50%) had 1<sup>st</sup> degree, eight of the respondents (40%) have 2<sup>nd</sup> degree and remaining two (10%) respondents had PHD; hence,

all respondents had 1<sup>st</sup> degree or above. There was no distribution of gender, i.e., all were male. As was learned from interviews, eighteen of the respondents were civil engineers while the remaining two were construction management graduates.

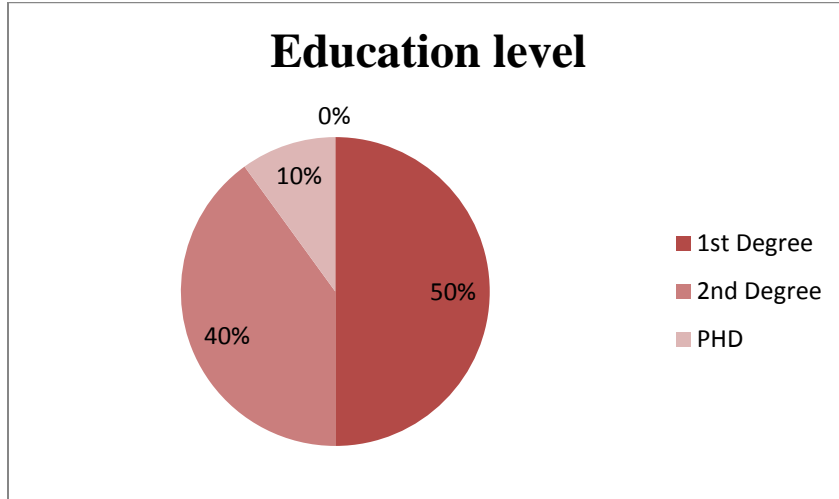


Figure 3: Education level

### 4.3. Results analysis

#### i. Project Integration Management

Table 1: Project Integration Management

Project integration management	Level					Total No. of respondents	Average Maturity Level
	1	2	3	4	5		
Project charters are developed	-	5	11	3	1	20	3.00
Project management plans are developed	-	10	4	3	3	20	2.95
Project work is directed and managed	-	13	6	1	-	20	2.40
Project knowledge is managed	-	12	7	1	-	20	2.45
Project work is monitored and controlled	-	6	7	7	-	20	3.05
Change is controlled	-	14	6	-	-	20	2.30
Projects are closed	-	-	9	3	8	20	3.95
<b>Average Integration Management Maturity Level</b>							<b>2.87</b>

As can be seen on the above table, the average maturity level of project integration in TACON is 2.87, which is level 3. At this level project management is integrated with other business processes. Senior management recognizes PM as a success factor. Standard process of PM exists. There is also formal documentation of PM. Integration management, as described in PM body of

knowledge guide, is all about unification, consolidation, communication and interrelationship of PM processes.

The result of the survey showed closing phase of project has 3.95 (close to 4) maturity level which is relatively higher than the remaining phases. Overall, score of TACON in integration management is 2.87, i.e., level3.

ii. Project scope management

*Table 2: Project scope Management*

Project scope management	Level					Total No. of respondents	Average Maturity Level
	1	2	3	4	5		
Project scope is planned	-	-	2	10	8	20	4.30
Scope is defined	-	-	5	9	6	20	4.05
Work Breakdown Structured is created	-	3	15	2	-	20	2.95
Scope is validated	-	15	3	2	-	20	2.35
Scope is controlled	-	3	14	3	-	20	3.00
<b>Average Scope Management Maturity Level</b>							<b>3.33</b>

As depicted in the above table, average maturity of TACON concerning scope management is 3.33. The process of scope management involves defining the specific work. It is also creating work breakdown structure, verifying the scope and finally controlling the scope. This activity ensures tracking of all activities, comparison of planned with what is executed. Hence, the overall scope management of TACON is at level 4.

