ST. MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES, DEPARTMENT OF

PROJECT MANAGEMENT

PROJECT MANAGEMENT MATURITY IN ADDIS ABABA: THE CASE OFHOUSING DEVELOPMENT CORPORATION 40/60 AND 20/80 PROJECT OFFICES

By

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BY

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BY

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Certification

Project Management Maturity Level in the Housing Construction Sector in Addis Ababa: The Case of Housing Development Corporation 40/60 and 20/80 Project Office.is her research work.", All the materials used for the thesis have been duly Acknowledged and this thesis is appropriate to be submitted as a partial fulfillment for the requirement of Master of Arts Degree in Project Management (MAPM)

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Date: ----------

Declaration

I, Firehiywot Demes, declare that this research entitled “Project Management Maturity in Addis Ababa: The Case of Housing Development Corporation 40/60 and 20/80 Project Office is the outcome of my own effort and study. This study has not been presented for the award of Degree or Diploma Program in this or any other academic and non-academic institution. All sources of materials used for the project have been duly acknowledged.

Firehiywot Demes

Signature: ----------

Date: ----------

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List of Acronyms

APM: - Association of Project Management

OGC: - Office of Government Commerce

OPM3:- Organizational Project Management Maturity Model

P3M3:- Project, Program and Portfolio Management Maturity Model

PM3:- Portfolio Management

PgM3:- Program Management

PjM3: -Project Management (in Project, Program and Portfolio Management Maturity Model)

PMBOK: - Project Management Body of Knowledge

(PM): -Project Management Process

SHDE: -Saving house development enterprise

HDPO: - Housing development project office

C MM: -Capacity maturity model

PMMM: -Project management maturity model

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Abstract

The main objective of this research is to assess the level of project management maturity in the housing sector particularly 40/60 and 20/80 housing projects in Addis Ababa through assessing the ten project management knowledge areas and based on this identified the least and highly matured knowledge areas related to the issue under studied.. To achieve this purpose, the research first provided a review of the common project maturity models upon which project management solutions model was selected for this study. Moreover,, questionnaire was distributed to 219 housing expansion projects employees participated in the implementation of these projects using simple random sampling techniques,. Apart from survey questionnaires, an interview was conducted with project managers to get the required information to enrich the study. Besides, document reviews were also conducted. Finally, the collected data are analyzed using descriptive statistics by applying SPSS. The overall project management maturity of the company is at level 2.46 approximately *2 on a relative scale of 1(lowest)to5(highest).The most mature knowledge areas are project procurement management, project risk management and Human resource knowledge areas approximately leveled at maturity level and the least matured knowledge areas are the project time management and project cost management approximately leveled at maturity level .The findings suggests that basic project processes exist in the company but are not considered an organizational standard and management supports the implementation of projects management but understanding and involvement is not consistent / applied to all projects.*

Keywords: Project, Project Management, Maturity, Maturity Level, Maturity Model

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Project management is a basic field of study that helps organizations to understand the basic areas that needs focus for the success of projects. According to the Project Management Body of Knowledge (PMBOK), project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements PMI, (2013). This application of knowledge requires the effective management of the project management processes.

Project management effectiveness is highly related to maturity. Mature organizational systems and processes assist the achievement of consistent project management excellence. The understanding of maturity, however, is often a subjective concept Pretorius et al., (2012). Until just a few years ago, the concept of maturity was rarely used to describe the state of an organization's effectiveness at performing certain tasks. Then, this maturity concept was found being used increasingly to map out logical ways to improve an organization's services particularly across the software industry Crawford, (2002).Researches indicate that organizations with higher project management (PM) maturity levels are expected to be successful in terms of project effectiveness and efficiency, and thus have a competitive advantage in the marketplace.

Construction organizations and project management are more related since they are project based. Projects in these organizations need more focus on project management maturity of the knowledge areas, which help organizations to be matured. Kenny, (2007) mentions that construction sector role in economic development is undeniable. In view of its importance, governments made large investments all across the globe for many years.

The industry provides high employment opportunity, probably next after agriculture Pawar, Deshmukh, Chavan,(2016). In Ethiopia, construction is showing a sign of a highly accelerated expansion in recent years. The statistic shows the share of economic sectors in the gross domestic product (GDP) in Ethiopia from 2008 to 2018 is significantly high. The Studies by Zewdu&Aregaw, (2015) indicated that the GDP contribution of the industry has been raised to 5.6%. The Central Statistics Agency of Ethiopia in 2009 predicted; in 2018 the share of the industry would contribute approximately 27.26 percent.

Despite the construction industry's has a significant contribution to the economy of the country development; the performance of the industry still remains generally low. In recent issue published by Reporter magazine, (2016), interview made with Dr. Wubishe Jekale almost 60 % of the annual budget of Ethiopia is allocated for construction projects. Despite these huge sum amount of budget is allocated, the big picture of the construction sector shows how much the challenges and problems it faced are complex, like not meeting the planned schedule, the estimated budget and the planned quality. Due to this and other factors 79.06 percent of projects fail to meet their objective in Ethiopia Lemma, (2014).

Therefore, the constructions growth in a country is very essential. To bring this growth the maturity level of the project management in construction sectors should be measured in order to see the strength and weakness. Maturity is not measured for the sake of a score, but to understand how to improve project management processes to better impact project outcomes. The connection between value delivered and process maturity is critical to organizations that rely on projects to achieve strategic goals (PM solution, 2014). According to the literatures observed, Construction companies like Addis Ababa Housing Development Corporation (40/60and 20/80 project office) in Ethiopia needs to assess the project management maturity level in order for the construction office to see its level of performance and to point out where improvement is needed.

1.2 Statement of the Problem

The performance of the 40/60 and20/80 housing construction projects in Addis Ababa has not been as impressive, fundamentally because of lack of project management capabilities to establish a coherent institutional and policy framework World Bank, (2004).Studies show that there are three important issues related to failures and problems in construction performance, which are political, economic and cultural issues (UNRWA, 2006 &2007). Moreover, there are many reasons and factors which attribute to such this problem such as, capability of stakeholders (MSEs, contractors, consultants, and client) are the reason to overcome such this problem (Ethiopian Development Research Institute, 2014).

Most construction projects in Ethiopia are not completed within the expected time, budget and the specified quality (Ibid). This situation has considerable influences on the overall economic and social development of the country. Currently, the involvement of international contractors in building projects is observed both in government and private building projects in Ethiopia. This is due to high demand by the clients to take over projects within a

reasonable time. Hence, improving the local contractors‟ performance requires an extensive and timely professional intervention in terms of technical and project management aspects.

Therefore, these complex construction projects require the development of a detailed work schedule and a continuous evaluation strategy to be adopted in order to meet the project completion time. According to Ferreira and Pereira (2015) maturity models are helpful to define a set of actions and measures to better its performance as an organization.

Based on this fact, various researches were conducted and the studies found out that organizations with a more established project management practice such as engineering based organizations exhibit a more mature project management practice as compared to organizations in other industries Cooke- Davies and Arzymanow, (2003); Mullaly, 2006; Simangunsong and Da Silva, (2013).

Assessment of project management maturity made by Abadir (2011) on Ethiopian construction sector found out that the overall maturity level of the sector was lower below the expected standard.. This research also showed that project management practices are largely informal. However, despite an increase in number of project undertakings by multitude of organizations in Ethiopia, project management is being practiced informally Abadir, (2011). Availability of studies related to assessment of project management maturity is also scarce.

The research so far made is not adequate to tackle the problem of project management maturity in the housing construction sector in Addis Ababa. Given the low level of housing project management maturity research so far, this study tried to assess the project management maturity of the project management office of Addis Ababa housing construction Development Corporation and tried to forward possible solutions to ameliorate the problem under consideration.

1.3 Research Questions

The study attempted to answer the following questions

1. To what extent the project management knowledge areas are effectively applied in constructing 40/60 and 20/80 housing Projects in Addis Ababa?
2. Which project management knowledge areas are highly and least matured in the construction of 40/60 and 20/80 housing Projects in the area under study?

3. What are the main challenges that hinder the implementation of project management knowledge areas in the office?

4. What must be done to improve the application of the project management knowledge areas at full scale by the office?

1.4. Objectives of the Study

1.4.1 General Objective

The general objective of the study is to assess the housing constructions projects management maturity level in Addis Ababa with special focus on the housing development Corporation 40/60 and 20/80 Project Office

1.4.2 Specific Objectives

- ✓ To examine the extent to which the current project management knowledge areas are effectively applied in constructing 40/60 and 20/80 housing Projects in Addis Ababa?
- ✓ To identify project management knowledge areas that are highly and least matured in the construction of 40/60 and 20/80 housing Projects in the area under study
- ✓ To identify the main factors that hinders the full application of project management areas in the office.
- ✓ To forward possible recommendations to improve the application of project management knowledge areas at full scale by the office.

1.5 Significant Of the Study

The study has significance to the Addis Ababa Housing Corporation to understand its current project management maturity level practices. It will enable the corporation to identify its limitations and to provide a road map for improvement of its project management practices to the expected level. . Furthermore, the study will be a baseline assessment to which future project management development or improvement efforts of the corporation can be compared too. It will also be used as a foundational study for further research on project management maturity of housing construction projects in Ethiopia in general and Addis Ababa in particular.

1.6. Scope of the Study

This study is only concentrated on assessing project management maturity practices, through the generally accepted project management knowledge areas defined by PMBOK, which enhanced the management capacity of projects. As for the geographical scope, the study was

delimited in Addis Ababa, Housing Development Corporations 40/60 and 20/80 project offices since the office has many complains from customers related condominium housing projects.. So the study tried to assess the extent to which the project office is applying the core project management knowledge areas in the construction of 40/60 and 20/80 housing projects since it takes these responsibilities.

1.7. Limitations of the study

Shortages of adequate secondary data and the reluctance of some management body members in the project office to provide the required data were some of the limitations of this study. Shortage of time and finance were also other limiting factors. However, necessary precautions were made so that these limitations were not affect the findings of the study through taking appropriate sample size and triangulating different data collection methods.

1.8 .Organization of Study

This study contains five chapters. The first chapter is an introduction to the research. The second chapter is a literature review related to the research topic; it contains both theoretical and empirical review. The third chapter presents the research methodology which elaborates on the research approach & design, sampling, data collection method, data analysis method, validity & reliability, and ethical considerations of the research. Chapter four consists of the presentation, interpretation and discussion of results. Finally, the last chapter presents the summary of the findings, conclusions and recommendations of the research.

CHAPTER TWO

Review of Related Literature

2.1 Theoretical Review

2.1.1. Definition of Project

Many definitions had been given to project by different authors, due to the fact that project is a multidisciplinary word that has different meaning from different perspective and orientations. Engineers, Architects, Managers and so on, have their definitions coined out from their experiences as far as their professions are concerned. Their definition depends on their areas of studies and the point of view that each scholar used. But to have comprehensive understanding of a project, it is better to refer different definitions.

Eric Verzuh (2005:1 cited in Modesto &Tichapondwa, 2009:P19) stated "we live in a world where change and the rate of change is constantly increasing. In order to survive and prosper, organizations need to continually modify their products and services. Projects are the means by which these innovations are effected. Greater change = more innovations = more projects." In this context, Verzuh see project as a means to cop up with changes. Accordingly, Modesto &Tichapondwa (2009:P20) define project as initiative to bring about change in order to achieve specific objectives, within a timescale, in a given context with allocated budget.

The Project management Institute (2013: P3) define project as a temporary endeavor undertaken to create a unique product, service, or result. In this study, the PMI's definition of project is used as an operational meaning. Larson and Grey (2011: P5) stated, "Like most organizational effort, the major goal of a project is to satisfy a customer's need. Beyond this fundamental similarity, the characteristics of a project help differentiate it from other endeavors of the organization". The definition is given based on two key characteristics of project. All projects are temporary and undertaken to create a product, service, or result that is unique. These two simple concepts create a work environment that mandates different management approach from that used by an operations manager, whose work is oriented toward continuous improvement of existing processes over longer periods of time.

In contemporary business and science, Wikipedia (2015) defined a project as a collaborative enterprise involving research or design that is carefully planned to achieve a particular aim. Project can be further defined as temporary rather than permanent social system or work

systems that are constituted by teams within or across organizations to accomplish particular tasks under time constraints. An ongoing project is usually called (or evolves into) a program (Wikipedia, 2015).Many other scholars and books prefer to define and explain project by describing the common characteristics of projects instead of giving a direct definition so that anyone can define project by integrating these features of projects. Different scholars provide the unique features of projects. Nicholas and Steyn (2008) provide comprehensive characteristics of projects. The following section is the discussion on these characteristics.

2.1.2. Characteristics of a Project

Regardless of specific features of particular projects, below are some common characteristics forwarded by Nicholas and Steyn (2008: Pxxvi) for all projects:

1. A project involves a single, definable purpose and well-defined end-items, deliverables, or results, usually specified in terms of cost, schedule, and performance requirements. Larson & Grey (2011: P6) stated that this singular purpose is often missing in daily organizational life where employees carry out repetitive operations daily.
2. Every project is unique in that it requires doing something different than was done previously. A project is a one-time activity, never to be exactly repeated again. Lock (2001:P2) discussed about the uniqueness of a project that "The principal identifying characteristic of any project is its novelty. It is a step into the unknown, fraught with risk and uncertainty. No two projects are ever exactly alike, and even a repeated project will differ from its predecessor in one or more commercial, administrative or physical aspects. "In a "routine" project such as home construction, variables such as terrain, access, zoning laws, labor market, public services, and local utilities make it unique.
3. Projects are temporary activities. Each is an ad hoc organization of personnel, material, and facilities assembled to accomplish a goal within a scheduled time frame; once the goal is achieved, the ad hoc organization is disbanded.
4. Projects cut across organizational and functional lines because they need skills and talents from multiple functions, professions, and organizations. Larson & Grey (2011: P6) stated that instead of working in separate offices under separate managers, project participants, whether they be engineers, financial analysts, marketing professionals, or quality control specialists, work closely together under the guidance of a project manager to complete a project.

5. Given that each project is unique, it also involves unfamiliarity and risk. It may encompass new technology or processes and, for the organization undertaking it, possess significant elements of uncertainty and risk.
6. The organization usually has something at stake when doing a project. The work calls for special scrutiny or effort because failure would jeopardize the organization or its goals.
7. A project is the process of working to achieve a goal; during the process, projects ass through several distinct phases called the project life cycle. The tasks, people, organizations, and other resources involved in the project change as the project moves from one phase to the next.

2.1.3. Definition of Management

According to Dr. Karam (n.d), although Management as a discipline is more than 80 years old, there is no common agreement among its experts and practitioners about its precise definition. Moreover, Management is a universal phenomenon. It is a very popular and widely used term. All organizations- business, political, cultural or social are involved in management because it is the management which helps and directs the various efforts towards a definite purpose.

