

FACTORS AFFECTING PROJECT IMPLEMENTATION IN DEBRE  
BERHAN: A CASE STUDY OF ETHIOPIAN ENGINEERING AND  
INVESTMENT GROUP



DEBRE BERHAN UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF MANAGEMENT

MASTERS OF PROJECT MANAGEMENT

A RESEARCH PAPER SUBMITTED TO THE DEPARTMENT OF  
MANAGEMENT COLLEGE OF BUSINESS AND ECONOMICS,  
DEBRE BERHAN UNIVERSITY IN PARTIAL FULFILMENT OF  
MASTERS OF PROJECT MANAGEMENT

BY: ELSABET ABABU

ADVISOR: ENDALKACHEW Y (PhD)

June 2024

DEBRE BERHAN, ETHIOPIA

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July 24

DEBRE BERHAN, ETHIOPIA

## STUDENT’S DECLARATION

I, Elsabet Ababu, the undersigned, confirm that this is my original work and has not been submitted to any other college, institution, or university other than the Debre Berhan University for academic credit. I declare that the thesis entitled “Factors Affecting Project Implementation in Debre Berhan: a Case Study of Ethiopian Engineering and Investment Group” is my unique effort. I have carried out the present study independently with the supervision and support of the research advisor, Endalkachew Y (PhD) any other contributors or sources used for the study have been appropriately acknowledged.

Elsabet Ababu

Name Signed: \_\_\_\_\_ Date: July 24

Approved by:

This Thesis has been submitted for examination with my approval

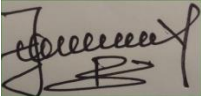
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Name of Advisor; Signature Date

## CERTIFICATE

This was to certify that Elsabet Ababu has completed her thesis entitled “Factors Affecting Project Implementation in Debre Berhan: a Case Study of Ethiopian Engineering and Investment Group”. In my opinion, this thesis was appropriate to be submitted as a partial fulfilment requirement for the award of a Degree in Masters of Project Management.

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Date: July 24

Debre Berhan University

## APPROVAL OF THE THESIS

As members of the Board of examiners of the final MPM thesis open defence examination, we certify that we have read and evaluated the thesis prepared by Elsabet Ababu entitled “Factors Affecting Project Implementation in Debre Berhan: a Case Study of Ethiopian Engineering and Investment Group” is recommended that the thesis be accepted as fulfilling the thesis requirement for the degree of Masters of Project Management.

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Date

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## **ABSTRACT**

The main objective of this study was to investigate the Factors Affecting Project Implementation in Debre Berhan: a Case Study of Ethiopian Engineering and Investment Group. To accomplish the aforementioned objectives, the study used quantitative methods of study, employing descriptive and explanatory survey techniques to collect pertinent data through questionnaires from primary and secondary sources. A total of 235 people participated in the study, of which 140 samples were selected using random sampling techniques and 20 sample were selected by purposive sampling technique. This sample was then distributed, but only 134 questionnaires were properly filled and used for data analysis. The reliability of the instrument is evaluated through the Cronbach alpha test, and the respondents' responses were analyzed using descriptive statistics, correlation, and regression analysis. The results of the study indicate that Project manager competency, Project Fund, Project Equipment, Team Dynamics, Control mechanisms, and Stakeholder engagement all have a positive significant effect on project implementation. Considering the results, the study recommends that organizations should prioritize investment in training and development programs to enhance project manager competency, ensure availability of necessary project equipment, conduct thorough financial planning, foster strong team dynamics through effective communication, implement control mechanisms for monitoring project progress, and engage stakeholders actively for successful project implementation in the region. Project manager competency, Project Fund, Project Equipment, Team Dynamics, Control mechanisms, and Stakeholder engagement all have a positive significant effect on project implementation.

***Keywords: Control mechanisms, Project manager competency, Project Fund, Project Equipment, Project implementation***

## **ABBREVIATIONS AND ACRONYMS**

BOQ	Bill of Quantity
CM	Control mechanisms
DB	Debre Berhan
DBU	Debre Berhan University
EEIG	Ethiopian Engineering and Investment Group
ISO	International Organization for Standardization
PEQ	Project equipment
PF	Project fund
PFM	project fund management
PI	Project implementation
PMBOK	Project Management Body of Knowledge
PMC	Project manager competency
PMI	Project Management Institute
SE	Stakeholder engagement
TM	Team dynamics

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

A "specified set of activities designed to put into practice an activity or program of known dimensions" is known as project implementation.” (Wandersman, 2009) Implementation processes are purposeful and the activity or program being implemented is described in such a way that independent observers can detect its presence and strength. The quality of implementation is crucial to achieving results. “Implementation failure” occurs when the program theory is sound but not properly put in place. Some reasons for implementation failure include lack of resources, inexperienced personnel, and insufficient training (Wandersman, 2009). Implementation failure can also relate to the extent to which the program is implemented with fidelity to the original plan or lacks quality adaptation.

The process of project implementation, involving the successful development and introduction of projects in the organization, presents an on-going challenge to managers. The project implementation process is complex; usually requiring simultaneous attention to a wide variety of human resource, budgetary, and technical variables. Project implementation is usually preceded by a well-defined project plan meant to guide during the implementation stage. However, there usually arise variations as activities progress. (PMI, 2017)

After you have carefully planned your project, you will be ready to start the project implementation phase, the third phase of the project management life cycle. The implementation phase involves putting the project plan into action. It’s here that the project manager will coordinate and direct project resources to meet the objectives of the project plan. As the project unfolds, it’s the project manager’s job to direct and manage each activity, every step of the way. That’s what happens in the implementation phase of the project life cycle: you follow the plan you’ve put together and handle any problems that come up. The implementation phase is where you and your project team actually do the project work to produce the deliverables. The word “deliverable” means anything your project delivers. The deliverables for your project include all of the products or services that you and your team are performing for the client, customer, or sponsor, including all the project management documents that you put together.

To successfully implement a project is usually difficult and complex .the project manager has to devote more time on human, financial and technical variables as key to the realization of project implementation. From available literatures it is apparent that the following determinants are capable of affecting project implementation in the states in review of not handled with care (Pinto J. K., 1998). A successful project is one which is delivered on time and managed within the budget with happy and satisfied clients. A good project manager, an efficient team with support from senior management, a well-conceived plan with proper implementation, and involved stakeholders are some of the factors leading to project success. The best plan is to know right from the start what the client wants and then plan, and then execute the plan successfully.

Clearly defined goals, including the project's overall mission and the team members' dedication to those goals are among the success elements that project management established for effective project implementation. Organizational elements, support from leadership and management, organizational culture, availability of resources, involvement and impact of stakeholders, and communication with stakeholders The political and legal landscape, the state of the economy, cultural and social aspects, project intricacy, Project schedule, due dates, and risk control. A few of the elements needed for a project's successful execution is included in the lists above. (Ika, L. A., & Donnelly, J, 2017).