iii. Project schedule management

*Table 3: Project schedule Management*

Project schedule management	Level					Total No. of respondents	Average Maturity Level
	1	2	3	4	5		
Activities are defined	-	-	2	8	10	20	4.40
Activities are sequenced	-	1	3	11	5	20	4.00
Activity duration is estimated	-	-	3	10	7	20	4.20
Resource is estimated	-	2	1	10	7	20	4.10
Schedule is developed	-	2	11	4	3	20	3.40
Schedule is controlled	-	-	9	8	3	20	3.70
<b>Average Schedule Management Maturity Level</b>							<b>3.97</b>

The schedule management average maturity level of TACON is 3.97. Activities are well defined, sequenced and their duration is well estimated. Schedule management is relatively the best areas the company performs. The purpose of schedule management is to identify activities in terms of duration, sequencing and resource estimation for successful project implementation. Schedule

management is all about timely completion of processes/activities. The assessment revealed the overall level of schedule management of TACON is 4.

iv. Project cost management

*Table 4: Project cost Management*

Project cost management	Level					Total No. of respondents	Average Maturity Level
	1	2	3	4	5		
Process costs are planned	-	3	15	2	-	20	2.95
Costs are estimated	-	-	8	8	4	20	3.80
Budget is determined	-	14	3	3	-	20	2.45
Costs are controlled	-	12	3	5	-	20	2.65
<b>Average Cost Management Maturity Level</b>							<b>2.96</b>

The above table shows that the company scored average maturity of 2.96 in estimating project costs. Budget determination is where the company performed less compared to other processes. Purpose of cost management in projects is ensuring costs are properly estimated and activities are completed within the estimates. Accordingly, overall cost management maturity of projects of TACON is at level 3. Compared to other knowledge areas, cost management is performed at a managed level. This means, benchmarking is performed during cost estimation, management knows their role and makes decisions taking into consideration the decision impact on other projects.

v. Project quality management

*Table 5: Project quality Management*

Project quality management	Level					Total No. of respondents	Average Maturity Level
	1	2	3	4	5		
Process quality is planned	-	10	5	5	-	20	2.75
Quality is managed/assured	-	6	10	4	-	20	2.90
Quality is controlled	-	4	10	6	-	20	3.10
<b>Average Quality Management Maturity Level</b>							<b>2.92</b>

Project quality management is ensuring quality planning, quality assurance and controlling. The assessment above shows that quality management maturity of TACON is on average 2.92. Therefore, the maturity of quality management is at level 3. Quality is reported to top management by quality department. Management is committed, learns and becomes supportive of quality. Orderly fashioned problem solving is exercised; corrective action is regularly taken.

vi. Project human resource management

Table 6: Project human resource management

Project human resource management	Level					Total No. of respondents	Average Maturity Level
	1	2	3	4	5		
HR requirement is planned	-	-	3	7	10	20	4.35
Activity resources are estimated	-	7	12	1	-	20	2.70
Resources are acquired	-	6	9	5	-	20	2.95
Teams are developed	-	4	7	9	-	20	3.25
Teams are managed	-	9	11	-	-	20	2.55
Resources are controlled	1	10	9	-	-	20	2.40
<b>Average HR Management Maturity Level</b>							<b>3.03</b>

HR management ensures project teams' planning, estimating, acquiring, developing, managing and controlling. TACON Company showed an average of 3.03 maturity level in managing its human resources.

Evidently, the company under study performs relatively very higher in developing its project teams. Department teams may not have solid knowledge base about planning and tacking projects. But the total average HR management maturity level is 4. This shows employee acquisition is planned and assigned automatically. Formal analysis of organizational, technical and interpersonal boundary is delineated. There is formal workforce mentoring. There are also competency-based processes.

vii. Project communication management

Table 7: Project communication management

Project communication management	Level					Total No. of respondents	Average Maturity Level
	1	2	3	4	5		
Communication management is planned	-	1	13	6	-	20	3.25
Information is distributed/communicated	-	1	10	9	-	20	3.40
Communications are monitored	-	3	10	7	-	20	3.20
Systematic handling of project documents	-	5	7	8	-	20	3.15
There standard format of report preparation	2	8	10	-	-	20	2.40
<b>Average Communication Management Maturity Level</b>							<b>3.08</b>

