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ASSESSING PROJECT MANAGEMENT MATURITY IN THE ETHIOPIA CONSTRUCTION SECTOR: THE CASE OF FEDERAL HOUSING CORPORATION.

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BY
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Statement of Declaration

I, Semeon Shiferaw declare that this project work on the topic entitled “Assessing Project Management Maturity in the Ethiopia Construction Sector: The Case of Federal Housing Corporation” is my original work. I have undertaken the research work independently with the guidance and support of the research supervisor. This study has not been submitted for any degree or diploma program in this or any other institution and all sources of materials used for the project work have been duly acknowledged.

Semeon Shiferaw

Signature _____

Date _____

Addis Ababa, Ethiopia

Approval Sheet

This is to certify that the project work prepared by Semeon Shiferaw, entitled "Assessing Project Management Maturity in the Ethiopia Construction Sector: The Case of Federal Housing Corporation" is submitted in partial fulfillment of the requirements for the Degree of Masters of Arts in Project Management in complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Advisor	signature	Date

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Abstract

This study assesses the project management maturity levels of the Federal Housing Corporation, specifically aiming to measure and identify the company's actual project management practices. The research focuses on projects undertaken within the organization and employs a five-level project management maturity model developed by PM Solutions. Utilizing a descriptive research design, the study adopts a mixed-methods approach, incorporating both qualitative and quantitative data. The sample comprises 65 respondents from a questionnaire and four project managers interviewed. Non-probability purposive sampling was employed. Survey questionnaires and interviews were developed based on a review of relevant literature to evaluate the project management maturity of the Federal Housing Corporation. Primary data were collected from respondents, supplemented by secondary data from detailed literature. Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS). The results indicate that the organization's project management maturity level is 3.66, reflecting a solid performance level while highlighting the need for improvement across various project management knowledge areas to enhance overall maturity.

***Keywords**: Project management, Project management Knowledge areas, and project management maturity*

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Abbreviation

PMMM **-**Project Management Maturity Model

CMM- Capability Maturity Model

CMMI- Capability Maturity Model Integration

GDP- Gross Domestic Product

HIMSS- Health Information Technology Implementation

ISO- International Standards Organization

IPMA **-** International Project Management Association

K-PMMM- Project Management Process Maturity Model

MINCE- Maturity Increments IN Controlled Environments

MoFED- Ministry of Finance and Economic Development

OGC- Office of Government Commerce

PfM3: Portfolio Management

PgM3: Program Management

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

PM- Project Management

PM4DEV- Project Management for Development Organizations

PM3s- project management maturity models

PMBOK **-**Project Management Body of Knowledge

PMI **-**Project Management Institute

PMMMSM- PM Solutions' Project Management Maturity Model

SEI- Systems Engineering Institute

P3M3- Project, Program and Portfolio Management Maturity Model

OPM3 **-** *Organizational Project Management Maturity Model*

UCBP-University Capacity Building Program

FHC- Federal Housing Corporation

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Project management is the use of specific knowledge, skills, tools and techniques to deliver something of value to people. Projects are essential to the survival and growth of organizations. Failure in project management in an organization will spoil the ability of the organization to accomplish its mission in an effective and efficient manner. Project management is a vital subject of study that supports firms in understanding the fundamental areas that require attention in order to monitor effectively.as stated in the Project Management Body of information PMBoK (PMI, 2013). The efficient administration of project management procedures is necessary for this application of knowledge.

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

Project management and Construction organizations are interconnected since they are project based. Projects in the organizations need attention on project management maturity of the basic project knowledge areas, which help organizations to be matured enough. (Kenny, 2007) mentions that construction sector role in economic development of the country is obviously undeniable. In the view of its importance, governments spent large investments in the developing countries. The construction industry provides high employment opportunity for the country, probably next after agriculture (Pawar, Deshmukh, Chavan, 2016). Now a day In Ethiopia, construction is showing a sign of a highly accelerated expansion of projects. The statistic shows the share of economic sectors in the gross domestic product (GDP) in Ethiopia from 2008 to 2018. The Studies by (Zewdu & Aregaw, 2015) indicated that the GDP contribution of the construction industry has been raised to 5.6%. The Central Statistics Agency of Ethiopia in 2009 predicted; in 2018 the share of the industry will contribute approximately 27.26 percent.

Although the construction industry's significant contribution to the economy for the country, Ethiopia play a critical role in country development, the performance of the industry still remains normally small in recent topic published by (Reporter magazine, 2022), interview made with Dr. Wubishet Jekale almost 60 % of the annual budget of Ethiopia is allocated for construction projects. Although this huge sum amount of budget is allocated, the big picture of the construction sector shows how much the challenges and problems it faced are complex, like not meeting the planned schedule, the estimated budget and the planned quality. Due to this and other factors 79.06 percent of projects fail to meet their objective in Ethiopia Articles by (Lemma, 2014).

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

1.2 Background of the Organization

The first name of Federal Housing Corporation was Rental housing administration, it was established in 1968 than in 2000 it was renamed to governmental housing agency after that it has been re-established in 2009 by declaring in Ethiopian Negarit newspaper based on house of federation rule no 398/2009 and become Federal Housing Corporation (FHC). The corporation structure has Head office in Addis Ababa around Le-Gahar, and 6 branch offices in different Location out of them one branch is in DireDawa and the rest is in Addis Ababa, the organization has 615 employees in the head quarter and 877 employees in branch offices which are a total of 1,492 employees.

Currently the organization is one of the most prominent governmental organizations working on construction industry.it has good experience of Constructing New buildings and Renovating Different Old Building works for better improvement. In fact, the company hasn't done a study on its project management maturity level; therefore, this study will help the company to identify its maturity level and helps to identify the improvement areas.

FHC has twelve ongoing building projects in Addis Ababa, Ethiopia. These projects are located at Bole, Gurd Shola, Somaletera, Kokebetsiba, and British Embassy and so on. The company has core and supportive departments; Engineering is the Core Department of the company. Under this department there are 3 Teams, Supervision and contract Administration Team, Design team And Construction Team. The number of teams depends on the size of the project. One project can have Coordinator, project manager, site Engineer and Office Engineer. As the size of the project increase the number of team members also increase. The company has different machineries like excavator, loader, mixer and concrete Batching plant and Hollow concrete production.

Finally, the study assesses the maturity level of FHC, to see the gap and recommend areas where improvement is necessary. The Company takes this assessment as a baseline to realize their current situation. The baseline assessment enables an organization to identify areas that need immediate actions which will have significant impact and provide greatest return on investment (Crawford 2011). This helps the organization list its improvement actions and plan for continuous improvement. This study's support the companies in implementing changes and making improvements in a structured way, by proposing an integrated framework, which comprises a project management maturity model.

1.3 Statement of the Problem

Improving project management is a continuous process rather a one-time occurrence. Organizations must continuously evaluate their projects if they hope to increase their performance. Many construction organizations are striving to increase the efficiency of their management strategies in order to meet their organizational objectives and sustain profitability. Project management maturity models have been documented as a reaction to the need for businesses to evaluate their project management practices in order to achieve industry benchmarking, achieve excellence, and ensure their continued existence (PMI 2013).

According to survey data, firms are attempting to reach higher degrees of PM maturity by standardizing and improving processes and technologies. Even though, the survey indicates that over 50% of the enterprises are dissatisfied with their present state of maturity. According to the Global Survey (2012), the majority of firms want to reach a greater degree of maturity but still need to make improvements in quality assurance, organizational structure, and human resource management.

Still, several studies have been done on developing nations, including The Ethiopian & East African Contexts. The bulk of projects, in both developed and developing countries are complex and operate in dynamic environments, as these studies show. However, projects in developing countries are highly unpredictable and operate in a highly unstable, unpredictable, and resource-poor environment. For their colleagues in developed countries, project managers in developing countries face an issue that they lack of awareness. Their study's conclusions indicate that Grade-1 Contractors' construction PM maturity is low, highlighting the industry's general lack of PM practice (Pawar, Deshmukh, and Chavan, 2016).

According to Ayalew, Dakhli, and Lafhaj (2016), Ethiopian construction project management practices do not sufficiently adopt general project management procedures, project management functions, tools, and techniques. According to research, a substantial portion of Ethiopian projects fall into the failed category as a result of poor project management procedures, including those of scheduling, quality, cost, and communication (Tesfaye, 2016). To determine which project management maturity levels are highly effective, it is necessary to investigate the relationships between the extent of process implementation and project success or failure. This will allow other construction companies to learn from the findings.

The objective of this research was to evaluate the project management practices and capabilities of the organization FHC in Addis Ababa, Ethiopia, by assessing its maturity level. The study also aims to provide advice to other businesses regarding the current state of project management within their organizations, as well as its future needs and strategies for achieving them.

1.4 Research Questions

1. To what extent are the core (scope, time, cost and quality) project management knowledge areas applied in FHC?
2. To what extent are the facilitating (human resource, communication, risk, procurement, integration and stakeholder) project management knowledge areas applied in the company?
3. What is the level of project management maturity of the company?

1.5 Research Objective

1.5.1 General objective

The main objective of this study is assessing the current project management maturity level of Federal Housing Corporation (FHC).

1.5.2 Specific objective

The specific objective of this study is:

- To assess the extent to which the company is applying the four-core project management knowledge areas (Scope, Cost, Time and Quality).
- To assess the extent to which the company is applying the six-facilitating project management knowledge areas (Integration, Human Resource, Procurement, Communication, Risk, and Stakeholder).

1.6 Significance of the Study

Project performance rises with a deeper comprehension of project management knowledge areas, as supported by PMBOK guidelines and empirical data. The degree of knowledge or comprehension in project management domains is rated according to the maturity level of project management. Project performance and project management maturity level are strongly correlated, according to empirical assessments of earlier studies; Project management maturity level models refer to the various models that are used to level the maturity of project management. Thus, this study evaluates and establishes FHC's maturity level. It makes a big difference in:

1. To show the position of FHC in terms of its project management maturity level and recommend further improvement.
2. The maturity assessment result of this research can be used as initial benchmark information in prioritizing and designing improvement actions.
3. Further the same result can also be used as a baseline to compare the success of or impact of future improvement efforts.

1.7 Scope of the Study

The conceptual scope of the study is on the assessment of the project management maturity level and to establish the organization's progress in maturity level and give recommendations for future improvements. The Empirical scope of the study only focuses on Federal Housing Corporation. The geographical location of the projects is at Addis Ababa, Ethiopia. The research design of the study is limited to Descriptive and the research approach uses both Qualitative and Quantitative research methodology. The study structure is case study.

1.8 Limitation of the Study

The study is limited to the perspective of service providing contractor, Federal Housing Corporation. Hence the PM maturity level of the organizations from the client's (employer) and the consultant perspective may be totally different.