Construction implementation in Ethiopia is influenced by several factors that can impact the successful execution of construction projects. Construction projects cannot be successfully completed without careful planning and design. Project quality may be harmed by inadequate planning, bad design, and a lack of extensive feasibility studies. These factors can also cause cost overruns and delays. The quality and availability of building materials have a big impact on how a project is carried out. Difficulties include inadequate supply chain management, scarce local production, and inferior materials can cause delays in projects and affect structural integrity. (Alemu et al, 2019). For a project to be implemented effectively, the right construction technologies and techniques must be used. Construction development can be hampered by antiquated techniques, restricted access to contemporary equipment, and a lack of technical know-how. (Demissie, 2017). For a project to be implemented successfully, efficient project management procedures and knowledgeable project managers are essential. Project delays and cost overruns can result from inadequate project management capabilities, which include poor project monitoring and evaluation, communication breakdowns, and a lack of collaboration.

(Ethiopian Roads Authority, 2019). For a construction project to be implemented successfully, its potential effects on the environment and society must be taken into consideration. Important factors to take into account are community involvement, environmental laws, and the reduction of possible social tensions. (Environmental Protection Authority of Ethiopia, 2014).

For EEIG (Ethiopian Engineering and investment Group), a prominent construction company involved in a wide range of construction projects in Ethiopia. Understanding and effectively managing implementation is of paramount importance to achieve successful project outcomes. In the context of EEIG construction projects, implementation management plays a crucial role in identifying, analysing, and addressing factor throughout the project lifecycle. Investigate effective strategies for project implementation in EEIG construction projects. Effective implementation management practices aim to proactively to ensure project success by improving to identify and analyse the critical factors that impact project success, including but not limited to Project manager's competency, Project equipment, Project Fund , Project controlling, team dynamics and Stakeholder engagement.

## **1.2 Statement of Problem**

The construction sector is distinguished by its innate complexity, unpredictability, and diversity of variables that may significantly impact project results and efficiency. Since technology, finances, and development processes are becoming increasingly unstable, the building sector is by nature dynamic. Building projects are getting a lot harder and more sophisticated these days. The project team is dealing with unseen modifications. One way to increase a project's effectiveness is to research project success and the essential success components (Babu, 2015).Unexpectedly, a lot of the difficulties are not related to building, but the construction manager still needs to handle and oversee them in order to make sure the project is successful. It is essential that the construction manager comprehends the challenging circumstances that confront him or her when organizing and managing construction activities.

It is critical. Construction activity is an integral part of a country's infrastructure and industrial development and must be taken care of for a healthy growth of the economy. It is imperative to put an all-out effort into ensuring that projects are completed as per the stipulated objectives. An experimentation of the recent literature indicates that construction projects are frequently completed with large cost overruns, extended schedules and quality concerns (KAGENDO, 2013).



A previous research suggests that building projects characterize a unique set of things to do that must be taken vicinity to produce a special product or deliverable. The construction task is often recounted as successful when it is completed on time, within budget, and in accordance with specifications and to the stakeholder's satisfaction. Some time, beyond the control of the management there are many factors which should decide the success or failure of a project. However, the success of an assignment is judged by means of assembly the criteria of cost, time, safety, resource allocation, and first-rate as determined in the preliminary planning process (Biru, 2022)

Construction projects can stimulate the economy during stable political conditions in building a more balanced and independent economy for once country. While bad performance can hurt once country economy by way of rework and re test in the short term and in the long term it may have effect on the country trade and investment development because construction can promote the way of communication and help manufacturing industries to get the needed raw materials construction also have benefit for buyers and investors (Nigatu, 2019). In Ethiopia for example Amhara region in Debre Berhan There are lots of construction projects that didn't get accomplished according to the plan or that didn't meet the design specification of the ministry as well as those construction projects consume more than the initial budget which is written in the financial plan of the project.

Previous researches have shown that construction projects represent a unique set of activities that must take place to produce a unique product. However, the success of a project is judged by meeting the criteria of cost, time, safety, resource allocation, and quality as determined in the initial planning process. Then the need for more research that investigates the role and impact of the factor affecting project implementation on the project success is highly required now a day. There is not a clear consensus about which factors are most critical for project implementation. The aim of this study is to determine the importance of the analysis of factor affecting project implementation in the Construction industry and to determine the extent to which factors relevant for the project success in the industry. The study investigated the relationship between factors on project's implementation metrics (time, budget, quality) in Construction industry to highlight the most important factor affecting of implementation should be improved or focused. And providing valuable insights to improve project management practices and enhance project success rates in the Ethiopian Engineering and investment Group construction industry.

### **1.3 Research Question**

1. How does project managers competency influence projects implementation?
2. How does project equipment influence construction projects implementation?
3. What does the influence of funds on construction projects Implementation look like?
4. How does project controlling effects on project implementation?
5. How does the influence of team dynamics look like the magnitude and level of integration on project implementations?
6. How does the influence of external stakeholder's engagement the level of involvement and collaboration with stakeholders can impact project implementation?

### **1.4 Objective of the Study**

#### **1.4.1 General Objectives**

The general objective of the study is to investigate factors affecting project implementation in Debre Berhan: case of EEIG construction

#### **1.4.2 Specific Objectives**

1. To explain the effect of competence level of project manager on project implementation
2. To explain the experience of the project in terms of managing the available construction equipment
3. To explain the influence of project funds on construction projects Implementation
4. To explain the effect of project controlling on project implementation of EEIG construction project
5. To explain the influence of team dynamics in project implementations of EEIG construction project.
6. To explain the influence of external stakeholder's engagement on projects implementation of EEIG construction project.

### **1.5 Research Hypothesis**

In this section, the different hypotheses of interest in the study were discussed with the intent to determine whether a relationship that is supported by literature holds in this study.

- **Hypothesis1:** Project manager competence has a significant positive effect on project implementation of EEIG construction project.
- **Hypothesis 2:** Project equipment has a significant positive effect on project implementation of EEIG construction project.

- **Hypothesis 3:** Project fund has a significant positive effect on project implementation of EEIG construction project.
- **Hypothesis 4:** Control mechanisms have a significant positive effect on project implementation of EEIG construction project.
- **Hypothesis 5:** Team dynamics has a significant positive effect on project implementation of EEIG construction project.
- **Hypothesis 6:** Stakeholder's engagement has a significant positive effect on project implementation of EEIG construction project.

### **1.6 Significance of the Study**

The importance of this research is to enhance the existing body of knowledge on the Ethiopian Engineering and Investment Group's (EEIG) and the effects of project implementation by providing insight into whether relationships exist between the factors affecting project implementation and the success or failure of projects since there were no researches found investigating this topic.

There are several rewards for both the contractor and the company from studying this paper. Because the study can identify the variables that may have an impact on how the project is implemented. Consequently, the report recommends taking immediate action to fulfil the objectives of the Ethiopian Engineering Investment Group's (EEIG) development projects. Since the study is not exhaustive, it motivates more researchers in the field to conduct research. It can also be helpful to academics who want to carry out additional research to determine and evaluate the variables that can have a significant impact on the execution of construction projects.

### **1.7 Scope of the Study**

There are various reasons that affect the Project success in the construction industry. This research proposes to assess the effect of project implementation in the project success of EEIG construction project practices limited to Debre Berhan city only, due to time and budget constraints. So the evaluate the effect of project implementation practices on the performances of EEIG construction project in Debre Berhan University.