On top of this, Henry (n.d) said that to manage is to forecast and plan, to organize, to compound, to co-ordinate and to control while Harold said that Management is the art of getting things done through and within formally organized group. In addition to this, William defined management as: Management is that function of an enterprise which concerns itself with direction and control of the various activities to attain business objectives. Moreover, Management is the organizational process that includes strategic planning, setting objectives, managing resources, deploying the human and financial assets needed to achieve objectives, and measuring results (Management study guide.com, n. d). Management has the following main functions:

Planning: It is the first and foremost function of management, i.e. to decide beforehand what is to be done in future. It encompasses formulating policies, establishing targets, scheduling actions and so forth.

Organizing: Once the plans are formulated, the next step is to organize the activities and resources, as in identifying the tasks, classifying them, assigning duties to subordinates and allocating the resources.

Staffing: It involves hiring personnel for carrying out various activities of the organization. It is to ensure that the right person is appointed to the right job.

Directing: It is the task of the manager to guide, supervise, lead and motivate the subordinates, to ensure that they work in the right direction, so far as the objectives of the organization are concerned.

Controlling: The controlling function of management involves a number of steps to be taken to make sure that the performance of the employees is as per the plans. It involves establishing performance standards and comparing them with the actual performance. In case of any variations, necessary steps are to be taken for its correction.

Coordinating: is an important feature of management which means the integration of the activities, processes and operations of the organization and synchronization of efforts, to ensure that every element of the organization contributes to its success.

2.1.4. Definition of Project Management

Kerzner(2002) defined PM as "Project management is the planning, organizing, directing, and controlling of company resources for a relatively short-term objective that has been established to complete specific goals and objectives. Furthermore, project management utilizes the systems approach to management by having functional personnel (the vertical hierarchy assigned to a specific project.

Project management is designed to control the key elements that provide practical information for achieving project objectives in an efficient way; it means using the company resources on a certain activity within time, cost and performance constraints. A fourth key is good customer relations. Kerzner highlighted the main keys in project management as time and cost with an accepted level of performance.

There are many definitions to project management , but the Project Management Body of Knowledge defined PM as "the application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholder's needs and expectations from a project" . Each definition will vary according to the goals and needs of the organization.

Sometimes project management is confused with strategic management, because both must include mission, vision and goals. The difference is that project management is unique within a limited time; this requires developing new methodology and a mechanism to ensure

achieving goals. On the other hand, strategic management has more shared decision making and an unlimited time schedule that involves brainstorming through all levels of the organization.

The researcher believes that every one of the previous definition adds value to Project Management in its own way ,all of them inspired the researcher to define PM as " project management as an art, a charisma and professional experience that provide all the means of succeeding, within all the limitation and the resources provided to achieve a certain goal".

In general, Project management is defined in different ways in the research literature. Some of these definitions are as follows: The term Project Management is referred to as the "application of knowledge, skills, tools, and techniques to project activities to meet the project requirements" (PMI 2013) within a specified period of time. When describing the functions of project management, reference is included to an objective or purpose, a time-frame, budget and resources as well as performance requirements (Larson & Gray 2011). The reference to these elements that includes scope, time, cost, quality, human resources, communications, risk, procurement and finally how to integrate these elements to manage the project describe the ten knowledge areas of the Project Management Body of Knowledge (PMI 2013).

These knowledge areas provide a map to manage a project according to a five step process of initiating, executing, monitoring, controlling, and closing a project to deliver an outcome. Cleland (2004) described project management as "an idea whose time has come - a distinct discipline to be applied to the management of ad hoc activities in organizations". The importance of adhering to project management methods and strategies reduces project risks, cut costs and improves success rates of projects. Project management is important for several reasons that include: Organizing chaos, managing risk, managing quality, managing integration and change, retaining and use of knowledge and finally learning from failure.

In its early days the project management was solely concerned with the implementation of single project in that era (Kartam et al. 2000). It's a way to generate consistent results when undertaking new initiatives and a powerful business tool that can transform an organization's ability to perform well (Artto et. al, 2008). Project management can also be used thought out the organization to boost personal and collaborative productivity. This can be done by

building a standardized system that embeds best practiced into the way projects are managed (Milosevic and Patanakul, 2005)

2.1.5. Project Management and General Management

According to Carmichael (2004), the fundamental difference between Project Management and General Management stems from the difference in the type of work they manage. Project Management deals with management of projects which are temporary and unique whereas, General Management deals with management of operations which are ongoing and repetitive.

Generally project organization changes continually as the project progresses through its various phases and terminate when the mission is accomplished; whereas the ongoing organizations that manage operations sustain at least over a period of time and continue assuming a broader outlook [(Project Management Institute (PMI), 2004),(Hendrickson), (Carmichael, 2004)].Despite the existence of fundamental difference between project management and general management; both general management and project management share many things in common. Both share the same basic philosophies, both make and implement decisions, allocate resources, manage organizational interfaces, and provide leadership for the people who are involved in performing the work. Generally, in addition to knowledge of project management, successful management of project demands knowledge of general management and working knowledge of application areas (for example for a construction project knowledge of construction)[(Cleland & Ireland, 2002), (Project Management Institute (PMI), 2004), (Hendrickson)].

2.1.6. Project Management Applications

Generally, Project management is used extensively in some form within many organizations. "There has been no identified profession or industry where project management practices will not work" (Cleland& Ireland, 2002).Using project management generally helps: to clarify goals and identify problem areas and risk; to isolates activities and easily monitor outcomes. (Project Management Institute (PMI)).

Further, using PM enhances accountability as works can be isolated and responsibilities can be assigned; moreover, it helps focus attention on few specific and important tasks.

Generally, According to (Cleland & Ireland, 2002) and others, Project management can best be applied when:

- ✓ Resources are to be shared among many units.
- ✓ Special attention or focus is to be given to important undertakings (example to focus attention on specific customers in specific market).
- ✓ Integration of systems and subsystems is sought within independent units.
- ✓ Dealing with ad hoc, complex, unfamiliar, unique, or rare; activities, problems and opportunities.
- ✓ Dealing with tasks that require pooling of many resources and capacities from diverse sources (example providing emergency response during disasters).
- ✓ It is desired to bring a wide range of experience and viewpoints into focus(example in research and product development or solving complex problems).
- ✓ Dealing with an undertaking that require massive input of capital, technology, skills, and resources.
- ✓ When it is desired to have unified management of a project-based contract in order to avoid the customer work with many different functional units.
- ✓ When there is a need to manage change.

2.1.7. Project Management Process Groups

There are five project management process groups required in any project. The process groups have internal dependencies and are often iterated several times before a project is completed. A process group involves project management processes, which are linked together as the outcome of one process becomes the input in another (PMI, 2013).The process groups are not to be considered as chronological project phases that end when a part or section of the project is completed. In large projects, with distinct phases or sub-projects, the process groups are repeated in every phase of the project and there are continuous interactions between the groups during the project (PMI, 2013). The five process groups identified by PMI (2013) are described below;

- ✓ Initiating Process Group
- ✓ Planning Process Group
- ✓ Executing Process Group
- ✓ Monitoring and Controlling Process Group
- ✓ Closing Process Group

2.1.7.1 Initiating process Group

The initiation of a new project is often done external to the project scope. The decision to start initiation is based on basic descriptions of the scope, deliverables, duration, and

forecasts of resources required. This documentation is handled and further refined in the Initiation Process Group to facilitate the formal authorization to start a new project. When initiating a phase in a large, multiphase project, the processes are carried out to validate assumptions and decisions made in the original project charter (Gupta, Aha, Nau, & Munoz-Avila, 2008).

The project charter is developed by the project organization, but approval and funding are handled externally. By reviewing the initiation process at the start of each new phase or sub-project, the project remains focused and start criteria is verified for each phase. The sub-project initiation processes also perform further validation and development of the project scope (PMI, 2017). The key benefits of this Process Group are that only projects that are aligned with the organization's strategic objectives are authorized and that the business case, benefits, and stakeholders are considered from the start of the project.

In some organizations, the project manager is involved in developing the business case and defining the benefits. In those organizations, the project manager generally helps write the project charter; in other organizations, the pre-project work is done by the project sponsor, project management office (PMO), portfolio steering committee, or other stakeholder group. This standard assumes the project has been approved by the sponsor or other governing body and they have reviewed the business documents prior to authorizing the project.

Generally, the project initiation phase marks the beginning of a project by determining high-level expectations like why a project is required, if it is feasible or not, and what is needed to complete the project. Outputs of this phase include required stakeholder approvals to proceed to the next phase, documentation pertaining to project needs (business case), and rough estimates of time and resources required to complete the project (project charter), and an initial list of stakeholders. The project initiation phase involves the following six key steps:

2.1.7.2. Planning Process Group

The main concern in the Planning Process Group is to develop and manage the project management plan. The planning processes include identifying, defining and managing all parts of the project management plan. These processes are continuously iterated as new information is discovered to keep the project management plan updated (PMI, 2017).

An updated project management plan provides greater precision in the schedule, cost and resource requirements which increase the chances to meet the defined project scope. It is

important that the project team involves stakeholders, who often have useful knowledge, in the project planning (Gupta, Aha, Nau, & Munoz-Avila, 2008).Demands and requests by stakeholders must also be addressed as early as possible in the planning processes. The importance of iterations in the Planning Process Group is based on that many risks often are easier to identify after most of the planning has been made. This means that the project team might have to reconsider the planning concerning schedule, cost or resources with aspects of new identified risks or opportunities (Gupta, Aha, Nau, & Munoz-Avila, 2008).

Generally, in the planning phase, project managers detail the project scope, time frame, and risks. Completeness and continuity are the major components of a successful project plan. Outputs of this phase include a detailed project plan, a project communication plan (if there is no project plan), budget baseline, project scheduling, individual project goals, scope document, and updated stakeholder registry.

2.1.7.3. Executing Process Group

The Executing Process Group is the processes where the work defined in the project management plan is executed. The process group involves coordination of resources and integration of the activities according to the project management plan (Walker, 2007).

There is always a need for some re-planning in a project, due to variances in activity duration, productivity etc. These changes in planning should be analyzed and when needed trigger an update request in the project management plan. Analysis of these types of changes is conducted by the Monitoring and Controlling Process Group (PMI, 2013.

Generally, in the project execution phase, the project team members are coordinated and guided through proper project communication to get the work done as explained in the approved project management plan. Additionally, this phase also covers the proper allocation and management of other project resources like materials and budgets. Project deliverables are the output of the execution phase.

2.1.7.4. Monitoring and Controlling Process Group

The processes used to observe and control the project execution in order to identify potential problems, and take corrective action, are included in the Monitoring and Controlling Process Group (PMI, 2013). When the project's performance is observed and measured regularly, differences against the project management plan is quickly identified. Identified problems or

differences in the project are investigated and can result in an update of the project management plan. Through continuous monitoring, the project team gain insight into the whole project's progress and areas that require additional attention are highlighted (Guo-li, 2010).Generally, during the project monitoring and controlling phase, the time, cost, and performance of the project are compared at every stage and necessary adjustments are made to the project activities, resources, and plan to keep things on the right track. Outputs from this phase include project progress reports and other communications that ensure adherence to project plans and prevent larger milestones and deadline disruptions.

2.1.7.5. Closing Process Group

This process group includes officially accepting the project as complete, documenting the final performance and lessons learned, closing any contracts, and releasing the resources to work on other endeavors. It addresses the culmination of strong project management skills demonstrated throughout the other interrelated processes that guided the project. Good closure brings great reviews and can increase future word of mouth referrals (PMI, 2013).

Generally, the process of finalizing the project, reviewing the project deliverables, and transitioning them to the business leaders is called the project closure phase in a project management life cycle. This stage offers time for both celebration and reflection. Outputs from this project management phase include approved project results and learning's that can be applied to similar projects in the future. Some additional characteristics of the project processes

- ✓ Process groups are linked by the results they produce; the result or outcome of on becomes an input to another.
- ✓ Process groups are not discrete, one-time events; they are overlapping activities which occur at varying levels throughout each phase of the project.
- ✓ The process group interactions also cross phases such that closing one phase provides an input to initiating the next which means that in actual projects there Wii be many overlaps.

2.1.8. Benefits of Project Management Practices

Project management will not necessarily lead to project failure; its practice has a great deal of contribution on the successful completion of the project within its constraints and effective use of scarce resources. The importance of Project management in managing projects successfully cannot be understated (Kerzner, 2009). Project management is helpful to have a

clear definition of projects, to define and manage scope and project related risks, to prepare schedules and budgets, to gather all the possible requirements, to structure the work needed to be accomplished, to assign the necessary resources and their effective management, to monitor and control the activities, to manage stakeholders.

According to Atif (2010), most of the emergent industries since world-war II are project intensive. This widespread use of projects in organizations demanded an approach that can efficiently manage these temporary endeavors which are critical to the organizations strategic objectives. Generally, PM is used extensively in some form within many organizations. There has been no identified profession or industry where project management practices will not work (Abadir, 2011).

According to (Atif, 2010; Abebe, 2017), Project Management has led a number of organizations to be more effective and efficient in delivery of their products and services, to have more accurate budgeting and scheduling and improved productivity. Application of Project Management – distinguishes what types of work should and should not be categorized as projects and includes the general flow of projects from idea into deployment. This step also defines and outlines project management process groups Using PM generally helps to clarify goals and identify problem areas and risk; to isolates activities and easily monitor outcomes PMI (2013). Further, using PM enhances accountability as works can be isolated and responsibilities can be assigned.

Generally, According to Abadir (2011) and others, PM can best be applied when: Resources are to be shared among many units, Special attention or focus is to be given to important undertakings (example to focus attention on specific customers in specific market), Integration of systems and subsystems is sought within independent units, Dealing with ad hoc, complex, unfamiliar, unique, or rare; activities, problems and opportunities.

Dealing with tasks that require pooling of many resources and capacities from diverse sources (example providing emergency response during disasters), It is desired to bring a wide range of experience and viewpoints into focus (example in research and product development or solving complex problems), Dealing with an undertaking that require massive input of capital, technology, skills, and resources, When there is a need to manage change, When it is desired to have unified management of a project-based contract in order to avoid the customer work with many different functions.

Here are some benefits of project management practices that are mentioned by Michel (2014): • Reduced product development time • Extended product range • Increased use of multi-functional teams and partnerships • Creation of global service centers from cross-functional teams • Increased importance of controlling individual activity

- Multi-national approach to development • Standardization of information technology
- Rapid restructuring of industry sectors through acquisition and joint-ventures • Restricted government spending
- Management of external resources and contractors • Ease of access to information and knowledge. According to Meredith and Mantel (2010), actual experience with project management indicates that the majority of the organizations using it experience better control and better customer relations. Other advantages include lower costs, higher quality and reliability, higher profit margins, a sharper orientation towards results, improved interdepartmental co-ordination and higher employee morale

Other benefits identified by Kerzner (2009)) are: improved efficiency and increased profitability through better utilization of limited resources; and enhanced planning, estimating and cost control leading to a more consistent achievement of milestones and objectives.
The Project Management Institute (2013) further confirms that project management helps organizations meet their customers' needs by standardizing routine tasks and reducing the number of tasks that could potentially be forgotten. Project management thus ensures that available resources are used in the most effective and efficient manner. Project management also provides senior executives with insight into what is happening and where things are going within their organization.