1.9 Organization of the Study

The study is organized into five sections. The first chapter introduces the background of the study discussing the project management maturity and background of the construction company, Federal Housing Corporation. The statement of the problem, the research questions, and the general and specific objective of the study, significance, scope, and potential limitation of the study is included. In the second chapter, different related literatures have been presented to create an in-depth understanding of the subject under study. Under theoretical review, the meaning and nature of terms is discussed. A review of the empirical study and the conceptual frame of the study is also included in this chapter. The third chapter is concerned with the study methodologies. It consists of the research design, study variables, study area, target population, sampling techniques, sample size, data collection, data analysis, reliability, and validity at the end research ethics was included in this chapter. The fourth chapter was discussed the results of the study and also the interpretation and discussion of the results is given. The fifth chapter gives the summary, conclusion, and Recommendation. A list of references and appendices was also attached at the end of the study.

Definition of key terms

Project: is a temporary endeavor undertaken to create a unique product (Kloppenborg, T. J., Anantatmula, V., & Wells, K. (2018), It is a set of finite activities that are usually prepared only once and have well designed objectives, using a combination of human and non-human resources within limits of time, It consists of a series of non-routine, interrelated activities with a goal that must be completed with a set amount of resources and within a set time limit.

Project management -is planning, organizing, monitoring and controlling of all aspects of a project and motivation of all involved to achieve project objectives of safety and within a defined time, cost performance. According to (Hearkens, 2012) the project management is a process that calls for the creation of a small organizational structure (the project team), which is often an image of the larger organization. It is also defined as achieving a continuous stream of project objectives within time, within cost, at the desired performance/technology level, while utilizing the assigned resources effectively and efficiently, and having the results accepted by the customer and/or stakeholders (kerzner, 2017).

Project management Maturity-Project management maturity refers to the level of sophistication and effectiveness of an organization's project management practices, processes, and culture. It is a way to assess and improve an organization's ability to manage projects efficiently and successfully.

Maturity is typically measured on a scale, such as the Capability Maturity Model Integration (CMMI) or the Project Management Maturity Model (PMMM), which evaluates factors like process definition, measurement, and improvement. Achieving high project management maturity can lead to improved collaboration, reduced project risks, and increased customer satisfaction. Maturity is the extent of assessing capability for project management. It is a progressive development of enterprise-wide project management approach, methodology, strategy, and decision-making process (Tarne, 2007). The definition of organizational maturity refers to operations that are in perfect synergy to achieve strategic objectives (Silva, 2014). According to (Demir and Kocabas, 2010) Maturity models are considered to be tools that simulate specific aspects of capability and define the qualitative attributes that characterize competence at a particular level of performance.

Project management knowledge areas: - Project Management Knowledge Area represents a complete set of concepts, terms, and activities that make up a professional project management field, or area of specialization and they are used on most projects most of the time (PMI, 2013). There are ten project management knowledge areas according to the PMBoK guide. In different literatures, the Project management body of knowledge describes the overall knowledge within the profession of project management and includes tools and techniques used to manage project management processes and practices.

CHAPTER TWO

2.0 LITERATURE REVIEW

In this chapter, there are three sections, Theoretical review, Empirical review, and conceptual framework. First, in the theoretical part, we will discuss in definitions of terms and review related literature, and then under the empirical part, previous related literature on project management and project management maturity area will be discussed. Finally, the conceptual frame of the study will be given to show the relationship between project management maturity level (the dependent variable) and project management knowledge areas (the independent variable).

2.1 Theoretical Review

2.1.1 Project Management

To understand the study first it's better to see definition given in different Literature on project and project management. And they are briefly discussed below.

A project: in The PMI definition shows that a project is a temporary endeavor undertaken to produce a unique product, service, or result (PMI, 2013). It is also defined as 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 specifications (Wysocki, 2014). It should have defined starting and ending points since it is a temporary activity, a budget, a clearly defined scope or magnitude of work to be done, and specific requirements that must be met. (Merna and Al-Thani, 2008) also defined a project as a unique investment of resources to achieve specific objectives, such as the production of goods or services, to make a profit, or to provide a service for a community. According to these definitions, a project can be defined as it is a set of multiple activities having only one goal and it is done only once delivering the unique outcome. It is distinguished from regular work in that it's a one-time effort to change things in some way.

Project Management: the definition of project management can be seen in different ways through different books and literatures. A definition from the 1950's is that project management is the use of tools and techniques to direct the usage of different resources to accomplish a unique, complex, and one-time task within constraints of time, cost, and quality (Lutful and Mia, 2015).In this literature, Another definition was included from the (UK Association, 1995) of project management which states that project management is about planning, organizing, monitoring, and controlling all parts of a project and that all involved in the project are motivated to achieve the project goals safely and within the stated time, cost and performance.

The recent literature gave a definition of project management; it is the application of knowledge, skills, and tools necessary to achieve the project's requirements (Kerzner, 2017). According to (pm4dev,2015) Project Management is also defined as a process of leading a team of capable people in planning and implementing a series of related activities that need to be accomplished on a specific date with a limited budget. Based on these definitions project management can be seen, as it is a process of implementing activities, which uses tools and techniques and leads a team to a project goal to be achieved effectively and efficiently. Because of its nature, coordinating all the activities requires a process approach. According to (PMI, 2013) project management is accomplished through the five process groups (initiating, planning, executing, monitoring and controlling, and closing).

2.1.2 Project Management Body of Knowledge (PMBoK)

The Project Management Institute's (PMI): A Guide to the Project Management Body of Knowledge (PMBOK Guide) is an excellent point of reference for starting an examination of project management capability. It is already an accepted standard, and there is a great deal of best practices information in existence around the knowledge areas outlined in the document. Project management body of knowledge describes that the overall knowledge with in the profession of project management and includes tools and techniques used to manage project management process and practices (PMI, 2013). According to (project management methodology guideline, 2010) these PMBoK assist the project manager to ensure all projects are conducted in most organized and efficient manner.

The ten knowledge areas are discussed below:

2.1.2.1. Project scope management According to PMI, 2013

According to the PM methodology guideline, Project scope management includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully; it will answer the project produced in the end. Managing the project scope is primarily concerned with defining and controlling what is and is not included in the project (PMI 2013). It takes a unique skill to obtain the true requirements from the project stakeholders who, in many cases, often are not sure what they want (HIMSS, 2011). Scope Management processes are.

1. **Plan scope management: -** the process of creating a scope management plan documents how the project scope will be defined validated, and controlled. (PMI 2013).
2. Collect Requirements: - the process of determining, documenting, and managing stakeholder needs and requirements to meet project objectives (PMI 2013).

3 **Define Scope: -** the process of developing a detailed description of the project and product (PMI 2013).

4 Create WBS: **-** the process of sub diving project deliverables and project work in to smaller, manageable components (PMI 2013)..

5 **Verify the scope: -**the process of formalizing acceptance of completed project deliverables (PMI 2013).

6 **Control scope: -** the process of monitoring the status of the project and product scope and managing changes to the scope baseline (PMI 2013).

2.1.2.2 Project Time Management

Project time management is crucial for completing projects within the designated timeframe. It encompasses several processes, including planning schedules, defining and sequencing activities, estimating resources and durations, and controlling the schedule. Once established and communicated, a project schedule serves as a primary metric for assessing project performance (HIMSS, 2011).

The key processes of project time management are as follows:

1. **Plan Time Management**: This involves establishing the policies, procedures, and documentation necessary for planning, developing, managing, executing, and controlling the project schedule (Project Management Institute [PMI], 2013).
2. **Define Activities:** This process identifies and documents the specific actions required producing the project deliverables.
3. **Sequence Activities**: In this step, the relationships among project activities are identified and documented (PMI, 2013).
4. **Estimate Activity Resources**: This involves estimating the types and quantities of materials, human resources, equipment, or supplies needed to perform each activity (PMI, 2013).
5. **Estimate Activity Durations**: This process estimates the number of work periods required to complete individual activities with the estimated resources (PMI, 2013).
6. **Develop Schedule**: This involves analyzing activity sequences, durations, resource requirements, and schedule constraints to create a project schedule model (PMI, 2013).
7. **Control Schedule**: This process consists of monitoring the status of project activities to update progress and manage changes to the schedule baseline to achieve the plan (PMI, 2013).

2.1.2.3. Project cost management

Project cost management includes the processes involved in planning, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget (PMI, 2013). The project manager takes appropriate corrective action to ensure that project performance matches the revised project plan (Watt, 2012). The Project Cost Management processes are.

1. **Plan cost management: -** the process that establishes the policies, procedure, and documentation for planning, managing, expanding, and controlling project cost (PMI, 2013).

2. Estimate cost: - the process of developing an approximation of the monetary resources needed to complete project activities (PMI, 2013).

3. Determine Budget: - the process of aggregating the estimated cost of individual activities or work packages to establish an authorized cost base line (PMI, 2013).

4. Control Cost: - the process of monitoring the status of the project to update the project cost and managing changes to the cost baseline (PMI, 2013).

2.1.2.4. Project quality management

According to (HIMSS 2011) the primary purpose of quality management is to ensure that the Final product meets the business need. Some measures of quality are measurable during the Project, while others cannot be measured for months after the project ends. Quality measures and techniques are specific to the type of deliverables being produced by the project (PMI, 2013). this author states Project quality management includes the process and activities of the performing organization that determine quality polices, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken. The Project processes for Quality Management are discussed.

1. Plan Quality Management: the process of identifying quality requirements and/or Standards for the project and its deliverables and documenting how the project will demonstrate compliance with quality requirements.

2. Perform Quality Assurance: The process of auditing the quality requirements and the results from quality control measurements to ensure that appropriate quality standards and operational definitions are used.

3**. Control Quality:** The process of monitoring and recording results of executing the quality activities to assess performance and recommend necessary changes.

2.1.2.5. Project integration management

According to the PM methodology guideline Project integration management includes the processes required to ensure that various elements of the project are properly coordinated. As the term implies, every activity must be coordinated or integrated to achieve the desired project outcomes (Joseph, 2012). 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). There are Project Integration Management processes and they are discussed below

1. **Develop Project charter:** The process of developing a document that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.
2. **Develop project management plan:** The process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan. The project's integrated baselines and subsidiary plans may be included within the project management plan.
3. **Direct and Manage Project Work:** The process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives.
4. **Monitor and control Project Work:** The process of tracking, reviewing, and reporting project progress against the performance objectives defined in the project management plan.
5. **Perform Integrated Change Control:** The process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating their disposition.
6. **Close Project or Phase:** The processes of finalizing all activities across all of the Project Management Process Groups to formally complete the phase or project.

2.1.2.6. Project Human Resource Management

Human resource management in projects is a vital skill for all project managers. A team will often consist of people brought together for the first time, and it is the project manager's job to form them into a team that will work together to complete the project (HIMSS 2011). The Project management team is a subset of the project team and is responsible for the project management and leadership activities such as initiating, planning, executing, monitoring Controlling, and closing the various project phases (PMI, 2013).