As can be seen from the above table, the average maturity of communication management in TACON is 3.08. Communication management is ensuring project information is handled systematically. It also ensures a standard flow of information throughout the organization and mainly through the company's project portfolios. Communication management is one of the PM

areas where the company performs well compared. The overall maturity level of communication management maturity is categorized at four. At this stage, people use defined processes. Data and knowledge are partly applicable. Improvement of processes is not expected at this stage but there is distribution of information.

viii. Project risk management

Table 8: Project risk management

Project risk management	Level					Total No. of respondents	Average Maturity Level
	1	2	3	4	5		
Risk management is planned/formal	-	-	-	11	9	20	4.45
Risks are identified	-	-	-	8	12	20	4.60
Risks are prioritized	-	11	9	-	-	20	2.45
SWOT analysis is conducted	-	9	9	2	-	20	2.65
Qualitative risk analysis is performed	-	-	3	9	8	20	4.25
Quantitative risk analysis is performed	-	4	6	10	-	20	3.30
Risk audits are performed	5	12	3	-	-	20	1.90
Risks are monitored and controlled	1	9	10	-	-	20	2.45
<b>Average Risk Management Maturity Level</b>							<b>3.26</b>

The above table shows the company scored an average of 3.26 during the assessment of risk management. This means the maturity level of risk management is approximately 4. Furthermore, the comparative score of risk audit is at the lowest. The purpose of risk management is to foresee possible risks and entertain them as per the priority given based on their severity. It also requires keeping record of every adverse event to control future risks. Risk management is also about knowing company's strengths and weaknesses and opportunities and threats so that the management knows where they stand and what they could do about it. The above result shows that the company has consistent leadership activities. Organizational health and safety policies are reinforced.

Even though the total risk management is good, of all the processes, risk audits are well exercised.

ix. Project procurement management

Table 9: Project procurement management

Project procurement management	Level					Total No. of respondents	Average Maturity Level
	1	2	3	4	5		
Procurement is planned/formal	-	-	-	5	15	20	4.75
Procurement is conducted	-	-	15	5	-	20	3.25
Contract is planned	-	-	16	4	-	20	3.20
Procurement is controlled	-	4	15	1	-	20	2.85
Procurement is formally closed	-	-	16	4	-	20	3.20
<b>Average Procurement Management Maturity Level</b>							<b>3.45</b>

As can be seen on the above table, the company scored an average of 3.45 in the area of procurement management. Approximately, the company is at level 4 of its maturity. Project procurement management is planning and controlling procurement & contract management and closing procurement process formally.

According to the assessment, TACON performs well in managing its project procurement compared to other knowledge areas. The company may give contract to other consultant for those works that may need specialization while keeping those works that the company is more competent to itself. But integration exists between the consultant and a designated office on the company's side.

x. Project stakeholder management

Table 10: Project stakeholder management

Project stakeholder management	Level					Total No. of respondents	Average Maturity Level
	1	2	3	4	5		
Stakeholders are identified	2	15	3	-	-	20	2.05
Stakeholders are engaged	3	12	4	1	-	20	2.15
Stakeholder engagement is monitored	5	14	1	-	-	20	1.80
<b>Average Stakeholder Management Maturity Level</b>							<b>2.00</b>

Stakeholder management is the process of identifying, engaging and monitoring the relationship between the company and its key stakeholders. The fundamental purpose of a project inception is to meet the expectations of major stakeholders at the end of the day.

The assessment result, as can be seen on the above table shows TACON scored a maturity level of 2 in stakeholder management. This result, compared to the other knowledge areas, is the least

matured. At this stage, poor stakeholder identification is exercised, where after engagement, formal monitoring is not exercised.

