Project Management Practice: a Case Study of National Archive and Library Agency Project

In Partial Fulfillment of the Requirements for the Degree of Masters in Project Management

By: Adiam Solomon

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A Project Work Submitted to Addis Ababa University, School of Commerce

In Partial Fulfillment of the Requirements for the Degree of Masters in Project Management

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DECLARATION

I, Adiam Solomon Kidane, hereby declare that this thesis entitled “Project Management practice: a Case study of National Archive and Library Agency” is my original work, I have carried out the present study independently with the supervision and support of my research advisor Wubshet Bekalu (PhD). I further confirm that this paper has never been submitted to any other university for any degree, diploma, or fellowship. Finally, I declare that all source materials used in this research has been duly recognized and acknowledged.

Signature

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Date

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CERTIFICATION

I, the undersigned certify that I have read and hereby recommend for acceptance by the Addis Ababa University, School of Commerce a dissertation entitled: *"Project Management practice: a Case study of National Archive and Library Agency" in* partial fulfillment of the requirements for the Degree of master's in project management.

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Dr. Wubshet Bekalu

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Date

APPROVED BY BOARD OF EXAMINERS

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Advisor	Signature	Date
_____	_____	_____
Internal Examiner	Signature	Date
_____	_____	_____
External Examiner	Signature	Date

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ABBREVATIONS AND ACRONYMS

ECDSWCo: Ethiopian Construction Design & Supervision Works Corporation

BUDSWS: Building & Urban design & Supervision Works Sector

CDSC: Construction Design Share Company

WWDS: Water Works Design and Supervision Enterprise

TCDSC: Transport Construction Design Share Company

PMBOK: Project Management Body of Knowledge

PMI: Project Management Institution

SPSS: Statistical Package for Social Sciences

NALA: National Archive and Library Agency

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Abstract

Project management knowledge domains are increasingly being applied in emerging countries, particularly in Ethiopia where a variety of project sizes and formats are being conducted. This study aims to evaluate the National Archive and Library Agency project management procedures. This case study was designed in a descriptive manner. All members of the organization's project management team are research participants, and data is gathered via closed-and-open-ended questionnaires, and document analysis. The sample strategy used in this study is purposive.

The researcher used previous literature style to categorize the mean value and performed a quantitative analysis by linking the results with existing literature. The analysis was also conducted statistically, utilizing percentage, frequency, and mean. The study's conclusions showed that, with the exception of project management skills with in the team, nearly every knowledge area assessment is at a low mean value. The organization performs project management skills with in the team more effectively in light of other knowledge domains. The evaluation of project management issues was the other goal.

The organization's two biggest difficulties during the examination were a lack of using project management software and an insufficient technical knowledge methodology. Therefore, the organization should diversify its financing sources, evaluate beneficiaries' needs, and use a standard Project Management (PM) approach for its initiatives in order to lessen the current implementation issues. In addition, it must publicly seek these modifications, create a well-organized communication plan, and increase funding for staff capacity training.

Key words: *project management, project management knowledge areas, project management practice*

CHAPTER ONE

INTRODUCTION

The purpose of this research paper is to analyze the project management practices: on National Archive and Library Agency building construction project. The background of the study, the problem statement, the research questions, the study's aims, its scope and limitations, its importance, and its organization are all included in this chapter.

1.1.Background of the study

Even though project management is relatively new compared to other associated management sciences, it is regarded as one of the disciplines in today's industry that is expanding the fastest. In businesses, its significance for managing and formulating business choices is growing. It can be identified by management restructuring plans and specific management approaches that are adapted to enhance control and efficiency of available resources. There was a time when only the US Department of Defense could use project management. Today, a broad variety of companies and organizations, including the construction sector, apply the concept of project management (Kerzner, H., 2009).

Building initiatives significantly advance the socioeconomic growth of a nation. With the construction industry making up roughly 6% of the world's GDP, it has a significant impact on society, the economy, and the environment globally. Kalkidan K. (2019) cites the World Economic Forum (2016).

Thus, building initiatives in Ethiopia also contribute significantly to the country's economy (EEA, 2011). Public construction projects make up most the government's yearly capital expenditures when it comes to the development of infrastructure (Ministry of Construction, 2016). Millions of people's lives have been changed by the construction industry, which has a greater impact and has been essential to the nation's rapid and equitable socioeconomic development. According to the Ministry of Construction (2016), which was cited by Kalkidan, K. (2019), the sector's share of the GDP was 9.5%.

It is critical to recognize the contribution the construction industry makes to the development of the country, to understand and use project management, and to evaluate whether the construction projects being undertaken in the country are finished within the project scope. According to the Project Management Institute [PMBoK, 2000], a project is a brief endeavor with a predetermined start and end date that is started with the intention of producing a unique good or service. A project is described as the application of resources to a series of tasks or activities to attain a specific goal.

Due to variations in the magnitude of the impact on the project's cost, schedule, risks, and quality, the project manager and the stakeholders involved must monitor the project scope to determine which way to proceed or not to achieve the critical success factors of the project. According to Karl (2014), project stakeholders have a clear range and set of expectations.

As a result, the primary goal of this research is to examine the different aspects of project management practice, which is essential to the accomplishment of building project in National Archive and Library Agency.

1.2. Statement of the problem

Project management is essential to a project success. Every project aims to do the work within the allocated budget and schedule. Though, this doesn't happen, and more projects have failed to be finished on time. A lot of ventures start off with great concepts, substantial financial outlays, and a lot of work. Sadly, most of them fall flat.

A key factor in project failure is a lack of clarity on the project's and the product's scope at the outset (Muhammed, N., et al., 2013). Most projects experience scope change, which results in significant project alteration and has a more noticeable impact on cost, schedule, and quality. These changes can be attributed to a variety of factors, including frequently changing requirements, changes in project course while the project is already underway, a lack of clarity in the requirements, budget overruns, and a lack of stakeholder engagement.

Scholars like Fageha et al. (2013) claim that a common source of trouble in the development process of construction projects is an inadequate scope definition in the early phases of a project's life cycle. In 2006, Harrington and McNellis Some claim that inadequate scope definition or management is one of the most common causes of project failure.

Olander and Landin (2005) believe that conflict and disputes may arise during the implementation of a construction project if stakeholders are not adequately engaged, and their concerns and expectations are not suitably addressed.

According to Kalkidan (2019), there are several factors that contribute to this lack of expertise, including a lack of experts with the necessary special education, knowledge, skills, and experience, a lack of a plan for organizing seminars and interview guides to ensure deep stakeholder engagement in order to improve requirement analysis collection, and a lack of clarity regarding the project size and its impact on critical underestimation in terms of the project management process's scope.

Schattemanet al. (2006) point out that as the range of changes involves risks for the project, project risk management should adhere to the methodology for modifying the range.

It has been showed that a comprehensive risk technique necessary for project planning and construction may be applied even in the face of significant uncertainty. This is something to bear in mind when carrying out tasks and handling modifications.

According to a study by Adebayo et al. (2018) on the application of the project management practice scale for project success within Nigerian telecommunications companies, applying the scale has a significant impact on meeting expectations, satisfaction, and better resource allocation, as well as timely project delivery.

According to a study by Muhammad, N., et al. (2013), space is important for a project to succeed if its scope is well-defined and controlled, producing excellent quality assurance and agreed-upon prices that are within stakeholders' timeframes. Surprisingly little has been written about the significance of the project success scale, despite the fact that the necessity of implementing projects is understood. This research is discussed, along with the requirement for a clearly defined and controllable space, some of which may be the primary causes of inadequate area management, and how this might be accomplished. The likelihood of project success can be increased by having a better awareness of the distinctions between project and product size.

Furthermore, based on Igor's investigation. L. et al. (2017) examined the type of project management and strategy and discovered that the primary factor impeding project

implementation is a lack of understanding of project requirements. This is because stakeholders frequently do not fully understand their needs at the outset of the project, which causes changes to the project life cycle and raises implementation costs and times.

Based on the aforementioned facts, other studies have identified variables that contribute to project failures, including but not limited to corruption, inadequate planning or design, insufficient skills or competency, and management concerns.

These results demonstrate factors for project failure, including lack of professionalism or skill, corruption, and improper planning, designing, and management of other people's difficulties. Numerous of these studies had nothing to do with project management practice or the elements that determine whether a project is successful or unsuccessful. There has been some research done in Ethiopia on this subject, but not much.

The reviews of the literature suggest determining whether these variables are actually used and have an impact on project success in the context of Ethiopian construction projects.

It is crucial to evaluate the organization using project management knowledge areas in order to provide a more accurate and transparent picture of how the organization used project management methodologies, the difficulties it encountered, and the advantages of doing so.

1.3.Objectives of the study

1.3.1 General Objectives

The general objective of this study is to observe project management practices for building construction projects, a case of National Archive and Library Agency.

1.3.2. Specific Objectives

- To evaluate the project requirements gathering technique and its impact on project success in the building construction work of NALA project.
- Examine the practicing the project management knowledge areas and how it affects project success.
- To study how the Building Urban and Supervision Works Sector supports project success through the project management practice by considering the practice of project

time, integration, cost, communication, procurement, quality, risk, human resource, and stakeholders' management.

1.4. Research Questions

- What project management performances does BUDSWS Project Office use on the National Archive and Library Agency project?
- What are the main obstacles facing the organization's project management practices?
- What are the advantages of implementing project management techniques?

1.5.Scope of the study

Water Works Design and Supervision Enterprise (WWDSE), Construction Design Share Company (CDSCo.), and Transport Construction Design Share Company (TCDSCo.) were all involved in the planning, study, design, and supervision of Hydropower and water, Building & Transport Sector Works since 1998, 1977, and 1987, respectively. These three companies came together to form Ethiopian Construction Design & Supervision Works Corporation (ECDSWCo), a multidisciplinary engineering firm. Today, ECDSWCo is a fully integrated engineering consulting firm with six business units providing consulting services in the fields of underground works, building and urban planning, transportation, geotechnics, and water and energy. But the data that needs to be gathered from the Building & Urban Design & Supervision Works Sector (BUDSWS) is the main focus of this study project. Technical staff will be the unit of analysis; supporting workers will not be included.

From a conceptual standpoint, project management is a vast idea that includes a wide range of components and factors. However, the researcher's data collecting on the ten variables (factors) influencing project management will be the basis for this study. This study will employ a quantitative research strategy and a descriptive methodology. About the temporal dimension, which depends on a cross-sectional survey capable of capturing a picture of the population under study.

1.6.Limitation of the study

Currently, ECDSWCo is a fully incorporated engineering consulting firm with six business units providing consulting services in the fields of underground works, building and urban planning, transportation, geotechnics, and water and energy. However, the Building & Urban Design & Supervision Works Sector is the exclusive emphasis of this project. This indicates that the study

is restricted to a single industry, which may not have adequate comprehensive survey work for this specific area of inquiry.

Additionally, the study may have trouble finding pertinent references and may encounter resistance from research participants, whose absence could compromise the validity and generalizability of the findings.

1.7.Significance of the study

The findings will be used as a guide for upcoming investigations into how project management affects project success in Ethiopia. Future scholars will benefit from this study since it will provide them with pertinent data on the topic. The research that is going to be done in accordance with project management practices which also be very beneficial to the project management staff of the ECDSWCo-Building & Urban Design & Supervision Works Sector. They will be able to apply the study's recommendations to improve the high degree of collaboration among their various work groups.

1.8.Organization of the study

This research is divided into five chapters. The study's background and introduction, problem statement, research questions, aims, scope and delimitation, constraints, and applicability are all covered in the first chapter. The second chapter's topic is a review of related literature. Study methodology is covered in the third section, and data analysis and interpretation are covered in the fourth. Chapter 5 presents the study's summary, conclusion, and suggestion.

1.9.Definition of terms

Project: A project is a brief endeavor with the goal of producing a unique good, outcome, or service. Projects need to have a start date and an end date because of their temporary nature. (PMBoK,2013)

Project management: applying knowledge, skills, tools, and processes to project operations to reach and accomplish project goals is the process of project management. To meet project objectives that satisfy expected quality standards and stakeholder expectations, this is achieved by employing logically organized processes and procedures, identifying requirements, needs, concerns, and customers' expectations, and trying to balance able to compete project constraints, restrictions, and project boundaries. (PMBOK, 2013).

Project scope management: is the umbrella term for all the processes that need to be taken to ensure that the project is restructured to only include the work necessary to deliver the necessary good, service, or outcome. It is the process of handling scope changes while maintaining the project's timeliness and financial integrity. A work breakdown structure is typically used to define scope, and official change control processes should be followed if changes are made. (PMI).

Scope change: described as a shift in the activities brought about by a revision or adjustment to the particular conditions, theories, or specifications stated at the beginning of a project. (Gokulkarthi & Gowrishankar, 2015; Nahod, 2012).

The project manager must determine which modifications will be made, how they will effect project deliverables, and how project outcomes will be impacted by deviations from the perceived scope. Even though certain scope adjustments are unavoidable, it's important to consider each modification request and evaluate its impact (PMBOK $3^{rd.}$ & 4^{th} edition)

Requirements collection: is the process of identifying, recording, and managing the needs and specifications of the stakeholders in order to accomplish the goals of the project management tasks. The foundation for controlling and defining the project's scope is provided by this paperwork, which makes it crucial. (5th Edition of PMBOK).
The process of collecting a list of requirements (functional, system, technical, and so forth) from various stakeholders (customers, users, vendors, IT staff, and so forth) to serve as the basis for the formal Requirements Definition is called requirements elicitation, also known as requirements gathering or capture as of January 29, 2020, Inflectra

Project Scope Definition: Developing a statement, or scope definition, that identifies and describes the work required to achieve the end product, is one of the first and most crucial processes in project management. Making sure that everyone on the team is aware of what is expected of them throughout the project is the goal of the scope description. In addition, it is necessary to identify and disclose any project work that can be expected in a reasonable manner. A suitable administrative control should also be permitted by the scope definition throughout the project management process (3rd edition of PMBOK)

Establishing the Work Breakdown Structure (WBS): A hierarchical, deliverable-focused breakdown of the project team's activities to accomplish the project's goals and provide the necessary deliverables. A work breakdown structure, which is divided into several levels and graphically presented, outlines every task that must be completed for a project. In a nutshell, the WBS describes the "what." There is just one simple schematic that has all the information you need to do the project. This diagram aims to simplify complex tasks by dividing them into smaller, more manageable parts.

Scope Verification: After the project's scope has been established, it is imperative that stakeholders provide their approval to proceed with project management. Larger projects might involve several stakeholders, whereas smaller projects might only need one signature from the primary sponsor or client for scope verification. Express scope verification from important stakeholders is essential. This might be as simple as an email stating project permission or a formal signature on paper.

Regardless of the method, the scope verification has to be documented. The process of verification should be a formality because, naturally, the stakeholders should have already viewed draft versions of the plan. (3rd edition of PMBOK)

Scope Control: Scope control is one of the most crucial elements of project management. Scope management is a critical component of good project management because it allows for the timely completion of projects and the resolution of critical issues that are essential to their success. Effective scope control prevents the addition of unnecessary or inappropriate elements while permitting the addition and modification of essential jobs.