The Project Human Resource Management processes are

1. **Plan Human resource Management:** The process of identifying and documenting project roles, responsibilities, required skills, reporting relationships, and creating a staffing management plan.
2. **Acquire Project team:** The process of confirming human resource availability and obtaining the team necessary to complete project activities.
3. **Develop Project team:** The process of improving competencies, team member interaction, and overall team environment to enhance project performance.
4. **Manage Project team:** the process of tracking team member performance, providing feedback, resolving issues, and managing changes to optimize project performance.

2.1.2.7. Project Communications Management

Communication involves understanding the information received and being able to explain it to others (HIMSS 2011). Completing a complex project successfully requires teamwork, and teamwork requires good communication among team members (Watt, 2012). Effective communication creates a bridge between diverse stakeholders who may have different cultural and organizational backgrounds, different levels of expertise, and different perspectives and interests, which impact or influence the project execution or outcome (PMI, 2013). The Project Communications Management processes are.

1. **Plan communications Management:** The process of developing an appropriate approach and plan for project communications based on stakeholder's information needs and requirements, and available organizational assets (PMI, 2013).
2. **Manage communications:** The process of creating, collecting, distributing, storing, retrieving and the ultimate disposition of project information in accordance with the communications management plan (PMI, 2013).
3. **Control communications:** The process of monitoring and controlling communications throughout the entire project life cycle to ensure the information needs of the project stakeholders is met (PMI, 2013).

2.1.2.8. Project Risk Management

Risk management is the process of identifying, analyzing, and responding to risks throughout the project. Early identification of risks is the responsibility of all project team members and is critical, as proactively identifying risks the more time to perform risk analysis and plan the risk response (HIMSS, 2011). The objectives of project management are to increase the likelihood and impact of positive events and decrease the likelihood and impact of negative events in the project (PMI, 2013).

Project Risk Management involves procedures for risk identification, risk analysis, planning responses for identified risks, and risk control (Maylor, 2010). The Project Risk Management processes are.

1. **Plan risk Management:** The process of defining how to conduct risk management activities for a project.
2. **Identify risks:** the process of determining which risks may affect the project and documenting their characteristics.
3. **Perform Qualitative Risk Analysis:** The process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact.
4. **Perform Quantitative Risk Analysis:** The process of numerically analyzing the effect of identified risks on overall project objectives.
5. **Plan risk responses:** The process of developing options and actions to enhance opportunities and to reduce threats to project objectives.
6. **Control risks:** The process of implementing risk response plans, either avoid the risk; accepting the risk; mitigating the risk or transferring the risk.

2.1.2.9. Project Procurement Management

According to the PM methodology guideline Project procurement management includes the processes required to acquire the goods and services to attain project scope from outside the performing organization. It also includes the contract management and change control processes required to develop and administer contracts or purchase orders issued by authorized project team members (PMI, 2013). The Project Procurement Management processes are.

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

2.1.2.10. 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). The Project Stakeholder Management processes are.

1. **Identify Stakeholders:** The process of identifying the people, groups, or organizations that could impact or be impacted by a decision, activity, or outcome of the project.
2. **Plan Stakeholder Management:** The process of developing appropriate management strategies to effectively engage stakeholders throughout the project life cycle, based on the analysis of their needs, interests, and potential impact on project success.
3. **Manage Stakeholder Engagement:** The process of communicating and working with stakeholders to meet their needs/expectations, address issues as they occur, and foster appropriate stakeholder engagement in project activities throughout the project life cycle.
4. **Control Stakeholder Engagement:** The processes of monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders.

2.1.3 Project Management Maturity

According to (Jaroslaw, 2014) the concept of maturity refers to the comparative level of advancement that an organization has regarding any given activity or sets of activities. The term project management maturity signifies the radical approach to the development, methodology, tactics, and making of decisions (Crawford, 2007). (Andersen & Jessen, 2003) refer to maturity as a state where an organization is in perfect condition to achieve its objectives. According to (Kerzner 2017), maturity in project management is the implementation of a standard methodology and accompanying processes such that there exists a high likelihood of repeated success. (Prado, 2011) also defined maturity in project management as the position in which the company finds itself regarding the project management processes. Based on this, maturity models seek to quantify the ability of a company to manage projects successfully. Maturity in an organizational context is a state that creates effective conditions for an organization to achieve its desired objectives (Mateen, 2015).

Therefore, Project management maturity is basic concept companies need to focus since it determines the company's success or failure based on the assessment of project management knowledge areas. Effective development of organizational abilities in managing projects is the basic aim of an organization.

According to (Ferreira and Pereira, 2015) maturity models used in the diagnosis of Project Management culture in organizations help define a set of actions and measures to improve its performance as an organization. If Organizations have systems in place that show a mature project management environment based on a culture of continuous improvement will deliver successful projects (Crawford, 2011).

A project management maturity model determines the project management maturity level of an organization. Beginning in the 1990s, various models were developed to evaluate the maturity of organizations in managing projects, almost all of them inspired by the maturity model in software development, Capability Maturity Model Integration (CMMI), created by Carnegie Mellon University in a partnership with the Systems Engineering Institute (SEI) (Prado, 2011). Maturity models provide a framework to organizations for improving their performance across different business areas (Brookes et al., 2014). Thus maturity, when applied to projects of organization, provides perfect conditions to handle projects (Andersen & Jessen, 2003).

Different kinds of project management maturity models (PM3s) exist today, most of them inspired by the capability maturity model (CMM) developed at the beginning of the ’90s, originally intended to measure capability in software development projects (Backlund, Chronéer, and Sundqvis, 2013). These models are discussed below.

2.1.3.1. Organizational Project Management Maturity Model (OPM3)

The Organizational Project Management Maturity Model (OPM3) is a framework developed by the Project Management Institute (PMI) to help organizations assess and enhance their project management capabilities. It focuses on aligning project management practices with organizational strategies to improve overall performance (Zaguir, 2007).

Maturity Levels: OPM3 outlines four maturity levels that organizations can progress through:

Table 2.1 OPM3

OPM3 Level	Level Name	Description	Key Focus Areas
Level 1	**Initial**	Processes are unpredictable and reactive	Ad hoc project management practices.
Level 2	**Managed**	Processes are planned and executed according to policy.	Project management processes and control.
Level 3	**Defined**	Processes are standardized across the organization.	Process documentation and organizational standards.
Level 4	**Quantitatively Managed**	Processes are measured and controlled through quantitative techniques.	Performance metrics and data analysis.
Level 5	**Optimizing**	Focus on continuous improvement and innovation in processes.	Process improvement initiatives and best practices.

Source Project Management Institute (PMI-2010)

OPM3 provides a comprehensive framework for organizations to assess and improve their project management maturity. By focusing on alignment with organizational strategy and fostering a supportive culture, OPM3 helps organizations achieve better project outcomes and enhance overall performance.

2.1.3.2. Capability Maturity Model Integration (CMMI)

Capability Maturity Model Integration (CMMI) is a process improvement framework that provides organizations with essential elements for effective process improvement. It helps organizations improve their performance by providing a structured approach to assess and enhance their processes.

Maturity Levels: According to (SEI, 1994) CMMI defines five maturity levels that represent a path for continuous process improvement:

Table 2.2 CMMI

CMMI Level	Level Name	Description	Key Focus Areas
Level 1	**Initial**	Processes are unpredictable and reactive	None (ad hoc processes)
Level 2	**Managed**	Processes are planned, performed, measured, and controlled.	Requirements Management, Project Planning, Project Monitoring and Control, Supplier Agreement Management, Configuration Management
Level 3	**Defined**	Processes are well defined and standardized through-out the organization.	Process Definition, Integrated Project Management, Risk Management, Decision Analysis and Resolution, Organizational Process Focus, Organizational Process Definition
Level 4	**Quantitatively Managed**	Processes are controlled using statistical and other quantitative techniques.	Quantitative Project Management, Organizational Performance Management
Level 5	**Optimizing**	Focus on continuous process improvement and innovation.	Organizational Innovation and Deployment, Causal Analysis and Resolution

Source Project Management Institute (PMI-2010)

CMMI serves as a valuable tool for organizations seeking to enhance their processes and overall performance. By following its structured framework, organizations can systematically improve their capabilities, leading to better outcomes.

2.1.3.3. Kerzner Project Management Maturity Model (K-PMMM)

The Kerzner Project Management Maturity Model in 2017 (K-PMMM) is a framework developed by Dr. Harold Kerzner, a prominent figure in project management. This model

provides organizations with a structured approach to assess and enhance their project management capabilities, aligning them with strategic goals.

Maturity Levels: K-PMMM identifies five maturity levels that organizations can progress through:

Table 2.3 K-PMMM

K-PMMM Level	Level Name	Description	Key Focus Areas
Level 1	**Ad Hoc**	Processes are informal and chaotic; project success is unpredictable.	No standardization; reliance on individual efforts.
Level 2	**Existence**	Basic project management practices are established; some processes are defined.	Emergence of project management roles and practices.
Level 3	**Framework**	A standardized project management framework is in place.	Defined processes and methodologies; consistency in project execution.
Level 4	**Integration**	Project management processes are integrated into the organization's culture.	Collaboration across departments; alignment with organizational goals.
Level 5	**Optimization**	Continuous improvement is emphasized; best practices are shared and utilized.	Focus on innovation and process enhancement; proactive management.

Source Project Management Institute (PMI-2010)

The Kerzner Project Management Maturity Model (K-PMMM) offers a comprehensive framework for organizations seeking to enhance their project management maturity. By progressing through its structured levels, organizations can align their project management practices with strategic objectives, leading to improved performance and successful project delivery.

2.1.3.4. Project, Program, Portfolio Management Maturity Model (P3M3)

The Project, Program, Portfolio Management Maturity Model (P3M3) is a framework designed to help organizations assess and improve their maturity in managing projects, programs, and portfolios. Developed by the Office of Government Commerce (OGC) in the UK, P3M3 in 2006 provides a structured approach to enhance organizational capabilities across all three management areas.

Table 2.4 P3M3

P3M3 Level	Level Name	Description	Key Focus Areas
Level 1	**Initial**	Processes are informal and ad hoc; success is unpredictable.	No formal project management processes.
Level 2	**Structured**	Basic project management processes are established and followed.	Project management processes and documentation.
Level 3	**Defined**	Standardized processes are defined and implemented across the organization.	Integration of project, program, and portfolio management.
Level 4	**Managed**	Processes are monitored and controlled using quantitative measures.	Performance metrics and risk management.
Level 5	**Optimized**	Continuous improvement and innovation in project management practices.	Best practices implementation and knowledge sharing.

Source Project Management Institute (PMI-2010)

The P3M3 model offers organizations a structured pathway to assess and improve their project, program, and portfolio management capabilities. By progressing through the maturity levels, organizations can enhance their performance and better align their initiatives with strategic goals, ultimately leading to more successful outcomes.