### **1.8 Limitations of the Study**

The limitations of the research could be that the input data for the analysis is restricted only factor that affect project implementation in Ethiopian engineering and investment group. The result would have been more holistic if it could also include other sections and other firms in

different geographical locations. In addition, this research could be only considered Project manager's competency, Project equipment, Project Fund, Project controlling, team dynamics and Stakeholder factors. Including more variables will help to know the effect better. Also, the limited accessibility of recent literatures that are published in supporting this research is limited which ultimately affects the researchers' understanding of the area.

### **1.9 Definitions of Terms**

- **Project:** It is a sequence of tasks that must be completed to attain a certain outcome.
- **Project implementation:** is a specified set of activities designed to put into an activity or Program of known dimension.
- **Team dynamics:** is in a project refer to the interactions, relationships, and behaviours of the individuals working together as a team to achieve project objectives.
- **Stakeholder engagement:** is the process by which an organization involves people who may be affected by the decisions it makes or can influence the implementation of its decisions.
- **Fund:** A fund is a pool of money that is allocated for a specific purpose.

### **1.10 Organization of the Study**

The study will be organized into five chapters. The first chapter will introduce background of the study, the research problem, research questions, objectives, scope of the study and describe its significance. The second chapter will review the relevant literature on, theoretical literatures, theoretical frame work, empirical review and conceptual frame work which is write on factors that can affect construction projects implementation are includes. And EEIG construction projects. The third chapter will describe the research methodology, including the research design, data collection methods, and data analysis techniques. The fourth chapter will present the findings of the study and discuss their implications. Finally, the fifth and the last chapter will summarize the main findings of the study, draw conclusions, and provide recommendations for future research.

## CHAPTER TWO

### 2 LITERATURE REVIEW

#### 2.1 Introduction

In this section the study reviews related literature in the areas of overview project implementation practice. Overall, this literature review provided a comprehensive and critical analysis of the existing literature, serving as a basis for advancing our understanding of implementation and its role in improving the performance of construction projects.

#### 2.2 Theoretical Literature

##### 2.2.1 Project and Project Management

According to the Project Management Institute (PMI, 2017), “A project is temporary since its scope and resources are set, along with its beginning and end dates. Plus, a project differs from a routine operation in that it is a particular sequence of operations intended to accomplish a single objective.

Project Management Institute (PMI) states that "the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements" is the definition of project management. The goal of project management techniques is to complete the work as planned, as quickly as possible by reducing costs and achieving extra goals pertaining to client preferences.

##### 2.2.2 Concept of Project Implementation

According to the Project Management Institute PMBOK (PMI, 2021) the process of carrying out a planned project is referred to as project implementation. In order to accomplish the project's goals and provide the intended results, it entails carrying out the tasks, activities, and strategies listed in the project plan. Typical implementation tasks include gathering resources, organizing team members, keeping an eye on developments, controlling risks, and making the required modifications to guarantee the project's success.

A well-executed project implementation requires effective communication, stakeholder engagement, and coordination among team members. It involves the allocation of resources, setting up timelines, assigning responsibilities, and establishing a monitoring and evaluation framework to track progress and ensure the project stays on track.

Project Implementation is a “specified set of activities designed to put into practice an activity or program of known dimensions.” (Wandersman, 2009) Implementation processes are purposeful

and the activity or program being implemented is described in such a way that independent observers can detect.

Project implementation refers to the process of putting a planned project into action and achieving its objectives. It involves executing the project activities, managing resources, coordinating stakeholders, and ensuring the project is completed within the defined scope, schedule, and budget (Kerzner H. , 2021).

## **2.3 Factors Affecting Project Implementation**

### **2.3.1 Project Manager's Competency**

Project manager competence has been defined as a meta ability to integrate a combination of technical skills, cognitive aptitude, and interpersonal ability (Rabia Bashir, 2021), which directs activities during projects from initiation through closing to achieve expected outcomes Thus, competence covers non-public characteristics (traits as understood via the characteristics college and emotional intelligence),knowledge and abilities (including talent and problem solving ability, as nicely as administration skill).

According to Project Management Institute (PMI) Project manager competency refers to the skills, knowledge, and experience that a project manager needs to successfully lead and complete projects. It encompasses a broad range of abilities,

**Leadership:** Professional project managers provide strong leadership throughout the project life-cycle. They create a positive work environment, support and motivate their team members, and set clear goals and expectations. Effective leadership develops collaboration, increases team productivity, and ensures that project activities are aligned with the overall project objectives.

**Decision-making:** Competent project managers have the ability to make quick, well-informed decisions. They obtain relevant information, evaluate their options, and think about how their choices might affect the progress of the project. Making decisions that are effective ensure that project activities move forward without problems that problems are resolved quickly, and that resources are used effectively.

**Communication:** Competent project managers possess excellent communication skills. They can effectively convey project goals, objectives, and expectations to team members, stakeholders, and clients. Clear and open communication facilitates understanding, reduces misunderstandings, and promotes collaboration. It also enables the project manager to manage expectations, address concerns, and provide timely updates on project progress.

**Risk management:** Competent project managers are proficient in identifying and managing project risks. They proactively assess potential risks, develop risk mitigation strategies, and monitor risks throughout the project lifecycle. Effective risk management minimizes the likelihood and impact of risks on project implementation, ensuring that the project stays on track and avoids costly delays or failures.

**Stakeholder management:** Competent project managers understand the importance of stakeholder engagement and management. They identify key stakeholders, assess their needs and expectations, and develop strategies to effectively engage and communicate with them. By building positive relationships with stakeholders and addressing their concerns, competent project managers gain support, cooperation, and necessary resources for project implementation.

**Personal qualities:** Integrity, accountability, adaptability, and a strong work ethic Project management competence is an important element of project success. The performance and success of a project largely depends on the skilled workforce and how effectively the project is able to utilize this resource and use it effectively ( (Devis, 2024). A competent and competitive workforce is therefore essential for projects and organizations to survive in rapidly changing environments

### **Types of Competence**

Project manager competence encompasses a broad range of skills, knowledge, and attributes required to effectively lead and manage projects. (Crawford, 2017) Some types of competence commonly associated with project managers:

**Technical Competence:** Technical competence refers to the project manager's knowledge and proficiency in project management methodologies, tools, and techniques. It includes skills such as project planning, scheduling, budgeting, risk management, and quality management. Technical competence enables project managers to apply best practices and industry standards to project execution.

**Leadership Competence:** Leadership competence involves the ability to inspire and guide project teams towards achieving project goals. It includes skills such as effective communication, team building, conflict resolution, and decision-making. Project managers with strong leadership competence can motivate team members, foster collaboration, and provide clear direction throughout the project.

**Stakeholder Management Competence:** Stakeholder management competence pertains to the project manager's ability to identify, engage, and manage stakeholders throughout the project lifecycle. It includes skills such as stakeholder analysis, communication planning, and relationship building. Project managers with stakeholder management competence can effectively manage stakeholder expectations, resolve conflicts, and ensure stakeholder satisfaction.

**Strategic Competence:** Strategic competence involves aligning project objectives with the overall strategic goals of the organization. It includes skills such as strategic thinking, business acumen, and the ability to make decisions that align with the organization's long-term vision. Project managers with strategic competence can ensure that projects contribute to the strategic objectives of the organization.