Thus, effective scope control is essential to project management and needs to be handled with a balance between rigidity against adding unnecessary "bells and whistles" and flexibility for essential elements (4^{th} of PMBOK).

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Theoretical Literature Review

2.1.1 Project Management

According to PMI (2013), project management is the process of applying and integrating contemporary management and project management tools, techniques, knowledge, and skills to the overall planning, directing, coordinating, monitoring, and control of all project dimensions from start to finish, as well as inspiring all project participants to produce the project's product, service, or outcome on schedule, within budget, with the necessary quality and requirements, and to their satisfaction. (Carmichael, 2004; Fewings, 2005; Chartered Institute of Building, 2002).

A project is a brief endeavor with a singular goal—to produce a product, outcome, or service. Owing to their temporary nature, projects need to have a clear start and finish date. When the project's goals are accomplished, it is terminated due to unfulfilled goals, or its original need is no longer met, the project's end date is achieved (PMBOK, 2013). Project outcomes include the development of a product, which can be an item, a component, or an end product in and of itself; the ability to deliver a service; or a result, which can be an object or a document that can be used for the reason that it was developed. An undertaking is an assembly of

According to Construction Project Management (2006), a project is a group of related work activities that are limited by the project's scope, budget, and expected completion date. The goal of a project is to deliver the capital assets, or project deliverables, needed to meet an organization's strategic goals. Common to all initiatives are aspects of risk and uncertainty that could cause delays in events and task completion, as well as the projection of ideas and actions into other undertakings. As many of these risks and issues may be anticipated, project management helps to plan, coordinate, and oversee these activities to ensure that projects are effectively finished in spite of these hazards. (Lock, 2007).

Identifying requirements, addressing the various needs, concerns, and expectations of the stakeholders during the project's planning and execution, establishing, maintaining, and carrying

out active, effective, and collaborative communications among stakeholders, managing stakeholders toward meeting project requirements and creating project deliverables are all typical components of project management. Conflicting project constraints, such as scope, quality, schedule, budget, resources, and risks must be balanced. (IPMA, 2006).

The restrictions that the project management team must concentrate on can be influenced by the particular project circumstances and characteristics. In order to ensure that projects are effectively finished despite all of the challenges and hazards, project management aims to anticipate, plan, coordinate, and regulate activities and resources. Prior to using any resources, this procedure should begin (IPMA, 2006).

2.1.2 Concept of Project Management

Applying knowledge, abilities, resources, and protocols to project activities in order to meet project objectives is the process of project management. In order to meet stakeholder expectations and required quality standards, this is accomplished by employing logically ordered processes and procedures, identifying requirements, needs, concerns, and customer expectations, and balancing conflicting project restraints, limitations, and project restrictions. (PMBOK, 2013).

A more effective utility project execution and service delivery process that lowers the possibility of cost overruns, schedule slippages, quality improvement, and success depends on project management. In particular, project management helps assess the importance of project implementation and provides proactive direction, oversight, and coordination on the conduct of project execution using objective metrics to raise concerns about carrying out the necessary actions in a way that maximizes benefits and surpasses expectations. (PMBOK, 2013).

To put it another way, project management offers instruments for defining the parameters or scope of a project as well as any modifications to the project. It establishes and preserves lines of communication between professions and organizations. It anticipates risks and uncertainties and monitors the amount of work performed within the project's allocated budget and time frame.

Project management is responsible for overseeing the implementation process, which includes creating a financial reporting model for the project, defining a workable schedule, tracking

expenses against the budget, and so forth. It features clearly defined boundaries, input and output, and time- and space-prioritized operations.

The project's output needs to be delivered to a designated recipient, most likely the client, and it needs to make a substantial contribution (2009, Passenheim).

2.1.3 Project Management

Project scope management includes all the procedures needed to make sure the project is effective and only involves the effort required to produce the intended good, service, or outcome. According to Wysocki (2009), scope refers to what needs to be done, and scope management is the process of managing what needs to be done.

To ensure a high-quality outcome, there are certain standards that must be met during the execution of an infrastructure project (Lau & Kong, 2006; The British Standards Institution, 2013). The project scope definition, which is characterized as the actions that must be performed in order to finish a project with the intended outcome, is one of these requirements (Turner, 2009). By providing a high-quality final product that satisfies the client's needs on schedule and within budget, the project will fulfill its ultimate goal (Project Management Institute, 2000; Heldman, 2009; The British Standards Institution, 2013; Turner, 2009; Meredith & Mantel, 2009).

Based on scope, cost, and time, the "iron triangle" is a project management visualization that illustrates how a high-quality project can be finished (see Figure below) (Atkinson, 1999).

Figure 2-1: Iron Triangle

Source: Atkinson (1999)

The iron triangle illustrates how scope is a crucial component of project management that needs to be managed over the course of the project in respect to the baseline (Project Management Academy, 2017; Koskela & Howell, 2002).

In order to provide a clearer picture of the entire project, IPMA defined project scope in their 2006 edition as defining the project "boundaries" in terms of project deliverables. This is accomplished by trying to identify in detail all of the work to be done as compared to the project initiation stage. Therefore, all of the procedures involved in determining and regulating what is and is not included in a project are covered in project scope management. Making sure that the project team and stakeholders agree on the product, service, or outcome the project will deliver as well as the procedures that will be followed to get there is the main objective of project scoping.

These processes include the following:

- The process of deciding how the scope will be specified, confirmed, and managed is known as scope planning.
- Determining the scope of the project involves going over the original scope statement and project charter, adding more information as needed, and approving change requests.
- Creating a work breakdown structure (WBS) by dissecting the main project deliverables into more manageable, smaller parts.
- • Scope verification: This is the procedure to confirm that the project's scope has been accepted.
- • Scope control: Keeping an eye on modifications to the project's scope as they occur (PMI, 2013).

2.1.3.1 Collect requirements.

The work breakdown structure (WBS), control requests for changes to the project scope, verification of the completion of project deliverables, and descriptions of all the steps required to finish the project are all included in the scope change management plan. Crucial components of this process include the project management plan, preliminary scope description, and project charter. Expert judgment, meetings, and standards are some of the methods and tools used in scope planning. The company's goals and the business need are in line, and a project is started

while keeping the project feasibility requirements in mind. A project's technical, economic, and financial viability are all factors that contribute to its overall viability.

The technical feasibility examines the availability of resources and technological know-how. The project's rates of return are examined, and the cost-benefit of several scenarios is compared, as part of the economic feasibility assessment. Lastly, during the financial feasibility assessment, the organization's credit rating and the availability of required money are verified (Khan, 2006).

2.1.3.2 Project Scope definition

Project scope definition is the process of creating a more thorough description of the good, service, or outcome of the project. Clearly defining the project's boundaries while taking into account the needs of all project stakeholders is the main objective of the scope definition. Getting the parties to agree on the boundaries and defining them explicitly are essential. Therefore, in the event of external projects, the sponsor's and service provider's contractual agreements often include the project's established scope. In internal projects, the relationship between the project team and sponsor is still crucial.

To comprehend what should be under project control, it is essential that the items inside and outside the project's scope are clearly stated. Consequently, it is imperative that the project manager and his team distinguish between what is inside and outside of scope and identify additional features in detail. The project scope statement is the document that is utilized in this situation.

The project charter, authorized change requests, organizational process assets, and preliminary scope statement serve as the foundation for the project scope statement. Among the instruments and methods used for scope definition are expert judgment, product analysis, alternative generation, and assisted workshops (PMI, 2013).

Iterative steps are involved in establishing scope. In this step, the Work Breakdown Structure (WBS) is put up and the scope statement is created. Cho and Gibson (2001) state that the Project Definition Rating Index (PDRI) is a helpful tool for defining scope. A study team from the Construction Industry Institute developed this weighted checklist. It helps the project team decide which actions are necessary for defining the project's scope. Moreover, companies can utilize it

as a benchmarking tool to compare the scope definition completion to past project performance (Cho & Gibson, 2001).

Requirement specifications are often available at the outset of infrastructure projects. This requirement specification already contains a collection of the requirements. Collecting needs and turning them into practical requirements are not the same thing, though. To finish this task, the contractor, consultant, and client usually collaborate. According to Alsem et al. (2013), the process of defining requirements is iterative and involves feedback loops about the requirements and design.

2.1.3.3 Create Work Breakdown Structure (WBS)

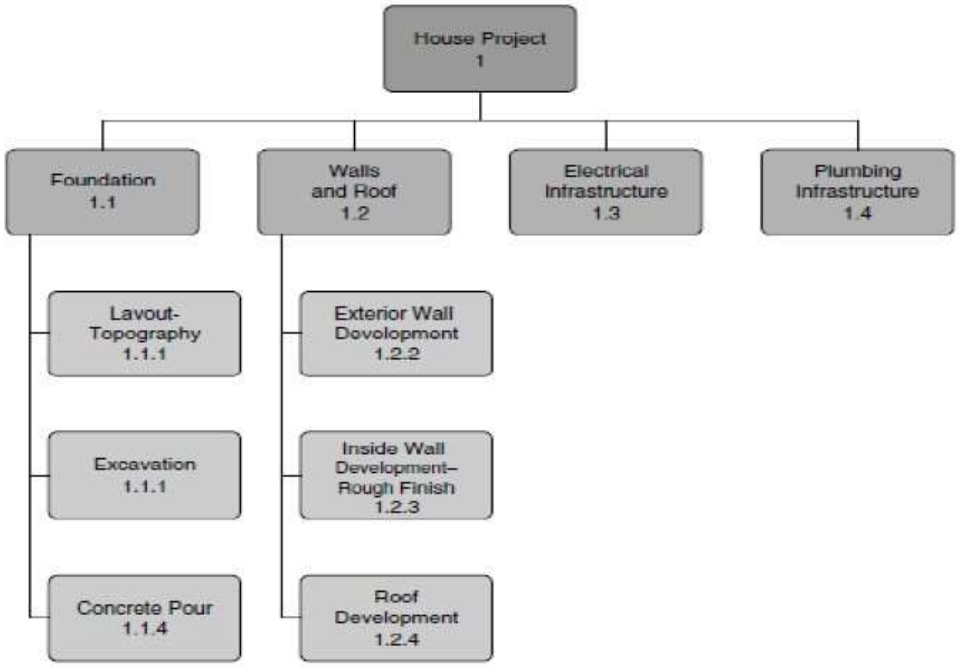
A project's overall scope is defined by the work breakdown structure (WBS), which is a deliverable-oriented grouping of the activities involved in the project. "A product-oriented family tree subdivision of the hardware, services, and data required to produce the end product" is how Kerzner describes a work breakdown structure (WBS) (Kerzner, 2003). Using a "family tree" structure, all project work is arranged into defined, estimated, and tracked jobs.

It is an essential document that forms the basis for managing and planning projects, including scheduling, budgeting, resource allocation, and change management. At the base of the tree is a label that identifies the opportunity or problem that has to be addressed. The project scope statement and project management plan are the primary inputs for developing a work breakdown structure (WBS), which in turn provides input for the following important project management tasks: resource planning, risk management planning, activity description, and cost estimation and budgeting.

Updates to project documents and scope baselines are among the results of the decomposition and expert judgment tools and procedures used in work breakdown structures. Project papers like the work breakdown structure dictionary and the project statement of work are included in the scope baseline. The deliverables, tasks, and schedule details for every component are covered in full in the WBS lexicon. The code of account identifier, work description, assumptions and constraints, accountable organization, schedule milestones, related schedule activities, resources needed, cost estimates, quality requirements, acceptance criteria, technical references, and

agreement information are all included in the WBS dictionary. (PMI, 2013). The WBS for a basic housing project is depicted in the figure below.

Figure2-2: Example of WBS of a simple house project.



Source: (Norman, Brotherton, Fried, 2008. P.30)

Building work packages with a work breakdown structure is intended to simplify a project. It is simpler to plan and carry out smaller job packages (de Boer, Brossma, Elich, van Luling, & Wemeijer, 2009). Each work package contains the necessary steps to complete the tasks as well as the requirements, data, and identified hazards.

2.1.3.4 Scope Verification

This is how the finished project deliverables are formally accepted. This is done to make ensuring that a finished good or service fulfills the requirements of the client or sponsor of the project in addition to additional stakeholders who have been identified. It is crucial to understand the distinction between quality control and validation scope. While quality control is the assessment of whether or not a product, service, or outcome complies with a regulation, requirement, or specification, quality control is solely an internal process. Validation of scope is concerned with

acceptance of deliverables by external entities such as the project sponsor or customer and other stakeholders. A few of the instruments used in this procedure are inspection group decision-making methods.

An ongoing feedback loop confirms the extent of all work performed on the project. Examining the engineering and design deliverables that were necessary for scope planning and definition is what it comprises. The work must comply with design documentation and applicable laws. The earned value methodology can be used to assess the project's progress. Indexes are used in this method to calculate the cost and progress of the timetable. It makes a comparison between the planned and actual amount of work that was performed. This verification process needs to be done continuously throughout the project in order to identify (de Boer, Bruinsma, Elich, van Luling, & Wemeijer, 2009).

2.1.3.5 Control scope

Project scope control is the process of influencing the causes that lead to changes in the scope of a project by managing their influence. This is to guarantee that the project integrated change control process is used to manage all requested modifications and recommended corrective actions. Project scope 'creep,' or the addition of new features to the approved project scope as a result of inadequate requirement gathering, is managed by scope control, which oversees specific modifications to the scope management plan (Wysocki, 2009).

Tools and techniques used for scope control include change control systems, configuration management, and variance analysis, which is a process for figuring out why and how much performance differs between baseline and actual.

The project team keeps an eye on the scope and handles any potential modifications during this phase. The main task is to keep an eye on the scope and stay within the established parameters; however, scope needs to be adjusted if issues arise during scope verification. It's also possible that unfavorable alterations occur and must be controlled.

2.1.4 Project management in developing countries.

Project management began and developed in developed countries; the kind of projects and the environments in which they are implemented differ in developing countries (Cusworth and Franks, 1993; Voropajev, 1998; Jekale, 2004). The majority of projects, whether in comfortable

or developing nations, are intricate and run in a changing environment. Projects in developing nations, however, are extremely unpredictable and run in an extremely unstable, unpredictable, and under resourced environment. This presents a problem for project managers in developing nations that their counterparts in comfortable nations do not see.

Many difficult issues and an unfavorable climate confront project managers in developing nations (Jekale, 2004; Abbasi and Al-Mharmah, 2000). In these nations, a lot of initiatives are abandoned, never finished, or are not financially viable (Sonuga, Aliboh and Oloke, 2002; Andersen, 2008). For instance, it is estimated that Nigeria's abandoned projects cost $12.65 billion, meaning that at least twice as much extra funding would be needed to complete them (Alutu and Udhawuve, 2009 quoting Aliyu, 2000).