2.1.3.5. Maturity Increments in Controlled Environments (MINCE)

Maturity Increments in Controlled Environments (MINCE) is a framework designed to assess and enhance the maturity of processes within controlled environments, particularly in industries like software development and project management. Here's a synthesized overview:

Maturity Levels: MINCE defines a series of maturity increments that organizations can achieve, typically categorized into five levels:

Table 2.5 MINCE

MINCE Level	Level Name	Description	Key Focus Areas
Level 1	**Initial**	Processes are unpredictable and poorly controlled.	Ad hoc practices; reliance on individual efforts.
Level 2	**Managed**	Basic project management processes are established and controlled.	Defined processes; project management is reactive.
Level 3	**Defined**	Processes are documented, standardized, and implemented organization-wide.	Consistent application of practices across projects.
Level 4	**Quantitatively Managed**	Processes are measured and controlled through quantitative data.	Use of metrics and performance indicators for decision-making.
Level 5	**Optimizing**	Continuous process improvement is a focus; innovation is encouraged.	Integration of lessons learned and best practices into processes.initiatives and best practices.

Source Project Management Institute (PMI-2010)

MINCE serves as a valuable framework for organizations looking to enhance their process maturity in controlled environments. By following its structured approach, organizations can improve performance, manage risks effectively, and achieve better project outcomes.

2.1.3.6. Project Management Maturity Model (PMMM by PM Solutions)

The Project Management Maturity Model (PMMM) developed by PM Solutions provides a framework for organizations to assess and enhance their project management capabilities. This model aims to improve project success rates by guiding organizations through a structured approach to maturity in project management practices.

Maturity Levels: PMMM identifies five key maturity levels:

Table 2.6 PMMM

PMMM Level	Level Name	Description	Key Focus Areas
Level 1	**Initial**	Processes are ad hoc and chaotic; success depends on individual efforts.	Lack of formal project management processes.
Level 2	**Managed**	Basic project management processes are established and followed.	Project planning, scheduling, and monitoring.
Level 3	**Defined**	Processes are standardized and documented across the organization.	Best practices and organizational standards.
Level 4	**Quantitatively Managed**	Processes are measured and controlled using quantitative techniques.	Performance metrics and process optimization.
Level 5	**Optimizing**	Continuous improvement and innovation in processes are emphasized.	Integration of lessons learned and knowledge sharing.

Source Project Management Institute (PMI-2010)

The Project Management Maturity Model (PMMM) by PM Solutions provides a structured approach for organizations to assess and improve their project management capabilities. By progressing through its maturity levels, organizations can enhance their performance, align projects with strategic goals, and achieve better overall outcomes.

2.2 Review of Empirical Studies

This study mainly reviewed the thesis and articles which are conducted under the area of assessing the level of project management maturity level of different countries experienced throughout the world at different years to get inputs and feedback on project maturity area.

In 2017 Timur Narbaev conducted research on Project Management Maturity for a Company in Kazakhstan. To investigate the current PMM status in Kazakhstan and fill a local maturity research gap, the study provides an empirical study on assessing PMM in the country. To achieve this aim, the paper first reviews some prominent maturity models and selects one for this study. Then, a questionnaire survey is conducted involving 22 local project managers from different industries in the country which represents a sample for the study. Third, after statistical analysis of the data, the research results are provided split into three streams: revealing respondents' profiles, discussing demand for project managers, and determining a PMM level in the country. Overall, with a mean maturity level of 2.42 out of 5, the results show that PM tools and methods have not yet been used effectively in Kazakhstan. The results also suggest that PMM in Kazakhstani organizations is gradually moving from Level 2 to Level 3. This shows that the organizations ensure that each project is run with its processes and procedures to a minimum specified management standard set in the organizations. However, it also implies that there is limited consistency or coordination between different projects. Finally, the study finds that, as PMM moves to Level 3, the organizations strive to have their own centrally controlled PM processes where all their projects would flex. All in all, the findings of the study add value to the existing PM body of knowledge in Kazakhstan and serve as a background asset to be used in facilitating the pro-justification of organizations in Kazakhstan.

In the case of Africa, Mohamed and Bakry conducted research on the Project Management Maturity level for Construction Contractors in Egypt. In Egypt, there was a lack of documentation available on the latest status, awareness, and utilization of maturity models in the contracting organizations working in the construction sector and the research was made to fill this gap. To achieve the goals, it was necessary to consult project management experts and professionals to get an understanding of how these organizations understand maturity models and project management standards and to establish the most common business practices and so propose the basis of a maturity model for Egyptian construction contractors that best fit the current status. Based on the analysis of the survey conducted, the project management tools and methodologies have not yet been utilized effectively in the Egyptian construction contracting organizations, and there is much room for improvement regarding project management

practices in these organizations for Egypt to develop the contracting construction sector as a pillar for the Egyptian economy.

In 2015, Kassu Girma also discussed in his study about assessment of project management maturity at the Landsvirkjun-power projects department division. The research aims to assess project maturity in the Power Projects Department in ten project management bodies of knowledge Area by using the PM Solutions Project Management Maturity Model, to provide a clear picture of the current state, define the future state, Identify the gaps, and provides a roadmap for organization change. The research design was a Case study and the data were collected in face-to-face interviews with five project managers. in this assessment to gather data about the project management practices at Landsvirkjun-Power Projects Department. The model used in his assessment was adopted from project management maturity (Pennypacker and Grant, 2003) and takes the key characteristics of the five-level maturity models used as criteria to evaluate each component of knowledge areas based on the qualitative data results obtained from conducted interviews. Then the data obtained from the interview was analyzed quantitatively using the scoring mean. According to the assessment, the overall project management maturity at the Power Projects Department was found at maturity level 3. This indicates that most organizational standards and processes were achieved by using project management knowledge areas and applied to all projects. However, in some cases, knowledge areas were not completely standardized, and thus processes were not applied properly and ineffectively. Finally, the assessment also identifies areas to be focused on for improvement and recommends that formal training should be provided based on project management knowledge areas including organizational standards and processes of project management, especially for the project team and other teams.

When we came to Developing countries like Ethiopia, Ethiopia spend a substantial amount of their budgets on infrastructure development that involves significant construction works in projects such as the construction of roads, buildings, Hydropower works, telecom civil works, Renovation works, etc. For example, the Ethiopian government has spent about 50% of its total budget in fiscal year 20014/2015 on capital projects out of which road construction accounts for about 33 % (Ministry of Finance and Economic Development (MoFED), 2015). From project expenses in other sectors, the construction part accounts for the major part as most socio-economic projects such as school and healthcare involve significant construction components. Even though a significantly large amount of money is being poured into infrastructure development, the infrastructure of the country is still considered to be very poor, even when seen by the standards of the Sub-Saharan countries. Nevertheless, the construction industry of

the country looks unprepared for these huge volumes of work to come. Many studies in the area have indicated the need to improve the capacity of contractors in areas such as financial management, project estimating and costing, total quality management, change management, claim management, business planning, personnel and general management skills, etc. which almost all can be included under the 10 PMI's knowledge areas of construction project management. This shows that improving the project management capacity of contractors can significantly improve the current status of the construction industry in the country. The need for the improvement and development initiative has already been acknowledged by the government of Ethiopian, and the University Capacity Building Program (UCBP) has been initiated with the assistance of the German government to support the capacity of local contractors by providing managerial and entrepreneurial training and coaching that prepare contractors for ISO 9001certification. Contractors under the program were given training in areas such as BIM (building information model), modern contract and project management, modern financial and construction equipment management systems, general management and leadership, marketing, project and quality management.

2.3 Conceptual Framework of the study

Project management is very important because it helps to ensure that projects are completed on time, within budget, and to the expected quality of work. It also helps identify and mitigate risks, manage resources effectively, and ensure stakeholders are well-informed and involved throughout the project. Project management disciplines have been developed to ensure the success of a project and project efficiency and effectiveness. Many of the studies reviewed that maturity models are not meant to provide a quick fix for projects in trouble; they are guides to improve project management capability. Considering "The Project Management Body of Knowledge" (PMBOK Guide 2010) being an excellent point of reference to measure project management capability, the researcher will use a five-level maturity model adopted from Project Management Solutions which contains 10 project management bodies of knowledge areas listed under PMBOK.

CHAPTER THREE

RESEARCH METHODOLOGIES

3.0 Introduction

This study uses the Federal Housing Corporation as a case unit to examine the project management maturity level of Ethiopia's construction industry. The methodology section outlines the research techniques to determine the necessary project management maturity levels for successful internal projects. This chapter covers the research design, study variables, study area, target population, sample size and procedure, data collection process, data analysis method, as well as ethical considerations, validity, and reliability.

3.1 Research Approach

The research approach is quantitative. This approach allows for a comprehensive understanding of project management maturity levels through data collection methods of questionnaires.

3.2 Research Design

The research design is descriptive, aims to outline and understand existing conditions. It focuses on examining individuals, groups, and institutions to provide insights into project management maturity levels within Ethiopia's construction industry. The structure is as a case study, the research permits a detailed background analysis of the Federal Housing Corporation's project management practices.

3.3 Sources of Data

The data for this study is sourced from primary. Primary data is collected through structured questionnaires

3.4 Data Collection Tools

The primary data collection tools include:

3.4.1 Questionnaires: Was designed to assess the application of project management knowledge areas and evaluate maturity levels.

3.5 Population and Sampling

3.5.1 Population

The target population includes project managers and senior engineers currently involved in ongoing projects at the Federal Housing Corporation. This group is purposely selected due to their extensive experience and understanding of project management concepts.

3.5.2 Sampling

A non-probability purposive sampling technique was employed, focusing on individuals with substantial experience in project management. The sample size included sixty-five participants from various departments, ensuring comprehensive insights into project management practices.

3.6 Measurement of Variables

3.6.1 Measurement of Independent Variables

In this study, the Dependent Variable is the Maturity level of the company to the extent to which FHC has established processes, practices, and competencies in project management, as measured by a maturity mode. The independent variables are scope, time, cost, quality, human resource management, risk management, project Integration, procurement, communication, and stakeholder management.

Questionnaires: A structured questionnaire was developed to assess the maturity level and independent variables. The questionnaire included Likert scale items (1 to 5) to measure perceptions of maturity levels about each independent variable. The validity and reliability of the questionnaire was tested before data analysis.

Scales and Units

Dependent Variable (Maturity Level): Measured on a Likert scale (1 = Low maturity, 5 = High maturity).

Independent Variables: Each independent variable will also be measured on a Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) to assess perceptions and practices related to scope, time, cost, quality, HRM, integration, communication, stakeholder engagement, risk, and procurement.

3.7 Data Analysis

Quantitative data from the questionnaires was analyzed using descriptive statistics by using SPSS software to identify trends and relationships between the maturity level and independent variables.