**Emotional Intelligence Competence:** Emotional intelligence competence relates to the project manager's ability to understand and manage their emotions, as well as those of others. It includes skills such as self-awareness, empathy, and relationship management. Project managers with high emotional intelligence can effectively handle stress, build positive relationships, and navigate complex interpersonal dynamics.

Many of the authors identify up to three types of competence that determine leadership performance. (Ralf Müller a, 2010)

- intellectual,
- managerial and emotional competences

Based on their own observations and their analysis of the literature, (Ngumo, 2021) suggest that four types of competence explain most managerial performance:

- strategic thinking,
- network,
- organization learning and entrepreneur competence

The term managerial competence can be traced to describe managerial competence as personal attribute of cognitive intelligence which was manifested by motivation and superior work performance.

Competence is the capability of an individual to do a job properly. A competency is a set of defined behaviours that provide structured information enabling the identification, evaluation



and development of the behaviours in person personnel. (Ruben, 2019) Competencies are additionally what humans need to be successful in their jobs. Job potential is not the identical as job task. Competencies consist of all the associated knowledge, skills, abilities, and attributes that form a person's job. This set of context-specific traits is correlated with most advantageous job performance and can be used as a well-known towards which to measure job overall performance as properly as to develop, recruit, and rent employees. By having expertise defined in the organization, it allows personnel to understand what they want to be productive.

A project manager's competency in planning, organizing, and staffing is essential for successful project implementation. These competencies directly impact project implementation in terms of time, quality, and cost. (PMI, 2017) How each competency impacts project implementation?

**Planning:** Effective planning is crucial for setting project objectives, defining deliverables, and establishing a roadmap for project implementation. A competent project manager develops a comprehensive project plan that includes clear timelines, milestones, and resource requirements. This ensures that project activities are well-organized, sequenced, and aligned with project goals. Proper planning minimizes uncertainties, identifies potential risks, and allows for proactive management of project timelines, quality, and costs.

**Organizing:** Competent project managers possess strong organizational skills to allocate resources efficiently and effectively. They identify the necessary resources, including personnel, equipment, and materials, and ensure their availability and adequacy throughout the project lifecycle. By organizing project teams, roles, and responsibilities, project managers foster collaboration and coordination, enabling smooth execution of project activities. Well-organized project teams enhance communication, minimize conflicts, and improve overall project performance.

**Staffing:** Competency in staffing involves selecting and assigning the right individuals with the necessary skills and expertise to project roles. A skilled project manager understands the strengths and weaknesses of team members and aligns their skills to project requirements. By ensuring a suitable match between team members and project tasks, the project manager enhances efficiency, productivity, and the quality of project outcomes. Proper staffing also includes providing necessary training and support to team members, ensuring their continuous development throughout the project.

The impact of these competencies on project implementation can be:

Time: Competent planning, organizing, and staffing ensure that activities are well-sequenced, resources are allocated appropriately, and team members have clear roles and responsibilities. This leads to improved time management, reduced delays, and increased project efficiency.

Quality: Effective planning and organizing enable the identification and allocation of resources necessary to meet quality standards. Proper staffing ensures that team members have the required skills and expertise to deliver high-quality work. This results in improved quality control and adherence to project specifications.

Cost: Competent planning, organizing, and staffing help optimize resource allocation, minimize wastage, and prevent unnecessary expenses. By aligning resources effectively, project managers can control costs, ensure cost-effectiveness, and maximize the value derived from the allocated budget.

### **2.3.2 Project Fund**

Project funds "Funding" is the act of providing financial resources, usually in the form of money, or other values such as effort or time, to finance a need, program, and project, usually by an organization or government. Generally, this word is used when a firm uses its internal reserves to satisfy its necessity for cash, while the term „financing,, is used when the firms acquires capital from external sources (Li1, 2015) . Available funds may also refer to funds that can be withdrawn from a margin account at a brokerage firm, where margin loans are still outstanding.

Adequate and consistent project funding is one of the fundamental requirements for the uninterrupted and unhindered performance of project activities. Enough cash flow is needed to support the acquisition of supplies, plants, and equipment as well as labor force compensation for the regular and timely progress of job operations on site.

Project funds availability and adequacy in project implementation are crucial factors that can significantly impact the success of a project. Adequate funding ensures that the project has the necessary resources to meet its objectives and deliverables within the specified time, quality, and cost constraints. Insufficient funds can lead to delays, compromises in quality, and cost overruns, ultimately affecting the overall success of the project. (Kerzner H. , 2017)

Time: Adequate project funds availability allows for timely procurement of resources, equipment, and services needed for project implementation. Delays in funding can result in project schedule slippage, missed deadlines, and potential penalties for late delivery. Proper funding ensures that the project stays on track and is completed within the planned timeframe.

**Quality:** Sufficient project funds enable the project team to invest in quality materials, skilled personnel, and appropriate tools to deliver high-quality outcomes. Inadequate funding may force compromises in quality standards, leading to rework, defects, and customer dissatisfaction. Adequate funds support quality assurance measures and ensure that the project meets or exceeds stakeholder expectations.

**Cost:** Project funds availability directly impacts project costs. Insufficient funds may result in cost overruns due to unplanned expenses, change orders, or delays that incur additional charges. Adequate funding allows for proper cost estimation, budgeting, and contingency planning managing project expenses effectively. Proper financial management ensures that the project remains within budget constraints and avoids financial risks.

In project implementation, Project Fund Management (PFM) acts as the central nervous system for financial resources. Project fund management in project implementation refers to the process of planning, allocating, monitoring, and controlling financial resources for a project to ensure its successful execution. This involves budgeting, tracking expenses, managing cash flow, and making financial decisions to support the project's objectives. Effective project fund management is essential for ensuring that the project has the necessary resources to meet its goals within the allocated budget and timeframe (Schwalbe, 2019). Project fund management plays a crucial role in the successful implementation of a project in terms of time, quality, and cost. Effective fund management ensures that the project has the necessary resources to be completed on time, within budget, and with the desired level of quality. (Kerzner, 2017)

Some ways in which project fund management impacts project implementation:

**Time:** Proper fund management ensures that the project has sufficient financial resources to meet deadlines and avoid delays. Adequate funding allows for the timely procurement of materials, hiring of skilled labor, and overall project execution. Inadequate funding can lead to delays in project completion due to resource shortages or unexpected costs.

**Quality:** Proper allocation of funds is essential for maintaining the quality of the project deliverables. Adequate funding allows for the use of high-quality materials, equipment, and expertise, resulting in a higher standard of workmanship and overall project quality. Insufficient funding may lead to cost-cutting measures that compromise the quality of the project outcomes.

**Cost:** Effective fund management helps in controlling project costs and ensuring that the project stays within budget. Proper budgeting, monitoring, and controlling of expenses help in

identifying potential cost overruns early on and taking corrective actions to prevent them. Inadequate fund management can lead to cost overruns, which may result in financial constraints and jeopardize the successful completion of the project.