The application of project management principles enables senior executives to: establish measures of success, enable customer focus and alignment, quantify value commensurate with cost, optimize the use of organizational resources, incorporate quality principles, put strategic plans into practice, ensure fast time-to-market (for example new products or services).Furthermore, it is stated that project management has gained popularity because of significant changes in the workplace. Some of these changes include: downsizing (fewer people to do more tasks), Projects and services have grown larger and more complex, fierce global competition, easier access to information through vast communications networks, more sophisticated customers demanding higher quality goods and services, exponential

technological growth, multinational organizations seeking to establish uniform practices for managing projects.

2.2. Project Management Knowledge Areas

According to PMI (2013) PMBOK® Guide a project management Knowledge Area is an identified area of project management defined by its knowledge requirements and described in terms of its component processes, practices, inputs, outputs, tools, and techniques. Although the Knowledge Areas are interrelated, they are defined separately from the project management perspective.

According the PMI there are ten general project management knowledge areas which are: project integration , management, project scope management, , project time management, , project cost management, project quality management , project human resource management , project communications management, project risk management, project procurement management and project stakeholder management.

1. Project Integration Management

Project integration management includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the project management process groups. In the project management context, integration includes characteristics of unification, consolidation, communication, and integrative actions that are crucial to controlled project execution through completion, successfully managing stakeholder expectations, and meeting requirements PMI, (2013).

2. Project Scope Management

According to the PM methodology guideline, Project scope management includes the processes required to ensure that the project includes all the work required and to complete the project successfully. Managing the project scope is primarily concerned with defining and controlling what is and is not included in the project (PMI 2013). It takes a unique skill to obtain the true requirements from the project stakeholders who, in many cases, often are not sure what they Plan scope management- The process of creating a scope management plan that documents how the project scope would be defined, validated, and controlled. Generally, project scope management focused on collecting requirements, defining scope, create WBS, validate scope and controlling scope to mention a few(.Ant HIMSS, (2011).

3. Project Time Management

According to Saylor.org (2009), the definition of project success often includes completing the project on time. The importance of ensuring work proceeds efficiently within individual tasks, along with the interfacing of related tasks, is a key message in project time management Pasian, (2011). The ultimate measure being project success, based on effective control of time management processes, tools and practices. The development and management of realistic project schedule and project plan is a primary responsibility of the project manager to complete the project on time.

Accordingly, PMI (2013) PMBOK® Guide this knowledge includes the processes required to manage the timely completion of the project. The main function of Project time management is to plan schedule management, define and sequence activities, estimate activity resources and durations, develop and control schedule as per the set plan objectives.

4. Project Cost Management

This Knowledge Area includes processes that required ensuring the project is completed within the approved budget. Here, costs for the project have to be calculated by developing an estimate of the costs for the resources needed to complete project activities and resources have to be planned, by determining what resources (people, equipment and materials) and what quantities of each are needed to perform project activities. It includes the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget PMI,(2013).

Project cost management mainly focused on plan cost management, estimate costs, and determine budgets and controlling costs.

5. Project Quality Management

According to PMI (2013) Project Quality Management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project would satisfy the needs for which it was undertaken. Project Quality Management uses policies and procedures to implement, within the project's context, the organization's quality management system and, as appropriate, it supports continuous process improvement activities as undertaken on behalf of the performing organization. Project Quality Management works to ensure that the project requirements, including product

requirements, are met and validated. There are three processes which need to be included in this Knowledge Areas.

6. Project Human Resource Management

According to PMI (2013) Project Human Resource Management includes the processes that organize, manage, and lead the project team. The project team is comprised of the people with assigned roles and responsibilities for completing the project. Project team members may have varied skill sets, may be assigned full or part-time, and may be added or removed from the team as the project progresses. Project team members may also be referred to as the project's staff. Although specific roles and responsibilities for the project team members are assigned, the involvement of all team members in project planning and decision making is beneficial. Participation of team members during planning adds their expertise to the process and strengthens their commitment to the project.

This project management Knowledge Area includes the following four processes. These are planning of human resources management; acquiring project team, developing and managing project team t6o achieve project management objectives..

7. Project Communications Management

Communication involves understanding the information received and being able to explain it to others HIMSS (2011). Completing a complex project successfully requires teamwork, and teamwork requires good communication among team members Watt, (2012). Effective communication creates a bridge between diverse stakeholders who may have different cultural and organizational backgrounds, different levels of expertise, and different perspectives and interests, which impact or have an influence upon the project execution or outcome PMI, (2013).Project communications management includes the processes required to ensure timely and appropriate planning, collection, creation and distribution, storage, retrieval, management, control, monitoring and the ultimate disposition of project information.

8. Project Risk Management

Risk management is the process of identifying, analyzing and responding to risks throughout the project. Early identification of risks is the responsibility of all project team members and is critical, as the earlier risks are identified the more time there is to perform risk analysis and plan the risk response HIMSS, (2011). The objectives of project management are to increase the likelihood and impact of positive events, and decrease the likelihood and impact of negative events in the project PMI, (2013). Project Risk Management involves procedures for risk identification, risk analysis, planning responses for identified risks and risk control Maylor, (2010)

9. Project Procurement Management

The key components analyzed in this knowledge area are procurement management plan, procurement contract, controlling and closing procedures and documents.

- Plan Procurement Management-the process of documenting project procurement decisions, specifying the approach, and identifying potential sellers.
- Conduct Procurements-the process of obtaining seller responses, selecting a seller, and awarding a contract.
- Control Procurements-the process of managing procurement relationships, monitoring contract performance, and making changes and corrections as appropriate.
- Close Procurements-the process of completing each projects procurement.

10. Project Stakeholder Management

Project stakeholder management deals with the processes of identifying and managing different stakeholders during different phases of project lifecycle. Stakeholders may have an impact on the project or the project may impact their concerns. These stakeholders are further used to create an effective communication plan as well PMI, (2013). The key components analyzed are identifying stakeholders, management and engagement of stakeholders during different phases. These are

Identify Stakeholders:-The process of identifying the people, groups, or organizations that could impact or be impacted by a decision, activity, or outcome of the project; and analyzing and documenting relevant information regarding their interests, involvement, interdependencies, influence, and potential impact on project success.

- **Plan Stakeholder Management :**-The process of developing appropriate management strategies to effectively engage stakeholders throughout the project life cycle, based on the analysis of their needs, interests, and potential impact on project success.
- **Manage Stakeholder Engagement:**-The process of communicating and working with stakeholders to meet their needs/expectations, address issues as they occur, and foster appropriate stakeholder engagement in project activities throughout the project life cycle.
- **Control Stakeholder Engagement**:-the process of monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders.

2.3. Project Management Maturity

2.3.1. Maturity

The Webster dictionary (1988) defines ‘‘mature’’ as being ripe or having reached the state of full maximum development; hence maturity is the quality or state of being fully developed. According to the definition of Paulk et al. (1993), maturity is the extent to which a specific process is explicitly defined, managed, measured, controlled, and effective. According to PMI (2003), maturity is the level of sophistication indicating an organization’s current project management processes and practices. Similarly, Kerzner (2009) defined maturity in project management as the implementations of a standard methodology and accompanying processes to repeated successes.

Maturity implies a potential for growth in capability; it further indicates the richness and effectiveness of an organization’s process and how it’s consistently applied throughout the organization’s projects (Paulk et al. 1993; Crawford, 2002). Andersen & Jessen (2002) stated that maturity might refer to a state where the organization is in a perfect condition to achieve or reach its project objectives. Furthermore, a concept of maturity can also refer to the comparative level of advancement that an organization has, regarding any given activity or sets of activities (Gorecki, 2015).

Maturity as a concept is being used increasingly to describe the state of an organization’s effectiveness Crawford, (2006). It can refer to a state where the organization is in a perfect condition to achieve its objectives.

Project maturity would then mean that the organization is perfectly conditioned to deal with its projects Andersen &Jessen,(2003). On the other hand, Kerzner, (2004) defined maturity in project management as the development of systems and processes that are repetitive in

nature and provide a high probability that each project would be a success. In a matured organization, a disciplined process is regularly followed, because all participants understand the value of doing so, and there is infrastructure and policy to support the process Sarshar, Haigh, Fennimore, Aouad, Barrett, Baldry (2000).

Andersen & Jessen (2002) measured maturity along three dimensions: capability to carry out different tasks (knowledge), willingness to carry them out (attitude), and actually doing them (actions).

Whereas, project management maturity is the progressive development of an organization-wide project management methodology, approach, strategy and decision making process (Ofori & Deffor, 2013). According to the findings of (PM Solutions, 2014), organizations of different industries have seen significant value by increasing their project management maturity level, showing: decreased number of failed projects, improved customer satisfaction, higher number of projects delivered under budget, and improved productivity.

Sarshar et al., (2000) compared mature and immature construction organizations by modifying the comparisons done by Paulk et al. (1993). "A mature organization possesses an organization-wide ability for management of design, construction and maintenance activities. The processes are accurately communicated to all employees and activities are carried out in accordance with the planned processes. The processes mandated are fit for use and consistent with the way the work gets done. Roles and responsibilities within the defined processes are clear throughout the projects across the organization.

On the other hand, in an immature construction organization, processes are generally improvised by practitioners as well as project managers. Even if a process has been specified, it is not rigorously adhered or implemented. The immature organization is reactionary as managers usually focus on fire fighting. The quality assurance and quality review are often cut short when projects fall behind schedule, hence product quality is difficult to predict" (Sarshar et al., 2000).

An immature organization, on the other hand, is an organization that does not have or use consistent and well-defined processes in the management of its projects Sarshar et al., (2000). Such immature. To summarize, maturity models define and explain the state of perfection or completeness of certain elements or objects and ensures a desired evolution or performance

path along clear discrete stages According to Ahern et al. (2008), an organization matures by steadily improving its process capability, which is the inherent ability of a process to produce planned results. As the capability of a process increases, it becomes measurable and predictable, and the most significant causes of poor quality and productivity are controlled or eliminated (Ahern et al., 2008).

Generally, having a fully matured organization is just a theoretical concept. According to Andersen & Jessen (2002), in the real world, finding the fully matured organization is impossible; the authors concluded, "no one has reached the stage of maximum development and no one will."

2.4. Project Management Maturity models (PMMM)

The Project Management Maturity Model (PMMM) is a standard to help organizations measure project management capabilities, and it is also a framework method for evaluating and improving project management. It depicts the process by which a project system develops over time and its project management capabilities reach the highest level and also reflects the ability to reliably achieve specific engineering goals in the face of unknown risks.

Project Management Maturity Model (PMMM) is a formal tool developed by PM Solutions and used to measure an organization's project management maturity. Once the initial level of maturity and areas for improvement are identified, the PMMM provides a roadmap, outlining the necessary steps to take toward project management maturity advancement and performance improvement (Crawford, 2006)

Moreover maturity models are frameworks that are used to transform an organization from being less organized, less standardized and less documented into an organization achieving higher standards with greater consistency. They can also be used as a framework to guide improvement efforts of an organization Jugdev& Thomas, (2002), Cleland & Ireland,(2002), Brookes, Butler, Dey& Clark, (2014). Ibbs and Kwak (2002) also described Project management maturity model (PMMM) as a model using which organization identifies its area of strength and weakness.

Once these areas are identified then improvements are implemented to achieve excellence. PMMM comprises of structured components for adaptation and implementation in organization. The components of PMMM include maturity levels, best practices for project

management, assessment model for project management practices and process improvement plan.

A typical approach for measuring project management maturity begins with measurement and assessment of existing project management practices. Next step involves benchmarking of measured maturity model with best practices standard of project management maturity. Benchmarking provides comparison of project management capabilities. Finally, project management capabilities are improved to higher levels of maturity Jamaluddin, Chin and Lee, (2010). The different models are as follows.

CMM Capability Maturity Model: - Capability maturity model is the first maturity model to be developed. The model was developed by the software Engineering Institute at Carnegie Mellon University. The model was initially developed for use in improvement of software development processes. Later it was extended for use in other areas of systems, and software engineering and procurement.

The model was primarily developed to evaluate software contractors‟ capability for contract award and administration purpose. Later the model has been used by software developers as a guide for the improvement of their processes SEI, (2006). This model has served as a basis for the development of a number of maturity models in different fields including project management. The CMM model has five maturity levels beginning from the initial stage (level 1), repeatable (level 2, Defined (level 3), managed (level 4) to the most matured level of optimizing (Level-5). Project

Management Process Maturity Model- (PM) 2. The PM2 model is one of the pioneer PM maturity models developed. Like the CMM model, the PM2 model has five levels of maturity with slight difference in its use of terminologies. This model also have five levels starting from Ad-hoc (Level 1), planned (level 2), Managed at project level (level 3), Managed at corporate level (Level 4) and to the most matured continuous matured (level 5) Ibbs&Kwak, (2002).

Project Management Maturity Model (PMMM):-is a formal tool developed by PM Solutions that seeks to measure the maturity in project management of a 5 maturity levels of the PMMM .These five levels of project management maturity all represent the stage of maturity that a company can be in. PMMM was first published in book form in 2002 and its

second edition was released in 2007. It provides for five levels of evolutionary maturity and examines the development in ten knowledge areas of PMI's PMBOK guide. The objective of the PMMM methodology is to allow any organization to systematically and efficiently develop its project management capabilities Crawford, (2007). This model similar with other maturity models has five levels.

Level 1: Initial process

During this level, an organization has very few project management processes in place. More likely than not, tasks are done randomly and it's challenging to predict future success since everything is done ad hoc. Different teams may use different project management processes, resulting in a lack of accountability and cohesion between teams. There's very little (if any) documentation, and metrics are only collected as needed. Because project teams aren't measuring metrics, there's no way to evaluate project success. The initial process is not necessarily a bad stage to be in—all teams have to start somewhere! The main takeaway with this stage is to be aware of the lack of processes and documentation, so you can work with your team to develop them.

Level 2: Structured process and standards

In this level, an organization implements basic project management, but only for individual projects. This means that there may be varying project management methodologies in use across the organization. For example, the marketing team may be organizing their projects differently from the sales team. When sales and marketing need to collaborate, this disconnects causes friction. Since there are no broader organizational project management practices in place, the success of all projects depends on individual project managers and the teams working those projects. Metrics are only tracked in the most basic way to ensure success of the current project.

If your team is at this level, you’re on the right track! You’re standardizing your project management processes at the team level. Now, you can focus on creating standard practices across the company to promote more cross-functional collaboration.

Level 3: Organizational standards and institutionalized processes

At this level of maturity, an organization should have a well-defined project management system that is standard throughout the organization, sometimes referred to as a project management office (PMO). Management is regularly involved in implementing new processes, including implementing change management where necessary to update or modify organization-wide project management processes. You measure metrics, but only to establish a baseline, not for strategic planning.