Qualitative data from interviews was analyzed thematically to identify key insights and patterns related to the maturity level of the Company.

3.8 Reliability and Validity Analysis

In this study, Cronbach's alpha was checked for the validity and reliability of the data. Cronbach's alpha was computed in terms of the average inter-correlations among the items measuring the concept. The closer the Cronbach's alpha to 1: the higher the internal consistency of the variables.

Table: -3.1 The Outcome of Reliability Test (Source: own survey results, 2024)

Dimension	No of items	Cronbach's Alpha
1. Project Scope Management maturity level	6	.909
2. Project Time Management maturity level	6	.894
3. Project Cost Management maturity level	6	.872
4. Project Quality Management maturity level	5	.891
5. Project Integration Management maturity level	5	.896
6. Project communication Management maturity level	5	.786
7. Project HRM Management maturity level	5	.802
8. Project procurement Management maturity level	5	.916
9. Project risk Management maturity level	5	.805
10. Project stakeholder's Management maturity level	5	.797
Cumulative Cronbach's Alpha	**53**	**.857**

According to Cronbach's Alpha values presented in Table 4.1, the value of individual variables ranges from a minimum of 0.786 to a maximum value of 0.916. There fore it can be concluded that it has internal consistency and is reliable for further analysis. The reliability test is a vital tool to measure the degree of consistency of an attribute that is supposed to be measured. Reliability can be compared with the stability, consistency, or dependability of a measuring tool as Cronbach's alpha is one of the most commonly accepted measures of reliability. As stated by (Hair, J.F., et al., 2006), if α is greater than 0.7 then it is acceptable. As indicated in Table 4.1, by using SPSS, the Cronbach's Alpha value for all dimensions and constructs is more than 0.7 which is the threshold value. This indicates that the scales satisfactorily measured the constructs. Hence, reliability for all the specified variables is accomplished.

3.9 Research Ethics

This research follows the fundamental principles of research ethics, emphasizing the researcher's commitment to respecting participants' opinions. Participants was informed about the study's objectives during the interviews. Then the data was collected using questionnaires with full agreement of the participants. The statement indicates that the participants were volunteers who were willing to help with the research that was conducted. It was also ensured that their ideas were clear and transparent.

CHAPTER FOUR:

DATA PRESENTATION, ANALYSIS AND INTERPRETATION.

4.1 Introduction

Data analysis, presentation, and interpretation of primary data are presented in this chapter, which was collected from sixty-five respondents through questioning on each study topic and interviews with four project managers of Federal Housing Corporation. The questionnaires were fully completed, which helped the study be considered suitable for analysis and reporting. The project management maturity level of Federal Housing Corporation has been done based on the assessment of the ten construction Project management body of knowledge areas covered by this study (Scope, Time, Cost, Quality, Integration, communication, Human resource, procurement, Risk, and Stakeholder management).

4.2 Response rate and Demographic data

4.2.1 Response rate

From those sixty-five questionnaires were distributed and interviewed by four project managers. All respondents were fully responding to the questions according to the instructions given on the cover page. Which helps the study to be considered adequate for analysis and reporting.

4.2.2 Demographic data

The general questions regarding Gender, Education Level, Age, department, position/role, and Work experience are presented here.

Table 4.2: demographic data analysis (Source: own survey results, 2024)

Statistics							
		Gender	education status	age of respondent	department	role in projects	experience
N	Valid	65	65	65	65	65	65
	Missing	0	0	0	0	0	0
Mean			2.5077	1.6308			2.2308
Mode			3.00	2.00			2.00

Table 4.3: Gender data analysis

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	37	56.9	56.9	56.9
	female	28	43.1	43.1	100.0
	Total	65	100.0	100.0	

(Source: own survey results, 2024)

Table 4.4: Age of respondent data analysis

Age of respondent					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	29	44.6	44.6	44.6
	31-40	31	47.7	47.7	92.3
	41-50	5	7.7	7.7	100.0
	Total	65	100.0	100.0	

(Source: own survey results, 2024)

4.2.2.1 Department and Current Position of Respondents

All the respondents are from the engineering department in the corporation. From the total of 65 respondents given in table 4.4 below, 26.2% are design teams 21.5% are construction team, 29.2% are supervision team, and 23.1% are contract team.

Table 4.5: Department of respondent

Department					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	design team	17	26.2	26.2	26.2
	construction team	14	21.5	21.5	47.7
	supervision team	19	29.2	29.2	76.9
	contract team	15	23.1	23.1	100.0
	Total	65	100.0	100.0	

(Source: own survey results, 2024)

Table 4.6: Position of the respondent

4.2.2.2 Role in projects					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	project coordinator	1	1.5	1.5	1.5
	project manager	6	9.2	9.2	10.8
	supervisor	17	26.2	26.2	36.9
	contract administrator	10	15.4	15.4	52.3
	site engineer	10	15.4	15.4	67.7
	office engineer	13	20.0	20.0	87.7
	senior staff	4	6.2	6.2	93.8
	other	4	6.2	6.2	100.0
	Total	65	100.0	100.0	

(Source: own survey results, 2024)

4.2.2.3 Education level and working experience of respondents

From the table below, 49.2% of the respondents are degree holders and 50.8% are second-degree holders.

Table 4.7: Education background of the respondent

education status					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	degree	32	49.2	49.2	49.2
	masters	33	50.8	50.8	100.0
	Total	65	100.0	100.0	

(Source: own survey results, 2024)

Table 4.7: Experience of the respondent

Experience					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5	11	16.9	16.9	16.9
	6-10	28	43.1	43.1	60.0
	above 10	26	40.0	40.0	100.0
	Total	65	100.0	100.0	

(Source: own survey results, 2024)

4.3 Results and analysis of the study

In this part of the study, the analyzed data result of the questionnaire is given using SPSS software according to the research questions. The outputs of the analysis are given below.

4.3.1 Project Management Practice maturity level of Project management body of knowledge areas

The analysis of the project management maturity level of the organization is presented in tables. The average mean of project management body of knowledge areas is computed to know the project management maturity level of the organization.

The maturity level of each knowledge area within the project department of the company is estimated based on the mean value of each sub-element of the knowledge area. On the questionnaire, each respondent was asked to choose at which level the company stands in five maturity levels regarding sub-elements of each project management knowledge area. Then the mean of the five maturity levels scored by the respondents on each sub-element of knowledge areas is used to decide the maturity level of each knowledge area, At the same time the mean of ten knowledge areas was used to define maturity levels of the company on project management as it shows below.

4.3.1.1. Project Scope Management maturity level

From the analysis obtained the mean value of each project scope management key practices in the organization, the maturity level of Project scope is clearly defined and documented in the organization is 3.85, the maturity level of Change management processes for project scope are effective in projects is 3.42, the maturity level of Change management processes for project scope is 3.58, the maturity level of formal process of scope verification with stakeholders is 3.85, the maturity level of Lessons learned from previous projects are applied to scope management is 4.22 which is good practice and the maturity level of Stakeholders are involved in the scope definition process is 4. Taking the total mean of each key practice gives us the company's project scope management is at level of **3.82**.

Table 4.9: Project Scope Management maturity level

Project Management body of Knowledge area	Frequency (% of 65 Respondents)					Mean (maturity level)	Standard deviation
	1	2	3	4	5		
Project scope is clearly defined and documented.			29.2	56.9	13.8	3.85	0.64
Change management processes for project scope are effective.			58.5	41.5		3.42	0.5
Change management processes for project scope are effective.			41.5	58.5		3.58	0.5
There is a formal process for scope verification with stakeholders.			33.8	47.7	18.5	3.85	0.71
Lessons learned from previous projects are applied to scope management.			12.3	53.8	33.8	4.22	0.65
Stakeholders are involved in the scope definition process.		4.6	10.8	61.5	23.1	4	0.73
Project Scope Management maturity level						**3.82**	**0.62**

(Source: own survey results, 2024)

The standard deviation of the variables of project scope management is given in table 4.7. The total standard deviation of scope management is 0.62. The lower value of the standard deviation shows that the values of the data set are spread over a relatively small range around the mean.

4.3.1.2. Project Time Management maturity level

The result of the project time management in the study is done based on each activity's maturity level of the organization. As shown in table below maturity level of each activity is given to get the maturity level of project time management. The overall company's project time management knowledge area maturity level is at **3.54**.

Table 4.10: Project Time Management maturity level

Project Management body of Knowledge area	Frequency (% of 65 Respondents)					Mean (maturity level)	Standard deviation
	1	2	3	4	5		
Project timelines are accurately estimated.		9.2	35.4	50.8	4.6	3.51	0.73
Schedules are effectively developed, monitored, and controlled.		6.2	41.5	46.2	6.2	3.52	0.71
Delays in timelines are managed effectively.			32.3	61.5	6.2	3.74	0.57
Resources are allocated effectively to meet project timelines.			35.4	64.6		3.65	0.48
Time-tracking tools are used to monitor progress.			52.3	47.7		3.48	0.5
Milestones are clearly defined and communicated to all team members.		9.2	49.2	41.5		3.32	0.64
Project Time Management maturity level						**3.54**	**0.61**

(Source: own survey results, 2024)

The standard deviation for project time management is 0.61 as shown in the table. The lower value of the standard deviation shows that the values of the data set are spread over a relatively small range around the mean.

4.3.1.3. Project Cost Management maturity level

Project Cost management is crucial considering any organization's priority is profit. to be more important than managing other knowledge areas. The maturity of Cost management practice in the organization is 3.61.

The standard deviation of the variables of project cost management is 0.56. The smaller value of the standard deviation shows that the values of the data set are spread over a relatively small range around the mean. This means that the values in a statistical data set are close to the mean of the data-set.

Table 4.11: Project Cost Management maturity level

Project Management body of Knowledge area	Frequency (% of 65 Respondents)					Mean (maturity level)	Standard deviation
	1	2	3	4	5		
The budgeting process for projects is effective.		6.2	43.1	50.8		3.45	0.61
Project costs are tracked accurately against the budget.			52.3	47.7		3.78	0.5
Cost overruns are effectively managed and communicated			27.7	72.3		3.72	0.45
Financial reports are generated regularly to track project expenses.			32.3	58.5	9.2	3.77	0.61
Cost management practices are integrated into the project lifecycle.		4.6	46.2	49.2		3.45	0.59
Cost estimates are based on historical data and best practices.		6.2	36.9	56.9		3.51	0.62
Project Cost Management maturity level						**3.61**	**0.56**

(Source: own survey results, 2024)

4.3.1.4. Project Quality Management maturity level

The study result shows quality management practice of the organization is found to be at level 3.54.