Moreover, the majority of those countries' projects are implemented in conjunction with regular business operations within functional organizations with limited capability (Jekale, 2004). In addition, corruption has become a problem that makes project management more difficult in those nations (Sonuga, Aliboh, and Oloke, 2002; Andersen, 2008). The following succinctly describes these challenges:

- inadequate support infrastructures, low technological proficiency,
- low implementation capacity,
- lack of financial resources and skilled professionals,
- unreliable communication, poor documentation,
- high employee and leadership turnover,
- significant political instability,
- low or nonexistent accountability and transparency, and
- Lengthy and laborious formal decision-making processes are typical in developing nations.

Most of the aforementioned criteria have an impact on project management practice, and most of them are either nonexistent or uncommon in the industrialized nations where project management originated and flourished.

2.1.5 Challenges of Project Management in Developing Countries

It has been determined that a number of factors contribute to the poor performance of initiatives in developing countries. Government policies, inadequate funding, donor withdrawal, lack of foreign exchange, unsuitable contract terms, political priorities, poverty, socio-cultural conditions, corruption, low institutional and human capacity, and the occurrence of unplanned events like war and drought are generally cited as the main causes of the poor performance of projects in developing countries (Idoko, 2008; Jekale, 2004 and Andersen, 2008).

Following paragraphs provide detail discussion of the challenges:

Jekale et al. (2004) assert that the external environment has a significant impact on initiatives in developing nations. Furthermore, the project environment is fragile in many developing nations, marked by frequent changes in government policies, finance sources, markets, and the business climate. Furthermore, initiatives in those nations are impacted by the political priorities of the government, the incidence of corruption, war, and drought (Alutu and Udhawuve, 2009; Jekale, 2004). For instance, it was stated that changes in government policies (such as currency devaluation and inflation) caused the cost of building supplies in Nigeria to surge 400% in just two years (Sonuga, et al,2002). Similarly, Ethiopia has had double-digit inflation and nearly doubled building costs.

Cusworth & Franks (1993) state that the majority of unique issues with project management in developing nations are environmental in nature. These issues can be generally linked to the turbulence (or unpredictable tendency) and rapid change in the project environment, as well as the extreme resource scarcity in those nations. The project managers in those countries are very confined and have little training, which makes project planning and management in general quite difficult. These external elements are dominating the scene. The generalizations made above diverge from those found in industrialized nations.

The primary cause of project failure (in industrialized countries), according to the Standish Group (2004) Report, is not a lack of general resources or financial resources, but rather a lack of project management capability (Malan, etal, 2007).

According to Voropajev (1998), another major factor contributing to project failure in developing nations is a lack of institutional capacity and skilled personnel. The low level of project

management development in many developing countries can also be attributed to the misconception that project managers are an unnecessary expense, a lack of trained project managers, and a lack of awareness about the benefits and applications of project management in many organizations.

The fact that there are just three PMI chapters in African nations, according to Andersen and Idoko (2008), is evidence of the importance and focus placed on project management in emerging nations. Furthermore, according to Nguyen (2007), a lack of senior management support and the belief that project management methodology is inapplicable in developing countries are the main reasons why many attempts to transfer project management knowledge and technology to these countries failed. Many project managers in poor nations have difficulties due to the nature of project management itself, in addition to a lack of institutional capacity and qualified PM specialists.

The tenets of PM, according to Pant and Hayes (1996), run counter to what managers in developing nations are trained for and used to doing. Muriithi and Crawford (2003) came to the same conclusion after conducting a comparable study on PM in Africa. Conventional project structures violate the traditional management principles that are followed in many developing nations. These principles include unity of command, organizational hierarchy, and division of labor. It requires members to possess several qualities, which are uncommon in developing nations (see Murithi and Crawford, 2003): objectivity, flexibility, risk-taking readiness, autonomous decision-making ability, low preference for conformity, low power orientation, and low rule orientation.

Sonuga and Oloke (2002) assert that the way initiatives are established and carried out in developing nations is a significant contributing factor to their failure. This mostly applies to what are referred to as "development projects." Users are frequently left out of these projects and not consulted, and some funders have a tendency to fund only what they wanted, or thought was vital for the recipient rather than what the users actually need. Public initiatives in developing nations that are funded by donors as well as the government can fail as a result of inadequate planning and research.Such initiatives don't take into account in their design the capabilities and makeup of the local support systems as well as the technological, economic, and physical settings. As a

result, many of these projects ended up being non-operational for the simple reason that no parallel work was done to plan how to pay for the staff members who operate them and provide the support they need (maintenance crew, spare parts, etc.).

Most of the reasons for project failure and poor management in developing nations, according to (Muriithi and Crawford, 2003; Abbasi and Al-Mharmah, 2000; Jekale, 2004; Voropajev, 1998; Pant and Hayes, 1996), can be linked to a failure to critically adopt the PM methodologies to the context of developing nations and to take into account the unique context of those nations. This is due to the fact that developing countries differ greatly from developed countries in terms of the underlying assumptions that developed PM approaches make about people, culture, the environment, and the state of the economy.

Sadly, reviews of the literature have shown that very few studies have taken the aforementioned into account. With the exception of a small number (Muriithi and Crawford, 2003; Cusworth and Franks, 1993), the majority of these studies provide little guidance on how to adapt project management methodologies, tools, and techniques to the context of developing countries with respect to their cultural and economic conditions. In their investigation of project management in developing nations (Africa), these scholars attempted to explain the use of project management in the setting of developing nations using Hofstede's four dimensions paradigm. They demonstrated how cultural differences in developing nations impact PM application and the necessity of critically adapting PM to the setting of these nations.

The four aspects of Hofstede's paradigm for cultural analysis are as follows:

- Power distance, or the propensity to tolerate an uneven allocation of power within a society.
- The degree to which ambiguity is viewed as dangerous and risk-taking behavior is avoided is known as uncertainty avoidance.
- The degree to which masculine attributes like bravery, accomplishment, and competitiveness are prized more than feminine principles and actions like compassion and empathy is known as masculinity/femininity.
- The degree to which people describe themselves as independent beings or in terms of groupings as the main source of problem-solving is known as individualism/collectivism.

The authors claim that employees' behavior and organizational structure at work exhibit the aforementioned characteristics. High power distance is demonstrated, for instance, by towering organizational structures, intermediate managers' reluctance to make decisions without consulting superiors, their infrequent use of direct criticism, and their readiness to differ with superiors. High uncertainty avoidance is characterized by low risk-taking, emotional reluctance to change, a preference for precisely defined rules, and a high level of managerial involvement in specifics. Numerous African civilizations have low individualism, medium masculinity, high power distance, and uncertainty avoidance scores.

A detailed discussion of these findings' implications for project management was provided by (Muriithi & Crawford, 2003). Due of the significant power distance in developing nations (Africa), senior management in these nations must demonstrate a great degree of dedication, follow-up, and quick decision-making. This is a result of middle managers' constant deference to the top and lack of empowerment to make decisions. It also emphasizes how crucial it is to have precisely defined roles, duties, authority, procedures, processes, and structure. This makes things clearer, reduces ambiguity, and lessens the need for middle managers to take risks. As a result, a better environment is created, encouraging middle managers to take charge and make decisions.

In conclusion, the external environment has a far greater impact on project implementation and success in developing nations than the internal environment. Accordingly, managing the externalities of the project environment ought to be a greater priority for project managers in those nations (Muriithi and Crawford, 2003; Jekale, 2004). Project managers should be adept in politics and human relationships and exploit these talents to the project's benefit, according to Murithi & Crawford (2003). It has been discovered that this is the key element contributing to Kenyan managers' success. Furthermore, while managing projects in developing nations, particular attention should be paid to resource planning and management, risk management, and continuous planning. Additionally, it would be extremely difficult for the PM to obtain the required resources and facilitations without the ongoing efforts of senior management (Muriithi and Crawford, 2003, among others).

Furthermore, as procurement and contract administration are extremely vulnerable to risk and corruption and have a substantial impact on project schedule and cost, they should receive particular attention. Furthermore, because senior management is slow to delegate and the external environment is overwhelming, project management's integrating function is challenging in developing nations (Muriithi & Crawford, 2003). Thus, in order to obtain quick decisions and the authority needed to win over others, PMs should focus on strengthening their relationships with upper management.

The environment in developing nations does not support the implementation of project management, as was covered in the paragraphs above. Therefore, in the past, the primary focus of attempts to encourage PM development in developing nations has been on how to alter those nations' environments to make them more favorable and conducive to PM (Cusworth & Franks, 1993). The current trend is to emphasize how important it is to adapt PM to the context of emerging countries, rather than the other way around. Many of the more recent scholars in the field, including (Jekale, 2004; Voropajev, 1998; Muriithi & Crawford, 2003; etc.), supported the latter.

However, any sensible strategy for the growth of PM in developing nations should incorporate both strategies, since sometimes it could be simpler and more beneficial to modify the PM environment in order to better meet PM needs than it is to modify PM to better suit the environment. Therefore, a concerted effort should be made to modify the project environment in order to better support the need for PM, as well as to critically adapt PM concepts and tools to the project environment of developing nations.

2.1.6 Practices of project management in the building industry

There are several distinctions between other project management techniques and construction project management (CPM). The nature and characteristics of construction projects are the primary cause of the variances (Abadir Yimam, 2011). For construction projects to be managed successfully, these distinctions must be taken into account. Construction projects typically involve large sums of money, are intricate, and call for a high level of managerial expertise as well as the participation and coordination of numerous subject-matter specialists. (Chartered Institute of Building, 2002). Are typically carried out outside, making them vulnerable to a

variety of factors like the weather and traffic (Gould & Joyce, 2003). According to Bennett (2003) they are also bound by a number of rules and legislation designed to protect the environment and guarantee public safety.

Construction projects utilize a lot of labor and require a lot of resources and physical instruments in comparison to most other sectors. (Jekale, 2004). Every nation's economy is significantly impacted by the construction sector. It is nearly impossible to come up with a development activity that does not include building. The building industry produces all the socioeconomic amenities like schools, hospitals, factories, and the actual neighborhood we live in, as well as the infrastructure facilities required for development like roads, telecom, energy, and power projects (Abadir Yimam, 2011).

In emerging nations, the building sector is extremely important. For instance, significant construction projects account for over 50% of fixed asset wealth, 10% of GDP, and over 80% of all capital assets in many emerging nations. (Jekale, 2004). In comparison to other industries, the industry's development and efficiency are comparatively modest, despite its important contribution. "In the construction industry, particularly in developing countries, high project performance and project success are not commonplace" (Long et al, 2004).

Furthermore, the construction sector has among of the lowest productivity levels in many nations, and its high level of technological adoption is not comparable to that of other sectors. In addition, the industry's management is generally of a low caliber. "The vast scope and substantial capital expenditures of the construction industry contrast sharply with the low benefit (profit) and subpar management" (Guangshe, et al, 2008).

There are many similarities between managing construction projects and managing similar projects in other industries (Hendrickson). "A large portion of the PMBOK Guide's content can also be directly applied to construction projects." PMI (2007). Construction project management shares many similarities with other project types, but it also has some unique characteristics that set it apart from other project types, like software development. For instance, project managers in construction projects may switch between phases, or some may focus exclusively on one (PMI, 2007), in contrast to the management of many other types of projects.

PMI has released an additional construction project management guide (The construction extension - Guide to Project Management body of Knowledge, Third Edition) in recognition of the differences. The management of construction projects shares many similarities with the administration of projects of a similar nature in other industries, as explained in this guide's four extra knowledge points (Hendrickson). A large portion of the PMBOK Guide's content is also directly applicable to construction projects. While project management for construction projects shares many similarities with other project types, it also has some unique characteristics that set it apart from other project types like software development.

In contrast to many other project management roles, project managers in the construction industry frequently switch between phases of the project, or some may focus exclusively on one. As stated by PMI in 2007. PMI has released an additional construction project management guide (The construction extension - Guide to Project Management body of Knowledge, Third Edition) in recognition of the differences. Four more project-related knowledge areas—project safety, project environmental, project financial, and project claim management—are covered in this guide. The primary responsibility of project management in the construction industry, according to the Chartered Institute of Building (2002), is to organize experts within the project team so they can effectively contribute to the project to the best of their abilities.

Understanding the design and construction process is necessary for managing construction projects, in addition to general management and project management expertise (Hendrickson). Effective communication and team management are also critical for construction project management success (Chen, Partington, & Qiang, 2009).

The roles of project management in the construction industry are summed up by Hendrickson as follows:

1. Outlining the goals and plans for the project, including establishing the parameters, creating the timetable and budget, establishing performance standards, and choosing the participants.

2. Optimizing the effective use of resources by acquiring labor, supplies, and machinery in accordance with the timetable and plan that have been established.

3. Execution of diverse activities via appropriate synchronization and management of planning, designing, estimating, contracting, and building throughout the procedure.

4. The creation of efficient channels of communication and dispute resolution between the different players.

2.1.6.1 Construction Project Management Practice in Ethiopia

According to Tadesse etal. (2016), the study showed that Ethiopian construction project management practices are not up to par in terms of enhancing general project management procedures, functions, tools, and techniques. Project management is intended to ensure that projects are successful, and it contends that improper implementation could lead to an unexpected consequence. It was discovered that there was notably very little practice when it came to safety, risk, and time management. The Ethiopian construction sector is generally plagued by poor project management and control, performance limitations, corruption, irregular work opportunities, outdated technologies and practices, inadequate capacity of local consultants and contractors, and a lack of effective supporting policies.

Any construction project that fails can be attributed to a variety of things, the most common being issues and subpar execution. Therefore, issues with the performance of the construction industry in developing economies can be divided into three groups: issues relating to deficiencies or shortages in the industry's infrastructure (primarily the supply of resources); issues relating to clients and consultants; and issues relating to the incompetence or inadequacies of contractors (Shaban, 2008).

It is challenging to locate a thorough body of literature on Ethiopian construction project management techniques. Research in such a sector is therefore challenging or perplexing (Jekale, 2004). In spite of this, the study has attempted to provide an overview of the body of knowledge in the field. Like other emerging nations, the construction sector plays a significant part in the economic development of the nation. The industry offers one of the greatest employment prospects, second only to agriculture.

Developing nations like Ethiopia dedicate a sizeable portion of their expenditures to infrastructure development, which includes large-scale construction projects like building roads, buildings, water systems, telecom infrastructure, etc. Ethiopia is likewise experiencing this. For

instance, in the fiscal year 2007/2008, the Ethiopian government allocated almost 50% of its overall budget to capital projects, of which approximately 33% was for road development Economic Development and Finance Ministry (MoFED), (2008). The construction portion of project expenses in other sectors makes up the majority because most socioeconomic projects, such those for schools and hospitals, include a sizable building component.

Even by the standards of Sub-Saharan nations, the nation's infrastructure is still seen as being extremely inadequate, even though a considerable amount of money is being invested in its development. In comparison to other Sub-Saharan countries, the nation has one of the lowest road densities for both passenger and freight traffic. Less than 10% of the nation's enormous hydropower potential has been utilized (Ministry of Finance and Economic Development (MoFED), 2006). All of these indicate that the industry will see a huge volume of infrastructure (building) work. However, it appears that the nation's building sector is unprepared for the enormous amount of work that lies ahead. The sector is currently in its early stages and is regrettably expanding very slowly in terms of both technology and finances.