Documentation at this stage is important, and there are set processes and information that clearly notate what standard business processes look like. If a business-critical emergency happens, there are clear contingency plans in place to prevent the business from completely failing.

Level 4: Managed processes

At this stage, your organization exhibits all of the characteristics from level three and pushes them a little farther. An organization in the managed processes level has clear project management processes and documentation in place. Project leads regularly incorporate standard project management processes throughout corporate systems. During this stage, management regularly begins monitoring metrics and looking at past performance to make decisions for future projects. In level four, management has a clear understanding of how to achieve project success. Based on past experiences, documentation, and current metrics, they can make informed decisions to ensure that future projects are set up for success.

Level 5: Optimizing process

Once an organization reaches this level of project management maturity, they can begin fully optimizing their processes to best tailor to their needs. One of the key identifiers of this stage is continuous improvement. Continuous improvement is the process of adapting your processes in an effort to maintain efficiency and productivity. Mature organizations integrate continuous improvement techniques into their project management processes.

Not only does your team regularly report on metrics, you also use those metrics to create a strategic plan moving forward. While organizations in level four of PMMM review metrics to

make key business decisions, companies in level five also actively improve business processes.

Kerzner's PM Maturity Model – K-PMMM Harold Kerzner and the International Institute for Learning (IIL) view project management as a core competency that many companies must develop to remain competitive in the market. In this context, project management maturity models are important strategic tools for senior management allowing an organization to benchmark its capabilities in respect of project management.

As such, a project management maturity assessment model is a tool for establishing project management excellence, which is considered a condition for success (Kerzner, 2002). Like (PM)2 and CMM, Kerzner‟s maturity model defines five levels by which an organization is ranked from insufficient project management processes to adequate project management processes leading to continuous improvement.

Organizational Project Management Maturity Model: - (OPM3) was first defined by PMI (Project Management Institute) in 1998. Organizational project management maturity model provides a framework that integrates project, program and portfolio management of organization for all the best practices.

The integration defined by organizational project management includes PMIOPM3, (2013):

- Knowledge (of the portfolio, program, and project processes),
- Organizational strategy (mission, vision, objectives, and goals),
- People (having competent resources), and
- Processes (the application of the stages of process improvement).

According to this model organizations may have high maturity level for project management practices but does not necessarily have to excel in portfolio or program management as well.

The maturity of portfolio and program is measured against portfolio and program management practices. OPM3 provides flexibility in terms of organization's size and type, size and complexity of projects and geographical locations of projects PMI-OPM3, (2013). PMI-OPM3 (2013) has defined five maturity levels for performing maturity assessment of Project, Program or Portfolio Management either collective or individual. The use of maturity

assessment is not compulsory in all the three areas to find improvement opportunity PMI-OPM3, (2013). Description of maturity levels for OPM3 is explained below:

Level 1: None- No such practice exists

Level 2: Standardize - A standardized process of doing projects have been documented and communicated within organization. This practice is not used by all the projects but only few.

Level 3: Measure -Standardized process is used by all the projects within organization and processes are measured to evaluate effectiveness for organization.

Level 4: Control - Measured process is corrected for poor application of the standardized practice. Upper and lower limits are established, and process is analyzed.

Level 5: Improve- Continuous improvement of process becomes a practice for outcome of Best Practice standard.

*2.*5. Benefits of Project Management Maturity Models

Maturity models are designed to provide a framework that an organization needs to develop its capabilities, in order to deliver projects successfully in the long term (Jugdev & Thomas, 2002; Mittermaier & Steyn, 2009 cited in Backlund et al, 2014). Backlund, et al (2014) also stated the following points as importance of using PM maturity models and assessment:

- ✓ To set direction, prioritize actions, and begin cultural change rather than primarily identifying the current level at which an organization is performing.
- ✓ To compare project capability between organizations, or between a specific organization and industry norms as a means to benchmark their maturity relative to others.
- ✓ PM maturity assessment can be utilized as a "checkup" tool to measure progress and to identify the next logical steps forward and hence support organizations to view PM as a strategy

2.6. Project Management Maturity Model selection

According to Man (2007), the evaluation of maturity models for PMMMs could be developed along three dimensions:

- structure,

- applicability and
- usage

Using the above three criteria and other characteristics of the models, the researcher has chosen to apply the Project Management Maturity Model (PMMM) that was presented by PM Solutions to assess the project management maturity level of the Addis Ababa housing development Corporation . The model is well structured with a two-dimensional framework which is based on accepted industry standards. The first dimension reflects the level of maturity. It is based on the structure of the SEI Capability Maturity Model. The second dimension depicts the key areas of project management addressed. It adopts the structure of the PMI's nine knowledge areas

The model has been used by many researchers in assessment of project management maturity of various organizations. It is relatively easy to use and the outcomes of the model are applicable to enhance the maturity of the housing corporations towards project management.

In addition, using the model has the following advantages:

- Has well defined knowledge areas and processes devised by the PMI.
- Has well defined maturity levels.
- Integrates various project management maturity models.
- It illustrates a series of steps to help an organization improve its overall PM effectiveness.
- Up to date knowledge areas and processes can be included.

2.7. Challenges of Project Management Practices

Every project is different by its nature that is, its type, size, its geographic location, uniqueness, personnel involved in the project. Hence, according to PMI (2013); project execution in inherently risky and the lack of appropriate approach to addressing these risks has led to a lot of undesirable results.

The major challenges of project management are to accomplish all of the aims and objectives of the project while at the same time mitigating the constraints of the projects (Lewis, 2006). Notably, Lewis (2006) outlined the scope, time, cost and quality of being the major project constraints. The role of senior leadership in shaping project organization is crucial. Implementation of project management practices in the project depends on the existing organizational culture, which directly influences the project organization. Project managers must focus on key challenges areas while implementing knowledge areas. Role of senior leadership, effectiveness of PMO, human resource management factors, PM training, poor

adoption of PM standards, and triple constraints are some of the important challenges that can occur while implementing best practices (Chemuturi, 2013).

From of all literatures that discussed about project management challenges here are the summarized most known challenges of project management? Such as government policies, insufficient funds, withdrawal by donors, shortage of foreign exchange, inappropriate contract conditions, political priorities, poverty, socio-cultural conditions, corruption, and low institutional and human capacity are considered to be the major factors behind the poor performance of projects. (Idoko, 2008), (Jekale, 2004), (Andersen, 2008)]. Subsequent paragraphs provide detail discussion of the challenges.

1. **Challenges with Human Resources**

The human resource need of project management is the biggest challenge of project management practice in the 21st century (Mir & Pinnington, 2014). It is the human resource that plan and execute the project, and ensuring that project teams are competent enough to successfully manage the project to exceed stakeholders' expectation is crucial. Every project has different human resources needs with different skills. Most time it is difficult to get the right employees on the project and this staffing problem may therefore have several implications on the success of the project (Thomas & Mullaly, 2007; Verzuh, 2008).

2. Costing and Estimating the Resources

Project management practice depends a lot on forecasting in planning for the projects and the organization (Verzuh. 2008). So, what happen when things deviate from the initial planning as arranged or intended? This could pose serious threat to the success of the project and that of the organization. It therefore important that costing of the projects are as accurate as possible before the project commence. A lot of project failures known in literature are mostly due to wrong estimate or costing problem.

2.8. Empirical Review

Grant and Penny packer (2006) performed a benchmarking study of 126 organizations across different industries. They conducted a web-based survey and their approach used 9 PMI knowledge areas and studied 42 components of maturity by devising 5 levels of maturity. They concluded that the surveyed organizations had a median level of project management

maturity at level 2. They also found that project management maturity had no significant difference across the industries they studied.

Grant and Penny packer (2006) also referred a study by Levene, et al (1995) in their research. According to Grant and Pennypacker, Levene et al, (1995) reviewed 13 organizations across business sectors. They used competence interviews at three organizational levels and found out

Information Technology (IT) project practices found to be similar across all business sectors (Grant and Pennypacker, 2006). Cooke-Davies and Arzymanow (2003) conducted a benchmarking study that explored variations in project management practice in 21 organizations across six industries.

The empirical research was based on in-depth interviews conducted with "knowledgeable project management practitioners" according to the researchers. They represented the data as maturity profiles plotted on a spider web instead of determining the maturity level of an organization with a single number. This is valuable as it identifies the differences across the nine domains used by the researchers. The domains represent the groups of the interview questions.

A score was given to each organization for each domain and the overall maturity level can be calculated from these scores. These individual domain results are important as they will direct where effort is needed to improve practice. The authors also concluded that more established users of project management such as the engineering-based industries demonstrate a higher level of maturity.

The longitudinal analysis of project management maturity conducted by Mullaly (2006) covered 550 international organizations over a period of 6 years. He used an unpublished maturity model that uses five maturity levels and 12 capability areas. The 12 capability areas are decomposed into a number of capabilities and these are in turn broken down into identified practices. Data was collected using a multiple choice survey with some limited verification using interviews and reviews of practice. Over the 6 year period of the survey, the number of organizations at level 1 increased (from 30% to 72%), that of organizations at level 2 and at level 3 decreased (from 64% to 28% and from 6% to 0% respectively). No organizations were assessed to be at levels 4 or 5 in the study.

The main reason for this decline in maturity offered by Mullaly was that the organizations participating in the study varied from year to year. According to Mullaly's analysis organizations in the engineering industry exhibited higher maturity levels. This result comes in consistency with the conclusion of Cooke-Davies and Arzymanow - the engineering industry showing the highest maturity level.

Young and Zapata (2011) also conducted maturity assessment using P3M3 model on Australian government agencies. The three perspectives of the model were used to assess the maturity level in project, program and portfolio management. According to their study, project management processes were mainly at level 2 maturity (repeatable), although some functions were at lower maturity level. For example, Benefits Management was at level 1 (awareness only) and Risk Management was at level 3 (defined). Program management processes were between level 1 and level 2. Portfolio management processes were between level 2 and level 3, (the highest of the three perspectives).

They also conducted analysis to assess whether there was any significant difference between small and large agencies. The results suggest that portfolio management may be performed better in small agencies, project management may be performed better in large agencies and program management performed poorly whatever the size of the agency. However, according to the researchers, this may simply be reflecting the scale of the projects being undertaken by the different sized Agencies.

Smaller agencies will probably be undertaking fewer smaller projects that can be managed at an agency level as one overall portfolio. Larger agencies probably have more and larger projects requiring much more effort to manage at a portfolio level and they may have chosen instead to focus their effort to manage at the project level. The results showed that these three disciplines are actually practiced completely independently of each other.

An empirical research has been conducted by Simangunsong and Da Silva (2013) to assess project management maturity level. The survey included 127 respondents from different industries including construction, services, manufacturing, oil and gas and others. The researchers concluded that construction is the only industry that has maturity level 3 (Normalized). They also stated that in the construction industry management of projects and formalization of project management process is widely implemented.

This conclusion is consistent with the finding of Cooke-Davies and Arzymanow (2003) and Mullaly (2006). Lack of proper project management training and certification is one major issue identified in this study as determinant of the overall project management maturity level of the organizations. The study by Abadir (2011) tries to assess project management maturity in the construction industry of developing countries by taking Ethiopian contractors as a case. The study surveyed a total of 40 contractors of which 32 of them were local and 8 of them were international contractors. According to the researcher the construction PM process maturity and practices maturity of the contractors found to be at low level at average maturity of 1.30. The research also showed that much of the knowledge areas of the PMBOK guide are implemented informally.

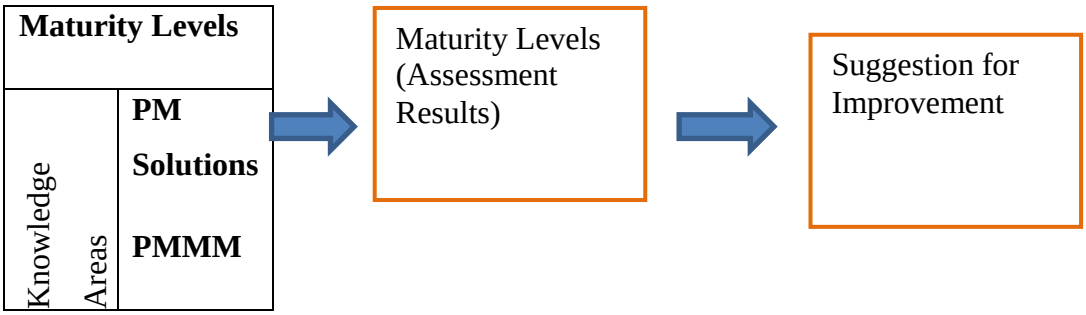
It also concluded that contractors that had certifications or are on the way of certification showed higher maturity. Another comparison by the researcher is between contractors that are involved in road construction and building construction, the former groups showing higher maturity.

The above reviewed studies were conducted by focusing on the project management maturity of various organizations. According to these studies, project management maturity of various organizations shows difference through time and most studies concluded it differs from one industry to another according to the reviewed literature. From these industries, those with established project management showed higher maturity than the others.

2.9. Conceptual Framework

Based on reviewed literature, the researcher has developed a conceptual framework to put the research process as it showed below.

Figure 2:1Project management conceptual framework



Sources: Author Survey

CHAPTER THREE:

RESEARCH METHODOLOGY

This chapter deals with the research methodology in which the research is done. This include an introduction , description of the study area ,research design ,research approach ,target population , sample size , sampling technique , sources of data , data collection method , methods of data analysis , validity and reliability and ethical consideration

3.1. Description of the Study Area

Addis Ababa is the largest as well as the dominant political, economic, cultural and historical city of Ethiopia Emperor Menilek II founded Addis Ababa in 1886 and later in 1892 it became the capital city of Ethiopia Zewde, (2002). Addis Ababa is home to the United Nations Economic Commission for Africa (UNECA) and the African Union (AU). It has the status of both a city and a state. It is the capital of federal government and a chartered city.

The total population of Addis Ababa was estimated to 4 million in 2018. For administrative purpose currently the entire city is divided in to 10 sub-cities. In those 10 sub cities a total of 99 woredaʺs are currently found. Each administration is further divided into Kebles (local administration). The 10 sub cities found in city are Akaki Kaliti, NefasSilik, Lafto, KolfeKeraniyo, Gullele, Lideta, Kirkos, Arada, Addis Ketma, Yeka and Bole BOFED, (2016).

The sub cities are also divided in to Woredaʺs and providing basic public services at local level.Arkebe Equbay was the first to imitate low cost housing during his time as Mayor of Addis Ababa between 2003 and 2005. His main goal was to build low-cost housing in Addis Ababa. He made a proposal to the German Technical Corporation (GTZ) office to which they responded by setting up an office in Addis Ababa and commencing the design of the pilot condominium housing project in the neighborhood of Bole Gerji. The pilot project consisted of 750 residential units along with office and commercial units. GTZ managed the project on behalf of the city government and the project was extremely successful in terms of cost and time. When the government suggested building upwards of 40,000 houses every year, GTZ declined to continue their direct involvement with project design and implementation, instead taking an advisory role. To achieve such ambitious targets, GTZ recommended that the

government create a new office specifically for housing development, which they did in 2005 by establishing the Addis Ababa Housing Development Project Office (HDPO).

