St. Mary's University
School of Graduate Studies

ASSESSMENT OF PROJECT MANAGEMENT MATURITY LEVEL OF ADDIS ABABA HOUSING CONSTRUCTION PROJECTS:

THE CASE OF 20/80 CONDOMINUM PROJECTS

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MERON TESFA GEMEDA

May, 2019G.C
ADDIS ABABA, ETHIOPIA

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STUDENT ID NO: SGS/0526/2008A

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ACKNOWLEDGMENTS

ABBREVIATIONS/ACRONYMS

AAHCPO	Addis Ababa Housing Construction Project Office
APM	Association for Project Management
CMM	Capability Maturity Model
CMMI	Capability Maturity Model Integrated
GTP	Growth Transformation Plan
OPM3	Organizational Project Management Maturity Level
P3M3	Project, Program, Portfolio Management Maturity Model
PM	Project Management
PM2	Project Management Process Maturity
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PMM	Project Management Maturity
PMMM(s)	Project Management Maturity Model (s)
SEI	Software Engineering Institute
WBS	Work Breakdown Structure

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Abstract

In today's dynamic and complex business environment, organizations find themselves in a need to manage projects whether they are project drive or non-project driven organizations. Thus, the practice of project management has to be improved so as to realize its benefits. The main purpose of this research was to assess the project management maturity level of Addis Ababa Housing Construction Project Office (AAHCPO). The maturity assessment was based on a five level project management maturity model devised by PM Solution. To assess the project management practice of the projects, ten knowledge areas were selected from the project management body of knowledge guide. The research employed quantitative research method to realize the purpose of study. A questionnaire was devised based on reviewed literature to assess the practice of the knowledge areas. The collected data was triangulated with data obtained from other secondary sources and analyzed. Based on the analysis, the researcher concluded that most of the knowledge areas were being practiced informally. The knowledge areas also have lower maturity levels. The difference was traced back to already established processes and practices the project office uses in its operations. But lack of proper integration of these practices with project management practice has lowered the maturity level of the project management practice at the project office. Developing and practicing project management knowledge areas; devising procedures; carefully collecting, compiling and disseminating lessons learned from past project implementation; creating project management standards; and creating awareness among all stakeholders towards projects; strengthening the AAHCPO's human and other resources; and providing trainings have been recommended as a means of improving project management practice and attaining higher maturity.

Key words: Project Management, Project Maturity Level, Project Management Body of Knowledge, Addis Ababa Housing Project and Addis Ababa.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Maturity is a comparative level of advancement an organization has achieved with regard to any given process or set of activities. Organization with more fully defined and actively used policies, standards and practices and considered more mature. The more mature organization's practices are the more likely the organization meets its project goals successfully (PMI, 2008). Where is the project maturity level of the organization? So, how Addis Ababa Housing Construction Project Office will reach more maturity level? Using the strong argument between maturity and project successfulness it is possible to evaluate project management maturity of organizations using existing maturity models with standard questions derived from Project Management Body of Knowledge.

Addis Ababa Housing Construction Project Office is created with the main responsible of looking of assistance from different sources to be used for constructing residential houses for low income residents. Never the less, different forms of financing or funding schemes of low – income housing also follow up the progress of the houses in different corners of the city. The federal government enacted proclamation on urban development policy that gives high attention for alleviating housing problems of urban areas. The city administration has also prepared five years housing development program in 2004 to reduce housing problem of the city by 50%. (Azeb Kelemework Bihon Housing for the poor in Addis Ababa)*,* even though the city administration declared the second time that re-registration is taking place after the first repeat in 2013G.C, when new people were registered along with the old ones who first registered in 2005. On this re-registration more than 860,000 house seekers have registered for the 10/90 and 20/80 housing schemes.

Until the end of 2015 over 308,600 houses have been constructed and under construction, of these houses 175,898 are already transferred to the beneficiaries and over 132,702 houses are in progress across several coroners of the city. However several houses are lagging behind schedule, often blamed on power interruption, poor capacity of some contractors, mismanagement in supervision, and procurement procedure (AAHDPO, 2015). Due to from those reasons behind there is lacking of project management knowledge.

The office had initially planned to construct 335,000 houses in the five years of GTP II. Though, no new construction has been commenced. According to latest report of (AAHDPO, 2018), from the left over of 132,702 houses of the project 94,114 are 20/80 housing project as the report shows. Regarding to the plan from the total of Addis Ababa dwellers (860,000) of the house seeker is not satisfying half of the registrants in the end of GTP II plan.

This indicates that the project office needs to know the knowledge of project management. It is important to study project management practices in the context of developing countries to better understanding and able to manage projects successfully in those countries. However, research works on project management in those countries has not yet received enough attention and still they are infant stage (Wondowessen, 2004).

Maturity models are primarily used internally by organizations to guide their effort of improving their project management capability (Supic, 2005, Saiedia & Kuzara, 1995). This is achieved through assessment of the organization's project management processes to find out strengths, weakness and gap. The assessment will reveal the project management maturity level of Addis Ababa Housing Construction Project Office (AAHCPO), which will indicate what to do to improve its efficiency. Several models exist for the project management maturity which will be reviewed in literature review. Those are Capability Maturity Model Integrated by Software Engineering Institute (SEI-CMMI), Project Management Maturity Model by H. Kerzner, Project Management Maturity Model by PM Solutions, Organizational Project Management Maturity Model by Project Management Institute, Project, Program, Portfolio Management Maturity Model (P3M3) by Office of Government Commerce (OGC), Project Management Process Maturity $(PM)^2$ by Kwak and Ibbs, PMO maturity cube by Pinto, Cota and Levin and PMO maturity model (PMO Continuum) by Hill. But this study will use key characteristics of PM Solutions' maturity model with level 1 up to level 5 with increasing order of maturity. This is because the model's developers have given a detailed description of the characteristics across the ten knowledge area each maturity level which is coherent with the purpose of the study.

Assessment of project management maturity will help to identify the level of maturity of the organization which relates with meeting project goals. The result of the assessment is used to guide continuous improvement effort to increase the level of maturity which will directly enhance the competitive position of the organization.

Addis Ababa Housing Construction Project Office is a project driven organization were establish to achieve low income residents in the city. Concerning to the aim of the project office AAHCPO were practicing or uses different project management knowledge areas in the organization. The study focus on how far the project office uses the knowledge areas as well as practicing in the project office.

1.2   Statement of the Problem

Completion of a project is considered as the most important factors of successful projects which help to decrease problems for all parties and give new chances to construct other related projects.it also helps to increase the profits and development of the sector industry. In the contrary the inability to complete projects on time with budget continues to be a chronic problem worldwide and is worsening.

In Ethiopia, the current government formulated different housing strategies to minimize the residential shortage; it can be constructed by saving of tenants and subsidiary of government. Due to this more than 860,000 dwellers have re-registered 10/90 and 20/80 condominium in 2013G.C. In **GTP I (2010/11 – 2014/15 G.C)** planned to construct 308,600 houses. From the plan 175,898 transferred to the beneficiaries and 132,702 are under construction. From 132,702 houses 94,114 are 20/80 housing project.

In **GTP II (2015/16 – 2019/20 G.C),** According to *(AAHPO-2016)* report revealed that Housing and Construction office had initially planned to construct (**335,000**) 10/90 and 20/80 houses in the five years plan of GTP II. From the GTP II plans were not starting yet.

Survey conducted on Mega projects in Ethiopia revealed that the cause for failure and under performance in the projects is project management knowledge area by project teams (MDE, 2017). Housing projects are entrapped by various types of causes, some are inadequate or inefficient equipment, tools and plants, unreliable sources of materials on the local market, inadequate manpower, (e.g., in terms of numbers, poor training, lack of training, etc.), delayed payment to contractors, subcontractors and/or suppliers, rework required due to poor work or the wrong materials used by contractors, change of work scope and/or changes in material specifications, poor communication among stakeholders (e.g. slow responses to site quires, the government side), dispute among the parties involved in the project (clients, contractors,

consultants), high inflation, insurance interest rates, bureaucracy etc. (Frimpong, et al,2003; Muya,2008).

Project management capability of project driven organization is measured using project management maturity levels. Project management maturity level is determined using project management knowledge areas and project management process groups (PMI 2013).

Many conducted researches in developed countries assured that there is positive relation- ship between project management maturity levels and project success. Maturity in organizational context is a state that creates perfect condition for an organization to achieve its desired objectives (Mateen, 2015). Mateen (2015) also quoted Andersen and Jessen (2003) who stated that maturity, when applied to projects of organization, provides truthful condition to handle projects. According to Ferreira and Pereira (2015) maturity models used in the diagnosis of Project Management culture in organizations are helpful to define a set of actions and measures to better its performance as an organization.

Price Water House Coopers (2004) revealed that there is a positive correlation between project maturity and project performance. Research by (Abadir H. Yimam, 2011) on project management maturity of Ethiopian construction contractors identified that the low maturity level. According to Sonnekus and Labuschagne (2004), a link exists between project management maturity and project success.

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 of Ethiopian construction sector by Abadir (2011) found out that the overall maturity level of the sector was low. The research also showed that project management practices are largely informal. Intended for the assessment of the study the researcher try to find which model that the project office are using for the current project but possibly will not get the model in written document. So the researcher picks the model most near to the project office culture.

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. Given the low level of project management maturity in different project sector and gap in literature, this research tried to assess the project management maturity level of "Addis Ababa Housing Construction Project Office. Furthermore, the study is an attempt to contribute to fill the gap in current literature and forward possible recommendations to enhance the maturity of AAHCPO.

1.3   Research Questions

By assessing the maturity level of Addis Ababa Housing Construction Project Office, the research tried to answer the following questions.

1. What is the level of project management maturity at AAHCPO?
2. How are PMBOK's Project Management Knowledge areas being practiced by the Project Office?

1.4   Objective of the Study

1.4.1   General Objective

The general objective of this study is to assess the project management maturity level of Addis Ababa Housing Construction Project Office.

1.4.2   Specific Objective

1. Measure the level of project management maturity at AAHCPO.
2. Assess the practice of the PMBOK's Project Management Knowledge areas by the AAHCPO.

1.5   Significance of the Study

Conducted this assessment has much significance for the students as well as the organization under study. The major contributions or significance of this research are:-

1. The study may help in providing clear picture of current state and defines future state of Addis Ababa Housing Construction Project Office in terms of Project Management Maturity Level and gives recommendation for further improvement.

2. The maturity model and its questionnaires can be used in assessing maturity of the housing construction PM. In addition it can serve as a guide in implementing PM and designing improvement efforts for the coming five year plan.

3. The maturity assessment result of this research can be used as initial benchmark information in prioritizing and designing improvement action. Further the same result can also be used as a baseline to compare the success of or impact of future improvement effort.

4. The study may open door for other researchers to study project management maturity on different sector of projects.

1.6 Scope and Limitation of the Study

The scope of study is to be conducted at office level to assess the project management maturity level of Addis Ababa Housing Construction Project Office. As we know there are numerous unending housing constructions through in Addis Ababa, Regarding to this the researcher wants to realize the overall 20/80 house scheme projects maturity level of Housing project office.

Limitations of the Study

Any research project like any other project endeavor could not be without shortcomings. Hence the researcher faced some limitations in the course of the research project.

- Project management at professional level in Ethiopia is recent phenomenon and nearly none of the professionals at project organization are project management graduates to date hence not have theoretical project management knowledge and discipline. As the result the professionals at Addis Ababa Housing Construction project offices lower level of understanding for responding the questionnaires' as they level to each component.

- As indicated in above respective point in the case of lacking project knowledge areas the respondents careless as they respond to questionaries' and accuracy to the leveling limitation for the study.

1.7 Organization of the Research Report

The study is organized into five sections. The first chapter introduces back ground of the study. In the second chapter, different related literatures are presented to create an in depth understanding towards the subject under study. Under this chapter, theoretical frameworks on which the study is founded are also discussed. The third chapter is concerned with the methodological part of the study. The analysis, discussions of major findings and summary of results is indicated in the fourth chapter. In the fifth and final chapter conclusions, recommendations and implications of the study are stated. List of references used and appendices are also attached at the end of the research report.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter includes three sections which are Theoretical literature, Empirical and Conceptual. Under the theoretical review terms are defined. Under empirical literature the reviews of previous related literatures on project management maturity level and project management maturity model are described. Under the conceptual frame relationship between project management maturity level and the ten knowledge area has described and each of knowledge area has discussed.

2.2 Definition of Terms

- **Project:** A project is a temporary endeavor undertaken to create a unique product, service or result (PMI, 2004).
- **Project management**: The application and integration of modern management and project management knowledge, skills, tools and techniques to meet project goals (Fewings, 2005; Carmichael, 2004).
- **Maturity:** is a comparative level of advancement an organization has achieved with regard to any given process or set of activities (PMI, 2008).
- **Project maturity:** is the degree to which an organization practices project management measured by the ability of an organization to successfully complete individual projects. (PMI, 2003).
- **Maturity Models:** are process models (measurement tools) that used as a framework to guide improvement efforts (Jugdev & Thomas, 2002; Cleland & Ireland, 2002).

2.3 History of Housing Program in Ethiopia

Condominium housing program in Ethiopia cited by United Nations Human Settlement Program (2010) revealed that, during the first half of the twentieth century, at the time of Emperor Haile Selassie, land and housing in Ethiopia were controlled by a select few individuals and groups who owned and tightly controlled land and housing development. Low-income households had little option but to rent housing and this was done outside of any formal control or planning system. In 1962, for example, 58% of the land in Addis Ababa was owned by only 1,768 individuals, equating to ownership of over 10,000m2 each, and leading to 55% of housing units being rental

housing.