The building sector in Ethiopia has numerous challenges, much like those faced by industries in other emerging nations. The following is a summary of the various studies' descriptions of the industry's current state. The following broadly describes the industry's present state:

- Limited availability of construction resources, particularly cement.
- Conventional project management methods.
- Skill shortage, particularly for contractors and consultants.
- Limited private sector involvement in large-scale construction projects.
- Inadequate and inefficient labor-based building technologies.
- Inadequate and improper project organization structures, which result in issues with accountability, authority, coordination, and other areas.

Jekale (2004) asserts that the nation lacks sufficient capacity for both construction and management. The project management expertise of the practitioners in Ethiopia is lower. The use of limited financial and physical resources, with controlling operations restricted to cost and time monitoring dimensions only, has a significant impact on building project management. Since most contractors lack the necessary training to generate cost and schedule reports, quality

reports, safety reports, change order records, claims records, progress reports, payment requisitions, etc., they are unable to administer contracts in an appropriate manner. Because they will typically be working with a small number of public institutions, the majority of local contractors even lack claim management expertise or are unwilling to pursue valid claims out of concern for their industry reputation and the potential harm to their working relationships. (Dessa, 2003).

Several research studies in the field have shown that contractors need to be better at managing their finances, estimating, and costing projects, total quality management, change management, claim management, business planning, personnel, and general management skills, among other areas. Almost all these areas fall under the 12 PMI knowledge areas of construction project management. This demonstrates that raising contractors' proficiency in project management can greatly enhance the nation's existing state of the building sector.

The Ethiopian government has already acknowledged the need for an improvement and development initiative. With support from the German government, the University Capacity Building Program (UCBP) was launched to help local contractors become more capable by offering managerial and entrepreneurial coaching and training that helps them become ISO 9001 certified. Under the program, contractors received training in project and contract management, marketing, general management and leadership, construction equipment management systems, contemporary contract and project management, and project and quality management.

2.1.7. The frequent constraints of construction Project management

Every project has limitations that must be met. Any limit that establishes the parameters of a project is considered a constraint in project management, Haugney, in 2012. Scholars have highlighted cost, time, and scope as the only three constraints in numerous publications. Conversely, there are many who passionately contend that there is a close correlation between the triple restrictions and both quality and performance (Heagney, 2012; Oren, 2009 & Lewis, 2007). Project constraints are commonly defined as the combination of performance, quality, and triple constraints (Williams, 2011).

Similar to how the triple constraints interact, so do the project constraints. The triple constraint has been replaced more recently by the quadruple constraint, which consists of cost, time, scope,

and quality, with the customer's expectations at the center. This indicates that the project must be completed on schedule, within budget, and with the agreed-upon scope and quality, Haugney, in 2012. While addressing the triple restrictions, project managers might be successful in doing so at the expense of performance and quality. Therefore, if efforts are not made to address both the triple restrictions and performance and quality, then quality and performance may suffer. Every component of the project—cost, quality, performance, time, and scope—depends on the others, and any changes to one will have an impact on the others and the project as a whole. Heagney (2012).

Managing each project restriction independently might be challenging. Lewis (2007). It is significantly more complex and challenging to manage the project limitations and their interrelation at the same time (Lewis, 2007 & Williams, 2011). It is possible for one or more project constraints to receive less attention as a result of an increased focus on those constraints (Lewis, 2007). A subject matter expert is typically assigned to larger projects in order to provide targeted oversight for each project restriction (Williams, 2011). Generally speaking, each limitation requires the proper amount of attention without detracting from the others. It is advisable to allocate experts to each limitation if the project is complex and substantial (Heagney, 2012; Oren, 2009 & Lewis, 2007).

Project constraints are the usual term used to describe the three limitations of performance, quality, and constraints. Williams (2011). Similar to the triple constraints, the project constraints also have an impact on one another (Heagney, 2012; Lewis, 2007 & Oren, 2009). The triple constraint has been replaced more recently by the quadruple constraint, which consists of cost, time, scope, and quality, with the customer's expectations at the center. This indicates that the project must be completed on schedule, within budget, and with the agreed-upon scope and quality. Haughey (2011). While addressing the triple restrictions, project managers might be successful in doing so at the expense of performance and quality. Therefore, if efforts are not made to address both the triple restrictions and performance and quality, then quality and performance may suffer.

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2.1.7.1 Time management

In building, time is a critical factor. It is a key goal of project management, along with cost and quality, and a significant factor in determining a project's success (Charmer, 1990). Time encompasses the organization, sequencing, lengthening, estimating, and planning of tasks and/or work packages. It also includes allocating resources to tasks, setting deadlines for projects, and keeping an eye on and managing the timely completion of tasks. A critical route diagram ought to show these elements (IPMA, 2010).

Project time management, according to PMI (2013), comprises the procedures needed to oversee the project's timely completion. Processes for project time management include

- **Planning Schedule Management:** The process of creating the guidelines, protocols, and records needed for organizing, creating, overseeing, carrying out, and regulating the project schedule is known as schedule management. This approach' main advantage is that it offers direction and guidance on how the project schedule will be handled throughout. This process's inputs, instruments and methods, and results are shown.
- **Define Activities:** This refers to the process of determining and recording the precise steps that must be taken in order to generate the project deliverables.
- **Sequence tasks:** The process of figuring out and recording the connections between the various project tasks-
- **Estimate Activity Resources:** This is the process of figuring out what kind and how much material, labor, equipment, or supplies are needed to complete each task.
- **Estimate Activity Durations:** This is the process of figuring out how long each task will take to finish using estimated resources.
- **Develop Schedule:** To construct the project schedule model, a process of analyzing activity durations, sequences, resource needs, and scheduling limitations is involved.
- **Control Schedule:** The practice of keeping an eye on the state of project operations in order to keep track of progress and manage adjustments to the baseline schedule in order to meet the plan.

2.1.7.2. Cost management

According to CMAA (2001), cost management is the process of controlling all or a portion of the costs associated with planning, designing, and building projects in order to stay within the owner's budget. This definition makes it clear that project cost management should take the owner's requirements for cost management into account. Project costs will be measured by various stakeholders at different points in time and in different methods. The cost of the resources required to finish project operations is the main focus of project cost management. The impact of project decisions on the ensuing ongoing costs of utilizing, maintaining, and supporting the good, service, or outcome of the project should also be taken into account by project cost management.

Early in the project planning phase, the cost management planning effort establishes the framework for each cost management process, ensuring that the procedures are carried out effectively and in unison. PMI (2013) Project cost management creates the project's overall budget by estimating the costs of each work package, the subsystems, and the project as a whole. Along with predicting the remaining expenses and revising the final cost estimate, it also entails comparing the actual and anticipated costs incurred at different times in the project. The deliverables' cost ought to be quantifiable and computed.

Every change should have a measured, agreed-upon, and documented cost. A suitable portion of the project costs should go into overhead, such as support and office services. A portion of the project budget ought to be set aside for unforeseen expenses like claims, contingencies, and cost overruns. Additionally, funds can be made available to cover positive results like effectively managing risks or seizing opportunities (IPMA, 2006).

2.1.7.3. Scope management

The project scope, according to IPMA (2010), establishes the parameters of a project. The problem tends to spiral out of control if the project limits are not clearly specified and if changes are not adequately documented for the project, program, or portfolio. From the perspective of the parties involved, the scope of a project includes all of the deliverables that are part of it. Through the papers that progressively define those deliverables in greater detail as they are developed, the

solutions within the scope progressively transition from the project's original concept to its final deliverables.

The scope and deliverables, as seen by the interested parties, comprise all of the project's content, including its functional, technical, and user interface elements. Within its scope, the project should do everything that is stated. The geographic and user context in which newly developed systems or modifications to already-existing systems that the project delivers will be included in the scope of certain project types. Determining what falls outside of a project's scope is just as crucial as determining its boundaries.

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From the perspective of the parties involved, the scope of a project includes all of the deliverables that are part of it. Through the papers that progressively define those deliverables in greater detail as they are developed, the solutions within the scope progressively transition from the project's original concept to its final deliverables. The scope and deliverables, as seen by the interested parties, comprise all of the project's content, including its functional, technical, and user interface elements. Within its scope, the project should do everything that is stated. In certain project types, the project scope also covers the users' environment and the physical location where new or modified systems that the project delivers will be used.

Determining what falls outside of a project's scope is just as crucial as determining its boundaries. Project scope management, according to PMI (2013), comprises the procedures necessary to guarantee that the project comprises all of the work necessary and only the work necessary to successfully finish the project. Determining and regulating what is and is not included in the project is the main focus of managing the project scope.

The following essential elements are part of project scope management and should be taken care of from the beginning to the end of the project.

- **Plan Scope Management:** the process of putting together a plan that outlines the steps involved in defining, validating, and controlling the project scope.

- **Collect Requirement:** the procedure for identifying, recording, and overseeing stakeholder needs and demands in order to accomplish project goals.
- **Define Scope:** Creating a thorough description of the project and its outcome.
- Create a work breakdown structure (WBS): This is the practice of breaking down project work and deliverables into smaller, easier-to-manage pieces.
- **Validate Scope:** This is the procedure for formally endorsing the finished project deliverables.
- **Control scope:** is the process of keeping an eye on the project's progress and overseeing alterations to the baseline scope. (PMI, 2013)

2.1.7.4 Quality management

As to PMI (2013), project quality management encompasses the procedures and undertakings of the executing organization that establish quality guidelines, goals, and duties to ensure that the project fulfills the purposes for which it was initiated. Project quality management employs policies and processes to apply the organization's quality management system inside the project's environment. It also supports continuous process improvement activities carried out for quality improvement as necessary. Additionally, it is the performance group. The goal of project quality management is to guarantee that all project requirements—including those for the product—are fulfilled and verified.

The act of supervising the activities required to uphold a desired standard of excellence is called quality management. This covers the formulation of a quality policy, the development and application of quality assurance and planning, as well as quality control and improvement.

Processes for project quality management include:

- **Plan quality management**: is the process of determining the standards and/or requirements for the project's quality for both the deliverables and the project itself, as well as how the project will show that the criteria are being met.
- **Execute Quality Assurance:** This involves verifying that the right operational definitions and quality standards are being applied by conducting an audit of the quality requirements and the outcomes of quality control measurements.

- **Control quality:** is the activity of keeping track of and documenting the outcomes of carrying out quality-related tasks in order to evaluate performance and suggest required adjustments (PMI, 2007).

The management of the project and its deliverables are covered by project quality management. It's applicable to all projects, no matter what kind of deliverables they have. The methods and metrics used to assess quality depend on the kind of outputs the project is producing. In any scenario, the project's stakeholders may suffer grave repercussions if the quality standards are not met (PMI, 2013).

2.1.8. Impact of Design -Build Delivery System on managing scope

Seyoum (2020) asserts that this kind of project delivery approach benefits both design consultants and trade contractors concurrently in terms of creativity, constructability, and early participation. Trade contractors may be contacted early on in the process of a request for proposal or request for qualification, and it may be possible to complete the design work and construction tasks simultaneously. A survey study conducted by the state Department of Transportation (DBIA, 2016) found that, in addition to the DBB delivery system, the Design Build Delivery method is used to procure 91% of highway projects, 65% of bridges, and 9% of rail lines in the state.

Numerous publications about design-build methodology and project-specific case studies were compiled by the Design-Build Institute of America (DBIA, 2016). Based on the publications' findings, it was demonstrated that the DB project delivery system has less cost growth—up to an average of 20%—and is, on average, 6.7% less expensive than the DBB delivery system. According to DBIA (2016) and transportation-specific studies by FDOT (2014), Shrestha (2012), and FHWA (2006), the DB project delivery system outperforms the DBB by an average of 53% in speed and 3.75% in cost.

The cost growth (the rise in the total project cost based on the original contract sum) for DBB projects is much higher than that of DB projects, according to studies carried out under DBIA (2016) on 60 commercial projects purchased through DBB and DB systems. The study has also shown that DBB projects had higher mean schedule growth values than DB projects, with DBB project growth of 38% and DB project growth of 13% respectively. The ability to shorten the

project development process overall by removing a second procurement process for the construction contract, lowering the possibility of design errors and omissions, and enabling more concurrent processing of design and construction is the main driving force behind and actualized benefit of using design build for a contracting agency.

The Design Build Institute of America (DBIA, 1994) asserts that the Design Build delivery technique is superior to the conventional DBB method in a number of ways. The following is a list of its benefits:

a) Single Responsibility: One organization is in charge of both the construction and the design. By eliminating litigation concerns between the designer and the contractor, the owner is free to concentrate on defining the scope of the project, making decisions, and not on the coordination of the two parties.

b) Quality: Performance standards, along with the design builder's obligations to create a final product that complies with these specifications, are written along with the owners' expectations and demands. In contrast to the owner in a typical system, the designer warrants that the design is error-free. The designer-builder can now concentrate on project performance and quality.

c) Cost savings: A cohesive design and construction team is better able to assess techniques and material possibilities with more efficiency. When the design and construction teams collaborate, value-engineering and constructability are used consistently and more successfully.

d) Time Savings: It is possible to combine design and construction. Construction and the purchase of materials and equipment can start before the drawings are finished. Early facility use and lower project costs can come from the ensuing time savings.

e) Early firm cost knowledge: Compared to alternative delivery methods, Design-Build guarantees construction costs far earlier since the design entity is continuously able to better predict costs based on the specifics of the present project.

f) Affected Risk Management: A more suitable balance is achieved between the performance components of cost, schedule, quality, and risk responsibility.

According to Grifth and Sidwell (1995, quoted by Seyoum Admasu, 2020), the Design-Build project delivery method can effectively address the functional-ability of constructability issue. The specifics of this approach are outlined in Table 2.1.

Constructability: Functional Aims	**Design and Build Functional Ability**
✓ Simplified contractual arrangements	✓ The contract is b/n the client and the contractor, with total responsibility given to the contractor
✓ Integrated design and construction	✓ Promotes an integrated design& construction team in the firm of the main contractor. ✓ Encourage professionals to work towards the real interest of the client
✓ Improve communication	✓ Client-contractor single link & integration of design and construction improve communication b/n building or engineering team members
✓ Higher levels of operational effectiveness	✓ The client is always aware of who to contact—the contractor. The contractor can attend to the needs of the client promptly.
✓ Reduced project duration	Overlapping design and construction elements provide for significant time savings in projects. Time spent on pre-construction procurement was significantly decreased, allowing for an earlier site
✓ Reduced cost	✓ Before construction begins on the site, the client is reasonably aware of the entire financial commitment. Cost savings are also achieved through faster procurement.
✓ Increased performance	✓ The contractor's proposals and the employer's concise and thorough requirements lay out the particular criteria for design craftsmanship, materials, and performance.

✓ Minimum project changes	✓ Detailed brief scope plan reduces likelihood of project changes. In the event of changes, the contractor can reply to the client promptly and

Table 2.1: Summary of constructability

Source: adopted from a thesis study by Seyoum Admasu (2020)

2.2 Empirical Review

2.2.1 A case study on the Quadruple Constraints of Construction Project Management: in the case of Nifas Silk Lafto Koye Fetche Condominium site

The pursuit of empirical evidence is motivated by the collection of "facts," whatever they may be (Holosko, 2006). It is expected of authors of empirical literature to provide the facts as they were observed, regardless of whether or not the facts corroborate the investigators' initial theories. Conclusions drawn from empirical reviews are grounded in experience, which can be witnessed directly or indirectly through the use of experiments. The purpose of an empirical review, in contrast to a theoretical review, is to provide study findings that can be measured or explained in order to comprehend the results.