Figure3.1Administrative Map of Addis Ababa

Source: Administrative map of Addis Ababa,Internet(2020)

3.2. Research Design

Research design is a master plan specifying the methods and procedures for collection and analyzing the needed information. *A* research design is simply the framework or plan for a study that is used as a guide in collecting and analyzing the data. It is a blueprint that is followed in completing a study. Research design is the blue print for collection measurement and analysis of data. Actually it is a map that is usually developed to guide the research (Gibaldi, 2009).

This study used mixed research approach for better understanding of research problems and complex phenomena than either approach alone (Creswell & Plano Clark, 2007). Moreover mixed methods research is an approach to inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks. The core assumption of this form of inquiry is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone (Ibid).

3.3. Research Approach

The researcher used both quantitative and qualitative research approach popularly called mixed methods which helps to collect two different types of data. Therefore, the researcher used mixed method of research type. According to Christine, Walker and Robinson (2004) mixed method is a procedure that is necessary to collect, analyze and mix qualitative and quantitative techniques in a particular study to generate more understanding on the research problems. Quantitative aspects which focused upon the data with numeric nature was selected to address the research objective that aimed to assess the existing project management maturity problems and qualitative type also helps to compensate the deficiency of quantitative analysis and provide a more explanatory power to the issue under consideration. Thus, the study was employed both research approach of data collection and analysis to keep its validity and reliability.

3.4. Target Population of the Study

According to Kothari (2004), a study population is a well-defined or specified set of people, group of things, households, firms, services, elements or events which are being investigated. Thus, the target populations of the study are managers and staff of the Addis Ababa housing development corporations, contractors, consultants, and clients of the 40/60 and 20/80 housing projects that have connections to construction project management maturity issues.

3.5. Sample Size and Sampling Techniques

3.5.1. Sampling Size

Sample size refers to the number of elements to be included in the study. Determining the sample size involves several qualitative and quantitative considerations. Malhotra (2007).Taking the statement of Mugenda (2003) which states that when the target population is small (less than 1000 members), a minimum sample of more than 30% is a representative of the whole population can be considered. Therefore, out of the total 585 employed population of the housing development corporation (40/60 and (20/80) project office 219(38%) of the population are considered as the sample size of this study. The sampling unit is indicated in the table below.

Sample size refers to the number of elements to be included in the study. Determining the sample size involves several qualitative and quantitative considerations. Malhotra (2007)

The total population of the study is all the employees in Addis Ababa Housing Development Corporation (40/60and 20/80 project office who are working in six departments of the company, which are the Finance, workshop, Engineering, operation, store, machinery and equipment in the company who is working on the building construction. The sample size of the study is the company‟s fifty two project managers and senior level Engineers who are working at 126 projects and head office, since this study is basically for project managers and senior level Engineers with efficient background in Project management to respond questions effectively and who are the responsible body for managing ten project management knowledge areas of the study and they also have deeper information than the ordinary project team members on the project management practice of the company.

The population of this study are know so the number of population is known it‟s infinite use the formula of below mention and to determine the sample size use Yamane .(1967) .They are 485 numbers of employees and the researcher would use 93% confidence level and 5% error. The researcher would use 219 sample sizes among the population$n$ =

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

Where,

n = sample size

N = total population

e= sampling errorn = $\frac{N}{1+(e)2}$

n = $\frac{485}{1+485(0.05)2}$ n = $\frac{485}{13.125}$

Table 3.1: Sample Frame and Unit

No	Direct concerned Experts	Total population	Sample size
1	MSE coordinators'	15	(15/485)*219=7
2	Civil Engineers	195	(195/485)*219=88
3	Construction input Administration officers	108	(108/485)*219=49
4	Consultants (Civil engineers)	20	(20/485)*219=9
5	Contractors(Civil Engineers and Construction input administration	147	(147/485)*219=66
6	Total	485	219

Source: Field Survey, 2021

3.5.2. Sampling Techniques

Sample Techniques is defined as the process by which the entities of the sample have been selected (Cooper and Schindler, 2006). The sampling technique used for this research was simple random sampling techniques. From a list of 485 employees of the project office 219 were selected. . The reasons for using this technique is the researcher can easily get the list of employees from human resource management of the project office. So using lottery techniques 219 representatives as the sample size of the study is considered. Ten staff members intentionally in the project office were selected and interviewed to get additional information to enrich the study.

3.6. Data types and Sources

Data were gathered from both primary and secondary sources. According to Hollensen (2007) primary data can be defined as "information that is collected first-hand, generated by original research tailor-made to answer specific current research questions". And secondary data can be defined as "information that has already been collected for other purposes and thus is readily available".

The primary data were collected from housing development Corporation 40/60 and 20/80 Project offices staff through questionnaires and interview techniques.

Secondary data were gathered from written documents, annual and monthly reports, newspapers, published and unpublished sources related to project management maturity levels of the project offices.

3.6.1 Primary Sources of Data

Primary data was the one which was collecting by the investigator himself for the purpose of a specific study; such data was original in character and was generated by surveys conducted by individual Bhattachryya, (2006). Primary data was collected from AAHDPO through the use of questionnaire which was open ended and closed ended, personal interview also used. The researcher uses this method of data collection in order to address the research objective and to acquire relevant data.

3.6.2 Secondary Source Data

Secondary data were gathered from written documents, annual and monthly reports, newspapers, published and unpublished sources available to those factors in the given organizations, directive, brochures and different website/internet. The researcher would use secondary data from written documents from journal, article, books, and from international database.

3.7. Data Collection Instruments

Two basic instruments that were used to collect the necessary data for the study are:

3.7.1. Questionnaire

A questionnaire was designed based on PMBOK knowledge areas challenges and benefits. The questionnaires were prepared and distributed to target population which was mentioned previously. Thus, the questionnaire contains 70 questions in 4 categories. The first section was related to respondent information. The second section dealt with General PM aspect. The third section dealt with Project Management Knowledge Areas, The fourth section is about the Project challenge.

3.7.2. Interview

It is important to interview the right people who have rich knowledge about the studied phenomenon. Ten well known experienced staff from the management and experts were selected from the people who were involved in managing and implementing of the housing projects. Being part of the implementation process would be able to give details of the information which would be relevant for this study. The selection of the respondents in this research was made based on their roles, expertise, and experience involved in project implementation process in order to achieve the purpose of the study.

3.8. Method of Data Analysis

To analyze the data collected from primary and secondary sources using various methods, descriptive statistical method of analyzes such as frequencies, percentages, averages, etc. were employed and the findings were described and presented in tabular format. Finally, the finding of the research would be interpreted and would be used to draw conclusions and recommendations.

3.9. Data Validity and Reliability

3.9.1. Validity

Validity is one of the strengths of qualitative and quantitative research, and it is based on determining whether the findings are accurate from the standpoint of the researcher, the participant, or the readers (Creswell & Miller, 2000). The research questionnaire was validated in order to ensure that it measures what it was designed for. To ensure Content validity in this study, a thorough examination was made of the related literature. Finally with the advisor consultation, the final version of questionnaire was developed and distributed to respondents.

3.9.2. Reliability

Reliability of a research instrument is a measure of the degree to which the instrument yields consistent data after repeated trials. There are several different reliability coefficients. One of the most commonly used is called Cornbrash's Alpha. Cornbrash’s Alpha is based on the average correlation of items with in a test if the items are standardized. . According to the Hair et al. (2006) the minimum acceptable level of the Cornbrash alpha is more than 0.70. Accordingly the results revealed that the internal reliability of each construct has ranged from

0.967 to 0.988. This represents a high consistency and reliability among statements in questions.

Variables	Cranach‟s alpha value	No of items
Project management process Maturity	0.78	14
Project management tools and techniques	0.86	20
Organizational culture and human capacity	0.85	12
Project management maturity level of ten bodies of knowledge areas.	0.81	38

In table 3.1 above the Cranach‟s alpha of each variable was calculated using SPSS and the average of them taken to represent. Since all of the values are above the minimum three hold of 0.70, they suggest a relatively high internal consistency of the questions.

3.10. Ethical Consideration

Respondents are assured that the information they provide is confidential and used for only academic purpose. Moreover statement confirms the prohibition of including any identity details or personal reference of the respondents in the questionnaire forms. This was to avoid biased response or forged data provided by the residents. Request for names and house numbers or site was prohibited at any part of the data collection so that participants were certain that he/she cannot be traced by anyone else.

This would offer them enough room to express their ideas and point out their response freely and safely. Data gathered in process of the study was kept confidential and would not be used for any personal interest and the whole process of the study was controlled to be within acceptable professional ethics.

CHAPTER FOUR:

DATA ANALYSIS, RESULTS AND DESCUSSION

This chapter presents the data analysis, discussion and interpretation of the research findings. The data analysis was made with the help of Statistical Package for Social Science (SPSS) version 22.The demographic profile of the study, responses received about project management practices for each knowledge areas of project management has been described using descriptive statistics here under.

4.1. Response Rate

Response rate refers to the number of people who participated in survey. A total of 219 questionnaires were distributed and all are filled completely and collected...

4.2. Demographic Characteristics of the Respondents

This section summarizes the demographic characteristics of the respondents, which includes sex, age distributions, education level and work experience of the respondents. The main purpose of the demographic analysis in this research is to describe the characteristics of the respondents so that the analysis could be more meaningful for reader

Table4.1.Sex, Age, level of Education and work Experience of Respondents

		Frequenc	Percent	Cumulative Percent
Sex	Male	146	66.4	66.4
	Female	73	33.6	100.0
	Total	219	100.0	
Age	<30	4+	19.6	19.6
	30-40	20	39.3	58.9
	41-50	69	31.8	90.7
	>50	20	9.3	100.0
	Total	219	100.0	
Marital status	Single	54	24.3	24.3
	Married	166	75.7	100.0
Work experience	<5year	10	16.8	16.8
	5-10years	76	34.6	51.4
	10-15years	68	30.8	82.2
	>15years	39	17.8	100.0
Education	<12 grade	10	4.6	4.6
	Diploma	33	15.0	18.7
	Degree	15	69.2	87.9
	masters and above	3	11.2	100.0

(Source: own survey results, 2022)

As it is shown in the above table 66.4%of the respondents were males and therest 36.6%were females. Based on the obtained data, the majority of respondents are males.
With regard to age distribution19.6%of the respondents are in the age range of 20to30years.Whereas respondents which accounted 39.3%are at the age range of 30to40 year's .Those which range 41to50 year's old accounted31.8% of the respondents. 9.3%oftherespondents are found between the age range of 51 and 60 years. So, the majority of the housing development corporation employees are young and active enough to perform their duties to the expected level, if they managed well.

Concerning educational qualification largest numbers of the respondents are degree holders which were accounted 69.2%oftherespondentsfollowedby 15 % diploma holders. And 11.2% of the respondents are master holders. The remaining 15% are certificate holders. So majority of the respondents in the corporation are well educated to understand and undertake their professional duties.

Regarding work experience, 6.8% of respondents have been working I the corporation for less than 5 years. 34.6% of the respondents have an experience of 5to 10years. Those who accounted 30.8% of the respondents have an experience of 11to 15years. 17.8% for more than five years in the housing development corporations. So they have enough experience in dealing project activities.

4.3. Data Analysis and Results

Table4.2:-Maturity Level of Project Scope Management Knowledge Area

Project Management body of Knowledge area	Frequency(%of 219 Respondents)					Mean	Sd
	1	2	3	4	5		
The importance of project scope Management in your organization	6.4	44.7	48.9			2.40	1.15
Definition of project scope/End to end definition of all works in	13	48.9	34	4.3		2.28	1.19
Quality of Work break down Structure prepare in defining	8.5	48.9	40.4	2.1		2.75	1.13
Effort of Monitoring and Controlling scope in your project	13	53.2	34			2.65	1.02
Project Scope Management maturity level						**2.52**	**0.82**

Source: Own Survey, 2022

Project scope management consists of the processes required to ensure that the project includes all the work required, and only the required, to complete the project successfully. Maturity level of this knowledge is measured innermost the five processes as shown in the above table4.2. The maturity level of this knowledge area is rated at 2.52 approximately level 2maturity levels. The table also indicates that the maturity level result of each process in this knowledge area is similar with the average maturity level of the knowledge area.

According Crawford (2002) this level 2 project management maturity indicates that the level of project scope management knowledge areas processes are existed in the company in implementing its projects, but they are not considered as an organizational standard.

In the interview conducted with project manager 1(PM1), project manager 2 (PM2), project manager3 (PM3) and project manage 4(PM4) it was found out that there is a documented process by which the project manager solicits and receives inputs and develops project requirements and key deliverables were identified and listed and describing the scope statements which was enforced by organizational management for larger ,more visible projects. Projects were consistently prepared in accordance with the defined process and format The Company used expert judgment (consultant), meeting and focus group discussion. Regarding to scope change control process is a defined and documented scope change control process, but not all of the projects follow this process.

Table 4.3. : -Maturity Level of Project Time Management Knowledge Area

Project Management body of Knowledge area	Frequency(% of 21 Respondents)					Mean	Sd
	1	2	3	4	5		
Schedule or plan prepared for your						3.02	1.01
Activity Duration Estimating		40.4	55.3	4.3	12.8	72.3	14.9
WB Soused when defining	23	61.7	14.9		23	1.91	1.21
Progress of project activities continuously	23	61.7	14.9		23	1.91	1.23
Project Time Management maturity level						**2.01**	**0.71**

(Source:-own surveyresults, 2022)

Project time management knowledge is including the processes required to manage the timely completion the project. Which includes the process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule, the process of identifying and documenting the specific actions to be performed to produce the project deliverables, the process of identifying and documenting relationships among the project activities, the process of estimating the type and quantities of material, human resources, equipment, or supplies required to perform each activity, the process of estimating the number of work periods needed to complete individual activities with estimated resources, the process of analyzing activity sequences, durations ,resource requirements, and schedule constraints to create the project schedule model and finally includes the process of monitoring the status of project activities to update project progress and manage changes to the schedule baseline to achieve the plan.

As shown intable4.3 project time management knowledge area maturity level is average at2.52. This level (Structured Process and Standards) project time management maturity is characterized by the basic, documented processes in place for identifying project activities, sequencing the activities and establishing dependencies, developing summary schedules, publishing and distributing reports, and monitoring basic schedule metrics. Basic metrics exist for schedule information (mile stone percent complete) although they are collected and correlated manually. Management support project management process but they are only consistently involved on large, visible projects.

There project managers PM2, PM3andPM4 mentioned that they did not use milestone and Gant chart documents as the company could not provide cements on how to develop their respective project milestone. But they used MS-excel tool for time management process. And, the base line schedule for most of the projects did not maintained. The planned schedule of the project is available for all project team's by email.PM1among the four project managers indicates that they used a structured document to develop his own project milestone.