In 1974 evolution is the result of overthrow of Emperor Haile Selassie and means of established the Derg, regime. In July 1975, Proclamation No. 47: "Government Ownership of Urban Lands and Extra Houses" nationalized all urban land in an effort to force a fairer distribution of wealth across the country. During this time, two new typologies in the housing sector were established: Government-owned rental units, administered by the Agency for the Administration of Rental Houses, and Kebele Housing managed by Kebele Administration units, the smallest government administration unit, operating at the neighborhood level. During this time approximately 60% of housing in Addis Ababa was rental accommodation and Kebeles accounted for 93% of this rental accommodation.

In 1994, Following the new constitution and federal system of government, a rural development policy and named the Land Reform Program was introduced. Addis Ababa's first housing policy, incorporating the Government's practice of maintaining public ownership, was also implemented at this time but it assumed that the housing market alone would meet the demand for affordable housing of the low-income population.

After the 1974 Ethiopian revolution, the rapid growth of population in Addis Ababa presents extraordinary pressure on the existing housing policy and on the entire infrastructure like- water, electrical power supply, drainage and roads. Planned development of the past was unable to meet the needs of the community and forced to develop public housing re-development plan in GTP I and II (Condominium Housing Program in Ethiopia cited by United Nations Human Settlement Program (2010). The Ethiopian Federal Democratic Government took considerable effort to improve the housing conditions in Addis Ababa city by maintaining different housing programs like- 10/90, 20/80 and 40/60 respectively.

The study focuses on 20/80 housing project through different corners of Addis, according to Addis Ababa Housing Project Office (AAHPO- 2016), Addis Ababa City Administration has delivered 105,000 houses to tenants in the last 10 years. Annually, the administration allocates over 6.3 billion birr for the construction of 10/90 and 20/80 condominiums. More than 860,000 of Addis Ababa's dwellers have registered in the 10/90 and 20/80 housing schemes. The office had initially planned to construct 335,000 houses in the five years of GTP II.

However, no new construction has been undertaken due to waiting the approval of city council to start a new 10/90 and 20/80 housing projects, considered ideal for construction. Currently, there are over 130,000 houses already in progress across several coroners of the city.

2.4   The Concept of Project

A variant of definitions have been given to projects by different authors. The definition given by PMI for a project is a temporary endeavor undertaken to create a unique product, service, or result (PMI, 2013). A more elaborate definition states a project is a sequence of unique, complex, and connected activities that have one goal or purpose and that must be completed by a specific time, within budget, and according to specification (Wysocki, 2014). Likewise, Kerzner (2009) stated that a project can be considered to be any series of activities and tasks that have a specific objective to be completed within certain specifications, have defined start and end dates, have funding limits (if applicable), consume human and non-human resources, are multifunctional (i.e., cut across several functional lines). Project has also been defined as a unique set of co- ordinated activities, with definite starting and finishing points, undertaken by an individual or organization to meet specific performance objectives within defined schedule, cost and performance parameters' (British Standard 6079: 2000 in Maylor, 2010).

The common theme of these definitions revolves around some important features of projects. The features include a defined time frame (temporary), an objective from the inception, resources and their limitations, and specifications and others.

According to PMI (2013), a project has a definite beginning and end. But this does not necessarily mean the duration is short, it does not also apply to the product, service, or result created by the project. The project comes to an end at the end of the duration (when the project's objectives have been achieved) or prior to the scheduled duration (when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists). Wysocki (2014) also stated that Projects have a specified completion date. This date can be self-imposed by management or externally specified by a client or government agency. Being able to give a firm completion date requires that a start date also be known.

The task of the project is to deliver a particular product, service or result (Maylor, 2010). Projects must have a single goal. However, very large or complex projects may be divided into several

subprojects, each of which is a project in its own right (Wysocki, 2014). Nicholas and Steyn (2012) also stated that, a project involves a single, definable purpose and well-defined end- items or deliverables.

According to PMI (2013), although repetitive elements may be present in some project deliverables and activities, this repetition does not change the fundamental, unique characteristics of the project work. In the words of Maylor (2010), a project is unique because the exact project has not been performed before. The project has a degree of novelty, in terms of time, place, and team carrying out the task, product or service being provided. However, something like it has almost certainly been done by someone somewhere before.

Like any other organizational activity projects utilize resources. Projects consume human and nonhuman resources (i.e., money, people, and equipment) (kerzner, 2014). But these resources are limited for projects. Projects have resource limits, such as a limited amount of people, money, or machines that are dedicated to the project (Wysocki, 2014).

Moreover, a project comprises a number of activities that must be completed in some specified order, or sequence (Wysocki, 2014). The sequence of the activities is based on technical requirements, not on management prerogatives. To determine the sequence, it is helpful to think in terms of inputs and outputs. The output of one activity or set of activities becomes the input to another activity or set of activities.

2.5 Definition of Project Management

The foundation of the project management can be traced back to as early as beginning of civilization. But the modern project management has its roots in the Second World War and is developed in construction and defense industry during the industrial revolution (Ali, 2010; Kerzner, 2009). Since then, the concept of project management has been showing improvement and associations and institutions focused on project management have contributed a lot.

According to the Project Management Institute, project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements (PMI, 2013). Likewise the Association for Project Management also defined project management

as the application of processes, methods, knowledge, skills and experience to achieve the project objectives (APM, 2012). These two definitions are oriented towards application of various means to achieve project objectives.

On the other hand, project management has been defined from management functions perspective by Kerzner (2009). Kerzner (2009) stated that, 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.

Kleim and Ludin (1998) defined project management in a way that combines the above two, stating that Project management is the tools, techniques, and processes for defining, planning, organizing, controlling, and leading a project as it completes its tasks and delivers the results.

Project management is accomplished through the appropriate application and integration of project management processes, which are categorized into five Process Groups (PMI, 2013). These five Process Groups are: Initiating, Planning, Executing, Monitoring and Controlling, and Closing.

2.6 Project Management Process Group

According to PMI (2013), in order for a project to be successful, the project team should select appropriate processes required to meet the project objectives. These processes ensure the effective flow of the project throughout its life cycle. The processes encompass the tools and techniques involved in applying the skills and capabilities described in the project management knowledge areas. There are five process groups in the life cycle of any project.

The initiating process group*:* This process group consists of those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase. Within the Initiating processes, the initial scope is defined and initial financial resources are committed (PMI, 2013). In this phase no actual project activity is not performed (Wysocki, 2014).

The planning process group: This process group consists of those processes performed to establish the total scope of the effort, define and refine the objectives, and develop the course of action required to attain those objectives (PMI, 2013). Definition of the work requirements,

definition of the quality and quantity of work, definition of the resources needed, scheduling the activities, evaluation of the various risks are activities included in this group according to Kerzner (2009).

The executing process group: According to PMI, this consists of those processes performed to complete the work defined in the project management plan to satisfy the project specifications. This process group involves coordinating people and resources, managing stakeholder expectations, as well as integrating and performing the activities of the project in accordance with the project management plan (PMBOK, 2013).

The monitoring and controlling process group: This process group consists of processes required to track, review, and orchestrate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes (PMI, 2013). Under this group, activities that relate to tracking progress, comparing actual outcome to predicted outcome, analyzing variances and impacts, and making adjustments are performed by the project team (Kerzner, 2009).

The closing process group: Processes performed to conclude all activities across all project management process groups to formally complete the project, phase, or contractual obligations come under the closing process group. This process group, when completed, verifies that the defined processes are completed within all of the process groups to close the project or a project phase, as appropriate, and formally establishes that the project or project phase is complete (PMI, 2013).

2.7 Program and Program Management

According to Wysocki (2014) a collection of related projects is called a program. A program is a group of related projects, subprograms, and program activities managed in a coordinated way to obtain benefits not available from managing them individually (PMI, 2013).

Program management is the coordinated management of related projects, which may include related business-as-usual activities that together achieve a beneficial change of a strategic nature for an organization (APM, 2012).

2.8 Project Management Knowledge Area

Knowledge Area represents a complete set of concepts, terms, and activities that make up a professional field, project management field, or area of specialization and they are used on most projects most of the time (PMI, 2013). The ten PM Knowledge Areas are discussed below.

1) **Project scope management:** This knowledge area includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully. Generally, managing the project scope is primarily concerned with defining and controlling what is and is not included in the project (PMI, 2013).

2) **Project integration management:** It 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 (PMI, 2013). This Knowledge Area addresses the glue that links all of the deliverables from the Process Groups into a unified whole (Wysocki, 2014).

3) **Project time management:** Project time management includes the processes required to manage the timely completion of the project (PMI, 2013). It provides time estimates for both the duration of a project task and the actual effort or labor time required completing the task. It also involves comparing estimated times to actual times as well as managing the schedule and cost variances (Wysocki, 2014).

4) **Project cost management:** Project cost management 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).

5) **Project quality management:** 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 needs for which it was undertaken (PMI, 2013).

6) **Project procurement management:** The processes necessary to purchase or acquire products, services, or results needed from outside the project team are included under project procurement management according to PMI (PMI, 2013).

7) **Project communication management:** 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 disposition of project information (PMI, 2013).

8) **Project human resource management:** Project human resource management focuses on actions related to the human aspect of the project and, according to PMI (2013), it includes the processes that organize, manage, and lead the project team.

9) **Project risk management:** Project risk management includes the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project. Its objectives are to increase the likelihood and impact of positive events, and decrease the likelihood and impact of negative events in the project (PMI, 2013).

10) **Project stakeholder management:** Project stakeholder management 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 stakeholders in project decisions and execution (PMI, 2013).

2.9 Project Management Maturity

Before to define project management maturity according to (PMI, 2003) definite Maturity, Maturity is   the degree to which an organization practices project management measured by the ability of an organization to successfully initiate, plan, execute, monitor and control individual projects. The trend of using maturity models for increasing organization's performance have been increasing in recent years (Crawford, 2010). Maturity in organizational context is a state that creates perfect condition for organization to achieve its desired objectives (Mateen, 2015). Mateen (2015) also quoted Andersen and Jessen (2003) who stated that maturity, when applied to projects of organization, provides perfect condition to handle projects. The use of maturity models in the diagnosis of Project Management culture in organizations; especially aim to identifying weaknesses and strengths in their project management processes, so that it can then define a set of actions and measures to better its performance as an organization (Ferreira and Pereira, 2015).

2.9.1 Project Management Maturity Models

In order to measure project management maturity of a project organization, one can use a variety of models, some of which include:

1) **Capability Maturity Model Integration (CMMI)**

The first ever version 1.0 of Capability Maturity Model (CMM) was first presented by Software Engineering Institute (SEI) division of Carnegie Mellon University in 1991 (Mateen, 2015). This model was later replaced by its successor, the Capability Maturity Model Integration (CMMI) in 2002, the year of publication of the first version 1.1 (SEI, 2006).

According to SEI (2006), the latest version of CMMI (2.1), released in 2006, comprises a framework that allows the generation of multiple models. CMMI for development is one of those models: it provides guidance for managing, measuring, and monitoring software development processes and help organizations to improve their software development processes for both products and services by describing characteristics of best practices. CMMI offers five maturity levels that can only be reached one after the other in order to stage the process improvement effort (SEI, 2006).

Level 1- Initial: In this level processes are unpredictable, poorly controlled and reactive to situations.

Level 2- Managed: Processes are planned, documented, performed, monitored and controlled at the project level. This stage is often reactive.

Level 3- Defined: During this maturity level, processes are well characterized and understood. Processes, standards, procedures, tools, etc. are defined at the organizational level. This stage is a proactive level.

Level 4- Quantitatively Managed: In this stage, processes are controlled using statistical and other quantitative techniques.

Level 5- Optimizing: Once an organization reaches this level, process performance is continually improved through incremental and innovative technological improvements.

2) **Project Management Maturity Model (PMMM by H. Kerzner)**

According to Kerzner (2014), models can be used to assist corporations in performing strategic planning for project management and achieving maturity and excellence in a reasonable period of time. The foundation for achieving excellence in project management can best be described as the

project management maturity model (PMMM) that can be used as a foundation for achieving excellence in project management. The model is comprised of five levels, each level representing a different degree of maturity in project management.

Level 1- Common Language: In this level, the organization recognizes the importance of project management and the need for a good understanding of the basic knowledge on project management, along with the accompanying language/terminology.

Level 2- Common Processes: In this level, the organization recognizes that common processes need to be defined and developed such that successes on one project can be repeated on other projects. Also included in this level is the recognition that project management principles can be applied to and support other methodologies employed by the company.

Level 3- Singular Methodology: In this level, the organization recognizes the synergistic effect of combining all corporate methodologies into a singular methodology, the center of which is project management. The synergistic effects also make process control easier with a single methodology than with multiple methodologies.

Level 4- Benchmarking: This level contains the recognition that process improvement is necessary to maintain a competitive advantage. Benchmarking must be performed on a continuous basis. The company must decide whom to benchmark and what to benchmark.

Level 5- Continuous Improvement: In this level, the organizations evaluate the information obtained through benchmarking and must then decide whether or not this information will enhance the singular methodology (Kerzner, 2014).

According to Kerzner (2014), these levels do not need to be performed sequentially, rather, some of the above levels can and do overlap. Although overlapping does occur, the order in which the phases are completed cannot change. For example, even though Level 1 and Level 2 can overlap, Level 1 must still be completed before Level 2 can be completed (Kerzner, 2014).

3) **Project Management Maturity Model (PMMM by PM Solutions)**

Like the CMM and PMMM by Kerzner, the model also follows the five levels of process maturity

and PM knowledge areas from the Project Management Institute's PMBOK guide. The model is helpful to measure an organization's project management maturity and to direct organizations towards important PM capabilities that organizations should acquire in order to achieve project management growth and excellence. The five levels of PM Solutions (2014b) are depicted below

Level 1: Initial Process - Not established practices or standards. Metrics and project documentation are informally collected.

Level 2: Structured Process and Standards - Basic metrics and project documentation are present but no organizational standard is set.

Level 3: Organizational Standards and Institutionalized Process - All projects use organizationally institutionalized formal standards.

Level 4: Managed Process - Metrics are used to manage projects, and integrated into other corporate systems to maximize overall organizational performance.