The project began in January 2013, at the Nifas Silk Lafto Sub city Branch Project Office and 140 contractors signed construction agreements, as noted by researcher Nigatu Abera (2017) in his report. According to this study, 75 questionnaires were given to people involved in condominium housing developments, of which 60 came from experts. A total of 93 respondents completed the questionnaires used for data gathering. Formal and informal conversations were held with the consultant firm's resident engineers, coordinator, and chosen professionals. The project offices and construction sites where the questionnaires and site inspections were conducted were related to the condominium housing project.

2.2.2 Project Management Practice of the empirical study

The construction project management techniques were evaluated, per the Nigatu Abera (2017) case study, by examining the information gathered from direct site observation, interviews, and questionnaires sent to project participants who were professionals. After reading the research article by Negatu Abera regarding CPM on the quadruple limitations in the case of the Electric utility project site, the conclusions are summed up in table 2.2 below.

Table 2.2 Summary of the empirical study

Project management practice	Reasons for poor management	Percentages
Performance	➢ Lack of project management practice of the construction / Consulting companies ➢ Poor Resources Management /Capital, Material, Equipment etc. ➢ Lack of competent and experienced professionals in the field ➢ Poor organizational setup of construction companies ➢ Absence of clear regulations and Guidelines	45 22 13
Time management practice	➢ Lack of clear procedures ➢ Lack of planning skill & software application ➢ poor project managers ➢ Limited mg't experience of technical skill Org.	45 35 15
Scope management practice	➢ Not Clearly defined scope ✓ Strongly agreed. ✓ Agreed ✓ Not agreed	15 10 75
Cost management practice	➢ Reasons for cost over run ✓ Poor cost planning management ✓ Poor budge and cost projection ✓ Unplanned extended time ✓ Poor cost controlling system	38.89

Quality management practice	➢ Reasons for unsatisfactory project quality ✓ Materials production quality management process is unsecured to ensure quality requirements. ✓ Negligence of supervision, on the quality requirements on the constructions and on the material production sites. ✓ poor competency of the professionals assigned from the consultants, contractors' side. ✓ Poor Controlling mechanism to control the implementation of quality policy was unsatisfactory.	49 37 9

Table 2.2 illustrates how the researcher evaluated the construction project management (CPM) practices in the Addis Ababa Integrated Housing Development Project (AAIHDP) of condominiums at the Koye Feche site with respect to the quadruple constraints of time, cost, scope, and quality. The researcher also identified factors that influence the CPM practices. The study report was written using research questions such "How is the project scope was managed?" in mind. What effects and gaps exist? Using data collection instruments, the study collected data based on the research question and objectives, then critically appraised the CPM regarding four restrictions. The researcher has carefully examined the data gathered and has offered the following general conclusion and recommendations:

Conclusion: The study's conclusions demonstrate that AAIHDP's construction project management procedures need to be improved in order to better address the quadruple constraints of project time, project scope, project cost, and project quality. The project suffered from eight times as much time effort and a 38.8% cost overrun as a result. It was also constructed using subpar materials, increasing the project's cost to over 1.2 billion birr.

The project office should have a well-planned project charter with defined scope, cost estimation, defined schedule, and quality material suggestion prior to the commencement of work. The implementation should be followed by routine monitoring and evaluation by the construction

project management. This is because the project is a mega project, so professionals and technologies should be applied.

During the pre-bid phase, a critical path scheduling approach incorporating the whole project team, including subcontractors and material suppliers, was advised. A proper cost management strategy must be created, costs must be carefully evaluated, the budget must be established, and professionals working with consultants must take serious steps to minimize costs, both direct and indirect, as well as recurring. The study report also suggested revising the policies, practices, and guidelines pertaining to quality management. A high-level system of quality control will be put in place. The quality test in particular shouldn't rely solely on the sample test.

2.3 Conceptual Framework

A survey of the relevant literature served as the foundation for the development of the research framework. The relationship between the dependent variable (project success) and project management components (independent variables) is shown in the conceptual framework below.

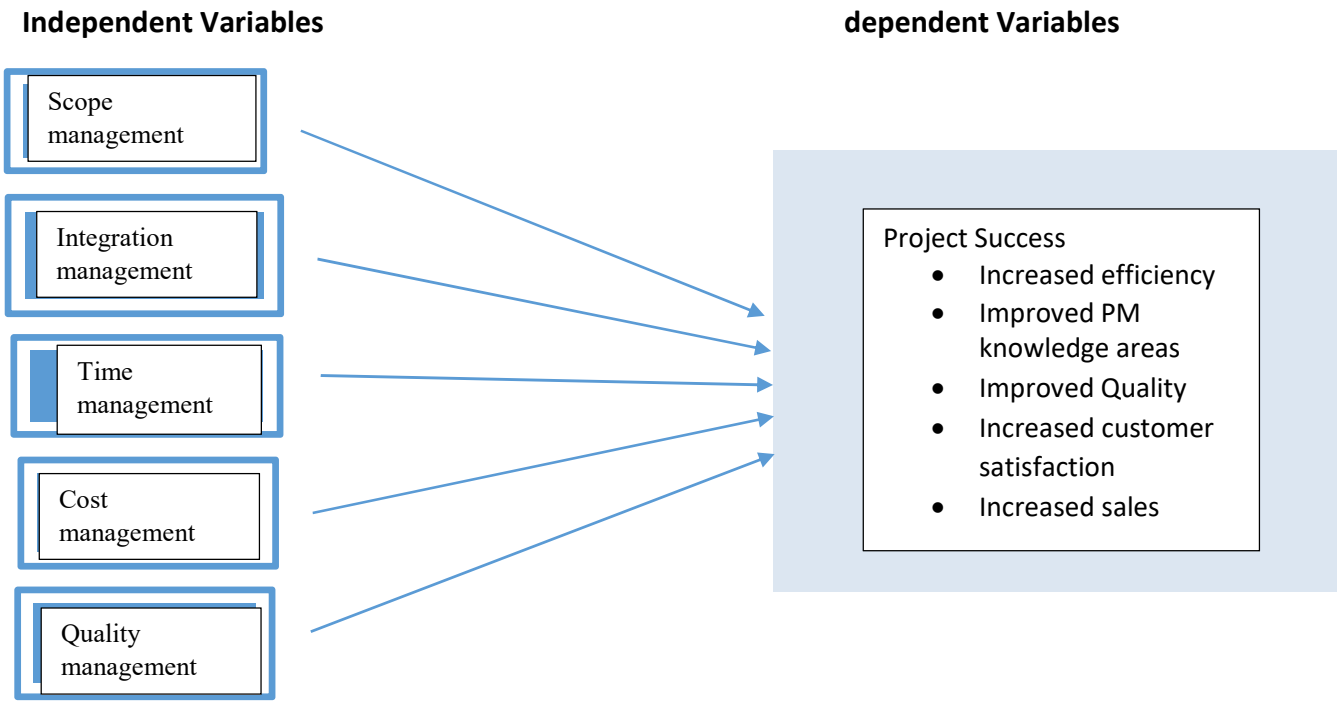

Figure 2-4– Conceptual framework adopted from review of related literature(Source: Khan(2006), PMI(2013), Cho & Gibson(2001), Alsem, et al.(2013), Kerzner(2003), de Boer, Bruinsma, Elich, van Luling, &Wemeijer(2009), Wysocki(2009).

2.4 Research Gap

Numerous studies focused on factors that contribute to project failure, including management problems, inadequate planning or design, corruption, and a lack of professionalism or abilities. Numerous of these studies failed to take project management practice into account when determining the success or failure of a project. Therefore, considering the National Archive and Library Agency case study, further research is needed on project management practices on the construction sector and how it is backing project success.

CHAPTER THREE

RESEARCH METHODOLOGY

The research methodology will employ to conduct the study is explained in this chapter. It covers the target population, research design, methodology, sample size, data sources, data collection and analysis techniques, validity and reliability, and ethical issues.

3.1 Description of the study Area

The Ethiopian Construction Design and Supervision Works Corporation (ECDSWCo) was founded by Council of Ministers Regulation No. 365/2015 as a Federal Government Public Enterprise with a broad scope of multidisciplinary civil engineering works objectives.
Birr 1,301,515,785 is the Corporation's authorized capital. Of which Birr 393,771,990.00 has been fully paid in kind and cash.

The Water Works Design and Supervision Enterprise (WWDSE), the Construction Design Share Company (CDSCo.), and the Transport Construction Design Share Company (TCDSCo.) merged to form Ethiopian Construction Design & Supervision Works Corporation (ECDSWCo.), a multidisciplinary construction company that has been actively involved in the planning, study, design, and supervision of water and hydropower, building, and transportation sector works since 1998, 1977, and 1987, respectively. With six business units offering advisory services in the areas of water and energy, building and urban planning, transportation, geo-technics, and underground works, ECDSWCo is now a fully integrated engineering consulting firm.

However, the primary focus of this study is on the Building & Urban Design & Supervision Works Sector specific project i.e. National Archive and Library Agency. BUDSWS is a multidisciplinary engineering firm that offers professional services and has a highly skilled and professional workforce. The Sector now employs 762 people, of which 532 are technical and 230 are supportive. (Source: HRM Department of BUDSWS, 2023).

3.2 Research Design

The overall strategy for conducting the study is known as the research design. Chandran and Kothari (2004) recognized observational, descriptive, exploratory, experimental, and diagnostic study designs. The researcher used a descriptive design for this investigation. Descriptive research studies, according to Kothari (2004), focus on characterizing the attributes of a particular person or group. The descriptive study methodology allows the researcher to characterize events in terms of characteristics, attitudes, and values (Mugenda & Mugenda, 2003). The research aimed to characterize the perspectives of Building & Urban Design & Supervision Works Sector (BUDSWS) employees, hence this approach is suitable for the study.

According to Kumar (2005), a research design is a methodical strategy that the researcher uses to provide legitimate, impartial, accurate, and cost-effective answers to questions. According to Kumar (2005), a research design must accomplish the following two goals:

1. To create an operational plan and carry out the different steps and activities needed to finish the study.

2. To make certain that these methods are sufficient to find solutions to the study issues.

3.3 Research Approach

John (2014) states that "research approaches" encompasses a wide range of study tactics and procedures, from broad presumptions to particular ways for data collection, analysis, and interpretation. Research approaches can be broadly classified into three categories: mixed, qualitative, and quantitative. A quantitative survey is the best instrument to utilize if the goal of the investigation is to characterize people's opinions, according to Christensen (1985). Because of this, a quantitative research strategy was taken in this study, and technical personnel provided the responses.

This study aims to evaluate the company under investigation's project restrictions and project management procedures. The study organization's existing project management practices are described using a descriptive research design.

The primary goal of descriptive research is to describe the current condition of affairs and to report on past and present events, which is why the researcher choose this design (Kothari 1990). Therefore, the suggested research strategy for these kinds of investigations is descriptive, as previously explained.

3.4 Target Population and sampling technique

Aagaard and Hauer (2013) describe a population as a well-defined group of individuals, services, objects, events, or households that are the subject of the study. The sampling frame for this study is made up of all BUDSWS technical staff, regardless of their functional level. Because they are the most knowledgeable about the study's issue, the technical staff members who directly oversee the organization's daily project management operations were the focus of the investigation. Most of the technical staff members from the ECDSWCo-BUDSWS participated in this investigation. A scientific way of choosing features of a population is sampling. To ensure a legitimate study outcome, the investigator employed a basic random sampling method.

3.5 Sampling and Sampling Procedure

We came to the conclusion that in order to properly interpret our results, we had to figure out how to select a sample that was representative of the total population. We used a non-random selection strategy for this investigation, based on non-probability sampling techniques and probability criteria. We were able to start gathering data as a result.

Using a variety of non-probability sampling techniques, respondents were chosen from the general community using a purposive selection strategy. Purposive sampling, commonly referred to as judgment sampling, involves a researcher selecting the most useful sample for the goal of the study based on their expertise. In order to pick respondents for this project, purposive sampling is used on the construction site. This is because specialists or professionals directly involved in the issues are considered to have more knowledge data than others.

Through rigorous sampling, representatives of the existing professional population were selected to answer the survey questions. The sample size is influenced by the occupation, rank, and educational background of the researcher. Because of the method's adoption, the researcher's degree, status, and occupation are all related to the knowledge and experience they have

accumulated over their lifetimes regarding the factors that contribute to delays on building sites. The massive sample sizes sparked a lot of discussion and responses.

3.6 Sample size

The number of objects selected from the population is known as the sample size (Kothari, 2007). For the purposes of this investigation, a representative sample (n) for a proportion was calculated using the following formula, which was developed by Kothari (2004):

$$n = \frac{z^2.p.q.\ N}{e^2\ (N-1) + z^2.p.q}$$

Where, p= proportion of success=75%

q=proportion of fail=25%

z=confidence level=1.96

e=standard error=5%

N=total population=532

n=sample size,

Therefore, the sample size will be: $\frac{(1.96)^2 x\ 0.75x\ 0.25x532}{0.05^2(532-1) +1.96^2x\ 0.75x\ 0.25}$

$\underline{n=187.12745\approx187}$

3.7 Data Sources and Types

In this study, data from primary and secondary sources were consulted. A questionnaire was given to the sample respondents in order to collect the primary data. To create a conceptual framework and support the analysis of project management. Secondary data was collected from books and journals about the subject of the study.

3.8 Data Collection Procedures (Method)

Utilizing questionnaires, the researcher gathered primary data that was pertinent to the study. For survey research, a structured questionnaire is thought to be the best tool for gathering data (Askia, 1999). Consequently, closed-ended questions on a 5-point Likert scale were included in an organized questionnaire. According to Krosnick and Fabrigar (1997), a 5-point scale has more

validity and reliability than shorter or longer scales. Because of this, responses to the study's subject were measured using a five-point rating system, where respondents marked 1 for "Strongly Disagree," 2 for "Disagree," 3 for "Neutral," 4 for "Agree," and 5 for "Strongly Agree."

To get the primary data, a questionnaire and observations were conducted. To gather primary data, a structured questionnaire survey was employed. From BUDSWS construction professionals, including architects, quantity surveyors, engineers (residential, civil, electrical, sanitary, and mechanical), project coordinators, and project managers were involved.

The questionnaire consists of three main parts. The initial segment pertains to the general data of the participants, encompassing their occupations and prior involvement in the building sector. The list of the determined factors and the standards used to evaluate them are contained in the second and third section. Professionals from the various project parties involved in the construction projects are the only people eligible to participate in the poll.

Finally, a different data collection strategy that was looked at during the project work-study was site observation. It was selected because it enables scholars to investigate issues and prospects in the real world. Thus, while responders were going about their regular business, observations were being made.