Table 4.12: Project Quality Management maturity level

Project Management body of Knowledge area	Frequency (% of 65 Respondents)					Mean (maturity level)	Standard deviation
	1	2	3	4	5		
Quality standards are consistently applied to projects		12.3	30.8	56.9		3.45	0.71
Quality assurance is integrated into the project lifecycle.		3.1	41.5	55.4		3.52	0.56
Quality issues are identified and addressed promptly		6.2	26.2	67.7		3.62	0.6
Continuous improvement processes are in place to enhance quality.		6.2	44.6	49.2		3.43	0.61
Feedback from stakeholders is utilized to improve quality management.			36.9	58.5	4.6	3.68	0.56
Project Quality Management maturity level						**3.54**	**0.61**

(Source: own survey results, 2024)

The standard deviation of the variables of project quality management ranging from 0.56 to 0.71. The total standard deviation of quality management is 0.61. The smaller value of the standard deviation shows that the values of the data set are spread over a relatively small range around the mean. This means that a small standard deviation shows that the values in a statistical data set are close to the mean of the data.

4.3.1.5. Project Integration Management maturity level

Project Integration management practice maturity level of the company responded by the project managers and senior engineers of the company is 3.64. The maturity survey indicates that the integration management practice maturity is found to be at all processes, standards for all projects are repeatable and summary and detailed information, Estimates, and schedules are based on industry standard.

Table 4.13: Project Integration Management maturity level

Project Management body of Knowledge area	Frequency (% of 65 Respondents)					Mean (maturity level)	Standard deviation
	1	2	3	4	5		
Project objectives are well-aligned with organizational goals.	3.1	3.1	32.3	52.3	9.2	3.62	0.82
The project charter development and communication process is effective.			43.1	53.8	3.1	3.6	0.55
Project plans are regularly reviewed and updated			40	50.8	9.2	3.69	0.64
Project stakeholders are actively involved in the integration process.			29.2	67.7	3.1	3.74	0.51
Changes to project plans are systematically documented and communicated.			43.1	56.9		3.57	0.5
Project Integration Management maturity level						**3.64**	**0.60**

(Source: own survey results, 2024)

The standard deviation of the variables of project integration management ranges from 0.50 to 0.82. The total standard deviation of integration management is 0.60. The lower value of the standard deviation shows that the values of the data set are spread over a relatively small range around the mean. This means that a small standard deviation shows that the values in a statistical data set are close to the mean of the data.

4.3.1.6. Project Communication Management maturity level

The communication management practice maturity level of the organization is found at 3.91. Most of the respondents gave a maturity level between 3 to 5 for the communication management practices, Which means that the company has a managed process in communication to some extent. The standard deviation of the variables of project communication management ranging from 0.61 to 0.75. The total standard deviation of communication management is 0.67. The lower value of the standard deviation shows that the values of the data set are spread over a relatively small range around the mean.

Table 4.14: Project Communication Management maturity level

Project Management body of Knowledge area	Frequency (% of 65 Respondents)					Mean (maturity level)	Standard deviation
	1	2	3	4	5		
Communication among project stakeholders is structured and clear			24.6	44.6	30.8	4.06	0.75
Effective tools are used for project communication and reporting			26.2	56.9	16.9	3.91	0.65
Status updates are provided regularly to stakeholders.			36.9	52.3	10.8	3.74	0.64
Communication plans are developed for each project			26.2	61.5	12.3	3.86	0.61
There is a clear escalation process for communication issues			24.6	53.8	21.5	3.97	0.68
Project Communication Management maturity level						**3.91**	**0.67**

(Source: own survey results, 2024)

4.3.1.7. Project Human Resource Management maturity level

In this study, the organization's Human resource maturity level is 3.67. it ranges from 3.63 to 3.77 it represents the company’s organizational, standards are repeatable for all projects.

The total standard deviation of human resource management is 0.6. The lower value of the standard deviation shows that the values of the data set are spread over a relatively small range around the mean. This means that a small standard deviation shows that the values in a statistical data set are close to the mean of the data set.

Table 4.15: Project HRM maturity level

Project Management body of Knowledge area	Frequency (% of 65 Respondents)				Mean (maturity level)		Standard deviation
	1	2	3	4	5		
Project teams are formed based on appropriate criteria.			43.1	50.8	6.2	3.63	0.6
Training and development programs are available for project staff.			38.3	61.5		3.62	0.49
Team performance is regularly evaluated.			29.2	64.6	6.2	3.77	0.55
Team roles and responsibilities are clearly defined			49.2	38.5	12.3	3.63	0.7
Conflict resolution processes are effective within teams		3.1	32.3	58.5	6.2	3.68	0.64
Project HRM Management maturity level						**3.67**	**0.60**

(Source: own survey results, 2024)

4.3.1.8. Project Procurement Management maturity level

The overall procurement management practice maturity of the organization is found to be at 3.55. It shows the frequency of respondents rating project procurement management maturity level is in average level. The standard deviation of the variables of project procurement management is 0.53.

Table 4.16: Project Procurement Management maturity level

Project Management body of Knowledge area	Frequency (% of 65 Respondents)					Mean (maturity level)	Standard deviation
	1	2	3	4	5		
The procurement process is effective in meeting project needs			43.1	56.9		3.6	0.5
Procurement activities align well with project requirements		1.5	44.6	53.8		3.52	0.53
Suppliers and contractors are selected based on clear criteria		1.5	44.6	53.8		3.52	0.53
The procurement process is transparent and fair.			38.5	61.5		3.62	0.49
Supplier performance is regularly evaluated		4.6	43.1	52.3		3.48	0.59
Project Procurement Management maturity level						**3.55**	**0.53**

(Source: own survey results, 2024)

4.3.1.9. Project Risk Management Maturity level

The overall Risk management practice maturity of the organization is found to be at 3.52. it shows the respondents think their organization is in normal level in risk management.

Table 4.17: Project Risk Management maturity level

Project Management body of Knowledge area	Frequency (% of 65 Respondents)					Mean (maturity level)	Standard deviation
	1	2	3	4	5		
Risks are identified and assessed effectively.			55.4	44.6		3.45	0.5
Mitigation strategies for identified risks are implemented.		1.5	52.3	43.1	3.1	3.48	0.59
Risk management plans are regularly reviewed and updated.		4.6	35.4	46.2	13.8	3.69	0.77
Risk management practices are integrated into project planning			46.2	53.8		3.54	0.5
There is a culture of risk awareness among team members			55.4	44.6		3.45	0.5
Project Risk Management maturity level						**3.52**	**0.57**

(Source: own survey results, 2024)

The total standard deviation of human resource management is 0.57. The lower value of the standard deviation shows that the values of the data set are spread over a relatively small range around the mean.

4.3.1.10 Project Stakeholder Management maturity level

The table below shows that the maturity level of stakeholder management knowledge area is 3.83 level of maturity.

The standard deviation of project stakeholder management of each variable ranges from 0.57 to 0.72 given on table 4.16 below. And the total standard deviation is 0.62. The lower value of the standard deviation shows that the values of the data set are spread over a relatively small range around the mean.

Table 4.18: Project Stakeholder Management maturity level

Project Management body of Knowledge area	Frequency (% of 65 Respondents)					Mean (maturity level)	Standard deviation
	1	2	3	4	5		
Stakeholders are identified and analyzed effectively			38.5	52.3	9.2	3.71	0.63
Stakeholder engagement is actively maintained throughout projects			24.6	66.2	9.2	3.85	0.57
Stakeholder expectations are managed and communicated effectively.			26.2	61.5	12.3	3.86	0.61
Stakeholder feedback is actively sought and incorporated.			35.4	46.2	18.5	3.83	0.72
Stakeholder relationships are nurtured throughout the project lifecycle.			23.1	61.6	12.3	3.89	0.59
Project stakeholder Management maturity level						**3.83**	**0.62**

(Source: own survey results, 2024)

4.3.2 Overall Company Maturity Level

Table 4.19: Project Management maturity level of the company

Project Management body of knowledge area	**Mean maturity level**	Standard deviation
1**.** Project Scope Management maturity level	3.82	0.62
2. Project Time Management maturity level	3.54	0.61
3. Project Cost Management maturity level	3.61	0.56
4. Project Quality Management maturity level	3.54	0.61
5. Project Integration Management maturity level	3.64	0.61
6. Project communication Management maturity level	3.91	0.67
7. Project HRM Management maturity level	3.67	0.6
8. Project procurement Management maturity level	3.55	0.53
9. Project risk Management maturity level	3.52	0.57
10**.** Project stakeholders Management maturity level	3.83	0.62
Company maturity level	**3.66**	**0.6**

(Source: own survey results, 2024)

According to the above data each project management knowledge areas maturity level is given. Based on this the project management maturity level of the organization i.e. the average mean of all knowledge areas covered under the study is at maturity level of 3.66This means that the

maturity level of the company is between level 3 to level 4 in which it has a managed process. This shows that the process in the company is integrated with corporate process and management uses data based on the organization to make decision. According to the mean result of the study of all variables are 3.66 and above. This means the respondents believe that there is good maturity level in the company in all dimensions of project management.

4.4 Interpretation and Discussion

4.4.1Project Management practice maturity level of the core Project management body of knowledge areas

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

4.4.1.1 Project Scope Management maturity level

Project Scope Management is a set of processes required to ensure that the project includes all the work required, and only the work required, completing the project successfully (PMI, 2013) the result of the study shows that the maturity level indicates that the company has a strong understanding of defining and controlling project scope. This is crucial for ensuring that projects meet stakeholders' expectations and deliver the desired outcomes. A high scope management maturity suggests that the company likely employs effective techniques for gathering requirements and managing scope changes. However, the standard deviation indicates variability in practices across projects. Some teams may struggle with scope creep or lack clarity on project boundaries.

4.4.1.2 Project Time Management maturity level

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

According to the result the company's project time management maturity level is at 3.54. This shows that the company's project time management is moderate competency in planning and controlling project timelines. The relatively lower score suggests that there may be challenges in scheduling, resource allocation, and meeting deadlines. The standard deviation indicates some inconsistency in time management practices, which may stem from varying levels of experience among project managers or a lack of standardized tools and procedures. Improving this area could lead to better project delivery times.

4.4.1.3 Project Cost Management maturity level

According to (PMI, 2013) Project cost management includes the processes involved in estimating, budgeting and controlling costs so that the project can be completed within the approved budget. Project cost management includes the processes of: Estimate costs, Determine Budget and Control Cost. According to the result of the study the overall cost management practice maturity of the organization is 3.61. The maturity level indicates a fair understanding of budgeting and cost control mechanisms. While the score is reasonably good, the company should focus on enhancing its forecasting and cost-tracking capabilities. The lower standard deviation suggests that practices are more consistent across projects, but there is still room for improvement, particularly in accurately estimating project costs and managing deviations from the budget.