Level 5: Optimizing Process - Lessons Learned is routinely studied to improve PM processes.

4) Organizational Project Management Maturity Model (OPM3)

Developed by PMI, the Organizational Project Management Maturity Model (OPM3) is a framework that provides an organization-wide view of portfolio management, program management, and project management to support achieving best practices within each of these domains (PMI, 2008).

An OPM3 assessment evaluates the degree of an organization's ability to meet their strategic objectives through successful delivery by using recognized best practices to manage portfolios of programs and projects (PMI, 2008). An OPM3 Maturity Assessment is flexible enough to be used to assess maturity in these different focus areas:

1. Specific domains (project, program, and/or portfolio),
2. Organizational Enablers, or
3. Specific stages of process improvement (standardize, measure, control, or continuously improve).

OPM3 framework cycle constitutes following steps for measuring maturity: Acquire Knowledge,

Perform Assessment, Manage Improvements, and Repeat the process.

Acquire Knowledge - this component of OPM3 cycle requires preparation for assessment of project management maturity. A good understanding of OPM3 contents is developed before carrying out assessment. Also, understanding of organization for project management practices is developed (PMI, 2008).

Perform Assessment - involves gathering all the data required for measurement of maturity assessment. For this purpose, the PMI has devised a set of self-assessment method (SAM) questionnaire that enables an organization perform a high-level and a comprehensive assessment of its project management practice. The results of data are formulated in a form of graph which depicts organization's maturity level for project, program and portfolio management(PMI, 2008).

Manage Improvements - the results from perform assessment stage are compared against best practices standard of project, program and portfolio management. This best practice standard defined by PMI provides basis of improvement. The outcome of comparison between existing practices and best practices allows recommendation for improvement (PMI, 2008).

Structure of Organizational project management maturity model (OPM3) has five steps as discussed below.

OPM3 is conducted using an online tool (Product Suite) that includes: forms to start assessments, database of best practices, and electronic version of OPM3 knowledge foundation book and improvement plans based on completed assessments.

The OPM3 Knowledge Foundation book is used as the first step of OPM3 process. It includes an explanation of how OPM3 should be conducted and the best practices related to it.

The second step is performing the assessment using OPM3 Product Suite or performing an online self-assessment. The scope of the assessment is defined in the beginning and it can cover detailed assessment of best practices and capabilities of an organization.

The third step is putting the plans to improve best practices and capabilities that were weak according to the performed assessment in order to get a higher maturity level. The improvement path is extracted from the Product Suite through a report.

The fourth step is to execute the improvement plans to increase the organizational project management maturity level. And finally the fifth step is to redo the assessment again and go through the same process to determine if the improvements affected the maturity of the organization or not (OPM3 Online, Executive guide to OPM3 by PMI).

5) **Project, Program, Portfolio Management Maturity Model (P3M3)**

The Portfolio, Program & Project Management Maturity Model (P3M3) is an enhanced version of the Project Management Maturity Model, based on the process maturity framework that evolved into the Capability Maturity Model (CMM) (OGC, 2006). Like CMM and PMMM, this model has a five-level maturity, each depicting different maturity levels. The Portfolio, Program & Project Management Maturity Model (P3M3) can be used as the basis for improving portfolio, program and project management processes (OGC, 2006).

Later on another version of the P3M3 was developed by the OGC (OGC, 2008). The latest P3M3 is an overarching model containing three individual models:

- Portfolio Management Maturity Model (PfM3)
- Program Management Maturity Model (PgM3)
- Project Management Maturity Model (PjM3) (OGC, 2008)

Although connected, there are no interdependencies between these models, which allows for independent assessment in any of the specific disciplines (OGC, 2008). The P3M3 recognizes not only the program and project management activities being carried out at the individual program and project level, but also those activities within an organization that provide focus and help sustain effort to build a program and project infrastructure of effective program and project approaches and management practices (OGC, 2006). The structural components constituted under the five levels and that comprise the P3M3. The way it is characterized is presented in Table 2.1.

Table 2-1 The structural components constituted under the five levels of the P3M3

Maturity	Project	Programme	Portfolio

Level 1 Initial process	Does the organization recognize projects and run them differently from its ongoing business? (Projects may be run informally with no standard process or tracking system.)	Does the organization recognize programmes and run them differently to projects? (Programmes may be run informally with no standard process or tracking system.)	Does the organization recognize programmes and projects and run an informal list of its investments in programmes and projects? (There may be no formal tracking and reporting process.)
Level 2 Repeatable process	Does the organization ensure that each project is run with its own processes and procedures to a minimum specified standard? (There may be limited consistency or co- ordination between projects)	Does the organization ensure that each programme is run with its own processes and procedures to a minimum specified standard? (There may be limited consistency or coordination between programmes)	Does the organization ensure that each programme and/or project in its portfolio is run with its own processes and procedures to a minimum specified standard? (There may be limited consistency or co-ordination)
Level 3 Defined process	Does the organization have its own centrally controlled project processes, and can individual projects flex within these processes to suit the particular project?	Does the organization have its own centrally controlled programme processes and can individual programmes flex within these processes to suit the particular programme?	Does the organization have its own centrally controlled programme and project processes and can individual programmes and projects flex within these processes to suit particular programmes and/or projects. And does the organisation have its own portfolio management process?
Level 4 Managed process	Does the organization obtain and retain specific measurements on its project management performance and run a quality management organization to better predict future performance?	Does the organization obtain and retain specific measurements on its programme management performance and run a quality management organization to better predict future programme outcomes?	Does the organization obtain and retain specific management metrics on its whole portfolio of programmes and projects as a means of predicting future performance? Does the organization assess its capacity to manage programmes and projects and

Level 5 Optimized process	Does the organization run continuous process improvement with proactive problem and technology management for projects in order to improve its ability to depict performance over time and optimize processes?	Does the organization run continuous process improvement with proactive problem and technology management for programmes in order to improve its ability to depict performance over time and optimize processes?	Does the organization run continuous process improvement with proactive problem and technology management for the portfolio in order to improve its ability to depict performance over time and optimize processes?

Source: (OGC, (2006) and OGC, (2008)

6) Project Management Process Maturity (PM) [2]

The (PM) [2] model is developed by Kwak and Ibbs (2002) by integrating previous maturity models that measure the PM levels of different companies and industries. The model becomes the basis to evaluate and position an organization's current PM maturity level. It illustrates a series of steps to help an organization incrementally improve its overall PM effectiveness (Kwak and Ibbs, 2002). The (PM)[2] model breaks PM processes and practices into nine PM knowledge areas and five PM processes by adopting PMI's PMBOK. Each PM maturity level contains key PM processes, organization's characteristics, and focus areas as depicted in Table 2.2.

Table 2-2 Key PM Process, Organization's Characteristics, and focus areas of (PM)[2] Model

Maturity level	Key PM processes	Major organizational characteristics	Key focus areas
Level 5 Continuous Learning	PM processes are continuously improved	Project-driven organization	Innovative ideas to improve PM processes and practices
	PM processes are fully understood	Dynamic, energetic, and fluid organization	
	PM data are optimized and sustained	Continuous improvement of PM processes and practices	

Level 4 Managed at Corporate Level	Multiple PM (program management)	Strong teamwork	Planning and controlling multiple projects in a professional matter
	PM data & processes are integrated	Formal PM training for project team	
	PM processes data are quantitatively analyzed, measured, & stored		
Level 3 Managed at Project Level	Formal project planning & control systems are managed	Informal training of PM skills and practices	Systematic and structured project planning and control for individual project
	Formal PM data are managed	Team oriented (medium)	
Level 2 Planned	Informal PM processes are defined	Team oriented (weak)	Individual project planning
	Informal PM problems are identified	Organizations possess strengths in doing similar work	
	Informal PM data are collected		
Level 1 Ad-hoc	No PM processes or practices are consistently available	Functionally isolated	Understand and establish basic PM processes
	No PM data are consistently collected or analyzed	Lack of senior management support	
		Project success depends on individual efforts	

Source: Adapted from Kwak and Ibbs(200)

The primary use of the $(PM)^2$ model is as a reference point or yardstick for an organization applying PM practices and processes. The $(PM)^2$ model and its assessment methodology have been

applied successfully to different organizations and industries and are proven to be very effective (Ibbs and Kwak 1997 in Kwak and Ibbs, 2002).

7) The PMO Maturity Cube (A Project Management Office Maturity Model)

Pinto, De Matheus Cota, and Levin developed a maturity model that focuses on PMOs maturity named The PMO Maturity Cube. The PMO Maturity Cube, as its name suggests has three dimensions and their own categories. The dimensions are Scope of the PMO (Enterprise, Departmental or Program/Project PMO); Approach (Operational, Tactical or Strategic PMO) and Maturity (Basic, Intermediate or Advanced) (Pinto et al, 2010).

The proposal of this model sums up the main standard ways of typifying PMOs in essentially two principal dimensions: scope and approach (Pinto et al, 2010).

The scope of a PMO comes from how wide reaching its actions within the organization are. Basically, there are three mutually exclusive possibilities: the project-program PMO, the scope of which covers just one of the organization's projects or programs; the departmental PMO, which covers an area, department, directorship, or business unit, i.e., just a part of the organization; and finally the corporate or enterprise PMO, which covers the organization as a whole (Pinto et al, 2010).

Approach has to do with how the PMO operates. This may be strategically, tactically, or operationally, or it may operate with all three simultaneously (Pinto et al, 2010). The authors also suggested that the driver of the approach of a PMO must be its mission, which will define how strategic, tactical, or operational it should be.

The third dimension is the maturity of the PMO in which the authors define as the degree of sophistication it provides to each service for which it is responsible (Pinto et al, 2010). By considering the twenty seven roles of PMOs put forward by Hobbs and Aubry (2007), the authors analyzed as to their possible different levels of sophistication for carrying them out, from the most trivial way to the most complicated. This determines the degree of maturity when carrying it out (Pinto et al, 2010).

The PMO Maturity Cube results from unifying these three concepts, which have all been consolidated into one specific model for evaluating the maturity of PMOs for any type of

organization.

8) Project Management Office (PMO) Continuum

According to Hill (2008), a project management methodology provides a standard, repeatable process to guide project performance from concept to completion. This "project management methodology" function enables the Project Management Office (PMO) to establish the standard approach to project management that is to be used by all project managers within the relevant organization, Introduce project management practices incrementally, beginning with those that have the greatest impact on project and business success, Achieve consensus for implementing a common project management life cycle across the relevant organization's technical and business areas, Provide for collection of pertinent project data used in individual and aggregate analyses of project performance and identify and incorporate technical and business processes into the project management methodology (Hill, 2008).

Hill (2008) stated that the PMO and the project management methodology evolve through five stages. He called these PMO stages "PMO competency continuum". Along these stages, the project management methodology of the PMO is characterized by:

- Development and implementation of increasingly more complete and comprehensive project management processes and practices
- Increased integration of technical and business process activities
- Wider cross-functional influence at advanced stages of the continuum, in association with the broader oversight authority and responsibility for project management prescribed by the methodology.

The five stages are listed in table 2.3 below with their respective project management methodology.

Table 2-3 Range of Project Management Methodology Activities across the PMO Continuum

Project Office	Basic PMO	Standard PMO	Advanced PMO	Center of Excellence
- Applies effective practices for project performance and oversight; and employs standard lifecycle processes when available	- Introduces critical processes and practices of project management - Identifies and develops critical processes - Manages cross- project critical process use Identifies best and preferred practices	- Establishes and monitors use of a complete project management methodology - Provides full project life-cycle coverage - Integrates technical processes Conducts methodology user training	- Enhances content and monitors use of a comprehensive methodology - Integrates business processes - Optimizes automated tool alignment Facilitates methodology use across relevant business units	- Conducts project management methodology analyses - Examines process variation in business units Assesses methodology use and ongoing process improvement

Source: Hill, (2008)

Importance and 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 strategic enabler.

2.10 A Critical Review of Applying Project Management Maturity Models

A criticism of using Project Management Maturity Models include

- The focus on explicit PM knowledge areas and not on intangible assets, which are not measurable but can contribute to a mature PM capability;

- The comprehensive and complex frameworks may prevent potential users to apply the model;

- The models are inflexible when a flexible model is required for managing change and improvements;

- The models are overly disciplinary, impractical, and overwhelming as methodologies;

- The models focus on the work processes and some ignore the human resource or organizational aspects. (Jugdev & Thomas, 2002 in Backlund et al, 2014).

2.11 Selecting a Model for Project Management Maturity Assessment

The study used PM solution's Maturity Model. The reason behind is the model developers have given a detailed description of the characteristics of the knowledge area at each maturity level. It was developed by mainstreaming each of PMBoK knowledge area.

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

a. structure,
b. applicability and
c. 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 Addis Ababa Housing Construction Project Office. 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 ten 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 organizations 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.

2.12 Empirical Literature Review on Project Management Maturity

The project management maturity has a direct impact on project performance for delivering projects whereas project performance will be low for less mature project management processes.

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. It is important to study project management practices in the context of developing countries to better understanding and able to manage projects successfully in those countries. However, research

works on project management in those countries has not yet received enough attention and still they are infant stage (Wondowessen, 2004).

Palanisamy and Vishnuardhan (2015), performing an Assessment of Contractors Project Management Maturity in Indian contractors. The assessment is done using PMM model and measured in ten project management area of knowledge. The result they showed 50% of the contractors are found to be at incomplete level of PM process maturity. 1/3 of the contractors perform the majority of necessary PM processes informally, and only 20% perform the majority of the PM processes formally. In the study on average these contractors do not perform 1 in 4 processes or practices that expected to be performing to achieve knowledge area goals but the result indicate the overall maturity of the contractors' is found to be at maturity level i.e. less than 3. The cost, time financial and quality management have shown comparatively higher level of maturity compared with other PM knowledge area (above 2.8). Whereas the knowledge area of scope equipment, procurement and material management are comparatively at lower level and could be performed informally by the majorities of the contractors (2.5-2.8).