*Table 11: Summary of maturity level of PM knowledge areas*

Project management knowledge areas	Level					Average Maturity Level
	1	2	3	4	5	
Project integration management			2.87			2.87
Project scope management				3.33		3.33
Project schedule management				3.97		3.97
Project cost management			2.96			2.96
Project quality management			2.92			2.92
Project human resource management				3.03		3.03
Project communication management				3.08		3.08
Project risk management				3.26		3.26
Project procurement management				3.45		3.45
Project stakeholder management		2.00				2.00
<b>Average Maturity Level of Project Management in TACON</b>						<b>3.05</b>

*Self-assessment tool adapted from Endale (2017)*

As can be seen on the above table, the company has aggregate maturity level of 3.05 which is approximately 4 in all knowledge areas. When breaking down the result to see the individual result, we can see the company performs relatively superior in areas of schedule management, procurement management and scope management. On the contrary, the company performs the least in areas of stakeholder management and integration management.

#### **4.4. Discussion of Results**

It is quite evident that organizations operate in a dynamic environment that most of its activities are challenged with diverse factors where some may be managed while others may not. Factors that can be managed are found within the organizations themselves. These internal factors generally decide (not entirely) the success of the projects (organization).

Project management makes an effort to address these manageable environmental factors. These factors are the PM knowledge areas. The more an organization is mature in these knowledge areas, the more it is able to integrate processes, make formal decision making, organized and therefore, become successful in project implementation. According to Kerzner (2003), maturity is defined as application of standard methodologies so as an organization performs processes in an organized manner to attain success constantly. According to Sukhoo et al (2007), level of maturity in an organization serves as a benchmark for the success of its operation.

Maturity of project management can be measured using different models. Every model has level of maturity. Each level of maturity has its own unique characteristics. Basically, organizations that have attained the highest maturity level (level 5) are ideally believed to have standard and integrated processes, excellent documentation system are fully institutionalized throughout the organization.

Based on the assessment conducted, TACON has a maturity level of 4 as depicted on table 11 above. In this level, processes exist based on the standard models in the organization. Like most projects, TACON experienced schedule delays in delivering its projects. According to the interview held, the company has recently started applying formal PM techniques and has already recognized a significant change in meeting its goals. Maturity in areas of cost and procurement has shown a better performance compared to the rest of the knowledge areas. Maturity in stakeholder management exhibited the least level compared to the others. The company has given the least attention and awareness about stakeholder management.

According to the findings of Yimam (2011), ISO certified contractors are highly inclined to follow a formal way of implementing PM than those not certified; this is because ISO certification obligates the contractors to follow a structured and formally documented process. The company management member admittedly explained, until recent years, they have been

following a very traditional way of PM where most of their work depended on experience of project managers and a very centralized control and monitoring of activities.