4.4.1.4 Project Quality Management maturity level

Literatures show that Project Quality Management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken. According to (HIMSS 2011) the primary purpose of quality management is to ensure that the final product meets the business need.The result of the study shows the quality management practice of the organization is found to be at level of 3.54. This means company's project quality management maturity level indicates a moderate approach to ensuring quality in project deliverables. The maturity level suggests that while there are some quality assurance processes in place, they may not be rigorously followed or fully integrated into the project lifecycle. The variability indicated by the standard deviation points to potential gaps in quality management practices across different teams. Enhancing quality management training and establishing standardized quality metrics could improve this area.

4.4.1.5 Project Integration Management maturity level

According to (Joseph, 2012) as the term integration implies, every activity must be coordinated or integrated with every other one in order to achieve the desired project outcomes. Project Integration management includes the processes and activities needed to identify, define, combine, unify and coordinate the various processes and project management activities within the project management process groups. In the project management context, integration includes characteristics of unification, consolidation, articulation and integrative actions that are crucial to project completion, successfully managing stakeholder expectations and meeting requirements. Project integration management entails making choices about resource allocation, making trade-offs among competing objectives and alternatives, and managing the interdependencies among the project management knowledge areas. According to the result of the study the overall project integration management maturity is found to be 3.64 The maturity level shows a good understanding of integrating various project components and ensuring cohesive project execution. A solid integration management level is essential for balancing project constraints. The standard deviation suggests some inconsistencies, which may arise from varying team dynamics or project complexities. Fostering collaboration and communication among teams can help improve integration practices.

4.4.1.6 Project Communication Management maturity level

Project Communications Management involves understanding the information received and being able to explain it to others (HIMSS 2011) It includes the processes required to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information. The result of the study shows the communication management practice maturity of the organization is found to be at 3.91. This means company's project communication management maturity level indicates strong communication practices within the organization. Effective communication is vital for project success, and this score reflects the company's ability to disseminate information and engage stakeholders. However, the higher standard deviation suggests that while some teams excel, others may still face challenges. Continuous training on communication tools and techniques can enhance overall performance.

4.4.1.7 Project Human Resource Management maturity level

According to literatures Project Human Resource Management includes the processes that organize, manage, and lead the project team. Project managers spend most of their time

communicating with team members and other project stakeholders, whether they are internal (at all organizational levels) or external to the organization.

The overall result of the study shows the maturity level is 3.67 in project human resource management knowledge area. This shows the company's project human resource management maturity level reflects a good understanding of managing project teams and resources. This indicates effective recruitment, team development, and conflict resolution practices. However, the variability suggests that there may be inconsistencies in how human resources are managed across projects. Implementing standardized HR practices and providing leadership training can help address these gaps.

4.4.1.8 Project Procurement Management maturity level

This maturity level indicates a fair understanding of procurement processes.The score suggests that while procurement practices exist, there may be inefficiencies in vendor management and contract negotiations. The lower standard deviation indicates more consistency in practices, but there's still potential for improvement in optimizing procurement strategies and aligning them with project goals. According to literatures Project procurement management includes the processes necessary to purchase or acquire products and services. Procurement management includes the contract management issued by an outside organization (Buyer) or issued by the performing organization to an outside organization (sub contract management) and change control processes required to develop and administer contracts or purchase orders issued by authorized project team members.The result of the study shows the project procurement maturity level is at 3.55. This means that the procurement management maturity level indicates a fair understanding of procurement processes. The score suggests that while procurement practices exist, there may be inefficiencies in vendor management and contract negotiations. The lower standard deviation indicates more consistency in practices, but there's still potential for improvement in optimizing procurement strategies and aligning them with project goals.

4.4.1.9 Project Risk Management maturity level

This is the lowest maturity level among the knowledge areas, indicating challenges in identifying and managing risks. A lower score suggests that risk management practices may be reactive rather than proactive. The standard deviation indicates some variability, which could mean that while some teams effectively manage risks, others do not. Focused training on risk assessment techniques and developing a risk management framework could significantly enhance this area.Project risk management includes the processes of conducting risk management planning, identification, analysis, response planning, and monitoring and control

of project risk. The objectives of risk management are to increase the probability and impact of positive events, and decrease the probability and impact of negative events in the project. The result of the study shows the project management maturity level is at 3.52. This knowledge area's maturity level is lowest maturity level among the knowledge areas, indicating challenges in identifying and managing risks. A lower score suggests that risk management practices may be reactive rather than proactive. The standard deviation indicates some variability, which could mean that while some teams effectively manage risks, others do not. Focused training on risk assessment techniques and developing a risk management framework could significantly enhance this area.

4.4.10 Project Stakeholder Management maturity level

The maturity level reflects a strong capability in engaging and managing project stakeholders. High stakeholder management maturity is crucial for project buy-in and success. However, the standard deviation indicates variability, suggesting that some projects may not adequately address stakeholder needs. Regular stakeholder analysis and feedback mechanisms can be implemented to ensure consistent engagement. According to (PMI, 2013) Project Stakeholder Management knowledge area includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution. The result of the study shows the project management maturity level is at 3.83. This knowledge area of the company maturity level reflects a strong capability in engaging and managing project stakeholders. High stakeholder management maturity is crucial for project buy-in and success. However, the standard deviation indicates variability, suggesting that some projects may not adequately address stakeholder needs. Regular stakeholder analysis and feedback mechanisms can be implemented to ensure consistent engagement

4.4.2 Project management maturity level of the organization (Overall Company Maturity Level)

According to the result and interpretation of the data obtained the project management maturity level of the organization is maturity level of 3.66 indicates a moderate capability across project management practices. While the company shows strengths in communication and stakeholder management, the lower scores in risk, time, and quality management highlight areas needing attention. The variability in standard deviations suggests that there are inconsistencies in practices that could lead to project inefficiencies. A comprehensive training program focused

on the weaker areas, combined with regular assessments and adjustments to practices, could enhance overall project management maturity

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summaries of the findings, conclusions derived from the analysis and the recommendations that are suggested to the company for effective project management practice.

5.2 Summary of Findings

Based on the analysis on the fourth chapter the following summary of findings was the project management maturity level of the core and facilitating project management knowledge areas is between level 3 and level 4. And the final maturity level of the ten project management knowledge areas is at 3.66. Summary of the project management knowledge areas maturity level is given below.

- **Project Scope Management Result:**
  Indicates a strong capability in defining and controlling what is included or excluded in the project. This level suggests effective processes for managing scope changes and stakeholder expectations.
- **Project Time Management Result:**
  Reflects a solid ability to plan and control the project schedule. While this level is competent, there may be occasional challenges in adhering to timelines or managing delays.
- **Project Cost Management Result:**
  Suggests a good understanding of budgeting and cost control processes. There is likely a reliable framework for estimating and monitoring costs, although some improvement could be made in cost variance management.
- **Project Quality Management Result:**
  Indicates a competent approach to ensuring project deliverables meet quality standards. There may be room for enhancing quality assurance processes to prevent defects or rework.
- **Project Integration Management Result:**
  This level shows effective coordination of various project elements. The integration processes likely ensure that all project parts work together smoothly, but further enhancement could improve overall coherence.

- **Project Communication Management Result:**
  This high score signifies exceptional communication practices within the project. Stakeholders are probably well-informed, and feedback loops are effectively established, contributing to project success.
- **Project Human Resource Management Result:**
  Reflects a strong capability in managing team dynamics, roles, and responsibilities. The organization likely has effective strategies for team development and conflict resolution.
- **Project Procurement Management Result:**
  Indicates a competent management of procurement processes, including vendor selection and contract management. However, there might be opportunities to enhance supplier relationships or negotiation strategies.
- **Project Risk Management Result:**
  Suggests a basic understanding of risk identification and mitigation strategies. While risks are likely acknowledged, there is potential for improving proactive measures and response planning.
- **Project Stakeholder Management Result:**

This level indicates a strong focus on engaging and managing stakeholders. The project likely benefits from effective stakeholder analysis and communication strategies. Generally, the objective of this study was to assess the level of project management maturity of the organization based on the assessment on the project management knowledge areas maturity level. The sum of these assessments gives the general maturity level of the company. Assessing the project management maturity benefits the organization to improve its effectiveness in project delivery and it allows the organization to diagnosis the current position in the maturity level and identifies improvement areas. As a result, it provides a path forward for the organization in improving project management practices and to establish well defined organizational standards for project management.

5.3. Conclusion

The maturity levels across various project management areas indicate a generally positive outlook for the organization's project management practices, with an overall company maturity level of 3.66. The highest mean maturity level is in Project Communication Management (3.91), suggesting that this area is a strength for the organization. Conversely, Project Risk Management has the lowest mean maturity level (3.52), highlighting a potential area for improvement.

The standard deviations across the maturity levels are relatively low, indicating consistent perceptions of maturity among stakeholders. The standard deviation for Project Communication Management is notably higher (0.67), suggesting that there may be differing opinions regarding this area, despite its high mean score.

5.4. Recommendations

5.4.1 Recommendation for Action

- **Enhance Risk Management Practices**:-To elevate the maturity level of project risk management from current level develop targeted training sessions for project managers and teams focused on risk identification, assessment, and mitigation strategies. This will help to enhance the maturity level of Project Risk Management from its current score of 3.52.
- **Leverage Strengths in Communication**:-To establish a standardized communication framework across all project identify high-performing teams within the Project Communication Management domain to mentor other teams and Create a repository of best practices and communication standards that can be easily accessed by all project teams.
- **Conduct Regular Maturity Assessments**:-To ensure continuous improvement and adaptability in project management practices implement a bi-annual maturity assessment to monitor progress and adjust strategies as needed. This will ensure continuous improvement and help address any emerging challenges promptly.
- **Stakeholder Engagement Initiatives**:-To strengthen stakeholder relationships and ensure their needs are consistently met increase engagement with project stakeholders to ensure their expectations and needs are met. This can be done through regular updates, feedback sessions, and inclusive decision-making processes.

5.4.2 Recommendation for Further Study

- **In-depth Analysis of Risk Management**:-To identify specific challenges and barriers within Project Risk Management conduct qualitative research, such as interviews or focus groups, to understand the specific challenges and barriers faced in Project Risk Management. This will provide insights for tailored improvement strategies.
- **Comparative Benchmarking**:-Identify the company best practices and areas for innovation and engage in benchmarking against avaliable standards or similar organizations to identify best practices in project management. This could provide valuable insights into areas for improvement and innovation.
- **Impact of Training on Maturity Levels**:-To assess the effectiveness of training initiatives on project maturity levels Study the correlation between training initiatives and changes in maturity levels over time. This will help assess the effectiveness of training programs and inform future investments in professional development.
- **Stakeholder Satisfaction Surveys**:-To measure and enhance stakeholder satisfaction with project outcomes implement regular surveys to gauge stakeholder satisfaction with project outcomes and management practices. Analyzing this feedback will help refine processes and enhance overall project delivery.

By focusing on these recommendations, the organization can enhance its project management maturity, ultimately leading to improved project outcomes and stakeholder satisfaction.