The remaining three knowledge areas of risk, human resource and safety management are the least matured knowledge areas (less than2.3). For the practical purpose one can consider these three to be totally unknown or practiced by very few in the industry. The over maturity of contractors is determined as 2.56 in the scale of 5, which is very low when compared with international score of 3.46 (PMBoK Core Maturity).

Palanisamy and Vishnuardhan (2015), suggested to improve the performance of construction project by giving atraining and mentoring to improve the PM knowledge and practicing capacity through building the capacity programs, motivate the contractor to obtain ISO certification, giving attention to risk assessment.

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 most of the developing country are not properly using or practicing the PM. As indicated in the previous chapters the more mature an organization's practices are the more likely the organization meets its project goals successfully (PMI, 2008).

So studying project management performance level of the organization is a basic gap which is not addressed by previous researchers and this research will find out the maturity level of the organization which will be the benchmark for future improvement.

2.13 Conceptual Frame Work

The model used in this assessment was adopted from project management maturity (Penny packer and Grant, 2003) but it is redrawn based on the recent PMBoK by using the ten knowledge areas (PMI, 2013) and five level maturity of PM solutions project management maturity model as in indicated in the theoretical part. The key characteristics of the five level maturity models were used as criteria to evaluate each component of knowledge area based on the quantitative data result obtained from conducted questionnaires.
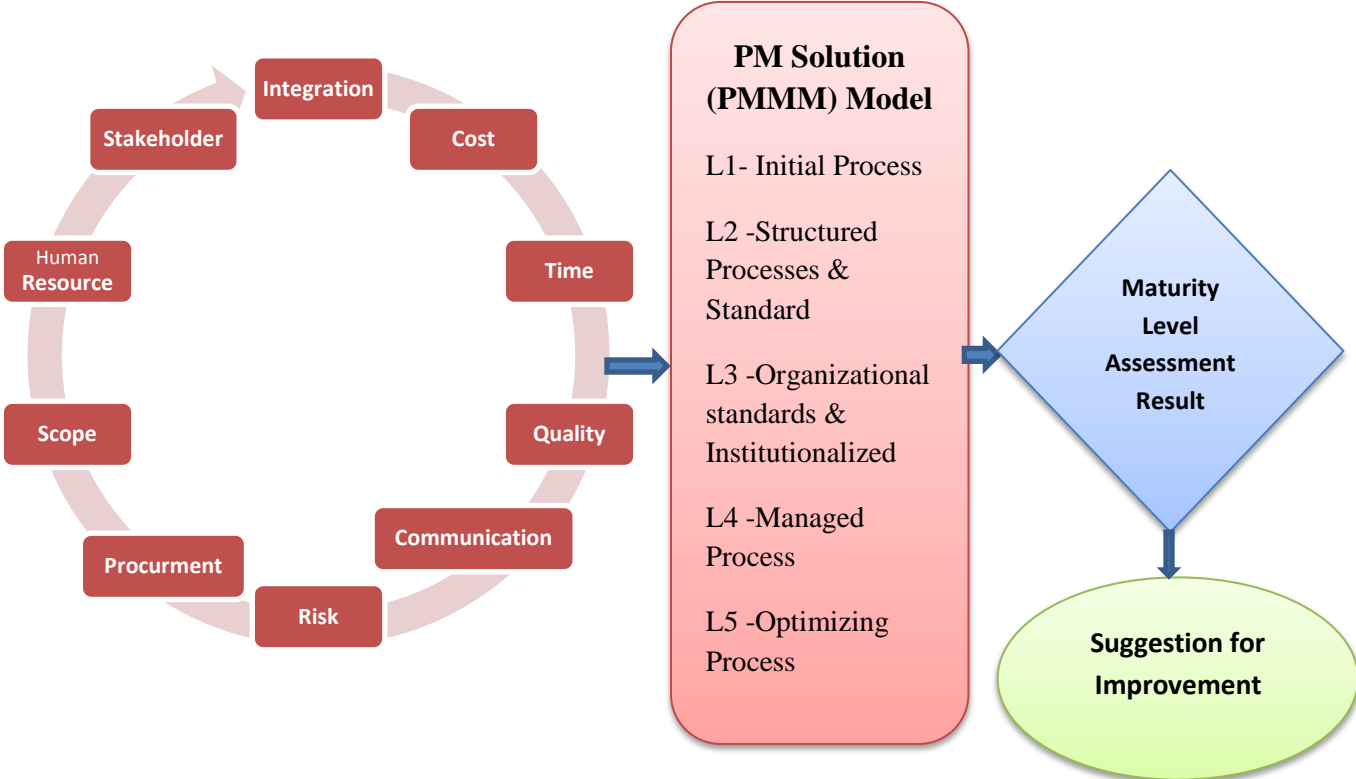
Each knowledge area is broken down into specific components. Specific components are used to measure maturity. the detailed specific components are presented in Appendix A.

Figure 2-1 Conceptual Model of the research

(Source: adapted from Penny packer and Grant, 2003)

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

This chapter of the research report provides an outline of the research methodology will employ in the measurement of the Project Management Maturity level and project management practices for the success of projects of Addis Ababa Housing Construction Project Office. This part describes the research design, Population, Type and Source of Data, Sampling and sampling techniques, Instrument of data collection and methods and procedures of data analysis. Ethical considerations are also describing in this chapter.

3.1 Research Design

Research design is a blue print for selecting the sources and types of data relevant to the research questions and provides the basic direction for carrying out a research project to obtain answers to research questions (Zikgmund et al., 2010). One of the types (classifications of research) is descriptive research, and according to Kothari (2004) descriptive research studies are those studies which are concerned with describing the characteristics of a particular individual, or of a group.

Since this study tries to describe the project management maturity level, it employs a descriptive study research design. Standard questionnaires and quantitative research approach will be used to assess the maturity level of the project office through selected higher level manager's in the project office. The study needs to conduct because the project management maturity level which helps as the starting benchmark to measure the performance of the organization. Assessing the maturity level of the organization helps to recommend future project implementation improvement efforts.

3.2 Population

The target group in this study held in **Addis Ababa Housing Construction Project Office".** The relevant population is all employees working in the project office but this study is basically focused a higher/top level positional workers with efficient background in project management to respond questions effectively.

3.3   Sampling and Sampling Techniques

The technique for selecting the target respondents were used two stages. The first approach were sampling technique that used to the research is purposive sampling which was required for the research selected based on their expertise in the project office. This form of sampling enables to use judgment to select cases were best enable to answer research questions and to meet the objectives. Similarly, Singh (2006), states that the idea of purposive sampling is to pick out the sample in relation to some criterion, which are considered important for the particular study.

Under the Addis Ababa Housing Construction Project Office there is 18 (20/80) projects are engaged, from this 18 projects two of them are named Yeka Abado; Project 13 and Project 14 are completed and the remaining 16 projects were in the course.

The total number of population in the project office is 1108 staffs. From these staffs 300 are support staffs and higher positional levels. As of 300 supportive and managerial staffs 22% in number (66) are top level managers. In this regard the small size in number of top level managers the researcher follows census as second approach.

The total respondents were in managerial position is (64) considering the level of experts and the two of remaining are not chance to getting due to reasons. The selected four professionals from each project although the respondents considering the top level managers they have, So, Project managers, Project Engineers, contract and procurement specialists and consultants were target respondents considering profession with the type of projects under study. Forty (40) questions on each PMBOK areas were sent to assess practice maturity.

The research question distributed to the 64 top level managers working in Addis Ababa Housing Construction Project Office, with different projects such;

Table 3-1 *Summary of No of Projects*

No	Site Name	Name of Projects	Number of Projects
1	Hana Fure	Arada Project	1
2	Kara Kore	Gulele Project	1
3	Bole Arabsa	Yeka, Project 13, kirkos, Bole & Ledeta	5
4	Bole Bulbula	Arada Project	1
5	Yeka Tafo	Kolfie Project	1
6	Koye Fuche	Akaki, Project 11,12,16,17,18 & Addis Ketema Project	7
7	*Yeka Abado*	*Project 13 and 14 (Completed)*	*2(Completed)*
			18 – 2=16 Projects
	Total No of Respondents		**16*4=64**
	No of Respondents		**52**
	Non Respondents		**12**

Own survey 2019

The project office instructed by board members according to the proclamation no 33/1999 the project office has lead by one General Manager and Deputy Manager. The study considered four professionals from each project which made 64 total respondents.

3.4 Source and Tool /Instrument of Data Collection

According to Kothari (2004), there are two types of data primary and secondary. The primary data are those which are collected for the first time and thus happen to be original in character. Secondary data are defined as data that have been previously collected for some purpose other than the one at hand. For the purpose of this study in order plan to obtain relevant information both primary and secondary data are used as a source. Primary data collections for the administration of the questionnaire to the respondents were selected through purposive sampling and census.

Secondary data were collected through published works, journals and related articles that contribute to better understanding of the research topic. The questionnaire was validated by reviewing these and other literature that is both empirical and theoretical. The questionnaire was divided into two parts. The first part is designed to capture general data about the respondents. The second part has questions developed from literature. The questions grouped in to ten knowledge areas set by PMI (2003) in the project management body of knowledge PMBoK (2008) guide. Under these knowledge areas were various questions devised to measure the degree of maturity of the project management practice.

3.5   Method of data analysis

The data collected from primary source using questionnaire were analyzed using descriptive statistics method is employed in the data analysis. In the data analysis "Frequency Index", "Average Index", Percentage and mean score were used to calculate the project management maturity level of the organization. Calculating the response rank were of each knowledge areas were undertaken for each respondent by calculating mean and taking the mean of all respondents finally indicate the maturity level of the organization.

All knowledge area was assessed to have equal weight because the relative weight for the contribution of the different knowledge areas due to absence of significant interest rates agreement. Assessing the project management practice and process maturity level of the current organization status as per internationally recognized standards which indicate where the organization is. This guides to propose on how to improve the level of maturity to meet project goals. This in turn opens door for the organization and other researchers for further research considering the emerging field of study, Project Management.

CHAPTER FOUR: RESULT AND DISCUSSION

4.1 Introduction

Relevant data were gathered through questionnaires distributed to the top level managers, from various reports and project documents. All of the (64) Sixty four distributed questionnaires were filled and returned 81.2% response rate. Data obtained through the distributed questionnaires were analyzed using 25th version of SPSS and interpreted using descriptive statistics. Then major findings have been summarized and presented as follows.

4.1.1 Demographic Profile of Respondents

This section summarizes the demographic characteristics of the respondents, which includes education level, work experience, project management experience and project management trainings. The main purpose of the demographic analysis is this research is to describe the characteristics of the respondents so that the analysis could be more meaningful for readers.

Table 4-1 Demographic Profile of Respondents

Characteristics	Responses	Frequency	Percentage
Educational level	MA Degree	10	15.625
	BA Degree	42	65.625
Work experience	<5 years	33	51.56
	5-10 Years	15	23.437
	10-15years	4	6.25
	15-20 years	-	-
	>20 years	-	-
Work experience in (Project Management)	< 1 year	3	4.687
	1-5 years	16	25
	>5 years	11	17.187
Received training PM by the Office	Yes	28	43.75
	No	24	37.5
Received training in PM outside of the office	Yes	22	34.375
	No	28	43.75
Prior exposure to project environment	Yes	8	12.5
	No	44	68.75

Source: own survey, 2019

Table 4.1; describes the demographic profile of the respondents. In terms of educational level, 42 respondents (65.625%) were holders of BA degrees with 10 of the respondents having MA Degree (15.625 %). Regarding the work experience of respondents, most of them (51.56%) have <5 years of overall work experience; 15 respondents (23.437%) have 5 to10 years of work experience, whereas (6.25%) had 10-15 years of work experience. Majority of the respondents (25%) have one to five years of work experience in project management. (17.187%) of the respondents have >5 year experience in project management and (4.687%) less than one year experience working in project environment.

Majority of the respondents (43.75%) have received project management training provided by the project office although the remaining (37.5%) are not taking the training by institution and yet the training outside from the office most of the respondents (43.75%) are not being attainment project management training and the rest of (34.37%) of respondents had training. When it comes to prior exposure to project environment only eight respondents (12.5%) had such type of experience.

Range Project Management Maturity Model launch by (PM Solution)

Each level represented a discrete organizational capability based on the organization maturity in each of the knowledge area components listed.

1) Level 1: Initial process range (0-1)
2) Level 2: structured process and standards (1.1-2.0)
3) Level3:organizational standards & institutionalized management (2.1-3.0)
4) Level 4: Managed process (3.1- 4.0)
5) Level 5: Optimizing process (4.1-5.0)

4.1.2 Maturity Level across PM Knowledge Area

4.1.2.1 Maturity of Project Scope Management

Table 4-2 Respondents answers for Project Scope Management questions

Knowledge Area	Number of Respondents						
1. Project Scope Management	**L1**	**L 2**	**L 3**	**L 4**	**L 5**	**Average level**	**Total No of Respon dents**
1.1 The importance (awareness) of project scope management in your organization or project team.	25	11	10	5	1	1.96	52
1.2 Definition of project scope/ End to end definition of all works in projects	15	19	8	8	2	2.29	52
1.3 Quality of Work break down structure prepared in defining scope in your project	11	18	14	6	3	2.46	52
1.4 Effort of Monitoring and controlling scope in your project	15	14	4	14	5	2.62	52
Composite Mean						**2.33**	

PMBoK, (2008) defines Project Scope Management as set of processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully. The PMBOK‟s project scope management process involves the processes: identify requirement, define scope, create WBS (Work Breakdown Structure), verify Scope, and control scope. Since Addis Ababa Housing Construction Project Office as a technical perspective scope management is mainly about ensuring that all the works the contractor is doing is what originally agreed on and covered by the contract documents.