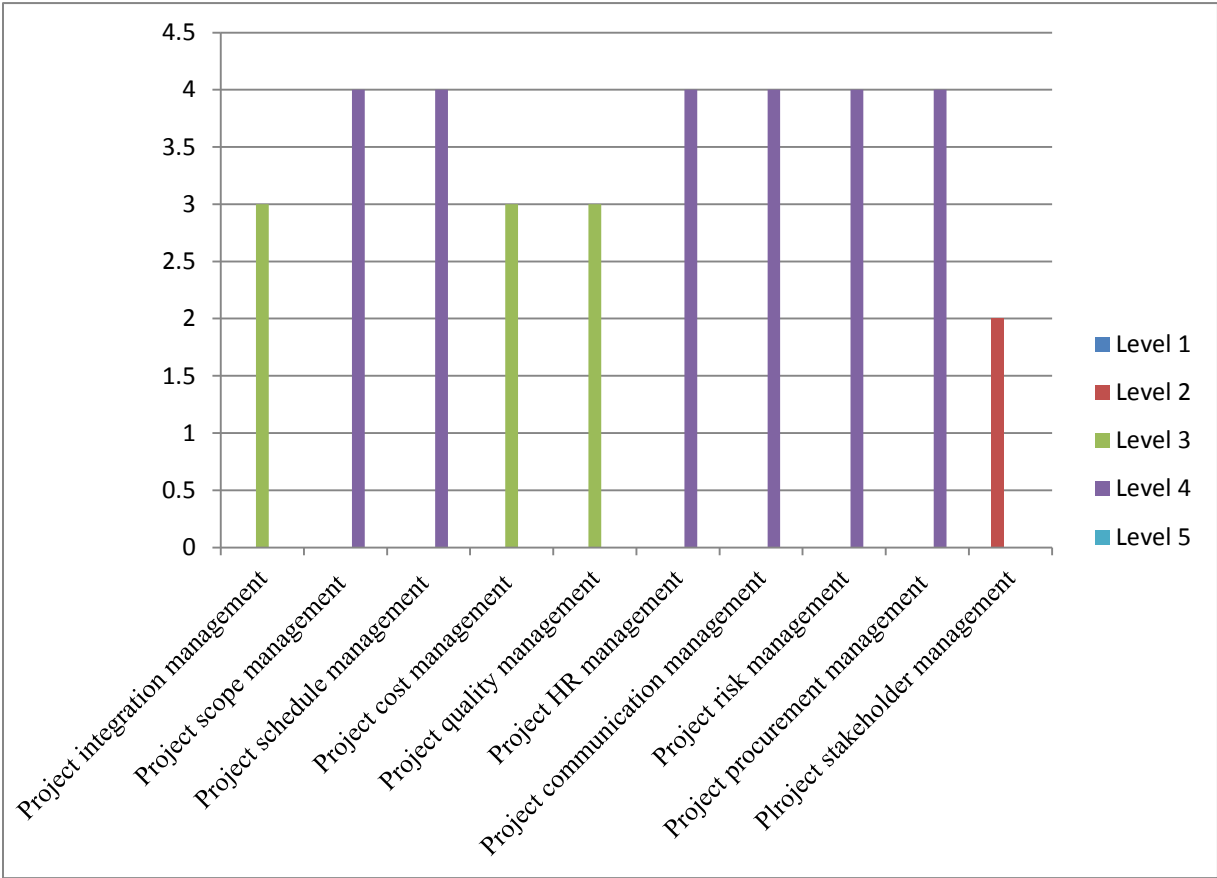


Figure 4: Maturity levels

## CHAPTER FIVE

### Summary of major findings, conclusion and recommendation

#### 5.1. Summary of major findings

- Based on the assessment made through questionnaires and interview, project management maturity level of TACON is 4,
- Organizational standards and processes exist
- Of all knowledge areas, stakeholder management is the least matured
- Schedule and procurement management are comparatively higher than the remaining areas
- Integration, cost, quality are all at maturity level 3. This means PM processes are integrated throughout the company, there is consistent planning of cost management, quality is documented and reviewed for future reference
- Scope, schedule, HR, communication, risk and procurement are at level 4.

#### 5.2. Conclusion

It has been tried, in the conceptual framework, to tie project success with PM knowledge areas. As Kerzner (2003) put it maturity is defined as application of standard methodologies that an organization performs processes in an organized manner to attain consistent success. Organizational PM maturity influences performance of projects the same way systems culture, style and structure do (PMI, 2013).

According to Kerzner (2003), achieving maturity level 3 is the highest from all levels because a significant amount of time and effort is required. It is about creating a ‘singular methodology’ where methodologies fit into one/singular corporate methodology. Once an organization reaches this level, achieving the next levels is relatively less difficult. Similarly, Kerzner (2003) discussed the first two levels as medium difficulty compared to all levels.

This paper assessed the maturity level of PM knowledge areas of TACON. The overall level of maturity in TACON is 4. At this stage, an organization achieves its generic and specific goals. Processes are well understood; as a result, these processes have become standards, procedures, tools and methods. All PM processes are in place and established as organizational standards.

Clients are involved as project team members. At this stage, all processes have documentation procedure. Management frequently approves key decisions. Given the fact that the company has been in business for more than 20 years, it has acquired great deal of experience in the sector.