### **2.3.3 Project Equipment**

Construction equipment is one of the important resources of modern day construction in the building sites. Equipment selection is an important factor in the implementation of many construction projects. Equipment are the tools, machines, or other things that you need for a particular job or activity Tangible property (other than land or buildings) that is used in the operations of a business.

The use of new equipment and innovative methods has made possible wholesale changes in construction technologies in recent decades. Organizations which do not recognize the impact of various innovations and have not adapted to changing environments have justifiably been forced out of the mainstream of construction activities. (M.Manikandan1, 2018) The basic operations involved in the construction of any project are excavation, digging of small or large quantities of earth and moving them to fairly long distances, placement, compacting, levelling, dozing, grading, hauling, etc. All the machines that are usually used to carry out these construction operations are referred to as construction equipment. In most cases, they are called heavy equipment especially in construction. Implementation of higher levels of construction equipment management practices can help to increase the probability of achieving higher levels of productivity, whereas the implementation of lower level of the practices decreases the probability of attaining higher levels of productivity. (Aibinu2, 2017)

The equipment management system and equipment policy always has a huge impact on the profitability of the contractors with more investment in equipment. In civil engineering construction projects, the cost of equipment can vary from 25-40% of the total project cost. The objective of this project was to study that how the planned and proper maintenance is important for construction equipment for better production. The overall equipment efficiency was improved with less idling, low machine breakdown and minimized accident in plants which maximized the productivity. (M.Manikandan1, 2018)

The selection of construction equipment for a work site is a key factor to be measured for time completion of the project within the predetermined budget. The cost efficiency is a main criterion of construction equipment management. Another major characteristic of effective

construction equipment management is a defensive maintenance which can help to save a lot of time, cost and reduce delays in project. Equipment is an item that is portable from small hand tools through truck, crane. The complexity of today's construction projects makes it harder to appraise equipment alternatives and makes the right selection of equipment. Based on their experience, equipment managers decide on day-to-day management of equipment operations, and also on tactical operations such as new equipment procurement. Thus responsibilities of the equipment managers, ensuring that the equipment is properly used, maintained, utilized, and managed, are rather challenging. Effective operation of construction equipment should be maintained to avoid under exploitation of such huge investment. Also repair and maintenance should be carefully intended and high productivity rates should be realized during operations. (Arulselvan, 2020)

Project equipment availability, adequacy, and management play a critical role in the successful implementation of a project. Equipment refers to the tools, machinery, technology, and resources required to execute project tasks and deliverables. The availability and adequacy of project equipment directly impact project implementation in terms of time, quality, and cost. (PMI, 2017).

**Time:** Equipment availability and management directly impact project timelines. If the required equipment is not available or is insufficient, it can cause delays in project activities. This can lead to schedule slippages, increased project duration, and potential penalties for late completion. Effective equipment management ensures that equipment is procured, mobilized, and maintained in a timely manner, minimizing delays and maximizing project efficiency.

**Quality:** The adequacy of equipment has a direct impact on the quality of project deliverables. Inadequate or out dated equipment may not meet the required standards or specifications, leading to compromised quality. Properly maintained and calibrated equipment, along with skilled operators, can ensure accurate measurements, precise execution of tasks, and adherence to quality standards. This, in turn, enhances the overall quality of the project outputs.

**Cost:** Equipment availability and management also influence project costs. Inefficient equipment management can result in unnecessary equipment downtime, repairs, or replacements, leading to increased expenses. Adequate equipment planning and procurement, along with effective maintenance practices, can minimize equipment-related costs. Additionally, the use of

appropriate equipment can improve productivity, reduce rework, and optimize resource utilization, thereby positively impacting project costs.

#### **2.3.4 Project Control Mechanisms**

Project control mechanisms in project implementation refer to the processes, tools, and techniques used to monitor, evaluate, and adjust project activities to ensure that the project objectives are met within the defined constraints of time, cost, quality, scope, and resources. These mechanisms help project managers maintain oversight, identify issues, and take corrective actions to keep the project on track. Monitoring and controlling is a continuous process that checks what was planned that it is being done. Which comprises of processes performed to observe projects as they are being executed such that potential problems can be identified in timely manner and corrective actions are taken when necessary to control implementation of construction projects? Regular measurement of construction projects ‘performance and any quality mechanism put in place against the predicted expectation of the project plan are necessary. (Simiyu, 2018)

One of the major issues in the project control literature is the difficulty of defining control. This comes about because the project management research has a multiplicity of meanings for “control” is described as a role, as a process, and as an effect. Control is planning; measuring, monitoring, and taking corrective action are all usually included in the control cycle. Typically, projects utilize a control system, which monitors the difference or gap between the planning variables and the actual results. Project control systems indicate the direction of change in preliminary planning variables compared with actual performance (SHAI ROZENES, 2006).

There have to be mechanisms to control the project and to ensure that the project is proceeding as planned. Mostly, the control over a project focuses on the following three elements of the project:

- Performance
- Cost and Time

The objective of having controls is to find out that there is a problem and then to alter course by taking corrective measures. Project control is not simply waiting for things to go wrong and then fixing it. It is chiefly to have systems to identify problems before they manifest themselves. There are three basic types of control mechanisms- cybernetic, go/no-go, and post-performance. Cybernetic Control:

This is the most common kind of control mechanism. A project has inputs and outputs. The outputs can be in the form of milestones that have to be met. Cybernetic controls focus on the outputs. If these milestones or outputs do not measure up to the set standards, then the situation is investigated to see if there is a sufficient cause to change patterns of activity. (Atkinson, 1999)

Go/No-go Control:

Go/no-go control takes the form of testing to make sure that certain preconditions are met before a task is undertaken. This type of control can be used for a specific part of the project too. Go/no go controls are linked to the actual plans and are not independently set on a calendar. (Morris, 2013)

Post-performance Control:

Post-performance controls are applied after the completion of the project or the task, The focus here is not on altering what has already happened but in making sure that good and bad practices are recorded for being of help in future projects.

Feedback in project implementation and control plays a critical role in ensuring the success of a project. According to the Project Management Institute (PMI), feedback is an essential component of project monitoring and control, as it helps project managers and team members assess progress, identify issues, and make necessary adjustments to keep the project on track The PMBOK Guide emphasizes the following principles related to feedback in project management:

1. Monitoring and Controlling Process Group: Feedback is an integral part of the Monitoring and Controlling Process Group, which involves tracking project performance, comparing actual results to planned objectives, and taking corrective actions as needed. Feedback helps project managers assess progress, identify variances, and make informed decisions to address issues.
2. Performance Reporting: The PMBOK Guide highlights the importance of performance reporting as a key tool for providing feedback in project management. Performance reports communicate project status, progress, and key metrics to stakeholders, enabling them to make informed decisions and take necessary actions.
3. Change Control: Feedback also plays a crucial role in change control processes, where stakeholders provide input on proposed changes to project scope, schedule, or budget. Feedback helps project managers evaluate the impact of changes, assess risks, and determine the best course of action to maintain project objectives.