Project scope management is describing in terms of four criterial listed the above table. The maturity level of each criterion is average level is 3. Table 4.2 shows scope management practice maturity of participating respondents the overall scope management practice maturity is found to

be 2.33. The maturity survey indicates that the scope management practice maturity is found to be at level 3 of organizational standard and institutionalized process. Project scope management maturity level 3 is characterized by; estimate and schedules done based on industry standard, all process standard for all projects and repeatable, scope are done consistently end to end and project development team and other stakeholders are integrated to WBS process and WBS used for the determination of the project task, controlling scope change management is well practiced. The analysis calculation on how the project management maturity level of each PMBOK was determined is shown in appendix B.

4.1.2.2 Maturity of Project Integration Management

Table 4-3 Respondents answers for Project Integration Management questions

Knowledge Area	Number of Respondents						
2. Project Integration Management	L 1	L 2	L 3	L 4	L 5	Average level	Total No of Respondents
2.1 Standard project management processes and methodologies	12	19	13	7	1	2.35	52
2.2 Develop Project management plan and change control work	9	22	16	5		2.33	52
2.3 Solid knowledge of project managers in project management	17	11	13	8	3	2.4	52
2.4 Support of Management in project management development	14	14	9	11	4	2.56	52
Composite Mean						**2.41**	

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 entails making choices about resource allocation, making trade-

offs among competing objectives and alternatives, and managing the interdependencies among the project management knowledge areas.

Table above depicted that there are four parameters for measuring and labeling project integration management maturity. The result showed that the average level of the response rate is 2.41 it indicate that average level of Addis Ababa Housing Project Office maturity level is 3 in term of project integration management.

The integration management could be considered to be striving to achieve process and standard repeatable for all projects. According to the result from the rest of knowledge area integration had a higher rank, in to this the organization perform integration management formally with integrated functions being performed based on industry standards. But, nothing happening on processes which are in place to improve project performance considering the highest maturity level focusing on continuous improvement.

The analysis calculation on how the project management maturity level of each PMBOK was determined is shown in appendix B.

4.1.2.3 Maturity of Project Time Management

Table 4-4 Respondents answers for Project Time Management questions

Knowledge Area	Number of Respondents						
3. Project Time Management	**L 1**	**L 2**	**L 3**	**L 4**	**L 5**	**Average level**	**Total No of Respondents**
3.1 Schedule or plan prepared for your project	18	12	12	4	6	2.38	52
3.2 Estimate of resource (Materials, people, equipment….) needed scheduled separately	13	23	5	5	6	2.38	52
3.3 WBS used when defining the schedule activities	15	17	9	5	6	2.42	52
3.4 Progress of project activities continuously monitored and controlled	17	14	6	12	3	2.42	52
Composite Mean						**2.40**	

Project time management includes the processes required to ensure timely competition of a project. PMBoK project time management involves the processes: Define Activity, Sequence activities, Identify and document relationship among project activities, Estimate activity resource, Estimate activity Duration, Develop schedule and Control schedule. PMOBOK"s construction extension includes three additional processes of Activity Weights Definition, Progress Curves Development, and Progress Monitoring.

The result showed that next integration management on this study the higher rank recorded in time management. Hereafter, the average maturity value of project time management of AAHCPO is 2.40 which are leveled as project management maturity level 3. Project management maturity level 3 is characterized by standardized and repeatable time schedule; managements have institutionalized process and standards. Project activates are documented and project completion with schedule is predicted, processes and standard for all projects are repeatable. But activities are limited to organizational specific standards, process and standards are not open to external factors

for further improvement and learning. Project process against plan is not monitored, reported and controlled.

The analysis calculation on how the project management maturity level of each PMBOK was determined is shown in appendix B.

4.1.2.4 Maturity of Project Cost Management

Table 4-5 Respondents answers for Project Cost Management questions

Knowledge Area	Number of Respondents						
4. Project Cost Management	L 1	L 2	L 3	L 4	L 5	Average level	Total No of Respon dents
4.1 Estimate of detail cost for project	14	18	9	8	3	2.38	52
4.2 Estimate of detail cost of labor, material and machinery separately	12	24	7	5	4	2.33	52
4.3 Efficiency of projects meeting project cost	16	15	10	10	1	2.33	52
4.4 Effort of monitoring and controlling project cost	17	13	12	8	2	2.33	52
Composite Mean						**2.34**	

Project cost management includes the process 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.

The result reveled that next to integration, time and communication management study ranks cost management as the fourth most practiced knowledge area in managing AAHCPO maturity level 2.34 which is leveled as project management maturity level 3.

Project cost management maturity level 3 is characterized by; alternative cost analyzes are integrated to the cost estimations, established historical database, projects are developing and documenting project baselines at the lowest reasonable level, the capability exists to calculate the

budgeted cost of work scheduled and performed, the actual cost of work performed, budget at completion and estimate at completion. The full process is documented and repeatable; project department team uses the cost change control process, cost reporting process and performance reports.

The analysis calculation on how the project management maturity level of each PMBOK was determined is shown in appendix B.

4.1.2.5   *Maturity of Project Quality Management*

Table 4-6 Respondents answers for Project Quality Management questions

Knowledge Area	Number of Respondents						
5. Project Quality Management	L 1	L 2	L 3	L 4	L 5	Average level	Total No of Respondents
5.1 Quality management policies, procedures and guide lines	19	15	17	1		2.00	52
5.2 Implementation of quality assurance	19	14	14	5		2.10	52
5.3 project inspection and control of quality	23	11	15	3		1.96	52
5.4 Quality department or employees specializing in quality management	26	9	9	8		1.98	52
Composite Mean						**2.01**	

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 needs for which it was undertaken. PMBoK's project quality management includes the processes: Plan Quality, Perform Quality Assurance and Perform Quality Control.

Overall the quality management practice of the project office is found to be somewhat at informal performed level 2.01. Next to risk management study ranks quality management as the second least practiced knowledge areas in managing AAHCPO.

The result reveled that AAHCPO, project quality management maturity level has value 2.01. The value determined is leveled as project management maturity level 2. Table 4.6 shows the quality management practice maturity of participants. Majority of respondents are considering project quality management is practiced informally falling at basic process level where processes and schedules are based on expert knowledge and generic tools. This shows the project office is dependent on quality on quality inspection rather than using the concept of quality at source.

The analysis calculation on how the project management maturity level of each PMBOK was determined is shown in appendix B.

4.1.2.6 Maturity of Project Procurement Management

Table 4-7 Respondents answers for Project Procurement Management questions

Knowledge Area	Number of Respondents						
6. Project Procurement Management	L 1	L 2	L 3	L 4	L 5	Average level	Total No of Respondents
6.1 Planning for procurement of goods and services needed for your project	15	18	8	8	3	2.35	52
6.2 Standard procurement document for your project/organization like standard purchase order, subcontract/supplier agreement	16	15	10	6	5	2.40	52
6.3 Contract management or administration process	17	14	12	8	1	2.27	52
6.4 Status Claim management	18	15	8	8	3	2.29	52
Composite Mean						**2.33**	

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 (sub-contract management) and change control processes required to develop and administer contracts or purchase orders issued by authorized project team members. From Construction perspective procurement management is concerned mainly with subcontract management, supply purchase management and administering the contract that it entered with the client. PMBOK''s Project procurement management process includes the processes: Plan Procurements, Conduct Procurement, Administer, and Close Procurement.

The overall procurement practice maturity of the project offices is found to be at 2.33 which mean the office performs under average of procurement management. Procurement management includes claim management, contract administration; less standard procurement documents like standard purchase order, supplier agreement are the main works being done with intermediate maturity.

The analysis calculation on how the project management maturity level of each PMBOK was determined is shown in appendix B.

4.1.2.7   Maturity of Project Communication Management

Table 4-8 Respondents answers for Project Communication Management questions

Knowledge Area	Number of Respondents						
7. Project Communication Management	**L 1**	**L 2**	**L 3**	**L 4**	**L 5**	**Average level**	**Total No of Respon dents**
7.1 Plan/strategy prepared to address communication needs	16	14	14	8		2.27	52
7.2 System of collecting and distributing project information	10	21	13	9	2	2.37	52
7.3 Performance reports prepared and provided to relevant stake holders	9	19	13	9	2	2.54	52
7.4 Standard format for preparation of reports	14	16	12	8	2	2.38	52
Composite Mean						**2.39**	

Project Communications Management includes the processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information. PMBOK's Project communication management includes the processes: Identify Stakeholders, Plan communications, Distribute Information, Manage Stakeholder Expectations, and Report Performance.

The analysis revealed that the project office communication management components are at similar maturity level. Although computed average maturity level of project communication management is valued 2.39 and the value is categorized under project management maturity level 3.

Project communication maturity level 3 is characterized by accepted communication plan for all projects, formal information retrieval system, and formal information distribution system including project meetings, hard copy documentation, and using electronic machineries for communication or dissemination information. Project department team confirms stakeholder satisfaction with information dissemination on regular basis, and issues are consistently addressed during regular, team meetings. The clients are is part of determining issues and coming up with proposed resolution and action.

The analysis calculation on how the project management maturity level of each PMBOK was determined is shown in appendix B.

Table 4-9 Respondents answers for Project Human Resource Management questions

Knowledge Area	Number of Respondents						
8. Project Human Resource Management	**L 1**	**L 2**	**L 3**	**L 4**	**L 5**	**Average level**	**Total No of Respondents**
8.1 Planning for acquisition and management of human resource	14	22	9	6	1	2.19	52
8.2 Organizational structure of your project	10	21	11	9	1	2.42	52
8.3 Training/formal or informal/ for capacity building of project team members	17	18	7	8	2	2.23	52
8.4 Human resource cost and time formally tracked, monitored in your project	14	19	10	5	4	2.35	52
Composite Mean						**2.30**	

Project Human Resource Management includes the processes that organize, manage, and lead the project team. The project human resource management involves the processes: Develop Human Resource Plan, Acquire Project Team, Develop Project Team and Manage Project Team.

The study result shows in the above table 4.9 similar management maturity value which was averaged to 2.30. Hence the project office is at level 3 project management maturity level in human resource management. The outcome of human resource maturity management under the average of lever 3 features.

Human resource management maturity level 3 characterized by; formal analysis is conducted to define the organizational, technical and interpersonal interfaces that exist within the organization; project department team deals with the planning of the staff acquisition, project team are assigned automatically, the office has established different project related roles and expects that every individual will develop his/her career, and help them to succeed, all project department team

members are expected to have a solid knowledge base about how to plan and track projects. Projects department team members are encouraged to take certificates and degrees related to project management, individual project management experience/competence; every individual is evaluated on his/her performance, customer satisfaction, team member satisfaction and triple constraints parameters, project related role competency measurement has been defined and individuals are given a continuum that can be utilized for performance measurement and career growth.

The analysis calculation on how the project management maturity level of each PMBOK was determined is shown in appendix B.

4.1.2.9 Maturity of Project Risk Management

Table 4-10 Respondents answers for Project Risk Management questions

Knowledge Area	Number of Respondents						
9. Project Risk Management	**L 1**	**L 2**	**L 3**	**L 4**	**L 5**	**Average level**	**Total No of Respondents**
9.1 Identification and documentation of project risk	25	12	7	7	1	1.98	52
9.2 Risk analysis to determine their project impact	24	12	9	6	1	2.00	52
9.3 detail risk response plan for identified and analyzed risks	24	17	9	2		1.79	52
9.4 Monitoring and controlling of project risk	24	9	7	10	2	2.17	52
Composite Mean						**1.99**	

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. PMBOK"s risk management

processes are Plan Risk management, Identify Risks, Perform Qualitative risk analysis, Perform Quantitative risk analysis, Plan risk Responses, Monitor and Control risks.

The average risk management practice maturity is found to be at very low 1.99 wherein the average leveled in 2. It could be generalized that there is little or no risk management practice by the project office. The result shows risk management is least practiced areas of knowledge relying on little controlling mechanism although the identification, determination, analyzing of detail risk response and monitoring and controlling operation in the project office practicing in random manner.

The analysis calculation on how the project management maturity level of each PMBOK was determined is shown in appendix B.

4.1.2.10 Maturity of Project Stakeholder Management

Table 4-11 Respondents answers for Project Stakeholder Management questions

Knowledge Area	Number of Respondents						
10. Project Stakeholder Management	**L 1**	**L 2**	**L 3**	**L 4**	**L 5**	**Average level**	**Total No of Respon dents**
10.1 Awareness about the importance of stakeholder management in the Project Office	16	21	15			1.98	52
10.2 Stakeholder management performed formally (stakeholder analysis) done at your office	16	22	9	4	1	2.08	52
10.3 stakeholder management strategy developed for managing each key stakeholder expectations	17	20	10	5		2.06	52
10.4 Continuous effort of working and communicating with stakeholders to influence their expectation, address their concern and resolve issues	16	22	10	2	2	2.08	52
Composite Mean						**2.05**	

Project stakeholder management includes the process required to identify people, groups, or organizations that could impact or impacted by the project, to analysis stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging and influencing stakeholders in project decisions and execution.

The result reveled in the above table Addis Ababa Housing Construction Project Office project stakeholder management maturity level averaged 2.05 which are leveled under level 2 maturity level. Project stakeholder management level 2 characterized by reactive in nature not proactive, of identifying a concerning person to impact or impacted by the project, some basic project management practices but often only at an individual project level. Success depends on key individual or specific management support rather than adoption of board standard throughout the organization. While better than a random or ad-hoc situation likely interact in the stakeholder.

The analysis calculation on how the project management maturity level of each PMBOK was determined is shown in appendix B.

4.2 Discussion

The research has tried to assess the PM maturity of the Addis Ababa Housing Construction Project Office. Thus in this regard this research result has found the following major points.

As describe in the literature part PM solution's has revealed the Project Management Maturity Model. PMMM model has five staged maturity level; Level 1: Initial process range (0-1), Level 2: structured process and standards (1.1-2.0), Level 3: organizational standards and institutionalized management (2.1-3.0), Level 4: Managed process (3.1-4.0) and Level 5: Optimizing process (4.1-5.0) putting as a framework that used us a benchmark of comparison when looking at an organization. The higher project management maturity levels the greater chance of project success will be attained.