As describe by Wysocki (2014), at level4, the management of the organization has totally accepted the benefits of PM. The organization views project management as a critical success factor. The organization further considers project portfolio management while planning its activities. Documentation is practiced and methodologies incorporate best practice of projects. Project processes are integrated with other business processes and training and professional development is administered extensively. The organization as a whole recognizes the importance of process improvement through a continuous benchmarking.

### **5.3.Recommendation**

PMI's knowledge areas may not be perfectly ideal for all sectors, but are handy in trying to show gaps and weaknesses of an organization in implementing PM. It is also appropriate here to associate projects' successful delivery to maturity of PM. According to Westland (2006), the number one cause for project failure is linked to poor adoption of formal and clear project methodology. Therefore, the target for organizations that have large portfolio of projects should be adopting a formal and repeatable methodology that has structured processes of project initiating, planning, executing and closing of projects effectively.

This paper is conducted in a selected organization that it only focused on assessing the level of PM maturity based on the knowledge areas as found in PMBOK guide; therefore, it did not discuss the 'why'. As a result, this paper recommended that further study to be conducted not only concerning what but also how to minimize the gaps and to discuss the reason behind the weakness in PM implementation.

The findings revealed that the aggregate level of PM maturity of TACON is 4. Of the 10 knowledge areas, schedule management and procurement management have relatively higher level of maturity. On the contrary, stakeholder management is the least matured knowledge area. According to Wysocki (2014), it is challenging to move to level three of maturity if the current maturity is below 3. This organization has already achieved this level; hence, the target is to move to the next stage. In order to do this, organizational business plans should incorporate projects, provide training to project managers/contractors and project staff in capacity building after an assessment of need's identification. Similarly, the organization should automate every system to track activities. The company should benchmark other successful organizations/projects to move to higher level of maturity.

In project stakeholder management, the organization performed the least, i.e., level 2. Level 2 according to Pennypacker (2001), data are collected manually, organizational management involve in a detached manner in support of PM implementation. In order to move to the next levels, documentation should be systematic. Common and standard method of handling stakeholders should be formulated.

In project scope management, change should be anticipated, controlled and evaluated. At corporate level, deliverables should be identified and classified. Corporate wide deliverables should be in line with the WBS; therefore, deviation can be captured.

In project schedule management, activities' definition, sequencing should be incorporated in company objective. Project schedule development should be regularly monitored to align with company objectives. Best practice should always be recorded or documented to be used as lesson learned to make room for improvement.

In project cost management, full practice of cost estimation & budgeting, resource requirements planning, prioritizing should be conducted for the whole organization. Performance should be measured for cost control and for future reference (lesson learned).

In project quality management, standards should be set so as to measure and control quality. A designated office/unit that works on quality should be assigned. This office/unit should make sure quality of processes.

In project Human resource is one of the major resources every company should give priority in every aspect. After all, humans operate organizations & projects. Through identifying HR requirement (number), level of qualification, and frequently building their capacity yields better improvement. Training should be provided to project managers by project management offices. Trainings should be based on PM knowledge areas. Not only project managers but project teams too should participate in trainings

In communication management, there should be an integrated and formal way of communication between projects and between projects and the whole organization. Project communication should be planned and updated. The plans should be linked to organizational plan. Communication should be automated and information should be available through this system to all projects.

In project risk management, formal way of handling risk should be formulated. Risk identification should be the first activity. The identified risks should be qualitatively and quantitatively measured or analyzed. Risks should be integrated with project constraints (time, cost, scope) and objectives of the organization as a whole and should be utilized by all projects.

In project procurement management, the first decision to make is the decision of buy or make. This decision is made based on historical data and documents. After passing the decision, contract should be planned. Vendor should be evaluated and selected and the whole procurement administration should be controlled. List of preferred vendors should be kept for future reference. Finally, a formal closing of procurement should be effected.

In project integration management, the basic thing is to integrate business processes of the organization with project management activities. According to Kerzner, (2003), project managers are considered responsible for coordinating and integrating across units. Through integration management, resources/inputs like materials, equipment, information, capital, etc., are processed to bring outputs like products, services, and profits as well. Therefore, concerning this knowledge area, the company (project manager) should possess the necessary skills, should be familiar with units of the organization, and should be technologically competent.