### **2.3.5 Stakeholder Engagement**

Stakeholder factors in project implementation refer to the key individuals or groups who have a vested interest in the project and can impact or be impacted by its outcomes. These stakeholders can include project sponsors, clients, end-users, regulatory bodies, government agencies, suppliers, contractors, employees, and the community. Understanding and managing stakeholder factors is crucial for successful project implementation as they can influence decisions, provide resources, and affect project timelines and outcomes. (PMI, 2017)

Key aspects of stakeholder factors in project implementation:

**Identification:** The first step in managing stakeholder factors is to identify all relevant stakeholders associated with the project. This involves identifying both internal and external stakeholders who may have an impact on the project or be impacted by its outcomes.

**Analysis:** Once stakeholders are identified, it is important to analyze their interests, expectations, influence, and potential impact on the project. Understanding stakeholders' needs and concerns helps in developing appropriate strategies for engaging and managing them effectively.

**Engagement:** Stakeholder engagement is crucial for building relationships, gaining support, and ensuring alignment with project goals. Effective communication, consultation, and involvement of stakeholders throughout the project lifecycle are essential for successful implementation.

**Influence:** Stakeholders can have varying levels of influence on the project, depending on their power, legitimacy, urgency, and proximity to the project. Managing stakeholders with high influence effectively is critical for project success.

**Conflict Management:** Conflicts among stakeholders can arise due to differing interests, priorities, or expectations. Managing conflicts through open dialogue, negotiation, and resolution strategies is important for maintaining project momentum and achieving consensus.

**Communication:** Clear and transparent communication with stakeholders is key to keeping them informed, engaged, and supportive of the project. Regular updates, feedback mechanisms, and stakeholder meetings can help in maintaining positive relationships.

**Expectations Management:** Managing stakeholder expectations involves setting realistic goals, timelines, and deliverables while ensuring alignment with stakeholder needs and requirements. Keeping stakeholders informed about project progress and changes helps in managing expectations effectively.



**Risk Management:** Stakeholder factors can introduce risks to the project if not addressed proactively. Identifying potential risks associated with stakeholders and developing mitigation strategies can help in minimizing negative impacts on the project.

**Stakeholder engagement:** The level of involvement and collaboration with stakeholders can impact project implementation. Engagement can be defined as: the various communication practices, processes and actions that an organization (or project team) must perform to involve stakeholders to secure their involvement and commitment, or reduce their indifference or hostility. (Bourne, 2016) Engagement means that the project's stakeholders are aware of the project and its outcomes and are prepared to have the necessary involvement, participation and interest in the work. Some groups or individuals can influence project success through provision (or withholding) of funds, support, or resources. Others will self-select - protesters, objectors or authorities.

**Stakeholder interests and influence:** Understanding the interests, power dynamics, and influence of different stakeholders is crucial for managing their expectations and gaining their support. A construction project affects stakeholders in both positive and negative ways. The positive effects can be better communication, better housing or higher standards of living. The negative side of a construction project can be deterioration of the physical environment for the affected stakeholders. (Landin, 2005)

### **Stakeholder Communication**

Effective communication and relationship-building with stakeholders can facilitate project implementation. Effective communication and coordination among all stakeholders involved in a construction project, including the owner, architect, contractor, subcontractors, and suppliers, are essential for smooth project implementation. Any breakdowns in communication can lead to misunderstandings, delays, and rework (PMI, 2017).

**Impact on Cost:** Effective communication with stakeholders can help clarify project requirements, expectations, and changes, reducing misunderstandings and potential rework. Clear communication can also facilitate timely decision-making, preventing delays that could lead to cost overruns.

**Impact on Time:** Open and transparent communication channels with stakeholders can ensure that project information is shared promptly, issues are addressed quickly, and decisions are made efficiently. This can help prevent delays and keep the project on schedule.

Impact on Quality: Engaging stakeholders in communication can lead to better alignment of expectations, requirements, and quality standards. By involving stakeholders in quality discussions and feedback loops, project teams can ensure that quality objectives are met and maintained throughout the project.

### **Problem-Solving**

Stakeholders involved in problem-solving are individuals or groups who have a vested interest in the issue at hand and can contribute to finding solutions. In the context of problem-solving, stakeholders can include those directly affected by the problem, those responsible for implementing solutions, those with expertise or resources to contribute, and those who may be impacted by the outcomes of the problem-solving process. Engaging stakeholders in problem-solving can bring diverse perspectives, expertise, and resources to the table, leading to more effective and sustainable solutions. Involving stakeholders in problem-solving processes can also help build buy-in, trust, and support for the proposed solutions, increasing the likelihood of successful implementation International Association for Public Participation (IAP2, 2018). Effective stakeholder involvement in problem-solving typically involves identifying key stakeholders, understanding their interests and concerns, engaging them in dialogue and collaboration, seeking their input and feedback on potential solutions, and incorporating their perspectives into decision-making processes.

Impact on Cost: Collaborative problem-solving with stakeholders can help identify cost-saving opportunities, innovative solutions, and efficiencies in project delivery. By involving stakeholders in problem-solving processes, project teams can optimize resources and reduce unnecessary expenses International Organization for Standardization (ISO, 2017).

Impact on Time: Proactive problem-solving with stakeholders can address issues promptly, prevent escalations, and minimize disruptions to the project schedule. By engaging stakeholders in problem-solving discussions, project teams can resolve challenges efficiently and keep the project on track International Organization for Standardization (ISO, 2017)

Impact on Quality: Involving stakeholders in problem-solving activities can lead to a shared understanding of quality requirements, potential risks, and mitigation strategies. Collaborative problem-solving can enhance quality outcomes by addressing issues early and implementing effective solutions International Organization for Standardization (ISO, 2017).

### **Stakeholder Interest**

Understanding and managing stakeholder interest is crucial for successful project implementation. By actively engaging with stakeholders, addressing their interests and concerns, and building relationships based on trust and collaboration, project managers can increase the likelihood of achieving project goals and delivering value to all involved parties. International Standard Organization (ISO, 2014)

**Impact on Cost:** Understanding stakeholder interests can help project teams prioritize resources, manage expectations, and allocate budgets effectively. By aligning project goals with stakeholder interests, project teams can optimize cost management strategies and ensure value delivery.

**Impact on Time:** Consideration of stakeholder interests can influence project priorities, decision-making processes, and resource allocation, impacting the project schedule. By addressing stakeholder needs and concerns proactively, project teams can maintain stakeholder engagement and support timely project completion.

**Impact on Quality:** Stakeholder interests can influence quality expectations, acceptance criteria, and satisfaction levels. By incorporating stakeholder feedback into quality management processes, project teams can enhance quality outcomes, meet stakeholder requirements, and deliver a successful project.

### **2.3.6 Team Dynamics**

**Team Dynamics:** Building a strong, collaborative team with the right skills and expertise is crucial. Clear communication, effective conflict resolution, and strong stakeholder engagement are also essential.

Project team (Devis, 2024). However, only individual considerations that may not have a negative impact on the health of the project should be taken into account. Project members should determine the best way a particular decision or communication channel will affect members. Teamwork and projects are central in the organization of firms and partnerships. Most large corporations engage a substantial proportion of their workforce in teamwork and organizing workers into teams has been shown to increase productivity in both manufacturing and service firms Moreover, the use of teams is especially common in situations in which the task at hand will result in a defined deliverable, and it will not be ongoing, but will terminate (Georgiadis, 2014).