Table4.4:-Maturity of Project Cost Management

Project Management body of Knowledge area	Frequency(% of 219 Respondents)					Mean	Sd
	1	2	3	4	5		
Estimate of detail cost for project	19.1	53.2	27.7			2.09	1.07
Estimate of detail cost of labor ,material and machinery separately	4.3	53.2	40.4	2.1		2.4	1.11
Efficiency of projects meeting Project cost	10.6	42.6	46.8			2.36	0.92
Effort of monitoring and Controlling project cost	12.8	48.9	38.3			2.26	1.14
Project Cost Management maturity level						**2.01**	

(Source: own survey results, 2022)

Project cost management includes the processes involved in estimating, budgeting and controlling cost so that the project can be completed within the approved budget. Project cost management includes the processes of: Estimate costs, Determine Budget and Control Cost.Table4.8 below indicates that project cost management knowledge area maturity of the company in managing its projects is found to be 2.01 (Structured Process and Standards) maturity level.

According to the interview conducted with the project managers most of them mentioned that there are documented processes in place for identifying generic key resources (labor categories, hours, equipment, and material), generating and documenting project cost estimates, publishing and distributing reports, and monitoring basic metrics.

Although th e processes are in place, they are not considered a n organizational standard. A basic cost- estimating template exists. Metrics exist for basic cost information (planned budget, percent complete) although they may be collected and correlated manually. PM1, PM2, PM3 and PM4 also confirmed that the company did not use the modern project management software and earned value management systems/tools to manage the project cost .But currently the company is introducing Enterprise Resource Planning (ERP) systems to manage and tracking each project costs and the company has a practice of assigning costs based the project size before the project is kicked off and all the project scope changes and cost estimates resulted from the scope change is approved by the management of the company.

Table4.5:-Maturity of Project Quality Management

Project Management body of Knowledge area	Frequency(% of 52 Respondents)					Mean	Sd
	1	2	3	4	5		
Quality management policies, procedures and guidelines	4.3	66	29.8			2.26	1.03
Implementation of quality Assurance	17	70.2	12.8			1.96	1.00
Project inspection and control of Quality	23.4	57.4	19.1			1.96	0.95
Quality department or, employees Specializing in quality management	27.7		12.8	59.6		2.90	1.28
ProjectQuality Management Maturity Level						**2.48**	**0.83**

(Source: own survey results, 2022)

Project quality management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the processes: plan quality, perform quality assurance and perform quality control. Its main purpose is to satisfy the client, to conform to requirements, to ensure fitness to requirements and to ensure if the design is fit for customers. Maturity level of project quality management knowledge area of the organization is found to be2.48level (structured process and standards) approximately at level from the five- maturity level of PM solutions mode as depicted in table 4.9above.

This level immaturity level is characterized by a basic organizational quality policy has been adopted and management encourages the use of large and highly visible projects.

According to the interview result with project managers PM1, PM and PM4 mentioned that there, is a basic approach for quality assurance and the company used different project documents and quality management and control tools as wellas different preliminary acceptance tests to manage the project quality. And PM3 also strongly argued that the company assures the quality of the project if the test result is more than 95%fit.

Table4.6:-Maturity Level of Project Integration Management KnowledgeArea

Project Management body of Knowledge area	Frequency(% of 52 Respondents)					Mean	Sd
	1	2	3	4	5		
Standard project management processes and methodologies	10.6	57.4	29.8	2.1		2.23	1.01
Develop Project management plan and change control work	27.7	55.3	17			1.89	1.12
Solid knowledge of project managers in project management	17	68.1	14.9			1.98	0.81
Support of Management in project management development	21.3	63.8	14.9			1.94	0.88
Project Integration Management maturity level						**2.38**	**0.74**

(Source: own survey results, 2022)

Project Integration management knowledge area includes the processes and activities needed to identify, define, combine, unify and coordinate the various processes and project management activities within the project management process groups. In the project management context, integration includes characteristics of unification, consolidation, articulation and integrative actions that are crucial to project completion, successfully managing stakeholder expectations and meeting requirements. As Table4.5above depicts that there are six processes for measuring and labeling project integration management maturity. The results for project integration management indicates that processes such as direct and manage project work, monitoring and controlling as well as close project or phase of the project integration management knowledge areas have almost similar results which are approximately at maturity level 2 and they are the least matured in the project integration management knowledge areas. And the processes of develop project charter and perform integrated change control process are the highly matured processes rated at maturity level3.

The four project managers (PM1, PM2, PM3 and PM4) mentioned during the interview session projects are consistently started with the defined project charter, and there is a defined and documented change control process for scope changes, but all project processes management is not applied to all projects.

Table4.5 above indicates the average maturity level of the company in project integration management knowledge areas in managing it projects is rated averagely at 2.01 approximately at level 2. And it is on progress to reach the next level3.This level 2 in project maturity indicates that there are basic, documented processes in place for developing project plans and integrating, analyzing, and developing the report on work results. Summary –level information's consolidated in to reports. The focus is on summary status and performances reporting for the triple constraint teams (scope, time, and cost).Although the processes are in place, they are not considered an organizational standard (Crawford, 2002).

Table 4.7:-Project Procurement Management Maturity Level

Project Management body of	Frequency(% of 219 Respondents)					Mean	Sd
	1	2	3	4	5		
Planning for procurement of goods	12.8	40.4	40.4	4.3	2.1	2.43	
Standard procurement document for your project/organization like standard purchase order, subcontract/supplier agreement	8.5	44.7	38.3	8.5		2.47	0.99
Contract management/administration	6.4	42.6	40.4	10.6		2.55	
Status Claim management		38.3	59.6	2.1		2.64	1.08
Project Procurement Management Maturity Level						**3.37**	**0.90**

(Source: own survey results, 2022)

Procurement management is the processes and actions under taken by the project manager and/or team to acquire goods and services in support of the project. It also includes activities in managing the contract throughout the period of performance and closing the contract upon completion. All these process and actions must be taken within the constraints of the organizational structure and polices of the overall organization.

Generally, the process involves contracting with an outside even to acquire goods and services in timely manner, in the appropriate quantity, and within a defined quality standard. It includes the processes: Plan Procurements, Conduct Procurement, control procurement and Close Procurement. From table 4.6, we can see that majority of the respondents rated

the reprocesses also above the maturity level 3 and the mean of the table also shows 3.37. This indicates that the overall maturity level of this project procurement management maturity level of the organization is found to be approximately at level l3.

From the four project managers PM1, PM2, PM3 and PM4 interview result the company has implemented Enterprise Resource Planning (ERP) systems to standardize the procurement process of the projects in the company and all procurements are processed using this systems and procurement. The sourcing procedure document review of the company indicates that the company has a well written formal working procedures and formats for procurement works and they are standardized throughout the organization and applied to all projects. All procurement In addition to this the sourcing and facility of the division takes a lead on procurement planning requisitioning of project procurement items.

Table4.8:-Project Communication Management Maturity Level

Project Management body of Knowledge area	Frequency(% of 219Respondents)					Mean	SD
	1	2	3	4	5		
Plan/strategy prepared to address communication needs	2.1	42.6	53.2	2.1		2.55	1.21
System of collecting and distributing project information		31.9	59.6	8.5		2.77	1.19
Performance reports prepared and provided to relevant take		27.7	61.7	10.6		2.83	1.00
Standard format for preparation of reports		38.3	59.6	2.1		2.64	1.07
Project Communication Management Maturity Level						**2.2**	**1.02**

(Source: own survey results, 2022)

Project Communications Management includes the processes that are required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate is position of project information.

Project managers spend most of their time communicating with team members and other projects stakeholders, whether they are internal (at all organizational levels)or external to the organization. Effective communication creates a bridge between diverse stake holders who may have different cultural and organizational backgrounds, different levels of expertise, and different perspectives and interests which impact or have an influence upon

the project execution or outcome and interests, which impact or have an influence upon the project execution or outcome.

Table 4.9:-Project Human Resource Management Maturity Level

Project Management body of Knowledge area	Frequency(% of 219 Respondents)					Mean	Sd
	1	2	3	4	5		
Planning for acquisition and Management of human resource	8.5	61.7	27.7	2.1		2.23	
Organizational structure of your Project	19.1	53.2	27.7			2.09	
Training/formal or informal/for Capacity building of project team members	25.5	31.9	34	8.5		2.26	1.2
Human resource cost and time Formally tracked, monitored in your project		27.7	61.7	10.6		2.83	1.01
Project Human Resource Management Maturity Level						**2.70**	**0.89**

(Source: own survey results, 2022)

Project Human Resource Management includes the processes that organize, manage, and lead the project team. The project team is comprised o the people with assigned roles and responsibilities for completing the project. It is measured using the processes of identifying and documenting project roles, responsibilities, required skills, reporting relationships, and creating a staffing management plan, confirming human resource availability and obtaining the team necessary to complete project activities, improving competencies, team member interaction, and overall team environment to enhance project performance and tracking team member performance, providing feedback, resolving issues, and managing changes to optimize project performance.

As table 4.9 above shows the computed average mean of the processes is 2.70 approximately this knowledge area is at maturity level 3.This is computed from the average result off our processes under this knowledge area. Thus, processes under this project management knowledge area have not a difference in the level of maturity.

Almost all the processes have equal level of maturity approximately 3. From the interview result with the four project managers (PM1,PM2 PM3 and PM4) confirmed that project management practices and processes are consistent across projects and the company used

organizational charts and position description to plan human resource of each project depending on the size and importance of the project. The company gave project management training to the project team members before and during implementation of the project and the company have a defined roles and responsibilities for all project members.

Table 4.10:-Table:-Maturity of Project Risk Management

Project Management body of Knowledge area	Frequency(%of 21Respondents)					Mean	SD
	1	2	3	4	5		
Identification and documentation of projectrisk		27.7	63.8	8.5		2.23	1.04
Risk analysis to determine the project Impact		31.9	57.4	8.5	2.1	1.89	1.19
Detail risk response plan for identified and analyzedrisks		14.9	63.8	21.3		1.98	0.89
Monitoring and controlling of Project Risk		21.3	68.1	8.5	2.1	1.94	1.05
Project Risk Management Maturity Level						**2.8**	**0.84**

(Source: own survey results, 2022)

Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project. The objectives of project risk management are to increase the probability and/or impact of positive risks and to decrease the probability and/or impact o negative risks, in order to optimize the chances of project success. Almost more than half of the respondents rated each of the process in these knowledge areas approximately at level 3 as depicted in table 4.10 above. This shows that the average risk Management maturity of this knowledge is found to be approximately at level 3. This is highest matured project management knowledge area exit to project procurement knowledge area and all of the processes in this knowledge area have also a maturity level 3.

PM1, PM2, PM3 and PM4 project managers mentioned that the risk processes in the organization are standardized throughout the organization and are being utilized by nearly all projects and the organization has a documented, repeatable process for identifying

project risks, which is fully implemented. .Documentation is existing on all process and standards for identifying risk events.

A process is fully developed and utilized for managing and controlling risk in the company. Project risks are actively, routinely tracked. Corrective actions are taken place and/ or things change, and project plans are adjusted accordingly.

Table4.11:- Project Stakeholder Management Maturity level

Maturity levels (%of 47 respondents)						
Project stake holder Management	**1**	**2**	**3**	**4**	**5**	**Mean**
Identify Stakeholders	19.1	53.2	27.7			2.09
Plan stakeholder Management	4.3	53.2	40.4	2.1		2.4
Manage Stakeholder Engagement	10.6	42.6	46.8			2.36
Control Stakeholder Engagement	12.8	48.9	38.3			2.26
Project stake holder Management Maturity level						**2.28**

(Source: own survey results, 2022)

Project Stakeholder Management knowledge area includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging take holders in project decisions and execution.

This knowledge area also focuses on continuous communication with stakeholders to understand their needs and expectations, addressing issues as they occur managing conflicting interests and fostering appropriate stakeholder engagement in project decisions and activities.

Table 4.11 shows that the maturity level of project stakeholder management knowledge area is 2 level of maturity. No one of the processes in these knowledge areas reached at level l3 project management maturity. This figure indicates that processes in these knowledge areas are not yet standardized throughout the organization and all projects don't follow these processes.

Projectmanager1 (PM1), project manager2 (PM2), projectmanager3 (PM3 and project manager4 (PM4) argued that there is a stakeholder management process required to identify

the people, groups or organizations that could impact or be impacted by the project. Three project manager sprojectmanager1, project manager2 and project manager 3 mentioned that project stakeholder management tools such as stakeholder analysis, expert judgment and meeting were implemented in the organization. But they are not standardized throughout the organization that means all projects did not follow these processes consistently.

As it is studied by Guesh Dejen in 2017 regarding to the assessment of 20/80 condominium houses constructions in Bole and Akaki -Kality sub cities he clearly showed the low level of project management maturity in the condominium construction effort of the housing development project office. The construction performance problems are indicated in the table below.

Table4.12:PerformanceofcondominiumhousingprojectinBol eSubCity Site-Bole Arabsa Two

Numberofcontractors32

No	Activities	G+4	G+7	Total
1	Total number of blocks	8	72	80
2	Total number of active blocks			
3	Contract time	540days	720days	
4	Revised contract time	720days	0	
5	Completion date	January20-2016	January25 -2017	
6	Revised completion date	July25-2017		
7	Elapsed time to date	767 Cal day	767 Cal day	767 Cal day
8	Accomplished to date (%)	31.29	34.81	33.05

Source Image ConsultancyPLCMarch15/2017

The table revealed that the performance accomplished to date for G+4 project site is 31.29 percent and 34 .81 percent forG+7or an average accomplished todate33percent forG+4and G+7 blocks.

The point is about the delay of the projects, for example, the first proposed plan to complete G+4 was 1 year and 6 months but the blocks takes 2years with performance accomplished todate31.29 percent and G+7 plan to complete was 2 years but it consumes more 2 years with performance accomplished to date 34.81 percent.

So no one can sure the blocks of the project sites to finish with in another extra 2 years because the variation of the plan and actual performance of the project to complete the

blocks are frequently shown big differences. This is the consequence of low project management capabilities which is directly or indirectly connected to low project management maturity levels.

The same study identified major critical problems in the construction of condominium houses at akaki-kalty sub city specifically at koye feche construction site. The problems were the following.

Table4.13: Performance of condominium housing projectinAkakykalitySubCity Site-KoyeFecheone

Numberofcontractors62

No	Activities	G+4	G+7	Communal
1	Total number of blocks	156	15	
2	Total number of active blocks			
3	Contract time	540days	720days	
4	Revised contract time	Feb-1-2014	June-05-2014	
5	Commencement date			
6	Completion date			
7	Revised completion date	Jul-26-2015	Aprl-25-2016	
8	Elapsed time to date	782days	658days	
9	Accomplished to date (%)	76.9	59.07	68

Source:PerfectArchitectsandEngineering18-03-2017

In the table above there are 156 blocks in G+4 and 15 blocks in G +7. The contract time was 540and 720 days for G+4 and G+7 respectively. The commencement date was Feb 1,2014 for G+4and June 05, 2014 for G+7. Completion date was 1 year and 6 months to G+4 and 2 years forG+7.when we see row 8 in the same table the blocks of the project site consumed or elapsed time to date 782(242 extra days used) days for G+4 and 658(62 remaining days) days for G+7.