Generally, organizations that have achieved a certain level of maturity should not stop at that level; management should strive to upgrade the level until it reaches the top, level five. Every knowledge area should be addressed with respect to the specific sector the organization is involved in.

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# Appendices

## **Appendix 1: Questionnaires**

**Addis Ababa University**  
**College of Business and Economics**  
**School of Commerce**  
**Master of Arts (MA) in Project Management**

Dear Respondent, my name is Eriste Alemayehu Abebe. I am studying Master of Arts in Project Management in AAUC. I am currently conducting a study on the Level of Project Management Maturity Level in your Organization, a case of Addis Ababa projects. Therefore, I would like to express my deepest appreciation of you for spending your precious time in responding these questionnaires.

The specific objective of this questionnaire is to collect data about the level of maturity of the Project Management Body of Knowledge Areas in your organization. The information you provide will be used as a primary data in my study which I am conducting as a partial fulfillment of the MA in Project Management. Furthermore, I assure you that all your responses will be kept strictly confidential and will be used for academic purpose only.

Thus, you are kindly required to fill out the questionnaires and return it back within 10 days of receipt of the questionnaires. If you need any clarification, please contact me through the address listed below:-

E-mail: [eristetoday2017@gmail.com](mailto:eristetoday2017@gmail.com) Phone: 0911-122431

Thank you in advance for your valuable time and response

Sincerely,

Eriste Alemayehu

### General Instruction

- All questions are mandatory except those labeled optional
- Please make (√) mark in the box that best describes your response
- For more (different) opinion, please use blank space provided

**Part I- General Information**

1. Name of the person filling the questionnaire (optional) \_\_\_\_\_
2. Gender      Male                       Female
3. Age    < 30       31 – 40                       41 – 50                       50 <
4. Education level      Diploma     1<sup>st</sup> Degree     2<sup>nd</sup> Degree     PHD
5. Your current position in the company \_\_\_\_\_
6. Experience in years  
    < 5       6 – 10       11 – 15       16 – 20       20 <
7. Have you received any Project Management related training? Yes     No
8. If yes, what was the highest level of training you received?  
    Masters Level  Bachelors Level  Certificate  Short-term training   
    Other \_\_\_\_\_
9. Approximately, for how long has your organization been in the construction business?  
    \_\_\_\_\_
10. What is the major type of construction your organization is engaged in?  
    Building (residential, office, commercial)                       Road   
    Civil engineering works (water supply, hydropower, etc.)   
    Other \_\_\_\_\_
11. Your organization is  
    ISO certified  In the process to get certification  Not certified   
    Other \_\_\_\_\_
12. Are Project Management procedures and methodologies applied formally in managing projects in the Organization? Yes                       No   
    Other \_\_\_\_\_
13. Do you think Management of your Organization recognizes the need of Project Management?    Yes                       No   
    Other \_\_\_\_\_
14. Does your organization provide training to its project managers and team members?  
    Yes                       No   
    Other \_\_\_\_\_

## **Part II- Project Management Maturity**

### **General direction**

Below is given description of all five maturity levels. Therefore, based on the descriptions, please level your Organization by making tick mark (√) in the box you think best describes the condition in your Organization.

### **Description/characteristics of each maturity level**

#### **Maturity Level 1: Description**

- Some processes and tools of Project Management exist
- Management of the Organization is aware of project definitions
- Disorganized but getting started
- There is no formal procedure
- There is no accountability of project managers
- No training of managers
- No proper documentation

#### **Maturity Level 2: Description**

- There are structured processes but informal procedures
- Documentation is performed at project level
- Manual data collection and tracking of activities
- Not consistent but management supports project management implementation