Team dynamics can significantly impact project implementation by influencing various aspects of team performance, collaboration, communication, decision-making and overall project outcomes. Recent research continues to explore the relationship between team dynamics and project success. Here are some ways in which team dynamics affect project implementation,

**Communication:** Effective communication is crucial for successful project implementation. Research by Kock, et al,( 2020), emphasizes the importance of clear and open communication in fostering positive team dynamics and enhancing project outcomes. Team members who communicate effectively can share information, clarify expectations, and coordinate their efforts more efficiently.

**Collaboration:** Team dynamics play a key role in shaping collaboration within project teams. A study by Wang et al, (2021), highlights the impact of team cohesion, trust, and shared goals on collaborative behaviour's and project performance. Strong team dynamics characterized by mutual support and cooperation can promote effective collaboration and problem-solving.

**Leadership:** Effective leadership is essential for guiding project teams towards successful implementation. Research by Nielsen et al,(2020), explores the role of leadership styles in shaping team dynamics and project outcomes. Leaders, who foster a positive team environment, provide direction, and support team members can enhance project implementation.

**Motivation and Engagement:** Team dynamics influence team members' motivation and engagement in project activities. Examines the relationship between team climate, motivation, and project success. Positive team dynamics that promote a supportive and inclusive work environment can boost team members' morale, motivation, and commitment to project goals. (Zhang et al, 2021).

**Decision-Making:** Team dynamics impact the decision-making processes within project teams. Recent research highlights the role of team dynamics in shaping decision quality and outcomes. Effective decision-making in teams is facilitated by open communication, diverse perspectives, and a collaborative approach supported by positive team dynamics. (O'Connor et al, 2019).

Team dynamics play a crucial role in influencing project implementation in terms of cost, time, and quality. Communication, conflict resolution, and collaboration within a team can significantly impact project outcomes. Here is how each aspect of team dynamics affects project implementation

## **Communication**

Effective communication within a team is essential for successful project implementation. Research by Kock, et al,( 2020), emphasizes the importance of clear and open communication in fostering positive team dynamics and enhancing project outcomes. When team members communicate effectively, they can share information, clarify expectations, and coordinate their efforts more efficiently. Improved communication can lead to better decision-making, fewer misunderstandings, and ultimately contribute to cost savings, reduced delays, and enhanced project quality.

## **Conflict resolution**

Conflict within a team can have both positive and negative impacts on project implementation. Effective conflict resolution strategies are essential for addressing conflicts constructively and minimizing their detrimental effects. A study by Li et al, (2020), explores the relationship between conflict resolution strategies, team dynamics, and project performance. Positive team dynamics that promote trust and respect, combined with effective conflict resolution mechanisms, can help teams navigate challenges and maintain project progress. Resolving conflicts in a timely and constructive manner can prevent delays, reduce costs associated with rework, and ensure project quality.

## **Collaboration**

Collaboration among team members is critical for achieving project goals efficiently and effectively. Research by Wang et al, (2021), highlights the impact of team cohesion, trust, and shared goals on collaborative behaviours and project performance. Strong team dynamics characterized by mutual support and cooperation can promote effective collaboration, leading to better coordination of tasks, improved decision-making, and enhanced project outcomes. Collaborative teams are more likely to meet project deadlines, stay within budget constraints, and deliver high-quality results.

## **2.4 Empirical Review**

Abushaban et al, (2011) in his thesis on factors affecting the performance of construction projects in the Gaza Strip, found out that the most important factors agreed by the owners, consultants and contractors were: average delay because of closure and materials shortage, availability of resources as planned through project duration, leadership skills for project

manager, escalation of material prices, availability of personals with high experience and qualification and quality of equipment and raw materials in project.

According to MOSES, (2018) there were many projects which finished with poor performance because of many evidential reasons such as: obstacles by client, on-availability of materials, road closure, amendment of the design and drawing, additional works, waiting the decision, handing over, variation order, amendments in Bill of Quantity(B.O.Q)and delay of receiving drawings. There are other factors for problems of performance such as project management, coordination between participants, monitoring, and feedback and leadership skills. In addition, political, economic and cultural are three important indicators related to failures of projects“ performance.

According to Gebremedhin, (2019) studied Factors affecting the performance of construction projects, stated that a number of unexpected problems and changes from original design arise during the construction phase, leading to problems in cost and time performance. It is found that poor site management, unforeseen ground conditions and low speed of decision making involving all project teams are the three most significant factors causing delays and problems of time performance in local building works. Stated that cost and time performance has been identified as general problems in the construction industry worldwide. Remarked that project complexity, client type, experience of team and communication are highly correlated with the time performance; whilst project complexity, client characteristics and contractor characteristics are highly correlated with the cost performance. Obtained that project schedule and budget performance are controlled by the dynamic feedback process.

In the study that was carried out that the factors affecting project performance are raising material prices, design changes, discrepancies in contract documents and slow resource availability as planned throughout the project. Inspecting the project and very close supervision when new construction techniques are employed. A factor which leads to poor performance is the lack of accurate data on soil, weather, and traffic conditions. (Oghomwen et al, 2022)

According to Theoneste, (2021), studied Factors Affecting Timely Project Completion of Public Construction Projects in Rwanda There are severe criticisms of the industry when projects take far longer than planned, found out that seven eighths of the projects surveyed in Australia in the late 1960s were completed after schedule while in Hong Kong, 70% of the building projects were delayed. In Saudi Arabia Al-Khahil and Al-Ghafly observed that contractors agreed that 37% of all their projects were delayed while seven out of ten projects in Nigeria suffered delays

during their execution identified the main causes of project delay as poor project design, change orders and weather. Change orders refer to design changes by the owner or his agent during the course of the construction. In Malaysia Yau et al identified improper planning, poor site management and inadequate contractor experience while in Hong Kong, Tung et al identified inadequate resources due to lack of capital, unforeseen ground conditions and exceptionally low bids as the major factors that cause project delay. Investigating the causes of delay and disruptions in construction projects in Tanzania, through questionnaire found that only 22%, 30% and 44% of the projects were completed on estimated time according to clients, consultants and contractors respectively while the maximum time overrun was 78%, 70% and 56% for clients, consultants and contractors respectively.

## **2.5 Research Gaps**

There is no research on factor affecting project implementation in construction projects in EEIG construction, and it stands to enrich the research landscape by providing a more complete picture of how project implementation influences construction project performances. Therefore, the study addressed a significant geographical gap. Previous research conducted about factor has an effect on the performance of construction projects, and they see factor affecting project implementation (project manager's competency, project equipment, Stakeholder engagement, team dynamics, project fund, and project controlling).

## 2.6 Conceptual Framework

The main objective of this research is to assess factors that have influence on project implementation practice of EEIG construction. The dependent variable is project implementation while the independent variables are project manager's competency, project equipment, Stakeholder factors, team dynamics, project fund, and project controlling.