3.9 Data Analysis

The descriptive approach was used to assess the quantitative data obtained from the questionnaire. To summaries and present a clear picture of the respondents' responses to each questionnaire question, tables were employed. SPSS version 29.0.2.0 was used to aid in the computation of quantitative data.

As soon as the research site data was gathered, the data analysis got underway. The organizing and interpretation of data was examined using both quantitative and qualitative research approaches. Utilizing a questionnaire, the researcher collected numerical data from reliable respondents using quantitative data analysis.

Graphs and tables in the Statistical Package for Social Sciences (SPSS), Excel, and Google form were used to statistically analyze the survey data. Tables are used to provide a descriptive summary of the data. The study's quantitative data collection was supported by the application

of the qualitative method. Lastly, in light of the information gathered and the findings of the study, conclusions and suggestions are made.

3.10 Instruments

All pertinent and readily available papers were examined and processed in order to gather data. If the building was constructed in accordance with the negotiated contract agreement, it is evident from the project completion reports.

Closed-ended questionnaires in the form of Likert scales were used to solicit feedback on factors influencing construction project performance from clients, contractors, and consultants.

3.11. Data Presentation

Tables are used to illustrate data, which is then thoroughly examined in paragraphs.

3.12 Validity

The appropriateness, importance, and application of the evidence used to support interpretations are referred to as validity. The decisions and activities made in response to the evaluation's findings also have an impact on its validity (Cooper & Schindler, 2003). Validation of a survey testing instrument is done with reference to its intended application, not the survey itself. Part of verifying the survey involves obtaining data to bolster its findings about how project management practice affects project success. Glesne (2011) states that consulting with a professional or expert in the field is the standard procedure for reviewing a measure's content validity; so, project management specialists will be consulted.

3.13 Ethical Consideration

Ethics is described as the moral distinction between what is morally good and wrong, as well as what is unethical and ethical (Bhattacherjee, 2012). A researcher ought to take into account the respondents' voluntary participation in order to be ethical. The study's subjects must be guaranteed that their participation is completely voluntary and that they are free to leave the study at any moment without facing any consequences. To protect the privacy of the information the respondents submitted, their names were not required. Participants in the study were guaranteed the secrecy of any information they submitted, and all data collected was utilized only for academic purposes.

The ethical framework that contemporary social and medical research organizations have established to protect study participants' rights is defined by a few essential words. People shouldn't be forced to participate in research, according to the concept of voluntary participation. Voluntary participation and informed consent are synonymous concepts.

The participant's consent is sought by the researcher before administering a questionnaire survey. The researcher made it clear that the study was carried out primarily for academic interests. Any background or personal information will be kept confidential and will not be disclosed to outside parties without the express consent of those individuals.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

Hence, the term "Project management" refers to the different roles, duties, and actions that managers take on in order to meet the aims and objectives of a company. It also covers the wide range of jobs and domains that managers are accountable for when it comes to organizing, leading, and managing company resources. As a result, we will attempt to analyze and interpret the data in this chapter using the project management knowledge areas.

Two main areas are examined, discussed, and interpreted in this chapter. The first section comprises a descriptive examination of the study's sample population's demographic characteristics. In this context, the respondents' gender, age, years of service, educational level, organization type, service period in the organization and position in the organization are discussed. A detailed report of the respondents' reactions to the project management practice is included in this part. 115 questionnaires were distributed. 78 members of the organization's technical team, 24 members of the contractor team and 6 members of the employ or client team received the questionnaires. Out of this 108 of them filled out and sent them back. This translated to an analysis-useful valid answer rate of 93.91 percent. The statistical program SPSS (version 29.0.2.0) was utilized to examine the information gathered.

4.1 Demographic characteristics of the respondents

The gender and age distributions of the sample population of respondents are displayed in Table 4.1, items A and B, respectively. 59.3% of the responders were male. The percentage of female participants in this study was 40.7%. Consequently, men made up the great majority of those who responded. Age-wise, it is evident that the 26–35 age group, which makes up 75.70 percent of the workforce, is by far the largest. On the other hand, 24.3 percent, were in the 36–45 age range.

Table 4.1: Respondents' demographic characteristics

A. Gender		
Male	64	59.30%
Female	44	40.70%
Total	108	100.00
B. Age		
15-25 years	-	0 %
26-35 years	82	75.70 %
36-45 years	26	24.30 %
Above 45 years	-	0%
Total	108	100.00%
C. Years of service		
Less than 5 years	-	0%
5-10 years	42	38.9%
11-15years	66	61.1%
Above 15 years	-	0%
Total	108	100.00%
D. Educational level		
Diploma	-	0%
BA/BSC	73	67.6%
MA/MSC	35	32.4%
PHD	-	0%
Total	108	100.00%
E. Organization Type		
Employer	6	5.6%
Contractor	24	22.2%
Consultant	78	72.2%
Total	108	100.00%
F. Position in the Organization		
Technical Staff	73	67.6%
Project Manager	30	27.8%
Supporting Staff	0	0%
Project Coordinator	5	4.6%
Total	108	100.00%

Source: Survey Data (2024)

The majority of respondents (66, or 61.1% of the population) had served for eleven years or more, followed by 42 (38.9%) who had served for five to ten years in the organizations. Based on this information, it is possible to draw the conclusion that the respondents' relatively longer year of service gave them sample experience and a better understanding of the various issues related to ECDSWCo-BUDSWS scope management practice. Another area of inquiry for this study was the respondents' educational distribution. Table 4.1, Item D shows that 35 respondents (32.40 percent) held master's degrees, while the majority of respondents (73, or 67.60 percent) had first degrees.

4.2 Descriptive Analysis of Data

Using the Likert Scales, which range from Strongly Disagree=1 to Strongly Agree=5, averages (means) and standard deviations were calculated for each construct throughout the descriptive data analysis. Based on the range established by Alfarra (2009), the weighted average categories for each outcome are interpreted as follows: 1.80-2.59 (Disagree); 2.60-3.39 (Neutral); 3.40-4.19 (Agree); and 4.20-5.00 (Strongly Agree).

4.2.1. Project Scope Management

The scope management plan is a document that lists every task that needs to be finished for the project to be finished. Crucial components of this process include the project management plan, preliminary scope description, and project charter. Meetings, standards, and expert judgment are some of the methods and tools used in scope planning (Kahn, 2006).

The project scope establishes the parameters of a well-documented project. The procedures needed to guarantee that the project contains all the work necessary and just the work necessary to finish it successfully are included in project scope management.

Table 4.2: Project Scope Management

	N	Mean	Std. Deviation
Plan scope management was defined (as a basis for future project decisions)	108	4.37	.590
Requirements were clearly defined from the beginning	108	3.48	.502
Work breakdown was created	108	3.95	.778
Scope was verified (formalizing acceptance of the project scope)	108	3.48	.502
Change to the project was controlled	108	3.83	.374

Source: Survey Data (2024)

Based on the table shown above 56(51.4%) respondents agreed that plan scope management was well defined on the project and 6 (5.5%) respondents were uncertain whether plan scope management was defined or not. Whereas the remaining 46(42.2%) respondents disagreed that the plan scope management was clearly defined. With high mean level value of 4.37 and standard deviation of .590. This implies that plan scope management was at good level for the project. The same table shows the responses of the respondents to inquiries if requirements were defined and out of the 108 respondents, 52(47.7%) agreed that the requirements were defined and 56(51.4%) were not sure if requirements were defined, with mean and standard deviation value of response rate of 3.48 and .502 respectively. This shows the project requirements were at high level. The other question put forward to the respondents was if WBS was created and 43(39.4%) respondents agreed that it was created, 35(32.1%) were not sure if it was created 30(27.5%) respondents strongly agreed that WBS was created having high mean value of 3.95 and standard deviation of .778. Based on this result, a conclusion reached that WBS was at high level defined so WBS is a vital task on PM practices the organization should keep using it. Respondents were asked if scope was verified,52(47.7%) agreed that it was verified, 56(51.4%) were uncertain about it with mean value of 3.48 and it is based on the range that was mentioned above have a high-level mean value with standard deviation of .502. In response to the question that was intended to know if changes to the project scope were controlled, 90(82.6%) of respondents agreed and 18(16.5%) were

uncertain with mean value of 3.83 and standard deviation of .374. Therefore, it can be analyzed based on the response of the majority that changes to the project scope were good and well controlled.

The overall scope management practice mean is found to be 3.822 the assessment indicates that the scope management practice is found to be at high level. The outcomes also show that this particular knowledge area is being practiced well. The data gathered from the examination of documents also shows that preparations were made for project scope planning, scope definition, WBS creation, scope verification, and scope control. Formal procedure may not, however, always be adhered to in project management.

Even though the value of project scope management is not acknowledged in the workplace and employees taking part in the project activities do not receive project management training BUDSWS as a consultant apply it. Moreover, as it can be seen from the responses project offices have the infrastructure, tools, and equipment required. The project office was able to do their job effectively as a result.

According to PMI (2013), as the company leader and PM team are the ones who decide on project schedule and cost, it is imperative that stakeholders understand the need for and significance of PSM. The responses make every effort to understand the situation. Furthermore, formal scope management efforts like defining scope, planning scope management, and creating a work breakdown structure (WBS) are essential to a project's success because they set the stage for subsequent project processes like cost estimation, figuring out how long each activity will take, and ultimately creating a schedule. Applications or tools for computers are highly helpful in scope management.

4.2.2 Project Integration management

The procedures used to coordinate the different project components are known as project integration management procedures. Setting priorities for conflicting goals and options is a crucial integration management task. It includes creating a project charter, creating an initial scope statement, creating a project management plan, managing and directing the project's execution, keeping an eye on and controlling project work, integrating change control, and closing the project.

Table 4.3: Project Integration management

	N	Mean	Std. Deviation
Project work was managed	108	4.18	.624
Project plan was developed by talking the results of other planning processes and putting them into consistent document	108	3.06	.998
Project work was monitored and controlled	108	4.18	.874
There was effective coordination of project activities	108	4.26	.586
Change to the project schedule was controlled	108	4.19	.629

Source: Survey Data (2024)

Based on the table shown above 57(52.3%) of respondents agreed that project plan was developed, and 1(0.9%) respondent were uncertain whether project plan was developed or not. Whereas the remaining 50(45.9%) respondents disagreed that the project plan was clearly developed. With moderate mean level value of 3.06 and standard deviation of .998. This implies that plan scope management was well defined for the project. The same table shows the responses of the respondents to inquiries if project work was managed; out of the 108 respondents, 63(57.8%) agreed that the project work was managed and 13(11.9%) were not sure about how project work was managed and the rest of respondents i.e. 32(29.4%) strongly agreed that project work was managed, with mean and standard deviation value of response rate of 4.18 and .624 respectively. This shows the project work management were at high level. 11(10.1%), 56(51.4%), 41(37.6) respondents were respectively disagreed, neutral and agree with the mean value of 4.18 and standard deviation of .874 for the question forwarded about project work was monitored. For the last question of this section 8(7.3) neutral, 64(58.7%) agreed and 36(33%) respondents strongly agreed with the mean and standard deviation value of 4.26 and .586. The overall integration management practice mean is found to be 3.974 the assessment shows that the integration management practice mean is found to be at high level.

Consequently, it is apparent that the project office concentrates on practicing specific operations to integrate them together, supports this assertion. Since project integration had been successfully implemented, the project's delay and some of its unmet targets might not have occurred.

Integration management is ranked as the second most significant knowledge area for project management in transition economies (developing nations), behind risk management (Voropajev, 2009). However, prior research by Yimam (2011) discovered that integration management was ranked sixth out of the ten knowledge domains by Ethiopian practitioners. Since managing integration is primarily the responsibility and interest of the client (owner), contractors may have placed less emphasis on it, which could account for the low level of maturity of integration practices and the practitioners' low value for them.

4.2.3 Project Time Management

The practice of time management, which involves creating and managing a timetable, is essential to achieving the project's goal of timely completion within the anticipated budget and quality. The obstacles in the construction industry are that this activity demands a skilled project team, a knowledgeable project manager, and a proficient organization to handle the project in an effective and efficient manner.

Table 4.4: Time management practice

	N	Mean	Std. Deviation
Time/Schedule management plan was developed	108	3.48	.502
Activities were defined	108	3.05	.790
Activities were sequenced	108	4.53	.502
Duration of activities were estimated	108	4.53	.502
Changes to the project schedule was controlled	108	4.51	.502

Source: Survey Data (2024)

Based on the table shown above 52(47.7%) of respondents agreed that time management plan was developed, and 56(51.4%) respondents were uncertain whether time management plan was developed or not. With higher mean level value of 3.48 and standard deviation of .502. This implies that time management plan was properly addressed for the project. The same table shows the responses of the respondents to inquiries if project work activities were defined, out of the 108 respondents, 36(33%) agreed that the project work activities were defined and 41(37.6%) were not sure about how activities were defined. The rest of the respondents 31(28.4%) disagreed that project work was managed, with mean and standard deviation value of response rate of 3.05 and .790 respectively. This shows the project office time management experience were at higher level. The response of the respondent which shows activities were sequenced, out of 108 respondents 57(52.3%) agreed that the project activities were sequenced, 51(46.8%) were not sure about how activities were sequenced. The mean value of this task is 4.53 with standard deviation value of .502. The response of respondents about duration of activities estimation was that 57(52.3%) of them agreed whereas 51(46.8%) of them neutral about it. The mean and standard deviation value that was given by the respondent about this task is 4.53 and .502 respectively. The response of respondents the question regarding change to schedule was that 55(50.5%) of them agreed whereas 53(48.6%) of them neutral about it. The mean and standard deviation value that was given by the respondent about this task is 4.51 and .502 respectively. The overall time management practice of the studied is found to be 4.02 which implies that it is in a high level of mean value.

Given that the average mean of all the components under project time management as well as the mean of each item individually are shown, it makes sense that a schedule and time plan were created and that tasks were in some way defined. The majority of respondents agreed that project time management was done carefully since the defined activities were somewhat sequenced, the duration of the activities was somewhat estimated, and modifications to the project schedule were made in a control trial as they should have been.

Several project time management studies have shown findings that are comparable to these. As to Karisson's (2011) findings, project organizations possess a strong need to maintain timetable control. Time schedules can be controlled and managed in a variety of ways with the help of the computer program MS-Project. The desire of senior management is not fulfilled since many

members of the project teams lack the necessary computer abilities to utilize the program to its fullest. Although schedule control is implemented, it might be made better by raising the organization's overall computer proficiency. The project team uses a timetable that is successfully controlled, according to Antvik & Sjöholm (2007), who emphasize the importance of schedule control.

4.2.4 Project Cost Management

Cost budgeting, cost control, and cost estimating are all included in project cost management. Completing the project within the authorized budget is the primary goal of cost management (PMI, 2004). The project budget is crucial and affects every aspect of a project's preparation and execution. It's critical to monitor the overall project expenditures as well as the costs associated with the various job packages.