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Appendix A

ST. MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES

MASTER'S PROGRAM IN PROJECT MANAGEMENT

TITLE OF THE THESIS

"ASSESING PROJECT MANAGEMENT MATURITY IN THE ETHIOPIA CONSTRUCTION SECTOR: THE CASE OF FEDERAL HOUSING COORPORATION."

Dear Respondents,

My name is Semeon Shiferaw, a postgraduate student of St. Mary's university school of graduate studies department of project management. I am conducting a study to assess project management maturity in the Ethiopia construction sector: the case of federal Housing Corporation. You are kindly requested to respond to the statements which describe a specific situation. You are to decide the extent to which you agree that the statement is typical of your judgment. To do so, tick one of the descriptors beneath the statement. The research is anonymous; you do not need to disclose your personal details. The information you provide will be used purely for academic purpose and will be kept confidential. Participation in this study is absolutely voluntary. It will take 25 to 30 minutes of your time to complete the questionnaire.

I thank you in advance for offering your golden time and if you have any question, please contact me by:

Semeon Shiferaw

Mobile: +251 913-33-16-88

Email: semeon1419@gmail.com

Part I: Biographical Information

Please put "√" mark in the box to the point which highly reflects your idea?

1. ***Gender***

Female ☐ Male ☐

2. ***Age (years)***

20 - 30 ☐ 31 - 40 ☐

41 – 50 ☐ 51 – 60 ☐

Above 61 ☐

3. ***Education Level:***

Diploma ☐ Bachelor Degree ☐

Master Degree ☐ PHD ☐

4. ***Department***

Design Team ☐ Construction Team ☐

Supervision Team ☐ Contract Administration Team ☐

Others ☐

5. ***Position or Your Role in the project***

Project Coordinator ☐ Site Engineer ☐

Project manager ☐ Office Engineer ☐

Supervisor ☐ Senior Staff ☐

Contract Adminstrator ☐ Others ☐

6. ***Work experience (in years)***

0- 5 years ☐ 6 - 10 years ☐ above 10 years ☐

Part II: Study Variables

The following questions are prepared on a 5 five-point Scale. If the items indicated a complete mismatch with the practices, choose Strongly Disagree (1) and if they strongly match with the practices choose Strongly Agree (5). This is to know how you feel about Maturity Level of FHC. Be honest and give a true picture of your feelings. Please check (√) or (X) that applies and answer the questions under each heading.

Instruction: Please rate the following Maturity level in your bureau.

1= Strongly Disagree 2= Disagree 3=Neutral 4= Agree 5= Strongly Agree

Think of Maturity Level of the FHC project and choose the number that best describes your agreement and disagreement to the following.

1.Integration Management		1	2	3	4	5
1	Project objectives are well-aligned with organizational goals.					
2	The project charter development and communication process is effective.					
3	Project plans are regularly reviewed and updated					
4	Project stakeholders are actively involved in the integration process.					
5	Changes to project plans are systematically documented and communicated.					
2.Scope Management		**1**	**2**	**3**	**4**	**5**
6	Project scope is clearly defined and documented.					
7	Change management processes for project scope are effective.					
8	Scope validation and control activities are conducted regularly.					
9	There is a formal process for scope verification with stakeholders.					
10	Lessons learned from previous projects are applied to scope management.					

11	Stakeholders are involved in the scope definition process.					
3.Time Management		**1**	**2**	**3**	**4**	**5**
12	Project timelines are accurately estimated.					
13	Schedules are effectively developed, monitored, and controlled.					
14	Delays in timelines are managed effectively.					
15	Resources are allocated effectively to meet project timelines.					
16	Time tracking tools are used to monitor progress.					
17	Milestones are clearly defined and communicated to all team members.					
4.Cost Management		**1**	**2**	**3**	**4**	**5**
18	The budgeting process for projects is effective.					
19	Project costs are tracked accurately against the budget.					
20	Cost overruns are effectively managed and communicated					

21	Financial reports are generated regularly to track project expenses.					
22	Cost management practices are integrated into the project lifecycle.					
23	Cost estimates are based on historical data and best practices.					
5.Quality Management		**1**	**2**	**3**	**4**	**5**
24	Quality standards are consistently applied to projects					
25	Quality assurance is integrated into the project lifecycle.					
26	Quality issues are identified and addressed promptly					
27	Continuous improvement processes are in place to enhance quality.					
28	Feedback from stakeholders is utilized to improve quality management.					
6.Communication Management		**1**	**2**	**3**	**4**	**5**
29	Communication among project stakeholders is structured and clear					
30	Effective tools are used for project communication and reporting					

31	Status updates are provided regularly to stakeholders.					
32	Communication plans are developed for each project					
33	There is a clear escalation process for communication issues					
	7.Human Resource Management	**1**	**2**	**3**	**4**	**5**
34	Project teams are formed based on appropriate criteria.					
35	Training and development programs are available for project staff.					
36	Team performance is regularly evaluated.					
37	Team roles and responsibilities are clearly defined					
38	Conflict resolution processes are effective within teams					
	8.Procurement Management	**1**	**2**	**3**	**4**	**5**
39	The procurement process is effective in meeting project needs					
40	Procurement activities align well with project requirements					

41	Suppliers and contractors are selected based on clear criteria					
42	The procurement process is transparent and fair.					
43	Supplier performance is regularly evaluated					
9. Risk Management		**1**	**2**	**3**	**4**	**5**
44	Risks are identified and assessed effectively.					
45	Mitigation strategies for identified risks are implemented.					
46	Risk management plans are regularly reviewed and updated.					
47	Risk management practices are integrated into project planning					
48	There is a culture of risk awareness among team members					
10. Stakeholder Management		**1**	**2**	**3**	**4**	**5**
49	Stakeholders are identified and analyzed effectively					
50	Stakeholder engagement is actively maintained throughout projects					
51	Stakeholder expectations are managed					

	and communicated effectively.					
52	Stakeholder feedback is actively sought and incorporated.					
53	Stakeholder relationships are nurtured throughout the project lifecycle.					

Thank you! for Your Time

Appendix B: Ten project management knowledge areas maturity level

Statistics						
		Project objectives are well-aligned with organizational goals.	The project charter development and communication process is effective.	Project plans are regularly reviewed and updated	Project stakeholders are actively involved in the integration process.	Changes to project plans are systematically documented and communicated.
N	Valid	65	65	65	65	65
	Missing	0	0	0	0	0
Mean		3.6154	3.6000	3.6923	3.7385	3.5692
Std. Deviation		.82334	.55340	.63549	.50858	.49904

Statistics						
		Project scope is clearly defined and documented.	Change management processes for project scope are effective.	Scope validation and control activities are conducted regularly.	There is a formal process for scope verification with stakeholders.	Lessons learned from previous projects are applied to scope management.
N	Valid	65	65	65	65	65
	Missing	0	0	0	0	0
Mean		3.8462	3.4154	3.5846	3.8462	4.2154
Std. Deviation		.64301	.49662	.49662	.71219	.64933

Statistics						
		Stakeholders are involved in the scope definition process.	Project timelines are accurately estimated.	Schedules are effectively developed, monitored, and controlled.	Delays in timelines are managed effectively.	Resources are allocated effectively to meet project timelines.
N	Valid	65	65	65	65	65
	Missing	0	0	0	0	0
Mean		4.0308	3.5077	3.5231	3.7385	3.6462
Std. Deviation		.72821	.73150	.70948	.56670	.48188

Statistics						
		Time tracking tools are used to monitor progress.	Milestones are clearly defined and communicated to all team members.	The budgeting process for projects is effective.	Project costs are tracked accurately against the budget.	Cost overruns are effectively managed and communicated
N	Valid	65	65	65	65	65
	Missing	0	0	0	0	0
Mean		3.4769	3.3231	3.4462	3.4769	3.7231
Std. Deviation		.50335	.64001	.61316	.50335	.45096

Statistics						
		Financial reports are generated regularly to track project expenses.	Cost management practices are integrated into the project lifecycle.	Cost estimates are based on historical data and best practices.	Quality standards are consistently applied to projects	Quality assurance is integrated into the project lifecycle.
N	Valid	65	65	65	65	65
	Missing	0	0	0	0	0
Mean		3.7692	3.4462	3.5077	3.4462	3.5231
Std. Deviation		.60646	.58712	.61550	.70779	.56202

Statistics						
		Quality issues are identified and addressed promptly	Continuous improvement processes are in place to enhance quality.	Feedback from stakeholders is utilized to improve quality management.	Communication among project stakeholders is structured and clear	Effective tools are used for project communication and reporting
N	Valid	65	65	65	65	65
	Missing	0	0	0	0	0
Mean		3.6154	3.4308	3.6769	4.0615	3.9077
Std. Deviation		.60447	.61159	.56202	.74743	.65486

Statistics						
		Status updates are provided regularly to stakeholders.	Communication plans are developed for each project	There is a clear escalation process for communication issues	Project teams are formed based on appropriate criteria.	Training and development programs are available for project staff.
N	Valid	65	65	65	65	65
	Missing	0	0	0	0	0
Mean		3.7385	3.8615	3.9692	3.6308	3.6154
Std. Deviation		.64413	.60922	.68395	.60128	.49029

Statistics						
		Team performance is regularly evaluated.	Team roles and responsibilities are clearly defined	Conflict resolution processes are effective within teams	The procurement process is effective in meeting project needs	Procurement activities align well with project requirements
N	Valid	65	65	65	65	65
	Missing	0	0	0	0	0
Mean		3.7692	3.6308	3.6769	3.5692	3.5231
Std. Deviation		.55253	.69752	.64001	.49904	.53349

Statistics						
		Suppliers and contractors are selected based on clear criteria	The procurement process is transparent and fair.	Supplier performance is regularly evaluated	Risks are identified and assessed effectively.	Mitigation strategies for identified risks are implemented.
N	Valid	65	65	65	65	65
	Missing	0	0	0	0	0
Mean		3.5231	3.6154	3.4769	3.4462	3.4769
Std. Deviation		.53349	.49029	.58916	.50096	.58916

Statistics						
		Risk management plans are regularly reviewed and updated.	Risk management practices are integrated into project planning	There is a culture of risk awareness among team members	Stakeholders are identified and analyzed effectively	Stakeholder engagement is actively maintained throughout projects
N	Valid	65	65	65	65	65
	Missing	0	0	0	0	0
Mean		3.6923	3.5385	3.4462	3.7077	3.8462
Std. Deviation		.76899	.50240	.50096	.63055	.56543

Statistics				
		Stakeholder expectations are managed and communicated effectively.	Stakeholder feedback is actively sought and incorporated.	Stakeholder relationships are nurtured throughout the project lifecycle.
N	Valid	65	65	65
	Missing	0	0	0
Mean		3.8615	3.8308	3.8923
Std. Deviation		.60922	.71958	.58957