Theories and empirical evidences revealed that there is a positive relationship between project management maturity level and project success. Project success is measured interims of project constraints and customer acceptance that is project completed within budget, schedule to the expected scope and meets customer requirements is noted as successful project.

The result revealed that the overall project management practice in the housing construction project office is low level and each components of the knowledge area indicate that the project office were seems for Risk management maturity level is (1.99) this refers the identification and risk response in the project office little or no attention but for the monitoring and evaluation and risk analysis are well practiced. The Project office level of Quality management is (2.01). These means that quality guideline and quality assurance are defined in the project but practicing the inspection and controlling were informally reasons for the inspection is informal is the team guided by expert knowledge not industry standard. Addis Ababa housing construction project office the Stakeholder management level of maturity is (2.05). Stakeholder management practices in the project office reactive in nature rather than proactive. Have less awareness about the stakeholder management. Success depend on key individual/expert/ and no standard in all project. Human resources are for any company crucial like lifeblood regarding to this the maturity level of Human Resource in the project office is (2.30). These result reveled that there is less training i.e. capacity building also planning staffs' acquisition management project team. Any organization or project sector first set the scope at the conception phase. Housing project office level of Scope maturity is (2.33). The outcome shows the project office less scope awareness by the project office and less mature define scope end-to end. Regarding to WBS, monitoring and controlling well practiced. Estimate schedule based on industry standard. The project office undertaken the procurement part accomplish by the staffs. The housing construction maturity level of in Procurement management is (2.33). Procurement planning, documenting and claim well practiced. Estimating whereas budget the cost is very vital end – to –end plan and accomplish the task. AAHCPO the level of maturity in Cost is (2.34). Estimating cost and labor is effectively meeting by the project cost. Monitoring and evaluation well practiced in the AAHCPO. Analyzing alternative cost comparing historical data base. Communication (2.39) Using standard format for gathered and disseminate information to the stakeholder and accepted communication to all projects. Project by itself have an end point bounded by time. In our study in the housing project maturity level of Time is (2.40). Planning, controlling resource, WBS is practiced defined. Integration (2.41) Planning, controlling resource, WBS is practiced and defined.

Generally, the project office, practicing project management maturity level is found to be at almost low level. Average area of knowledge of project management maturity is **2.25** and it is categorized to maturity level 3. Project management maturity level 3 organization are characterized by project

management process and systems are institutionalized, documented, standardize and integrated into an end to end process for the organization. Project success is more predictable. Cost and schedule performance is improved.

This figure shows on average the organization practice of maturity is near to basic level for all projects which needs striving for better maturity to achieve organizational standards. The average of project office perform the knowledge areas without knowing the following structured approach or guide line, relying solely on the knowledge and experience of the project manager or project team, and on average the contractor are performing only the practice under each knowledge area. These findings are indicative of the low to medium level of PM development in the project office.

Table 4.12 describes maturity levels of ten project knowledge areas and average maturity level which defines the current project maturity level of Addis Ababa Housing Construction Project Office maturity level

Table 4-12 Summary of overall Project Management Maturity Level of AA Housing Project

N o	Ten Project Management Knowledge Area	Level of Maturity					Average
		Level 1	Level 2	Level 3	Level 4	Level 5	
		Initial	Structured /Standard	Institutio nalized	Mana ged	Optim izing	
1	Project Scope Management			2.33			
2	Project Integration Management			2.41			
3	Project Time Management			2.40			
4	Project Cost Management			2.34			
5	Project Quality Management		2.01				
6	Project Procurement Management			2.33			
7	Project Communication Management			2.39			
8	Project Human Resource Management			2.30			
9	Project Risk Management		1.99				
10	Project Stakeholder Management		2.05				
	Project Management Maturity Level						**2.25**

In the above table that revealed that most of the knowledge area results shows in level 3 except only risk management is in level 2. From the lists knowledge area project quality management and stakeholder management are relatively at lower position compared with other knowledge areas, communication, scope, procurement, cost, human resource are also relatively at the same grouped in level 3 were scored but the activities are is very low record though Addis Ababa Housing Construction Project Office, struggling to work on in the knowledge area. Project integration and project time management are leveled in level 3, maturity value 2.41 and 2.40 respectively.

Project risk management has maturity level 2. It indicates that basic process of risk management is well defined and applied to all projects. Some project risk management process and systems are established to stand cost, schedule, and performance. Underlying disciplines, however, are not well understood or consistently followed. Project success is largely unpredictable and cost and schedule problems are the norm. Project management maturity has a direct impact on project performance for delivering projects whereas project performance will be low for less mature project management process, Muhammad Mateen (2015). Empirical evidence serious inadequacies in project risk management maturity recommended that project management capacity building through training should be strengthened and the process need to start from identification of PM training need in the project organization. The low level of project risk management at AAHCPO could be improved by identifying training needs a building capacity on risk management and risk related factors.

Maturity Level

Project Scope Management
5
4
3
2
1
0

Project Stakeholder Management

Project Integration Management

Project Risk Management

Project Time Management

Project Human Resource Management

Project Cost Management

Project Communication Management

Project Quality Management

Project Procurement Management
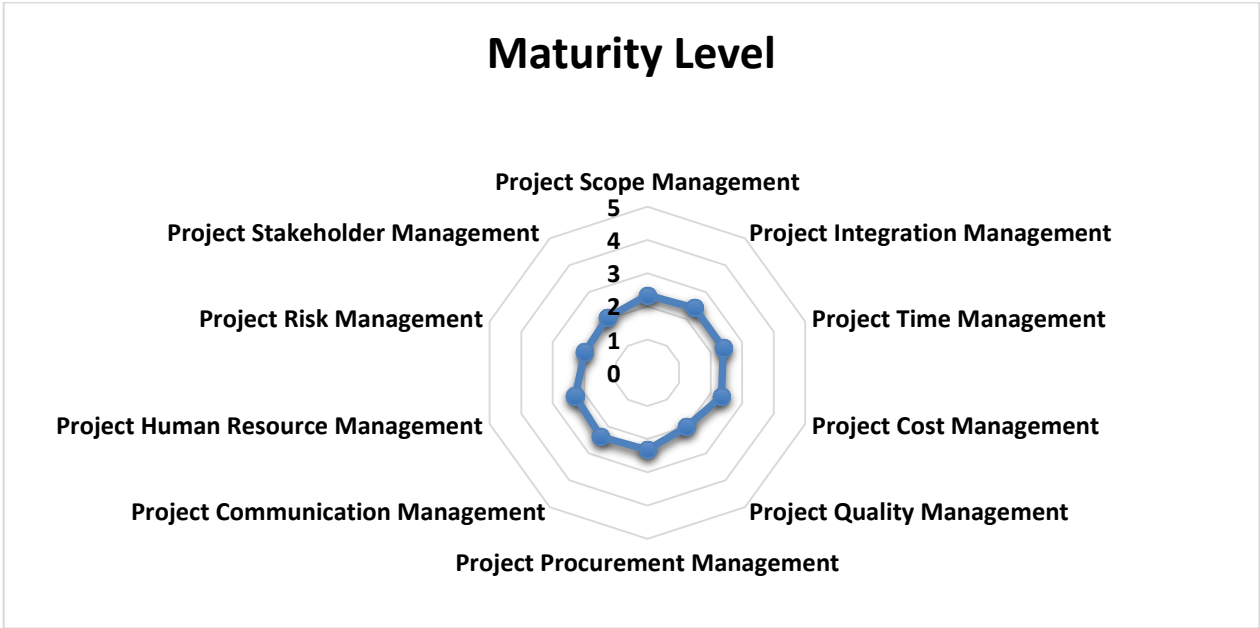
Figure 4-1 PM maturity outcome in Spider diagram

Studies conducted by Grant and Pennypacker (2006); Cooke-Davies and Arzymanow (2003); Mullaly (2006); and Simangunsong and Da Silva (2013) concluded that organizations that are project based and practice project management more often showed higher maturity. The study that reveled outcome of the maturity level of Addis Ababa Housing Construction Project Office are not in the maturity level of managed or optimizing process. This conclusion concurs with the finding from this study AAHCPO are less practicing project knowledge areas so need to pressure the office to mature as the project office.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

Based on a quantitative descriptive study, the researcher has tried to measure the project management maturity level of "Addis Ababa Housing Construction Project Office". The aim of the research was to contemplate possible ways, in which the maturity assessment can be used to improve the project management practice and measure the project management maturity at the AAHCPO, a project management maturity model devised by PM Solutions was used. The model follows five levels of progressive process maturity and uses PM knowledge areas from the project management Institute's PMBOK guide. The model is important to measure an organization's project management maturity and to direct organizations towards important project management practices that are important to achieve project management growth and excellence. As discussed on the literature review part of the study, organizations that practice project management in a formal and structured way tend to exhibit higher maturities and witness better achievement in project management.

5.1 Conclusion

According to (Price Water House Coopers (2004) project maturity level is determined by assessing activities of each project management knowledge areas. If the project management maturity level is not affected by project management knowledge areas the problem is assigned to organizational structure of the project driven organization.

The study concern is to measure the level of maturity and assess PMBoK practice of Addis Ababa Housing Construction Project Office. Based on the data gathered and analyzed practically most of knowledge areas maturity level is 3 except quality, risk and stakeholder were in level 2.

The overall project management maturity level at Addis Ababa Housing Construction Project Office is a maturity level 3. This indicates that most organizational standards and processes were achieved by most of project management knowledge area and applied to all projects. However, in some cases, like project quality, risk and stakeholder management elements are not completely standardized and thus processes are not applied properly and effectively.

Project risk management maturity level of Addis Ababa Housing Construction Project Office is relatively lower than the rest of knowledge areas and it is at maturity level 2. Risk identification, response and mitigation plan are not well understood. In regard to this the project office uses all knowledge area of project management yet still needs to face the challenge of triple constraint.

5.2   Recommendation

5.2.1 Recommendation for Action

The low level of in the Housing project maturity found shows how poor the PM practice is. Thus the improvement efforts need be under taken to improve the current condition. In this recommends the following specific action to be undertaken

1. Giving special attentions to quality, risk and stakeholder management especially. As the review of literature showed management of projects in developing countries is highly constrained by scarcity of resources and high uncertainty (very volatile environment, extremely fast and less predictable changes). Thus, focusing on the management of resource, risk and quality can significantly help lower their negative impact and improve performance of project through better planning and use of the resources; planning and monitoring of the risks and management of change.

2. Encourage the organization to attain least high level of process maturity and practice maturity in order to obtain successful result and ensure control of their projects. As indicated in the problem statement part showed Abadir (2011) reveled in his study project management maturity in Ethiopian construction sector the overall maturity level of the sector was low. The research also showed that project management practices are largely informal. At formal level of process maturity; structured approach, guides and standards are used, expectation are more or less clarified, thus helping create clarity and lowering risks assumed by subordinates and increase their confidence to make decision. Further, the use of guides ensures consideration of important aspects, thus significantly contributing to the performance of the knowledge areas. The use of generic guides such as PMBoK in this regard may significantly help. The attainment of higher level of practice maturity means that the organization is performing all the practices of that are must to attain the goal of the knowledge areas, thus maximizing the chance of attaining knowledge area goals and hence, attainment of project objectives.

3. As indicated in the study under Addis Ababa Housing Construction Project Office has 16 ongoing projects were establish as project office. Grounded to this AAHCPO is a project office organization so must follow the knowledge areas of project management by launching department for each knowledge area in the head quarter thus to follow the status, evaluate and take correction of the 16 projects by scientific based approach. Besides taking continuous training for the concerned project team leaders.

4. Research should be conducted on details of each ten knowledge area of authority's project management for further improvement since level 4 and level 5 are still requirements for improvement.

5.2.2 Recommendation for Future Research

Since, the idea of project management maturity is relatively new and not practiced in Ethiopia, it would be valuable to conduct further research in the topic. Since this research is based on one case, further study can be conducted on many organizations and sectors. This will allow for greater reliability to provide important statistical generalizations. A study on similar case will also be interesting since it will help to visualize the progress made in project management maturity and practices by the project office. Conduct in-depth research regarding each by each project management knowledge area for the organization to determine PM knowledge area level of maturity and for detailed outcomes.

Reference

(AAHDPO, 2018) *Addis Ababa Housing Development Project Office 2018 office repo*
AAHDPO, (2015). *Retrieved from www.aahdpo.gov.com*

Abadir H.Y. (2011). *Project Management Maturity in the Construction Industry of Developing Countries (The Case of Ethiopian Contractors).* University of Maryland. MA Thesis. Available online at pdqtopen.proquest.com

Addis Ababa Housing Project Office 2016 six month report of *the enterprise posted in their website.*
Addis Biz.com (Apr.2016) Retrieved from www. *Addisbiz.com* Ali, 2010

Association for Project Management (APM, 2012).

Backlund, F., Chronéer, D. and Sundqvist, E. (2014). *Project Management Maturity Models - A Critical Review A case study within Swedish engineering and construction organizations. 27th IPMA World Congress, Proceedings, 119 (2014), pp. 837-846. Available online at www.sciencedirect.com*
British Standard 6079: 2000 in Maylor, 2010).

Brookes, N. and Clark, R. (2009). *Using Maturity Models to Improve Project Management Practice. Proceedings of the POMS 20th Annual Conference, Orlando: USA*

Brookes, N. and Clark, R. (2009). *Using Maturity Models to Improve Project*

Bubshait and Al-Juwait (2002) Frimpong, Oluwoye and Crawford (2003); Kouskili and Kartan (2004), Alinaitwe, Mwakali and Hansson (2007), Kaliba, Muya and Mumba (2008).

Cooke-Davies, T.J. and Arzymanow A. (2003). *The maturity of project management in different industries: An investigation into variations between project management models. International Journal of Project Management, 21 (2003), pp. 471-478*

Crawford, J. K. (2010). The Strategic Project Office (2nd ed.). *Baca Raton: CRC press.*
Eth Condominium Housing UN-Habitat 2011

Ferreira, H. and Pereira, L. (2015). *Maturity Evaluation in Project Management and*

Implementation of a PMO– Case Study. The International Journal of Business & Management, 3(11), pp. 338-347.