Table 4.5. Cost management practice

	N	Mean	Std. Deviation
The project cost was estimated	108	4.51	.502
The quantity of necessary resources were defined	108	4.27	.635
Cost plan was well defined	108	3.09	.952
The required budget was determined	108	4.58	.495
Changes to the project budget was controlled	108	4.46	.501

Source: Survey Data (2024)

Based on the table shown above 57(52.3%) respondents agreed that the quality of the necessary resource were determined and 11 (10.1%) respondents were uncertain whether quality of resources determined or not. Whereas the remaining 40% (36.7) respondents strongly agreed that quality of the necessary resource were determined with lower mean level value of 4.27 and standard deviation of .635. This implies that quality of the necessary resource determination was merely defined for the project. The same table shows the responses of the respondents to inquiries if cost plan were defined and out of the 108 respondents, 54(49.5%) agreed that the requirements were defined, 10(9.2%) were not sure if requirements were defined, and 44(40.4%) disagreed

that the requirements were defined, with mean and standard deviation value of response rate of 3.09 and .952 respectively. This shows the project cost plan was at high level and well defined cohesively. The other question put forward to the respondents was if project cost was estimated and 53(48.6%) respondents agreed that it was estimated, and 55(50.5%) respondents strongly agreed that project cost was estimated. this specific task has higher mean value of 4.51 and standard deviation of .502. For the question about required budget was determined 63(57.8%) agreed that it was determined while 45(41.3%) were not sure if it was determined or not that project budget was determined. The mean and standard deviation value of each was 4.58 and .495 respectively which implies that based on the range the status of this question is higher. Another question given to the respondent was about change to the project budget was controlled out of 108 respondents 50(45.9%) agreed and 58(53.2%) not sure about it. The mean and standard deviation result of this question is 4.46 and .501 respectively. The majority of the respondents agree that the factors of the cost plan management were properly practiced in the project office which has a higher average mean value of 4.182.

During the project implementation process it was challenging to define cost plan since inflation is an unanticipated condition under the law. Subsequently the major objective of project cost management is to finish a project within an established budget, the organization and PM team are expected to recognize the work and relevance of project cost management. But in this instance, for a variety of reasons that did not meet our budget requirements, one which is COVID. Our cost management system is also impacted by external factors like variation, disputes with contractors due to inflation, fluctuation of foreign currency rate, and the like.

Low bid prices have also historically led to friction and mistrust in the relationships between the construction industry, particularly with private contractors and government agencies, which has furthered subpar project management performance (Eden, 2018). According to Eden (2018), the reasons for the corrective action taken, the reasons for the variances found, and other kinds of lessons learned from cost control should all be recorded so that they can be added to the historical database for a project as well as other projects of the performing organization and be used as a resource for future projects. It appears that advice.

4.2.5 Project Quality Management

In order to establish quality policies and ensure that the job is completed to a satisfactory standard, project quality management encompasses all procedures and activities inside the project organization. Three main procedures make up quality management: quality assurance, quality control, and quality planning. To undertake quality control, the project team needs to determine which quality standards apply to the project. When creating a quality plan, the recognized standards ought to serve as the starting point. It is crucial that the quality plan include strategies for achieving the desired quality in addition to the minimum standards of quality that must be satisfied by each activity.

Quality assurance is the process of examining the results of quality control measures and the quality criteria to ensure that the correct operational definitions and quality standards are being adhered to. In order to establish quality policies and ensure that the job is completed to a satisfactory standard, project quality management encompasses all procedures and activities inside the project organization.

Table 4.6: Quality management practice

	N	Mean	Std. Deviation
Quality standards of the project were identified	108	4.48	.502
Quality standards of the project were reviewed	108	4.48	.502
Project performance were evaluated on regular basis	108	4.53	.502
Results were monitored to check if they comply with the quality standards identified	108	4.01	.096

Source: Survey Data (2024)

Based on the table shown above 56(51.4%) and 52(47.7%) agree and strongly agree with this issue. The mean and standard deviation of this value is that 4.48 and .502 respectively. For the question that talked about review of project quality standard, the respondent answer was 22(53.7%) respondents agreed that the quality standard of the project was reviewed 56(51.4%) respondents agreed and the rest 52(47.7%) strongly agreed that quality standard of the projects were reviewed. The mean and standard deviation value of this question is that 4.48 and .502

respectively. For the question that talk about project performance evaluation 51(46.8%), 57(52.3%) respondents agree and strongly agree respectively that there is a regular base of project performance evaluation. The mean and standard deviation of this value is that 4.53 and .502 respectively. For the last question with regard to quality, 58(53.2%) of them agreed and 50(45.9) strongly agree with mean value of 4.01 and .096 of standard deviation value. The average mean value of project quality management is 4.375 of high value. Which means on average the organization performs quality management on a high base which indicate that it is in a formal line.

This indicates that the organization is in a formal line and that quality management is generally performed on a highly basis. According to the responses, the consultants' guidance was mostly used to gauge the organization's quality requirements. City government of Addis Ababa land development & management bureau construction permit & control authority is our consultant most of the time. The Authority established its own guidelines for building works. We feel that this puts our quality standards in a stronger position.

4.2.6. Project Procurement Management

For effective procurements throughout the project, a procurement plan is a crucial instrument. In order to incorporate all procurements and ensure timely integration into the project, it should be established in accordance with the work breakdown structure (WBS) and timetable.

Table 4.7: Project Procurement Management

	N	Mean	Std. Deviation
Resources needed for the project were determined	108	4.51	.502
Requirements of the project materials was documented	108	4.33	.474
Potential sources were identified	108	4.72	.470
Appropriate quotations, bid offers or proposal were obtained	108	4.16	.391
Choosing from among potential sellers	108	2.06	.247

The relationship with the seller was managed	108	4.22	.418
Contract was completed and settled properly	108	4.00	.000

Source: Survey Data (2024)

The above table shows the responses of the respondents to inquiries if resources needed for the project was determined out of the 108 respondents, 53(48.6%) agreed and the remaining 55(50.5%) strongly agreed that resources needed for the project was determined with mean and standard deviation value of response rate of 4.51 and .502 respectively. This shows resources determination of resources needed for the project was at higher level. The other question put forward to the respondents was if requirements for project material was documented 72(66.1%) respondents agreed that it was documented, and 36(33%) respondents strongly agreed with 4.33 mean value and .474 standard deviation value of for project material was documented. For the next question that is potential source were identified 28(25.7%) agreed, 1(0.9%) were not sure about it, and the rest 79(72.5%) strongly agreed. This specific task has higher mean value of 4.72 and standard deviation of .470. Based on the respondent's answer, for the question about appropriate questions, bid offers or proposal were obtained 89(81.7%) agreed 1(0.9%) were not sure about it 18(16.5%) strongly agreed that appropriate questions, bid offers or proposal were obtained. The mean and standard deviation value of each was 4.16 and .391 respectively which implies that based on the range the status of this question is higher. Another question given to the respondent was about choosing from potential seller out of 108 respondents 7(6.4%) neutral or not sure about it, and 101(92.7%) disagreed. The mean and standard deviation result of this question is 2.06 and .247 respectively. The next question forwarded for the respondent is that is the relationship with the seller was managed. 24(22%) strongly agreed, and 84(77.1%) agreed with the mean value of 4.22 and standard deviation of .418. The last question for procurement management section is about contract completion and proper settlement. All the respondents 108(99.1%) agreed with the mean value of 4.00 and standard deviation of .000 which is in the highest stage of all variables. The finding of the assessment indicated that the project procurement management is at highest stage with the average mean value of 4.00.

As we can see from the table the project has faced few incidents while choosing from among potential sellers because the fallacy of awarding contracts based only on the lowest price bid, which leads to significant increases in the final cost of the work due to contract variations and frequently results in project completion delays. In fact, this was frequently the conventional tactic used for large-scale projects: make a low bid with the hope of profiting from the modifications and claims. In his analysis of Ethiopian Real Estate Company's project management procedures, Befekadu (2017) concluded that Ethiopian projects' procurement management is conventional, susceptible to corruption, and carried out without explicit policies. Studies have shown the inefficiencies of traditional methods of major project procurement and management, according to Keith.f (2008) findings.

4.2.7. Project communication Management

Project communications management is the processes used to ensure that required information is distributed to the right person at the right time. The PMBOK lists information distribution, performance reporting, communications planning, and stakeholder management as the four main processes in communications management. To guarantee that project communication is carried out successfully both internally and outside, a communication plan is required. Information on the kind of information that must be shared, who must get it, why it is needed, how often it must be delivered, and who oversees disseminating it should all be included in the plan.

Table 4.8: Project communication Management

	N	Mean	Std. Deviation
Making needed information available to the project	108	4.32	.470
Collecting and disseminating performance	108	4.00	.000
Generating, gathering and disseminating	108	4.52	.502
Control communication	108	4.38	.488

Source: Survey Data (2024)

The respondents to inquiries was making needed information available to the project, 73(67%) respondents agreed that it was available and 35(32.1%) respondents strongly agreed with 4.32 mean value and .470 standard deviation value. For the next question that is collecting and disseminating performance information almost all 108(99.1%) agreed. This specific question has higher mean value of 4.00 and standard deviation of .000. Based on the respondent's answer, for the question about generating, gathering and disseminating information to formalize project completion is that 52(47.7%) agreed and 56(51.4%) strongly agreed. The mean and standard deviation value of each was 4.52 and .502 respectively which implies that based on the range the status of this question is higher. Another question given to the respondent was about control communication out of 108 respondents 67(61.5%) agreed and 41(37.6%) strongly agreed. The mean and standard deviation result of this question is 4.38 and .488 respectively. The overall finding of the assessment indicated that the project communication management average mean is 4.305 which indicate that the communication practice is still at higher level.

It is feasible to infer from the results that BUDSWS clearly has good communication management. According to Ramsing (2009), it is possible that necessary information never reaches the affected parties because the project lacks an integrated communication plan, which causes inefficiencies and raises project risks. The project team get a clear information because when there are constant meetings to discuss and resolve significant problems.

Howard (2010) argues that cultural concerns underlie the limitations on information shared by top management and the somewhat erroneous success reports. According to Howard (2010), Ethiopian leaders are expected to have complete control, and as a result, information is frequently withheld to maintain their own ownership of the project. Ethiopians try to approach issues diplomatically, which can occasionally result in a report that is dishonest if the facts could be seen badly by a certain person. But the top managers make every effort to be as transparent as they can to avoid such limitations of this nature.

4.2.8. Project Human Resource Management

The procedures for leading, managing, and organizing the project team are part of project human resource management. The individuals with designated roles and duties for finishing the project make up the project team. As the project moves forward, team members may be added or deleted, have a variety of skill sets, and be assigned either full- or part-time. The term "staff" can also be used to describe members of the project team. All team members should be involved in project planning and decision making, even though they have distinct roles and tasks allocated to them. Team members that participate in planning provide their knowledge to the process and demonstrate their dedication to the project (from the PMBOK® Guide, Fifth Edition).

Table 4.9: Project Human Resource Management

	N	Mean	Std. Deviation
Project roles, responsibilities and required skill	108	4.39	.490
Organizational chart and position descriptions were developed	108	4.00	.000
Availability and assigning human resource were conducted	108	4.00	.000
Project team was developed	108	3.97	.165
Project team was managed and controlled	108	2.31	.732

Source: Survey Data (2024)

The responses of the respondents to inquiries if project role responsibility and required skill were identified out of the 108 respondents, 66(60.6%) agreed and 42(38.5%) strongly agreed with mean and standard deviation value of response rate of 4.39 and .490 respectively which has higher value. The other question put forward to the respondents was if organizational chart and position were clear 108(99.1%) respondents agreed that it was cleared with 4.00 mean value and .000 standard deviation value of high level. For the next question availability and assessing human resource 56(51.4%) agreed while 52(47.7%) disagreed with mean and standard deviation value of 3.04 and 1.004respectively. This specific task has moderate level. The other question that was given for the respondent was about project team development 105(96.3%) agreed and 3(2.8%) were not sure about it that project team was developed with 3.97 and .165 value of mean

and standard deviation value respectively. The last question was about control and management of project team 17(15.6%) agreed and the rest of 91(83.5%) disagreed. The mean and standard deviation value of each was 2.31 and .732 respectively which implies that based on the range the status of this question is lower. The overall finding of the assessment indicated that the project communication management average mean is 3.542 which indicate that the communication practice is still at higher level.

Based on the information gathered from the questioner, it appears that the project has a defined protocol for providing expedited and assisted project team system development. In addition, the project faced some inadequate staffing procedures. Hiring project staff took longer than anticipated, which had an impact on the project's budget, timeline, and quality as well as the motivations of team members. Based on the above table, document analysis, it can be concluded that the organization chart develops a well clarified and description regarding its structure. However, it's not entirely clear how project team was managed and controlled.

The organization under study has undergone many restructurings because of staff members being replaced and others being given new jobs within the company. Many months have passed while certain positions were unfilled due to restructurings. These reorganizations have had a significant impact on the project's development and future activity planning, particularly where important positions are involved. The lack of educated members of the management team is one of the reasons why most respondents disagree that the project had a general lack of managing and controlling the project team.

4.2.9. Project Risk Management

According to PMI, (2013) Risk management include risk management planning, risk identification, qualitative risk analysis, quantitative risk analysis, risk response planning and risk monitoring and control). Uncertainties in each undertaking have the potential to present an opportunity or a risk. In places where management has limited knowledge of the current situation, uncertainties frequently arise. Many uncertainties can be transformed from risks to opportunities via skillful management. A risk analysis's goal is to help you take control of the project's uncertainties. Therefore, it's critical to design a strategy to address hazards as soon as

they are discovered. One possible reaction technique is to quantify the extra cost that may arise if a risk materializes, or one might accept the risk and try to eliminate its probability or impact.

Table 4.10: Project Risk Management

	N	Mean	Std. Deviation
Risk management plan was developed	108	3.04	1.004
Risks were identified and registered	108	3.04	1.004
Risks were prioritized and their implication on the project was estimated	108	3.04	.874
Risk response plan was developed	108	2.52	.502
The identified risks were monitored and controlled	108	3.33	.947

Source: Survey Data (2024)

The above table shows the responses of the respondents to inquiries if risk management plan was developed out of the 108 respondents, 56(51.4%) agreed and 52(47.7%) disagreed with mean and standard deviation value of response rate of 3.04 and 1.004 respectively which has average or moderate mean value. The other question that was forwarded to the respondents was if risk was identified and registered 56(51.4%) agreed and 52(47.7%) respondents disagreed with 3.04 mean value and 1.004 standard deviation value of moderate level. For the next question estimation of risk implication on the project was 41(37.6%) agreed, 56(51.4%) were not sure about it and 11(10.1%) disagreed with 3.04 mean value and .874 of standard deviation value. which, according to earlier research, is average. The 4th question that was forwarded to the respondents were about risk response plan development 56(51.4%) agreed about it and 52(47.7%) disagreed. This specific question has lower mean value of 2.52 and standard deviation of .502. The last question with regard to project risk management that was given to the respondent is about monitoring and controlling of identified risks 72(66.1%) agreed about it and the rest 36(47.7%) disagreed with moderate mean value of 3.33 and standard deviation of .497. The overall finding of the assessment indicated that the project communication management average mean is 2.994 which indicate that the communication practice is still at moderate level.