But the performance accomplished to date G+4 about 76.96 percent and G+7 are 59.07 percent. From this data we can observe that even though the project plan is try to complete the blocks of the project sites within 540 and 720 days for G+4 and G+7 respectively, but no one block soft the project site finished successfully within the plan due to many delay factors of the project. This indicates the low level of project management maturity levels in the construction sector.

On the other hand A Master thesis made by Endale Mamuye, December 2016 also identified on the Major Causes to the Delay in the Construction of 40/60 Saving Houses Project in Addis Ababa has identified the following critical problems based on in priorities. These are:

- Financial difficulties faced by the contractor-Contractors
- Problem of Electric supply-Client
- Problem of Water supply-Client
- Equipment unavailability -Contractors
- Delayed payments to contractors-Client & Consultants
- Poor site management-Contractors
- Ineffective planning and scheduling of project-Client, Consultants& Contractors
- Late Design Review & approval- Client & Consultants
- Slowness in decision making process-Client & Consultants

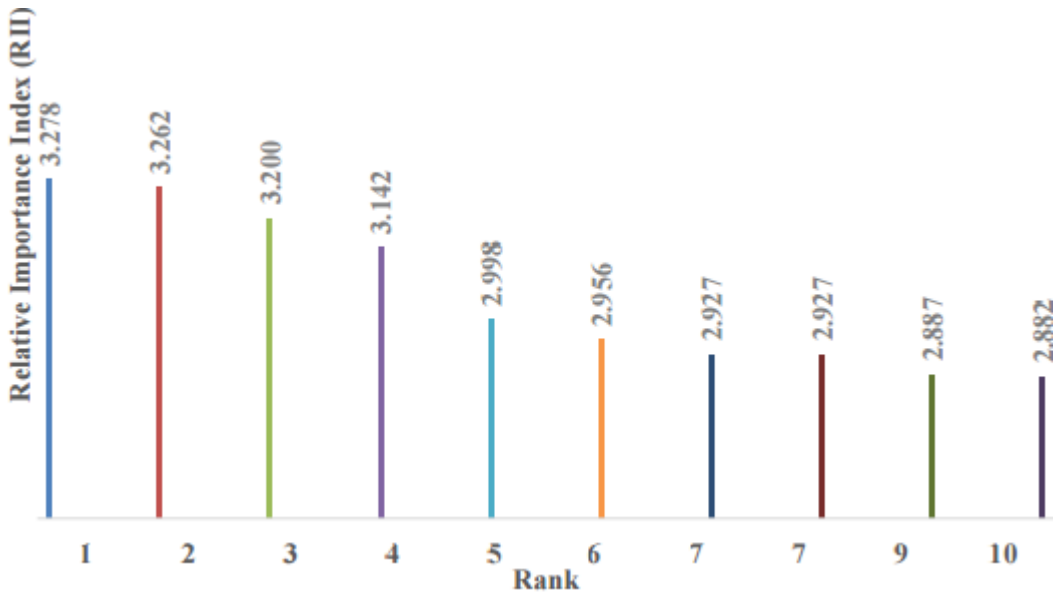


Figure 4.1.Overall top 10 Major Causes of Delay and their Delay sources in the 40/60 Saving Houses Project

The above two studies revealed that the project management maturity levels in condominium housing construction sits at found at the lower level.

Table4:14.Project Management Maturity level of the Corporation in managing its housing projects

Maturity level of each Project Management Knowledge Areas	Mean
Project Integration Management Maturity	2.38
Project Scope Management Maturity	2.36
Project Time Management Maturity	2.01
Project Cost Management Maturity	2.01
Project Quality Management Maturity	2.48
Project HR Management Maturity	2.70
Project Communications Management	2.2
Project Risk Management Maturity	2.8
Project Procurement Management Maturity	3.37
Project stakeholder Management Maturity	2.28
Over all Project management maturity level	**2.46**

(Source: ownsurveyresults,20 22)

Table 4.11 shows the results of current PMM of the company in managing its projects. The overall immaturity level is2.46 (i.e., Structured Process and Standards process according to PM solution" maturity model) which is an indication of a maturing PM processes in the organization.

This research finding is similar with the research finding of Pennypacker and Grant (2003&2006).They conducted project management maturity research on126 companies to find out the project management maturity level among companies using the proprietary PM Solutions Project Management Maturity Model, which combine Capability Maturity Model with nine Knowledge Areas of the *PMBOK® Guide,* resulting in a five-level maturity model.

They found that overall, most of the companies (53%) achieved relatively low level l2 (structured process and standards), while19% and 14% achieved level3 and level 1accordingly.The rest of respondents placed their companies on level 4or level 5. And, a research by Špundak and Štriga (2010) on project management maturity of Croatian companies found the same result maturity level of the participating companies.

In general, it is noted that PMM of the company is moving from Level 2to Level3.As PMM moves to Level it also means that the organization should strive for having all project management processes are in place and established as organizational standards.

Nearly all projects use this process with minimal exception. Management has institutionalized the processes and standards with formal documentation existing on all process and standards. Project management processes, are typically automated, and management is regularly involved in input and decision making. Each project is evaluated and managed considering other projects interpretation and discussion.

Project Management practice maturity level of the core Project management body of knowledge areas According to Kerzner (2017) ,Maturity in Project Management is specifically designed systems and processes, which characterized by repetitiveness, increasing the probability of success. Maturity in organizational context is a state that creates effective condition for organization to achieve its desired objectives. Therefore, assessing maturity level of the company helps to know the level of the company and shows areas that needs more improvement for efficient and effective performance of the company.

Project Scope Management maturity level

Project Scope Management is a set of processes required to ensure that the project includes all the work required, and only the work required, completing the project successfully (PMI, 2013). The result of the study shows that the maturity level of project scope management is at 2.36 approximating to level l4. This shows that management is regularly involved in input provision and decision-making, processes are typically automated and consistent use of tools and techniques for project management process, almost all projects use this process with minimal exception.

Project management processes are typically automated well established formal documentation at organizational level (i.e. for all projects) and lessons learned and previous project experiences are well organized and utilized for other projects. The company is in progress to be at level l4.This means that processes and standards are in progress to be integrated with corporate process and processes and standards to be documented to support using metrics to make project decision.

Project Time Management maturity level

A project time management knowledge area includes the processes required to manage the timely completion of the project. Once a project schedule is set and communicated, it is often the most common measurement of project performance (HIMSS, 2011). It includes key activities like Schedule or plan prepared for the project, Estimate of resource (Materials people, equipment…) needed schedule desperately, WBS used when defining the schedule activities and Progress of project activities continuously monitored and controlled.

According to their suit the company's project time management maturity level is at 2.388.This shows that the company‟ project time management is regularly involved in input provision and decision-making and processes are typically automated and consistent use of tools and techniques for project management process. Almost all projects use this process with minimal exception. Project management processes are typically automated and well established formal documentation at organizational level for all projects. This knowledge is a maturity level is closer to level l4 to be in a managed process.

The four project managers (PM1, PM2, PM3 and PM4) result of each discussion is given.PM1‟s response on project time management says, "There is some weakness in schedule meeting due to late material supply and budge trelease".PM2‟s response says, "The time management in the company is good, there is no big time over run problem". PM3‟s response also says "There is good time management but there is some time delays due to late concrete test result and supervision problem".PM4‟sresponse says, "There were four projects which were stopped due to sometime over run problems due to the late budget release from the client". Generally, the interview result shows that there is some project time management problem. Time delays occur during construction due to delay of concrete test result, time delay during supervision, and material supply delays more in the case of concrete supply. Since the company has its own concrete production center, the company mostly focuses on the concrete market rather than the projects. The other cause of delay is due to delay late payments release from the clients. This holds the projects from progress. Therefore, some consideration on project time management needs to be taken.

Project Cost Management maturity level

According to (PMI, 2013) Project cost management includes the processes involved in estimating, budgeting and controlling costs so that the project can be completed within the

approved budget .Project cost management includes the processes of: Estimate costs, Determine Budget and Control Cost.

According to the result of the study the overall cost management practice maturity of the organization is 3.81. This shows that company's cost management is regularly involved in input provision and decision-making, processes are typically automated and consistent use of tools and techniques for project management process and there is well-established formal documentation at organizational level.

This knowledge area of the company has more focus since the maturity level is higher. The company needs some work to make it at level 4 in which Processes and standards to be integrated with corporate processes, to mandates compliance and takes an organizational entity view and processes and standards to be documented to support using. Metrics to make project decision.

The four project managers(PM1, PM2, PM3 and PM4) result of each discussion is given.PM1"sresponse on project cost management says "There is good project cost management in the organization but sometime delay problems might also affect it since inflation occurs."PM2andPM3"s response says, "There is good project cost management in the organization." PM 4 there is effective cost management but time over run problems affects the cost of some projects". In general, the interview data shows that there is good project cost management in the company since there is a managed system in the organization a sit the questionnaire result.

Project Quality Management Maturity level

Literatures show that Project Quality Management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project would satisfy the needs for which it was undertaken. According to (HIMSS2011) the primary purpose of quality management is to ensure that the final product meets the business need. The result of the study shows the quality management practice of the organization is found to be at level of 2.46.This means company's project quality management maturity level is at level 3 in which quality management is regularly involved in input provision and decision making, processes are typically automated and consistent use of tools and techniques for project management process and Lessons learned and previous project experiences are well organized and utilized for other projects. This

knowledge area has lesser maturity level than the above project management knowledge areas. It needs more focus in order to increase the maturity level of the company.

The four project managers (PM1, PM2, PM3 and PM4) result of each discussion is given.PM1‟sresponseonprojectquality management says, “There is ISO quality standard which is used to identify and measure project’s quality but there needs to be some work on quality control.” PM2‟sresponsesays“The organizations and ISO certified and it is giving trainings for employees in order to apply the quality standards.” PM3‟s response says, “There are some quality problems like segregation that occurring projects.”PM4‟s response says, “The organization has good quality concrete supply.”

In general, the interview data result shows the organization is an ISO certified. Since the company is an ISO certified there is a quality standard that needs to be fulfilled. And the company is giving trainings to the employees in order to fully apply ISO standards. Currently the system is not fully distributed in the organization. There are technical quality measures on projects, which are done by the consultant. Project Management practice maturity level of the facilitating Project management body of knowledge areas

Project Integration Management Maturity level

According to (Joseph, 2012) as the term integration implies, every activity must be coordinated or integrated with every other one in order to achieve the desired project outcomes. Project Integration management includes the processes and activities needed to identify, define, combine, unify and coordinate the various processes and project management activities within the project management process groups. In the project management context, integration includes characteristics of unification, consolidation, articulation and integrative actions that are crucial to project completion, successfully managing stakeholder expectations and meeting requirements. Project integration management tails making choices about resource allocation, making trade-offs among competing objectives and alternatives, and managing the interdependencies among the project management knowledge areas.

According to the result of the study the overall project integration management maturity is found to be2.76 approximating to maturity level l4.This means that the Integration management could be considered to be at striving to achieve Process integrated with corporate process. The organization is in progress to perform Integration management

formally in which Management uses data to make decisions; estimates and schedules based on organization.

Project Procurement Management Maturity level

According to literatures Project procurement management includes the processes necessary to purchase or acquire products and services. Procurement management includes the contract management issued by an outside organization (Buyer) or issued by the performing organization to an outside organization(subcontract management)and change control processes required to develop and administer contract or purchase orders issued by authorized project team members. The result of the study shows the project procurement maturity level is at3.71. This means that the procurement management is regularly involved in input provision and decision-making, processes are typically automated and consistent use of tools and techniques for project management process and there is well-established formal documentation at organizational level. This knowledge area maturity level approaches to level 4.

The company needs more work to upgrade its maturity level for better performance For the Company .The four project managers(PM1,PM2,PM3andPM4) result of each discussions given.PM1"sresponse on project procurement management says that "There is good procurement management; it is managed by a crew at the head office."PM2"sresponse says "The materials in the projects are supplied at the right time since there is no financial problem in the projects and the materials are requested before one month or two weeks. PM4"s response says "Availability of materials is the main concern in the organization in order to avoid material supply delay." In general, the interview result shows that that there is a crew at the head office to manage the procurement in the organization. There is good project procurement management since materials are supplied for the projects at the right time after they are requested before one month or two weeks. The result of the questionnaire shows that the project procurement management maturity is at2.71.This shows that there is medium level of maturity of the project procurement management in the organization.

Project Communication Management Maturity level

Project Communications Management involves understanding the information received and being able to explain it to others (HIMSS2011).It includes the processes required to ensure

timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate is p o s i t i o n of project information

Of the organization is found to be at2.68. This means company's project communication management is regularly involved in in put provision and decision making, processes are typically automated and consistent use of tools and techniques for project management process and there is well established formal documentation to organizational level for all projects.

This value shows the company's project communication management is in progress to be at level l4, which means the Processes and standards are to be integrated with corporate processes and processes and standards to be documented to support using metrics to make project decision. The four project managers (PM1, PM2, PM3 and PM4) result of each discussion is given. PM1"s response on project communication management says "The organization has good daily report in order to bring good communication about the project"sprogress."PM2"responsesays, "There is bother horizontal and vertical communication among the employees and the stakeholders."PM3"response says, "There is project managers meeting every week and every three weeks there is meeting among the client, contractor and the consultant. "In general, the interview result shows that communication among the project managers is set to have meetings weekly and every three weeks there is meeting among the client, contractor and consultants.

These meetings help the organization to follow up the projects progress and to have good relationship among them. The flow of communication goes from the head office then project managers then to the site engineers then to the gang leader at last to the daily labor of each project. The communication flow also goes the reverse from lower level to the higher level. According to the result of the questioner planning to address communication need and System of collecting and distributing project information needs more improvement for better performance.

Project Human Resource Management Maturity level

According to literatures Project Human Resource Management includes the processes that organize, manage, and lead the project team. Project managers spend most of their time communicating with team members and other project stakeholders, whether they are

internal (at all organizational levels) or external to the organization. The four project managers (PM1, PM2, andPM3andPM4) result of each discussion given. PM1‟s response on project human resource management says, “The human resource I managed by the head office in the organization.

There is some problem of late salary payment to the employees, luck of proper positioning of employees to the right work.” PM2‟sresponse says, “The human resource management is centralized and managed by their crew. But the rear some problems concerning not hearing the employee’s comment, luck ofovertimepaymentstotheemployees.”PM3‟sresponsesays, “The human resource is managed properly in a way that the shift employees where there is more work among theprojects.”PM4‟sresponsesays, “The human resources are junior who selected based on recommendations are. “in general, the interview results shows that there is good human resource management. Human resource management is a centralized system, which is managed by the human resource management crew. According to the questionnaire and interview result, the organization needs improvements on giving capacity building trainings, on planning for acquisition and management of human resource. The organization structure and tracking the human resource cost and time needs to be monitored in a better way for improvements.