Frimpong, Y., Oluwoye, J., & Crawford,L.(2003). *Causes of delay and cost over runs in construction of ground water project in a developing countries; Ghana as a case study. International Journal of project Management.*

Grant, K.P. and Penny packer, J.S. (2006). *Project Management Maturity: Assessment of Project Management capabilities among and between selected Industries. IEEE Transactions on Engineering Management, 53(1), PP. 59-68*

Hill, G. M. (2008). *The Complete Project Management Office Handbook. (Second Edition) USA: Taylor and Francis Group.*

Hobbs, B. and Aubry, M. (2007). *A multi-phase research program investigating project management offices (PMOs): the results of phase 1. Project Management Journal, 38 (1), pp. 74-86.*

Jugdev & Thomas, 2002; Mittermaier & Steyn, 2009 cited in Backlund et al, 2014). Backlund, et al (2014)

Kaliba, C., Muya, M., & Mumba, K. (2008). *Cost escalation and schedule delays in road construction projects in Zambia. International Journal of Project Management.*

Kerzner (2014)

Kerzner, H. (2009). *Project management: A systems approach to planning, scheduling and controlling.* (Tenth Edition). New Jersey: John Wiley & Sons.

Kleim, R.L. and Ludin, I.S. (1998). *Project Management Practitioner's Hand Book. AMACOM Books.*

Kothari, C.R (2004), *Research Methodology, Methods and Techniques (2nd ed.). New Age International, Ltd., Publishers*

Kwak, Y.H. and Ibbs, C. W. (2002). *Project Management Process Maturity Model. Journal of Management in Engineering, 18(3), pp. 150-155*

Management Practice. *Proceedings of the POMS 20th Annual Conference, Orlando: USA*

Mateen (2015) also quoted Andersen and Jessen (2003)

Mateen, M. (2015). *Measuring Project Management Maturity - A framework for better and efficient Projects delivery. Göteborg*: Chalmers University of Technology. MSc Dissertation

Mateen, M. (2015). *Measuring Project Management Maturity - A framework for better and efficient Projects delivery. Göteborg:* Chalmers University of Technology. MSc Dissertation

Maylor, H. (2010). Project management. (Fourth Edition). Harlow: Pearson Education

Ministry of Development Enterprise *(MDE 2017)…*

Mullaly, M.(2014) *If maturity is the answer, then exactly what was the question? International Journal of Managing projects in Business, 7(2), pp.169-185*

National Planning Commission, NPC. (2016).*Survey on mega projects .A.A, Ethiopia.*

Nicholas, J.M. and Steyn, H. (2012). *Project management for engineering, business and technology (Fourth Edition).* London: Taylor & Francis Group

Office of Government Commerce. (2006). *Portfolio, Programme & Project Management Maturity Model (P3M3). (Version 1.0).*

Office of Government Commerce. (2008). *Portfolio, Programme & Project Management Maturity Model (P3M3). (Version 1.0).*

phaniraj and Sreekum (2014) *a formula Sampling*

Pinto, A., De Matheus Cota, M.F., Levin, G. (2010). *The PMO Maturity Cube, a Project Management Office Maturity Model. PMI Research and Education Congress 2010, Washington D.C., USA*

Project Management Institute. (2008). *Organizational Project Management Maturity Model (OPM3®). (Second Edition). Pennsylvania: PMI.*

Project Management Institute. (2008). *Organizational Project Management Maturity Model (OPM3®). (Second Edition). Pennsylvania: PMI.*

Project Management Institute. (2013). *A Guide to the Project Management Body of Knowledge. (Fifth Edition). Pennsylvania: PMI.*

Project Management Solutions. (2014b). *the State of the Project Management Office (PMO) 2014. Available online at www.pmsolutions.com*

Saiedia, H., & Kuzara, R. (1995, January). *SEI capability maturity model's impact on contractors. Computer, 28(1), 16-26.*

Simangunsong, E. and Da Silva, E.N. (2013) *Analyzing Project Management Maturity Level in*

Indonesia. The South East Asian Journal of Management, 7(1), pp. 72-84

Singh, Y.K. (2006), *Fundamental of research methodology and statistics,* New Age International, Ltd., Publishers

Software Engineering Institute (SEI). (2006). *CMMI® for development, version 1.2, Improving processes for better products.*

Supic, H. (2005). *Project management maturity of selected organizations in Croatia. Proceedings of the 8th International Conference on Telecommunications ConTEL 2005*, 2, pp. 647-653. Zagreb.

UN-Habitat (2011). *The Ethiopia case of Condominium Housing: The integrated housing Development Program. United Nations Human Settlement Program: ......*

Wondowessen, J. (2004). *Performance for public construction projects in developing countries: Federal road and educational building projects in Ethiopi,*. Norwegian University of Science & Technology

Wysocki, R.K. (2014) *Effective Project Management:* Traditional, Agile, Extreme. (Seventh Edition). Indianapolis: John Wiley & Sons.

Zikmund, W.G., Babin, B.J., Carr, J.C. and Griffin, M. (2010). *Business Research Methods. (Eighth Edition). Nashville:South-Western Pub.*

Appendix A– Survey Questionnaire

St. Mary University

School of Graduates Studies

Masters of Project Management (MBA)

Research Questionnaire

Dear respondents,

I am undertaking a research titled **"Assessment of Project Management Maturity Level of Addis Ababa Housing Construction Projects"** for the partial fulfillment of the requirement of Master of Arts (MA) degree in Project Management. This survey is part of academic research that aims to assess the current level in project management maturity of AAHCPO and assess how project management knowledge areas are being practiced. The achievement of the research's aim depends on your cooperation in filling out this survey questionnaire.

I am grateful for your time and responses. If you have questions or seek clarifications, please contact me on **091 2 65 87 03**. I thank you in advance, for your invaluable cooperation.

You are NOT expected to write your Name. All the information you provide will be kept in strict confidentiality and it will be only used for this academic research only.

Sincerely,
Meron Tesfa

Part I. Personal Information

1. Your service year in the Project Office:_____years.
2. Your experience as Project Manager_____ **(please specify the year if you have experience).**
3. Please state your current position _____
4. Please state your educational level _____
5. Do you have a formal training, outside the office, in project management?
   a. Yes ☐
   b. No ☐

If yes, please specify the type and level of training you received _____

_____

1. Have you taken trainings related to Project Management provided by the Project Office?
   a. Yes ☐
   b. No ☐

   If yes, please specify the type of training you received _____

   _____

   _____

2. Have you ever been involved in project management or project teams prior to your current assignment (it can also be in another organization)?
   a. Yes ☐
   b. No ☐

   If yes, please specify the type of company and project you were involved with _____

   _____

   _____

Part II. 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).

Level 1: Initial process

- Ad hoc process (formed, arranged or done for particular purpose only) without consistent and standardized procedures.
- Management awareness

Level 2: structured process and standards

- Basic processes, not standard on all projects, used on large, highly visible projects (Project centric focus)
- Management supports and encourages use of processes, Estimates and schedules are based on expert knowledge and generic tools.

Level 3: 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.
- Management has institutionalized process

Level 4: Managed process

- Process integrated with corporate process
- Management uses data to make decisions, estimates and schedules are normally based on organization.
- Management takes organization entity view
- Solid analysis of project performance

Level 5: Optimizing process

- Process to measure project effectiveness and efficiency
- Process in place to improve project performance
- Management focuses on continuous improvement

Project Management practice maturity level in Ten Project Management Bodies of knowledge Areas.

No	Ten Project Management body of Knowledge areas Key Practice Characteristics.	PM Solutions Maturity levels				
		1	2	3	4	5
		Initial process	Structure Standard Process	Organ. Standard	Managed Process	Optimizing Process
1.	**Project Scope Management**					
	1.1 The importance (awareness) of project scope management in your organization or project team.					
	1.2 Definition of project scope/ End to end definition of all works in projects					
	1.3 Quality of Work break down structure prepared in defining scope in your project					
	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 control work					
	2.3 Solid knowledge of project managers in project management					
	2.4 Support of Management in project management development					
3.	**Project Time Management**					
	3.1 Schedule or plan prepared for your project					
	3.2 Estimate of resource (Materials, people, equipment….) needed scheduled separately					
	3.3 WBS used when defining the schedule activities					

	3.4 Progress of project activities continuously monitored and controlled					
4.	**Project Cost Management**					
	4.1 Estimate of detail cost for project					
	4.2 Estimate of detail cost of labor, material and machinery separately					
	4.3 Efficiency of projects meeting project cost					
	4.4 Effort of monitoring and controlling project cost					
5.	**Project Quality Management**					
	5.1 Quality management policies, procedures and guide lines					
	5.2 Implementation of quality assurance					
	5.3 project inspection and control of quality					
	5.4 Quality department or employees specializing in quality management					
6.	**Project Procurement Management**					
	6.1 Planning for procurement of goods and services needed for your project					
	6.2 Standard procurement document for your project/organization like standard purchase order, subcontract/supplier agreement					
	6.3 Contract management/administration process					
	6.4 Status Claim management					

7.	**Project Communication Management**					
	7.1 Plan/strategy prepared to address communication needs					
	7.2 System of collecting and distributing project information					
	7.3 Performance reports prepared and provided to relevant stake holders					
	7.4 Standard format for preparation of reports					
8.	**Project Human Resource Management**					
	8.1 Planning for acquisition and management of human resource					
	8.2 Organizational structure of your project					
	8.3 training/formal or informal/ for capacity building of project team members					
	8.4 Human resource cost and time formally tracked, monitored in your project					
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 analyzed risks					
	9.4 Monitoring and controlling of project risk					
10	**Project Stakeholder Management**					
	10.1 Awareness about the importance of stakeholder management in the Project Office					
	10.2 Stakeholder management performed formally (stakeholder analysis) done at your office					

	10.3 stakeholder management strategy developed for managing each key stakeholder expectations				
	10.4 Continuous effort of communicating and working with stakeholders to influence their expectation, address their concern and resolve issues				

Thank You!

Appendix B

SPSS V.25 Detail Statistical Output for each PMBoK Questions

Scope Mean Result

		The importance (awareness) of project scope management in your organization or project team	Definition of project scope/ End to end definition of all works in projects	Quality of Work break down structure prepared in defining scope in your project	Effort of Monitoring and controlling scope in your project
N	Valid	52	52	52	52
	Missing	0	0	0	0
Mean		1.96	2.29	2.46	2.62

1. Scope Queries

1.1 The importance (awareness) of project scope management in your organization or project team

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	25	48.1	48.1	48.1
	Structure Standard Process	11	21.2	21.2	69.2
	Organized Standard	10	19.2	19.2	88.5
	Managed Process	5	9.6	9.6	98.1
	Optimizing Process	1	1.9	1.9	100.0
	Total	52	100.0	100.0	

1.2 Definition of project scope/ End to end definition of all works in projects

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	15	28.8	28.8	28.8
	Structure Standard Process	19	36.5	36.5	65.4
	Organized Standard	8	15.4	15.4	80.8
	Managed Process	8	15.4	15.4	96.2
	Optimizing Process	2	3.8	3.8	100.0
	Total	52	100.0	100.0	

1.3 Quality of Work break down structure prepared in defining scope in your project

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	11	21.2	21.2	21.2
	Structure Standard Process	18	34.6	34.6	55.8
	Organized Standard	14	26.9	26.9	82.7
	Managed Process	6	11.5	11.5	94.2
	Optimizing Process	3	5.8	5.8	100.0
	Total	52	100.0	100.0	

1.4 Effort of Monitoring and controlling scope in your project

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	15	28.8	28.8	28.8
	Structure Standard Process	14	26.9	26.9	55.8
	Organized Standard	4	7.7	7.7	63.5
	Managed Process	14	26.9	26.9	90.4
	Optimizing Process	5	9.6	9.6	100.0
	Total	52	100.0	100.0	

Integration Mean Result

		Standard project management processes and methodologies	Develop Project management plan and change control work	Solid knowledge of project managers in project management	Support of Management in project management development
N	Valid	52	52	52	52
	Missing	0	0	0	0
Mean		2.35	2.33	2.40	2.56

2. Integration Queries

2.1 Standard project management processes and methodologies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	12	23.1	23.1	23.1
	Structure Standard Process	19	36.5	36.5	59.6

		Frequency	Percent	Valid Percent	Cumulative Percent
	Organized Standard	13	25.0	25.0	84.6
	Managed Process	7	13.5	13.5	98.1
	Optimizing Process	1	1.9	1.9	100.0
	Total	52	100.0	100.0	

2.2 Develop Project management plan and change control work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	9	17.3	17.3	17.3
	Structure Standard Process	22	42.3	42.3	59.6
	Organized Standard	16	30.8	30.8	90.4
	Managed Process	5	9.6	9.6	100.0
	Total	52	100.0	100.0	

2.3 Solid knowledge of project managers in project management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	17	32.7	32.7	32.7
	Structure Standard Process	11	21.2	21.2	53.8
	Organized Standard	13	25.0	25.0	78.8
	Managed Process	8	15.4	15.4	94.2
	Optimizing Process	3	5.8	5.8	100.0
	Total	52	100.0	100.0	

2.4 Support of Management in project management development

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	14	26.9	26.9	26.9
	Structure Standard Process	14	26.9	26.9	53.8
	Organized Standard	9	17.3	17.3	71.2
	Managed Process	11	21.2	21.2	92.3
	Optimizing Process	4	7.7	7.7	100.0
	Total	52	100.0	100.0	

Time Mean Result

		Schedule or plan prepared for your project	Estimate of resource (Materials, people, equipment….) needed scheduled separately	WBS used when defining the schedule activities	Progress of project activities continuously monitored and controlled
N	Valid	52	52	52	52
	Missing	0	0	0	0
Mean		2.38	2.38	2.42	2.42