The project begins with the development of a risk analysis. The risk analysis is fundamental, and hazards that have been discovered are not categorized according to likelihood or consequences of potential outcomes. Rough mitigation strategies should be allocated to each risk that has been identified. Since the suggested mitigating actions were never carried out, a number of the early identified risks have materialized and had a significant influence on the project due to the lack of implementation of risk analysis in project management.

The management team's decision to give less priority to risk analysis in favor of risk management is probably a result of the project scope being underestimated. If the risk analysis had been effectively handled and refined during the project, the worst hazards probably would have been averted.

Similar results have also been reported in other national surveys conducted in the relevant domains. Formal risk management is not implemented and is hardly used, claims Karleson (2011). "Risk analysis is a rudimentary and underdeveloped technique in Ethiopia... It is not widely understood that simple risk management strategies and technologies can be used.

This can be a sign of a lack of understanding regarding the significance of risk management within the company. The inapplicability of the present risk management procedures may be the cause of the moderate degree of risk management. According to Yimam (2011), current approaches created in the developed world may not be appropriate in the context of developing countries due to the very uncertain and fluctuating PM environment in these countries. Furthermore, the lack of data and the extreme unpredictability of events in developing nations may render any attempts at risk management ineffective.

4.2.10. Project Stake Holder Management

Project stakeholder management's main responsibility is to guarantee that the project will meet the stated needs for which it was started. The essential skills that project managers need to acquire are outlined in the project management knowledge areas.

Table 4.11: Project Stake holder Management

	N	Mean	Std. Deviation
Project stake holders were identified	108	3.75	.435
Stake holders plan was defined	108	4.26	.440
There was effective communication between stake holders	108	4.00	.000
Stake holders' communication was controlled	108	4.00	.000
Project progress was reviewed frequently with the stake holders	108	4.00	.000

Source: Survey Data (2024)

The above table shows the responses of the respondents to inquiries if project stake holder were identified out of the 108 respondents, 81(74.3 %) agreed and 27(24.8%) were not sure about it with mean and standard deviation value of 3.75 and .435 respectively. The other question that was forwarded to the respondents was if stake holder management plan was defined 80(73.4 %) respondents agreed that it was identified, 28(25.7%) respondents strongly agreed with 4.26 mean value and .440 standard deviation value of good level. For the next question that was about effective communication almost all respondents (99.1%) agreed with 4.00 mean value and .000 of standard deviation value. The 4th question that was forwarded to the respondents were about control of stake holder engagement, as that of the above question all respondents (99.1%) agreed about it. This specific question has high mean value of 4.00 and standard deviation of .000. The last question regarding project progress review 108(99.1%) agreed with mean value of 4.00 and standard deviation of .000. The stakeholder's management practice have average mean value of 4.002 which is in a high level. This result shows the project office has a good practice regarding the project stakeholder management. The document reviews indicate similar results regarding the practice and confirmed that all the stakeholders were identified and communication between

them was effective, and all the stakeholders were engaged as there was a monthly meeting between stakeholders to assure clear communication and mutual understanding.

This outcome demonstrates that the project office manages project stakeholders well. Similar findings about the practice are shown by the document reviews which also confirm that all stakeholders were identified, and that effective communication existed between them. All stakeholders were also engaged because clear communication and mutual understanding were ensured through monthly meetings. In addition, contractors, consultants, and project office board members met periodically.

4.3. Major findings and gaps on project management practice regarding the multiple project constraints

This study's primary goal is to observe how well project's management practices are being applied in the construction of the National Archive building in relation to the multiple project constraints. To this end, the project is examined by analyzing questionnaire responses, and doing desk research.

According to the analysis section's discussion of the project management practice in this specific project, it is understood that both the professionals working on the project and the primary informants think it is successful. Consultants are primarily responsible for managing scope, quality, cost, and time for the project. The main discrepancy in time management is that while consultants were using WBS to manage their time, contractors were developing their schedules based on project milestones, and occasionally, consultants would even give contractors specific WBS to set up timing.

4.4 Summary of results on project management practice of the organization

A "best practice" is defined by PMI as "an optimal way currently recognized by industry to achieve a stated goal or objective." This definition applies to project management practices. (p. 171 of PMI, 2003).

In conclusion, the data in the above tables came from a respondent survey, which was then processed with a statistical tool, and the findings are shown. We observed that males between the ages of 26 and 35 make up the majority of responders across all organizations. A bachelor's

degree is held by 67.6 percent, while a master's degree is owned by 32.4% of the respondent. And the majority of those surveyed had 11 to 15 years of experience.

The following categories comprise the main determinants of project management practice, based on the percentages discovered in the questionnaire research. The study assessed the practice of project management with respect to the project performance and the multiple constraints. The points are discussed accordingly below with the aid of tables and percent of respondents. It is easier to understand which factors are more practiced and which are not when words are put in numbers, as Table. 4.12 illustrates.

Table 4.12: project management practice

	N	Mean	Std. Deviation
There was no scope creep	108	2.00	.706
Project management methodologies were used	108	4.00	.000
There is project management practice	108	3.04	1.004
Using project management soft wares	108	2.00	.706
Insufficient project management skill within the team	108	4.00	.000
Poor communication between the team	108	2.17	.374
Insufficient technical knowledge	108	2.00	.706

Source: Survey Data (2024)

The respondents were asked what they thought about the difficulties associated with the project management process. According to the respondents, scope creep had a significant impact on the project, as evidenced by the mean score of 2.00 and standard deviation of.706. When project managers permit the project's scope to grow beyond its initial goals, this is known as scope creep. One of the top five reasons a project may fail is scope creep (Doraiswamy & Shiv, 2012). It results in more expense, work, and time. The results of the questionnaire indicate that the project was marginally impacted by the absence of project management software, and inadequate technical knowledge.

The project management approach should be carefully selected and adhered to complete the work on schedule, according to the specifications, prevent failure, and lower risks. Putting project management into reality is hampered by a lack of procedures, an inflection point to review the project status of each activity with the stakeholders, or open channels of communication to break down communication.

The main issues that arose from inadequate technical knowledge were the person's incapacity to verify the estimations given, their exclusion from technical discussions, and their notable inability to contribute any further value to the team beyond the fundamental conversations. Peers and subordinates start to show less respect because of this. Clear expectations among team members can be established through effective communication, which in turn can boost morale. It is clear from the mean and standard deviation of the issues that the project management team faced that these issues had a significant impact on the performance of the project management team.

CHAPTER FIVE

Conclusion and Recommendation

5.1 Conclusion

This study's primary goal is to observe how project scope management practice techniques are used in the construction sector in the context of the National Archive and Library Agency building case study. Before being fed to the SPSS data analyzer to draw the response percentiles and facilitate analysis, the questionnaires were categorized (as shown in all tables representing scope, cost, quality, time, risk, communication, integration, resource management practice in the analysis section) in accordance with the research objects. After 108 respondents completed the questionnaires, the following results and recommendations were made after an analysis was completed.

Most respondents strongly agreed that the performance is good and can serve as a model for future project management practice performance evaluations, the investigator found based on the data collected. Based on this data, it is possible to draw the general conclusion that the project is successful despite Covid because it is the first of its kind in our nation and the contractors, consultants, and project office have worked together to advance Ethiopia's construction industry by applying the project delivery system and involving industry professionals as much as possible.

The project exhibits a consistent approach to managing the project focus areas, as evidenced by the percentage of most respondents who scored similarly on the factors provided for determining their contribution to project scope management general practice and project multiple constraints.

The National Archive and Library Agency building, which currently started to provide service, will significantly impact the nation's economy, create jobs both now and in the future, and alter the nation's reputation by acting as a landmark. It will serve as a model for upcoming building projects in terms of design, performance, and quality.

The study's conclusions demonstrate that there are certain areas in the PM practice of National Archive and Library Agency building construction where project management best

practices need to be improved to better address quadruple constraints, including project time, project scope, project cost, and project quality management. The study highlighted one of the gaps as being the lack of trained labor and particularly experts.

The conceptual framework of this study explained the significance of recognizing possible constraints in construction projects. This aids project managers in comprehending the nature of the constraints as well as forecasting the potential time and stage at which they may arise. The successful implementation of project management is crucial for construction projects. Lessons will be learned from the gaps found and the effects on the stakeholders evaluated in the analysis section to improve the performance of project management.

5.2 Recommendation

Since observing NALA's project management procedures is the study's primary goal, the following suggestions are made in light of the findings:

In order to identify risks that could cause issues and to implement "concrete actions" for treatment and prevention, risk management should start during project design. While some risks are never eliminated and may vary throughout a project, unpleasant project surprises can be avoided by continuing to evaluate and manage risks carefully, implementing risk mitigation techniques, and include risk contingency in the project budget. It can be difficult to satisfy the stakeholders' expectations for quality. To make sure that the quality expectations are precise and attainable, the quality plan needs to be written.

Project scope management, project integration management, project time management, project cost management, project quality management, project procurement management, project communication management, project human resource management, project risk management, and project stakeholder management are among the project management knowledge areas that NALA needs to make sure its staff members are aware of.

To increase their knowledge and ability to practice project management, it is necessary to address the evident need for project management training at the project offices. In this context, using general guides like PMBOK may be very beneficial. Utilizing computers and software can also improve monitoring and control of quality processes and aid in the efficient

management of project activities. Hiring experienced project managers could be another method to demonstrate project management techniques.

The primary method for defining the project's scope, goal, timetable, budget, and outcome is to use a project charter. Adopted and implemented by the designated project team. The success of a project is greatly influenced by its scope definition and change management, which are always necessary aspects of project management. The project's scope, deliverables, schedule, or resources may all change. Before being implemented, these changes need to be explicitly sought, assessed, and authorized. This change must be managed by the project manager. Project offices should devote more time and energy to defining precise, standard specifications, as well as to risk management, scope change management, and quality assurance management. Another component of project success is risk management.

5.3 Further Research Directions

The success of building construction projects is the sole basis for this study's descriptive examination of project management practice. Furthermore, the comments from a single business that performs construction design and supervision work form the basis of this study. Therefore, it is advised to carry out research on comparable Ethiopian construction firms to determine whether the same issue exists and to offer remedies.

This study only looked at knowledge areas related to project management; the researcher suggests expanding the scope of future research to cover more project management processes and practices. Furthermore, given that project management is still in its infancy in Ethiopia, it is recommended that a more comprehensive study be carried out by comparing the project management practices of numerous project-based firms and helping to advance the field there.

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APPENDIX A: QUESTIONNAIRE

ADDIS ABAB UNIVERSITY, SCHOOL OF COMMERCE

DEPARTMENT OF PROJECT MANAGEMENT

Dear respondent,

The purpose of this questionnaire is to collect data about **Project Management Practice: a Case of National Archive and Library Agency project.** The collected data will be used as a primary data in the study which I am conducting as a partial fulfillment of the requirement for the successful completion of MA in Project Management. The information you provide will be used for academic purposes only and will be treated as confidential. Your genuine and timely responses are quite vital for the success of this study.

Thank you in advance for your cooperation!!!

General Instruction

- No need of writing your name.
- Put "X" mark or circle your choice.
- If you cannot get any satisfying choice among the given alternatives, you can write your answer, in the space provided for the option.

For the open-ended items, give brief answer in the space provided.

Part I: Demographic characteristics of the respondents

1. Sex:

   Male [] Female []

2. Age:

   26-35 [ ] 36-45 [ ] above 45 [ ]

3. Educational Level

   PHD [ ] MA/MSc [ ] BA/BSc [ ] Diploma [ ]
   If other, please specify._____

4. Organization type (The field you have studied) _____

Client [ ] Contractor [ ] Consultant [ ]

5. Position in the organization:

   Project Coordinator [ ] Project manager [ ] Technical Staff [ ] Support Staff [ ]

6. Service period in the project work (in year) _____

   Less than 5yr [ ] between 5-10 [ ] between 11-15 [ ] above 15 [ ]

Part II Questions related to the ten Knowledge Areas of Project Scope Management correlating with each other according to PMBOK

Based on your experience in BUDSWS, please feedback to what extent do you think the following factors listed under each project management knowledge areas are important to the effectiveness of the project.

(1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5 = Strongly Agree)

No.	I. Project Scope Management	1	2	3	4	5
1	Plan scope management was defined (As a basis for future project decisions.)					
2	Requirements were clearly defined from the beginning					
3	WBS was created (WBS (Work Breakdown Structure is a key project deliverable that organizes the team's work into manageable sections)					
4	Scope was verified (formalizing acceptance of the project scope)					
5	Changes to the project scope was controlled					
	II. Project Integration Management					
1	Project plan was developed by taking the results of other planning processes and putting them into consistent document.					
2	Project work was managed					
3	Project work was monitored and controlled					
4	There was effective coordination of project activities					
6	Changes to the project schedule was controlled					
	III. Project Time Management					
	Time/schedule management plan was developed					
2	Activities were defined					
3	Activities were sequenced					
4	Duration of activities were estimated					
5	Changes to the project schedule was controlled					
	IV. Project Cost Management					
1	The quantity of the necessary resources were estimated					
2	Cost plan was well defined					
3	The project cost was estimated					
4	The required budget was determined					
5	Changes to the project budget was controlled					
	V. Project Quality Management					

1	Quality standards of the project were identified					
2	Quality standards of the project were reviewed					
3	Project performances were evaluated on regular basis					
4	Results were monitored to check if they comply with the quality standards identified					
	VI. Project Procurement Management					
1	Resources needed for the project were Determined					
2	Requirements of the project materials was documented					
3	Potential sources were identified					
4	Appropriate quotations, bid, offers or proposal were Obtained					
5	Choosing from among potential sellers					
6	The relationship with the seller was managed					
7	Contract was completed and settled properly					
	VII. Project Communication Management					
1	The information and communication needed for the					
2	Making needed information available to project					
3	Collecting and disseminating performance					
4	Generating, gathering, and disseminating					
5	Control communication					
	VIII Project Human Resource Management					
1	Project roles, responsibilities and required skill					
2	Organizational chart and position descriptions were					
3	Availability and assigning human resource					
4	Project team was developed					
5	Project team was managed and controlled					
	IX Project Risk Management					
1	Risk management plan was developed					
2	Risks were identified and registered					

3	Risks were prioritized and their implication on the project was estimated					
4	Risk response plan was developed					
5	The identified risks were monitored and controlled					
	X Project Stake Holder Management					
1	Project stakeholders were identified					
2	Stakeholder management plan was defined					
3	There was effective communication between stakeholders					
4	Stakeholders' engagement was controlled					
5	Project progress was reviewed frequently with the					

If you have opinion for other factors, please describe:

-
-
-

Part II Questions related to application of project management challenges.

Based on your experience in BUDSWS, please feedback to what extent do you think the following factors listed under challenges the project management practices.

(1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5 = Strongly Agree)

No.	**Project management challenges**	1	2	3	4	5
1	There is Scope creep					
2	Using project management methodologies					
3	There is pm practice					

4	Using pm soft wears					
5	Insufficient pm skill within the team					
6	Poor communication b/n team					
7	Insufficient technical knowledge.					

Thank You for Your Time.