#### **Maturity Level 3: Description**

- Integration of PM with other business process
- Project management documentation is exercised
- Senior management recognize Project management as critical success factor
- Official Project support office opened and staffed
- Training programs are available
- Enterprise-wide methodology exists
- All standard process of project management exist
- Management involves in decision making
- Formal documentation exists
- Informal project performance analysis

**Level 4: Description**

- Management is clearly aware of their role
- Management decision is based on efficiency and effectiveness measurement
- Management decisions are based on previous data
- Benchmarking is done is decision making

**Maturity Level 5: Description**

- There is noticeable project management utilization
- Lesson learned is recorded and used for improvement
- Project management processes are continuously understood
- Project management processes are constantly improved

**Questionnaire for Project Managers**

<b>Project integration management</b>	Level				
	1	2	3	4	5
Project charters are developed					
Project management plans are developed					
Project work is directed and managed					
Project knowledge is managed					
Project work is monitored and controlled					
Change is controlled					
Projects are closed					

<b>Project scope management</b>	Level				
	1	2	3	4	5
Project scope is planned					
Scope is defined					
Work Breakdown Structured is created					
Scope is validated					
Scope is controlled					
	Level				

<b>Project schedule management</b>	1	2	3	4	5
Activities are defined					
Activities are sequenced					
Activity duration is estimated					
Resource is estimated					
Schedule is developed					
Schedule is controlled					

<b>Project cost management</b>	Level				
	1	2	3	4	5
Process costs are planned					
Costs are estimated					
Budget is determined					
Costs are controlled					

<b>Project quality management</b>	Level				
	1	2	3	4	5
Process quality is planned					
Quality is managed/assured					
Quality is controlled					

<b>Project human resource management</b>	Level				
	1	2	3	4	5
Human resource requirement is planned					
Activity resources are estimated					
Resources are acquired					
Teams are developed					
Teams are managed					
Resources are controlled					

<b>Project communication management</b>	Level				
	1	2	3	4	5
Communication management is planned					
Information is distributed/communicated					
Communications are monitored					
Systematic handling of project documents					
There standard format of report preparation					

<b>Project risk management</b>	Level				
	1	2	3	4	5
Risk management is planned/formal					
Risks are identified					
Risks are prioritized					
SWOT analysis is conducted					
Qualitative risk analysis is performed					
Quantitative risk analysis is performed					
Risk audits are performed					
Risks are monitored and controlled					

<b>Project procurement management</b>	Level				
	1	2	3	4	5
Procurement is planned/formal					
Procurement is conducted					
Contract is planned					
Procurement is controlled					
Procurement is formally closed					

<b>Project stakeholder management</b>	Level				
	1	2	3	4	5
Stakeholders are identified					
Stakeholders are engaged					
Stakeholder engagement is monitored					

## Appendix 2: Interview questions

First, I would like to thank you and your good office for sparing your time to respond few questions concerning Project management practice in your organization/project.

My name is Eriste Alemayehu. I am a graduate student of project management at AAUSC. The objective of this interview is to assess the level of PM in your organization. Therefore, I sincerely request your utmost co-operation during our session.

1. How do you describe integration between the organization and project, between projects concerning cost, information, etc.?
  - ✓ Scope change and control
2. How do you manage scope in your organization while executing projects?
  - ✓ Are there tools to control schedule
3. How do you manage cost requirements for all projects?
  - ✓ Are any tools to plan, estimate and control costs of projects
4. How do you manage schedule concerning project activities?
  - ✓ Are there tools to control schedule
5. How do you manage cost requirements for all projects?
  - ✓ Are any tools to plan, estimate and control costs of projects
6. How do you plan to maintain quality of processes in your organization & projects?
7. How do you manage human resource?
  - ✓ Planning, recruitment, associated costs
8. Is there a formal way of communicating information throughout the organization and projects?
  - ✓ Is communication automated, accessible to all projects
9. How do you mitigate risks that occur in your sector?
  - ✓ Is risk planned, managed and controlled
10. How do you perform procurement? Do you usually decide to buy or make?
  - ✓ Is procurement a planned activity
11. How do you try to satisfy your stakeholders?