Project Risk Management Maturity level

Project risk management includes the processes of conducting risk management planning, identification, analysis, response planning, and monitoring and control of project risk. The objectives of risk management are to increase the probability and impact of positive events, and decrease the probability and impact of negative events in the project.

The result of the study shows the project management maturity levels at 2.26. This knowledge areas maturity level is the low estimation of all. .This shows that the company needs more focus on this knowledge area in order to improve projects performance and to increase level of maturity of the company.

The four project managers (PM1, PM2, PM3 and PM4) result to each discussion is given.PM1‟s response on project risk resource management says, “There is advance risk management plan .If risks occur in the projects the company focuses on the minored to solvetheproblem.”PM3‟s response says, “There is risk insurance in the organization.”PM3‟sresponse says, “The contract related risks are managed by the

engineering department. “IN general, the interview data shows that the organization prepares risk management plan in advance

Project Stakeholder Management Maturity level

According to(PMI,2013)Project Stakeholder Management knowledge area includes the processes required to identify the people, groups ,or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and the impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution. The result of the study shows the project management maturity level is at2.29.This knowledge area of the company is the second lowest maturity. The management is regularly involved in input provision and decision-making, processes are typically automated and there is consistent use of tools and techniques for project management process and well-established formal documentation at organizational level for all projects.

The four project managers (PM1, PM2, PM3andPM4) result of each discussion is given.PM1‟sresponseonprojectriskresourcemanagementsays,“These stakeholders are managed by their weekly communication about the projects and their interest.”PM2‟s response shows that “In some projects stakeholder management is easy when the client and the consultant is the same.”PM4‟s responses were that “There is appoint person (the client) who is concerned on project stakeholder management of the organization.”

In general, the interview data shows that stakeholder is managed by having progress Communication weekly in order to create transparency on the progress of the project and to create good relationship among the stakeholders. According to the result of the questionnaire assessment in stakeholder’s interest and influence and also developing the stakeholder communication plan needs to be improved in order to increase the maturity level land for better performance.

Project Management Maturity level of the Organization

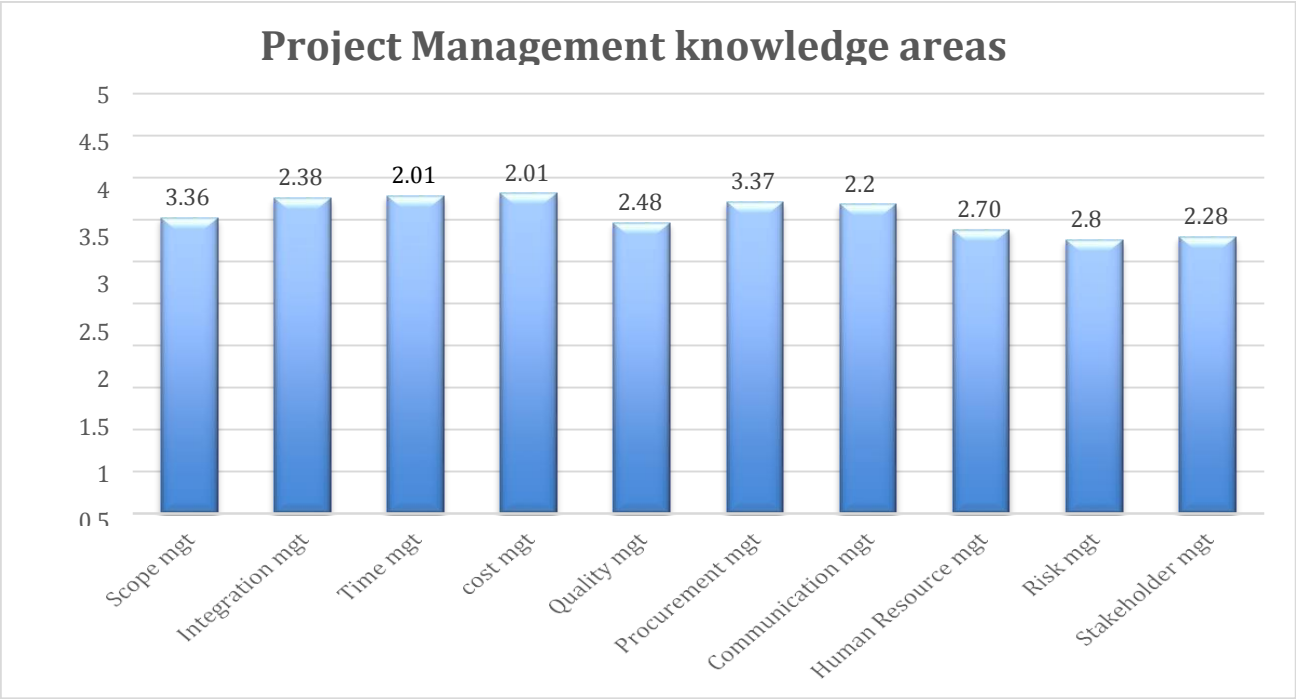


Figure4.2: Summary of PMBOK'S Project Management Knowledge Areas Maturity level (source: own survey results 2022)

According to the result and interpretation of the data obtained the project management maturity level of the organization is at medium level i.e. the average mean of all knowledge areas covered under the study is maturity levelof2.59. This means that the maturity level of the company is at level3 but it is approaching to level 4 in which it has a managed process. This shows that the process in the company is integrated with corporate process and management used at based on the organization to make decision

CHAPTER FIVE

SUMMARY, CONCLUSIONSAND RECOMMENDATIONS

5.1 Summary of Findings

- According to 'five level maturity' the overall project management maturity level of the housing development corporation in managing its projects is at maturity level 2.46 approximately 2 and maturity level of each of the knowledge area are summarized in figure 5.1.
- Project procurement management, project risk management and project human resource knowledge areas maturity level of the corporation are relatively higher than the rest of knowledge areas and they are approximately at maturity level 3.
- Project cost management and project time management knowledge areas maturity level of the corporation are relatively lower than the rest of other knowledge areas and they are at maturity level 2.
- Project stakeholder management, project quality management, integration management and scope management have maturity level greater than 2.2.
- Finally, none of the ten project management knowledge areas, nor any of their processes, is rated at a maturity level of 5. 51 Figure 5:1

5.2. Conclusion

Following are the conclusions which have been drawn from this study: Many project management knowledge area processes exist in the corporation, but they are not considered an organizational standard yet. Documentation exists on these basic processes. Management supports the implementation of project management, but there is neither consistent understanding, involvement, nor organizational mandate to comply for all projects.

There are basic metrics to track cost, schedule, and technical performance collected/ correlated using the ERP system of the corporation. The corporation has all project procurement, project risk and project human resource knowledge area processes in place and established as organizational standards.

The procurement process is considered an organizational standard, and is used by nearly all projects. The procurement of the corporation is run with a much more program view that is,

management views other projects and products in the program is making their decisions. The project team and purchasing department are fully integrated in the procurement process.

Related to the project risk management knowledge area processes they are considered an organizational standard and are being utilized by nearly all projects. The risk identification process is expanded to include efficient ways for teams to identify risks (e.g., checklists). The risk quantification process is expanded to identify more advanced procedures for quantifying risks and multiple criteria to prioritize risk items. The risk response development process is enhanced with templates. All processes are repeatable. But a risk control system is not yet developed and established in the company. Metrics are collected and analyzed, such as the types of risks and success rate in mitigating the items.

The corporation has documented processes in place for identifying generic key resources (labor categories, hours, equipment, and material), generating and documenting project cost estimates, publishing and distributing reports, and monitoring basic cost metrics. Although the processes are in place, they are not considered an organizational standard. A basic cost-estimating template exists. Metrics exist for basic cost information (planned budget, percent complete) and collected and correlated using project management system. And also the corporation has basic, documented processes in place for identifying project activities, sequencing the activities and establishing dependencies, developing summary schedules, publishing and distributing reports, and monitoring basic schedule metrics.

Although the processes are place, they are not considered an organizational standard. Finally PMM of the corporation is moving from Level 2 to Level 3 and the organizations is striving for having all project management processes are in place and established as organizational standards.

Nearly all projects use this process with minimal exception. Management has institutionalized the processes and standards with formal documentation existing on all process and standards. Project management processes are typically automated and management is regularly involved in input and decision making.

5.3. Recommendation

The following recommendations are divided into two sections. The first section presents a set of recommendations to increase the level of project management maturity and its project

implementation as there is a link exists between project management maturity and project success((Schiltz,2003 & Sonnekus & Labuschagne,2004),

The second section offers a set of recommendations providing suggestions for future researchers in exceeding the scope of this study.

5.3.1 Recommendations for Improving Level of Maturity

The findings of this study shows that the corporation is at level 2 (structured process and standards) and moving to Level 3(organizational standards and institutionalized process) which indicates that many project management knowledge area processes exist in the organization, but they are not considered an organizational standard and to make all these project management processes an organizational standards and institutionalized process the organization will need to apply the following proposed recommendations;

- Give special attention to the least matured knowledge area i.e. Project time management, communication management and project cost management knowledge areas as they are part of the triple constraint of a project.
- The corporation should introduce different systems/ tools such as project management software and earned value management for planning, estimating and budgeting as these are the tools used to increase and standardize maturity level of these project management knowledge areas.
- Strengthen the already established project management office. This office helps in standardized project related governance processes and facilitates the sharing of resources, methodologies, tools and techniques (PMI, 2013) Provide project management training based on project management knowledge areas including organizational standards, and processes of project management, for the project team and others. This can increase the ability to implement all the standards and processes to all projects easily and will increase project deliverables.
- Conduct periodic assessments be performed on an annual basis to ensure improvements are taking root. Essentially, repeated assessments (commonly referred to as re-assessments) can be used to track progress against the project management deployment plan that would be developed as a result of the initial assessment.
- Establish Project Management Information Systems for its projects either through an already established project office or on individual projects

5.3.2 Recommendations for Future Research

- Although this study assessed the level of project management maturity of the corporation and found the corporation is at level 2.46 in project management maturity which indicates many project management knowledge area processes exist in the organization, but they are not considered an organizational standard. This indicates that there is room for further research to conduct on the root causes or factors associated to this low level of project management maturity of the corporation
- Conducting a reassessment research after some years later to determine if there is any improvement in managing of its projects and if the organization has shown also improvement in level of maturity after this study.

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Appendix

Questionnaires

STMARYUNIVERSITY COLLEGEOFBUSINESSANDECONOMICS

SCHOOLOFCOMMERCE

MASTERSOFARTIN PROJECT MANAGEMENT

Dear project managers;

My name is Firehiywot Demes. I am an MA student in project management at st marry University School of Commerce. As part and parcel of my MA in project management, I am studying in assessing the level of project management maturity in the case of Housing Development Corporation.

I kindly request you to participate in this study by patiently giving answers for the following list of interview questions. And, I hereby assure you that all the information would remain confidential. Besides, I sincerely request you to respond to the interview questions as per the actual company's project management practices perspective .And, as honestly as possible. The results of this research would contribute greatly in determining the current level of maturity of the organization in managing its projects and where the organization needs to go to the next level of maturity for further improvement and success of projects within the organization. Therefore it is yours genuine response which drives to effective analysis and conclusion then fruit full recommendations Needless to say, that your time is invaluable ,please take few minutes of your precious time to complete the following interview questions. If you have any hesitation or question, you can call b this Tel:+251412357775

Thank you very much for your time and kind cooperation!!

Part one- General Information

Direction:

Please provide the required information on the space provided

1. Name of the person filling the questionnaire (Optional) ----------
   ----
2. Position/role in the office----------
3. Have you received any project Management related training?

   A .yes B. No
4. If yes what was the highest level of trading received...

3. Level of Educational Qualification

A. Masters level B. Bachelors .C Certificate D .Short- term training E. others

Part Two Questions–

Project management practice maturity questions

General direction Answer all the Questions that follow based on your knowledge of practice of Project Management in the project you are participating or in the organization you are working. Please choose the ascending maturity level one up to five based on the key characteristics which were taken from project management maturity model (Crawford, J.K., 2006).

Level1: Initial process Adhoc process (formed, arranged or done for particular purpose only) without consistent and standardized procedures.

Level2: structured process and standards Basic processes, not standard on all projects, used on large, highly visible projects Management supports and encourages use of processes, Estimates and schedules rebased on expert knowledge and generic tools.

Level3: organizational standards and institutionalized management all processes, standards for all projects and are repeatable Summary and detailed information, Estimates and schedules based on Industry standard.

Level4: Managed process integrated with corporate process Management uses data to make decisions, estimates and schedules are normally based on organization.

Level5: Optimizing process to measure project effectiveness and efficiency Process in place to improve project performance Management Focuses on continuous improvement

No	Ten Project Management body of Knowledge areas Key Practice Characteristics.	PMSolutionsMaturitylev					Rema
		1	2	3	4	5	
		S	**D**	**N**	**A**	**SA**	
1	**Project Scope Management**						
1.1	The importance of project scope management in your						
1.2	Definition of project scope/End to end definition of all						
1.3	Quality of Work break down structure prepared in defining						
1.4	Effort of Monitoring and controlling scope in your project						
2	**Project Integration Management**						
2.1	Standard project management processes and methodologies						
2.2	Develop Project management plan and change controlwork						
2.3	Solid knowledge of project managers in project						
2.4	Support of Management in project management						
3	**Project Time Management**						
3.1	Schedule or plan prepared for your project						
3.2	Estimate of resource (Materials, people, equipment….)						
3.3	WBS used when defining the schedule activities						
3.4	Progress of projectactivitiescontinuouslymonitoredand						
4	**Project Cost Management**						
4.1	Estimate of detail cost for project						
4.2	Estimate of detail cost of labor, material and machinery						
4.3	Efficiency of project meeting project cost						
4.4	Effort of monitoring and controlling project cost						
5	**Project Quality Management**						
5.1	Quality management policies, procedures and guidelines						

5.2	Implementation of quality assurance						
5.3	Project inspection and control of quality						
5.4	Quality department or employees specializing in quality						
6	**Project Procurement Management**						
6.1	Planning for procurement to goods and services needed for						
6.2	Standard procurement document for your project/organization like standard purchaseorder,						
6.3	Contract management/administration process						
6.4	Status Claim management						
7	**Project Communication Management**						
7.1	Plan/strategy prepared to address						
7.2	System of collecting and distributing project information						
7.3	Performance reports prepared and provided to relevant						
7.4	Standard format for preparation of reports						
8	Project Human Resource Management.						
8.1	Planning for acquisition and management o human						
8.2	Organizational structure of your project						
8.3	Training/ formalizing formal/ for capacity building of						
8.4	Human resource cost and time formally tracked monitored						
9	**Project Risk Management**						
9.1	Identification and documentation of project risk						
9.2	Risk analysis to determine their project impact						
9.3	Detail risk response plan for identified and						
9.4	Monitoring and controlling of project risk						
10	**Stakeholder Management**						
10.1	Assessment in stakeholders interest and influence						
10.2	Develop stake holder ‟communication plan						