3. Time Queries

3.1 Schedule or plan prepared for your project

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	18	34.6	34.6	34.6
	Structure Standard Process	12	23.1	23.1	57.7
	Organized Standard	12	23.1	23.1	80.8
	Managed Process	4	7.7	7.7	88.5
	Optimizing Process	6	11.5	11.5	100.0
	Total	52	100.0	100.0	

3.2 Estimate of resource (Materials, people, equipment….) needed scheduled separately

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	13	25.0	25.0	25.0
	Structure Standard Process	23	44.2	44.2	69.2
	Organized Standard	5	9.6	9.6	78.8
	Managed Process	5	9.6	9.6	88.5
	Optimizing Process	6	11.5	11.5	100.0
	Total	52	100.0	100.0	

3.3 WBS used when defining the schedule activities

	Frequency	Percent	Valid Percent	Cumulative Percent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	15	28.8	28.8	28.8
	Structure Standard Process	17	32.7	32.7	61.5
	Organized Standard	9	17.3	17.3	78.8
	Managed Process	5	9.6	9.6	88.5
	Optimizing Process	6	11.5	11.5	100.0
	Total	52	100.0	100.0	

3.4 Progress of project activities continuously monitored and controlled

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	17	32.7	32.7	32.7
	Structure Standard Process	14	26.9	26.9	59.6
	Organized Standard	6	11.5	11.5	71.2
	Managed Process	12	23.1	23.1	94.2
	Optimizing Process	3	5.8	5.8	100.0
	Total	52	100.0	100.0	

Cost Mean Result

Statistics

		Estimate of detail cost for project	Estimate of detail cost of labor, material and machinery separately	Efficiency of projects meeting project cost	Effort of monitoring and controlling project cost
N	Valid	52	52	52	52
	Missing	0	0	0	0
Mean		2.38	2.33	2.33	2.33

4. Cost Queries

4.1 Estimate of detail cost for project

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	14	26.9	26.9	26.9
	Structure Standard Process	18	34.6	34.6	61.5
	Organized Standard	9	17.3	17.3	78.8
	Managed Process	8	15.4	15.4	94.2
	Optimizing Process	3	5.8	5.8	100.0
	Total	52	100.0	100.0	

4.2 Estimate of detail cost of labor, material and machinery separately

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	12	23.1	23.1	23.1
	Structure Standard Process	24	46.2	46.2	69.2
	Organized Standard	7	13.5	13.5	82.7
	Managed Process	5	9.6	9.6	92.3
	Optimizing Process	4	7.7	7.7	100.0
	Total	52	100.0	100.0	

4.3 Efficiency of projects meeting project cost

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	16	30.8	30.8	30.8
	Structure Standard Process	15	28.8	28.8	59.6
	Organized Standard	10	19.2	19.2	78.8
	Managed Process	10	19.2	19.2	98.1
	Optimizing Process	1	1.9	1.9	100.0
	Total	52	100.0	100.0	

4.4 Effort of monitoring and controlling project cost

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	17	32.7	32.7	32.7
	Structure Standard Process	13	25.0	25.0	57.7
	Organized Standard	12	23.1	23.1	80.8
	Managed Process	8	15.4	15.4	96.2
	Optimizing Process	2	3.8	3.8	100.0
	Total	52	100.0	100.0	

Quality Mean Result

		Quality management policies, procedures and guide lines	Implementation of quality assurance	project inspection and control of quality	Quality department or employees specializing in quality management
N	Valid	52	52	52	52
	Missing	0	0	0	0
Mean		2.00	2.10	1.96	1.98

5. Quality Queries

5.1 Implementation of quality assurance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	19	36.5	36.5	36.5
	Structure Standard Process	14	26.9	26.9	63.5
	Organized Standard	14	26.9	26.9	90.4
	Managed Process	5	9.6	9.6	100.0
	Total	52	100.0	100.0	

5.2 project inspection and control of quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	23	44.2	44.2	44.2
	Structure Standard Process	11	21.2	21.2	65.4
	Organized Standard	15	28.8	28.8	94.2
	Managed Process	3	5.8	5.8	100.0
	Total	52	100.0	100.0	

5.3 project inspection and control of quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	23	44.2	44.2	44.2
	Structure Standard Process	11	21.2	21.2	65.4
	Organized Standard	15	28.8	28.8	94.2
	Managed Process	3	5.8	5.8	100.0
	Total	52	100.0	100.0	

5.4 Quality department or employees specializing in quality management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	26	50.0	50.0	50.0
	Structure Standard Process	9	17.3	17.3	67.3
	Organized Standard	9	17.3	17.3	84.6
	Managed Process	8	15.4	15.4	100.0
	Total	52	100.0	100.0	

Procurement Mean Result

		Planning for procurement of goods and services needed for your project	Standard procurement document for your project/organization like standard purchase order, subcontract/supplier agreement	Contract management/administration process	Status Claim management
N	Valid	52	52	52	52
	Missing	0	0	0	0
Mean		2.35	2.40	2.27	2.29

6. Quality Queries

6.1 Planning for procurement of goods and services needed for your project

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	15	28.8	28.8	28.8
	Structure Standard Process	18	34.6	34.6	63.5
	Organized Standard	8	15.4	15.4	78.8
	Managed Process	8	15.4	15.4	94.2
	Optimizing Process	3	5.8	5.8	100.0
	Total	52	100.0	100.0	

6.2 Standard procurement document for your project/organization like standard purchase order, subcontract/supplier agreement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	16	30.8	30.8	30.8
	Structure Standard Process	15	28.8	28.8	59.6
	Organized Standard	10	19.2	19.2	78.8
	Managed Process	6	11.5	11.5	90.4
	Optimizing Process	5	9.6	9.6	100.0
	Total	52	100.0	100.0	

6.3 Contract management/administration process

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	17	32.7	32.7	32.7
	Structure Standard Process	14	26.9	26.9	59.6
	Organized Standard	12	23.1	23.1	82.7
	Managed Process	8	15.4	15.4	98.1
	Optimizing Process	1	1.9	1.9	100.0
	Total	52	100.0	100.0	

6.4 Status Claim management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	18	34.6	34.6	34.6
	Structure Standard Process	15	28.8	28.8	63.5
	Organized Standard	8	15.4	15.4	78.8
	Managed Process	8	15.4	15.4	94.2
	Optimizing Process	3	5.8	5.8	100.0
	Total	52	100.0	100.0	

Communication Mean Result

Statistics

		Plan/strategy prepared to address communication needs	System of collecting and distributing project information	Performance reports prepared and provided to relevant stake holders	Standard format for preparation of reports
N	Valid	52	52	52	52
	Missing	0	0	0	0
Mean		2.27	2.37	2.54	2.38

7. Communication Queries

7.1 Plan/strategy prepared to address communication needs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	16	30.8	30.8	30.8

		Frequency	Percent	Valid Percent	Cumulative Percent
	Structure Standard Process	14	26.9	26.9	57.7
	Organized Standard	14	26.9	26.9	84.6
	Managed Process	8	15.4	15.4	100.0
	Total	52	100.0	100.0	

7.2 System of collecting and distributing project information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	10	19.2	19.2	19.2
	Structure Standard Process	21	40.4	40.4	59.6
	Organized Standard	13	25.0	25.0	84.6
	Managed Process	8	15.4	15.4	100.0
	Total	52	100.0	100.0	

7.3 Performance reports prepared and provided to relevant stake holders

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	9	17.3	17.3	17.3
	Structure Standard Process	19	36.5	36.5	53.8
	Organized Standard	13	25.0	25.0	78.8
	Managed Process	9	17.3	17.3	96.2
	Optimizing Process	2	3.8	3.8	100.0
	Total	52	100.0	100.0	

7.4 Standard format for preparation of reports

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	14	26.9	26.9	26.9
	Structure Standard Process	16	30.8	30.8	57.7
	Organized Standard	12	23.1	23.1	80.8
	Managed Process	8	15.4	15.4	96.2
	Optimizing Process	2	3.8	3.8	100.0
	Total	52	100.0	100.0	

Human Resource Mean Result

<div align="center">Statistics</div>

		Planning for acquisition and management of human resource	Organizational structure of your project	Training/formal or informal/ for capacity building of project team members	Human resource cost and time formally tracked, monitored in your project
N	Valid	52	52	52	52
	Missing	0	0	0	0
Mean		2.19	2.42	2.23	2.35

8. Human Resource Queries

8.1 Planning for acquisition and management of human resource

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	14	26.9	26.9	26.9
	Structure Standard Process	22	42.3	42.3	69.2
	Organized Standard	9	17.3	17.3	86.5
	Managed Process	6	11.5	11.5	98.1
	Optimizing Process	1	1.9	1.9	100.0
	Total	52	100.0	100.0	

8.2 Organizational structure of your project

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	10	19.2	19.2	19.2
	Structure Standard Process	21	40.4	40.4	59.6
	Organized Standard	11	21.2	21.2	80.8
	Managed Process	9	17.3	17.3	98.1
	Optimizing Process	1	1.9	1.9	100.0
	Total	52	100.0	100.0	

8.3 Training/formal or informal/ for capacity building of project team members

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	17	32.7	32.7	32.7

		Frequency	Percent	Valid Percent	Cumulative Percent
	Structure Standard Process	18	34.6	34.6	67.3
	Organized Standard	7	13.5	13.5	80.8
	Managed Process	8	15.4	15.4	96.2
	Optimizing Process	2	3.8	3.8	100.0
	Total	52	100.0	100.0	

8.4 Human resource cost and time formally tracked, monitored in your project

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	14	26.9	26.9	26.9
	Structure Standard Process	19	36.5	36.5	63.5
	Organized Standard	10	19.2	19.2	82.7
	Managed Process	5	9.6	9.6	92.3
	Optimizing Process	4	7.7	7.7	100.0
	Total	52	100.0	100.0	

Risk Mean Result

Statistics

		Identification and documentation of project risk	Risk analysis to determine their project impact	Detail risk response plan for identified and analyzed risks	Monitoring and controlling of project risk
N	Valid	52	52	52	52
	Missing	0	0	0	0
Mean		1.98	2.00	1.79	2.17

9. Risk Queries

9.1 Identification and documentation of project risk

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	25	48.1	48.1	48.1
	Structure Standard Process	12	23.1	23.1	71.2
	Organized Standard	7	13.5	13.5	84.6
	Managed Process	7	13.5	13.5	98.1
	Optimizing Process	1	1.9	1.9	100.0

		Frequency	Percent	Valid Percent	Cumulative Percent
	Total	52	100.0	100.0	

9.2 Risk analysis to determine their project impact

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	24	46.2	46.2	46.2
	Structure Standard Process	12	23.1	23.1	69.2
	Organized Standard	9	17.3	17.3	86.5
	Managed Process	6	11.5	11.5	98.1
	Optimizing Process	1	1.9	1.9	100.0
	Total	52	100.0	100.0	

9.3 Detail risk response plan for identified and analyzed risks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	24	46.2	46.2	46.2
	Structure Standard Process	17	32.7	32.7	78.8
	Organized Standard	9	17.3	17.3	96.2
	Managed Process	2	3.8	3.8	100.0
	Total	52	100.0	100.0	

9.4 Monitoring and controlling of project risk

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	24	46.2	46.2	46.2
	Structure Standard Process	9	17.3	17.3	63.5
	Organized Standard	7	13.5	13.5	76.9
	Managed Process	10	19.2	19.2	96.2
	Optimizing Process	2	3.8	3.8	100.0
	Total	52	100.0	100.0	

Stakeholder Mean Result

		Awareness about the importance of stakeholder management in the Project Office	Stakeholder management performed formally (stakeholder analysis) done at your office	stakeholder management strategy developed for managing each key stakeholder expectations	Continuous effort of communicating and working with stakeholders to influence their expectation, address their concern and resolve issues
N	Valid	52	52	52	52
	Missing	0	0	0	0
Mean		1.98	2.08	2.06	2.08

10 Stakeholder Queries

10.1 Awareness about the importance of stakeholder management in the Project Office

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	16	30.8	30.8	30.8
	Structure Standard Process	21	40.4	40.4	71.2
	Organized Standard	15	28.8	28.8	100.0
	Total	52	100.0	100.0	

10.2 Stakeholder management performed formally (stakeholder analysis) done at your office

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	16	30.8	30.8	30.8
	Structure Standard Process	22	42.3	42.3	73.1
	Organized Standard	9	17.3	17.3	90.4
	Managed Process	4	7.7	7.7	98.1
	Optimizing Process	1	1.9	1.9	100.0
	Total	52	100.0	100.0	

10.3 stakeholder management strategy developed for managing each key stakeholder expectations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	17	32.7	32.7	32.7
	Structure Standard Process	20	38.5	38.5	71.2
	Organized Standard	10	19.2	19.2	90.4
	Managed Process	5	9.6	9.6	100.0
	Total	52	100.0	100.0	

10.4 Continuous effort of communicating and working with stakeholders to influence their expectation, address their concern and resolve issues

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Initial process	16	30.8	30.8	30.8
	Structure Standard Process	22	42.3	42.3	73.1
	Organized Standard	10	19.2	19.2	92.3
	Managed Process	2	3.8	3.8	96.2
	Optimizing Process	2	3.8	3.8	100.0
	Total	52	100.0	100.0	

STATEMENT OF DECLARATION

I, the undersigned, declare that this research project, entitled "Assessment of Project Management Maturity Level of Addis Ababa Housing Construction Projects: The case of 20/80 Condominium Projects, is my original work, prepared under the guidance of Dr.Maru Shete Bekele, (Associate Professor). All sources of material used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Meron Tesfa   (St. Mary's University, Addis Ababa)

Signature _____   Date   _____

This thesis has been submitted to St. Mary's University, school of graduate studies for examination with my approval as a university advisor.

Dr.Maru Shete Bekele, (Associate Professor)

         Advisor

Signature _____   Date _____