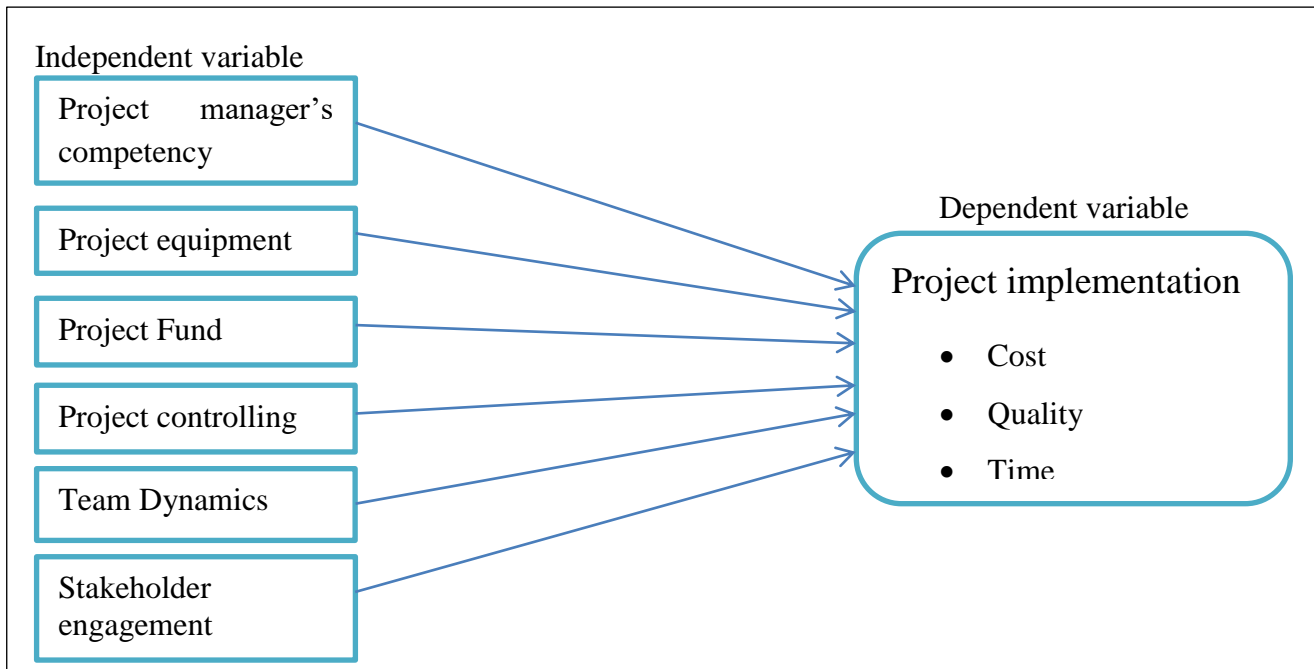


Figure 1: Conceptual Framework

Source; Previous studies such as Mekdes Getaye (2017) and Shimeles Biru (2022) with modification of the researcher.



## **CHAPTER THREE**

### **3 RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

The purpose of this research is to study the effect of project implementation of EEIG construction projects in DBU. To achieve this objective, this chapter presents the approaches, methods, instruments, techniques, and procedures, etc. that used to collect and analyze data. It includes research design, sources of data, population, sample size, and sampling technique, instruments of data collection, procedures of data collection, methods of data analysis, and ethical considerations.

#### **3.2 Description of the Project Area**

The construction project located Debre Berhan is the subject of this investigation. The EEIG construction project has a limited scope on the construction project with the stakeholder of Debre Berhan University. The purpose of this research is to comprehend and investigate the impact of project implementation on construction project, and to offer recommendations for enhancement based on the organization's chosen project implementation management practice knowledge area. Debre Berhan University, which is a 14 year old university, Debre Berhan University is found in Debre Berhan city and the city established in the 600 years old historical town Debre Berhan a town situated in Amhara Region, North Shoa zone, 130 km away from Addis Ababa in the north. The project site is located at 09039,59 North and 39029, 56East, respectively, in terms of latitude and longitude. The region has a chilly climate with an average elevation of roughly 2779 meters above sea level.

#### **3.3 Research Design**

Research design refers to the overall strategy or plan for conducting a research study. It outlines the methods and procedures that will be used to collect and analyze data, as well as the goals and objectives of the study. Research design is important because it guides the entire research process and ensures that the study is conducted in a systematic and rigorous manner (Hassan, 2024). The explanatory and descriptive methods applied in order to provide a sufficient response to the question of factor affecting project implementation of construction project performance in the EEIG Project in Debre Berhan. Descriptive research includes several forms of surveys and fact-finding inquiries. Descriptive research is mostly used to ascertain whether the current state

of affairs exists. These studies primarily aim to either formulate an issue for more detailed research or construct the operational working questionnaire

The adopted Explanatory research design method applies in assessing the factor affecting project implementation and in identifying the factors that have impact on the success and failure of project implementation. Explanatory research is conducted in order to identify the extent and nature of cause-and-effect relationships. Causal research can be performed in order to verify influences of specific modifications on present norms, a variety of procedures etc. Causal studies centre of attention on an evaluation of a scenario or a unique hassle to explain the patterns of relationships between variables. Explanatory studies might be also play an instrumental function in phrases of identifying motives behind a broad vary of processes, as well as, assessing the effects of changes on current norms, processes. Explanatory research normally provides the advantages of replication if necessity arises. These types of research are related with higher stages of inner validity due to systematic determination of subjects. The explanatory survey design method is terrific and beneficial in exploring how these elements affecting project tasks implementation the case of the selected in the EEIG Project in Debre Berhan.

### **3.4 Research Approaches**

Research approaches refer to the systematic and structured ways that researchers use to conduct research, and they differ in terms of their underlying logic and methods of inquiry (Hassan, 2024). The research approach can be qualitative, quantitative, or mixed methods, and it is chosen based on the nature of the research problem and the type of data that needs to be collected. The research approach guides the overall direction of the study and helps to ensure that the research is conducted in a rigorous and methodical manner.

Quantitative research involves the collection and analysis of numerical data to answer research questions. Mixed-method methods simply employ a combination of both qualitative and quantitative approaches based on the purpose of the study and the nature of the research question aiming to provide a better understanding of the subject (Taherdoost, 2022).

This study used quantitative research approaches. Quantitative research is a formal, systematic process that describes the relationships among variables. Quantitative methods emphasize objective measurements and the statistical, mathematical or numerical analysis of data collected through survey. In order to meet the objective of the study, answer the given research question

and to examine the relationship between the dependent variable and the independent variables the study applied quantitative research method.

### **3.5 Target Population**

A target population refers to a specific group of individuals with particular characteristics that distinguish them from the general population. This group is the intended audience for a product, advertising, or research. When conducting research, the target population is the population from which conclusions are drawn. It helps define the scope and objectives of the study (Akman, 2023). The study's goals, relevant data, empirical research, and medical literature and practices all influence the selection of characteristics. The project's clients, contractors and consenting parties the target audiences for this study. Identifying the target population requires careful preparation, precise research questions, and a robust study design. It assists you in obtaining trustworthy and accurate information that responds to your study issue or concern. The target group is frequently chosen based on characteristics or demographics such as age, gender, employment, income, or health condition. The research's conclusions are then extrapolated to the broader population from whom the target sample was selected. It works well in situations when the population as a whole is manageable, as in a well-defined subsection of a larger population. The total population of the organization will be the entire project in the contractor side which is 235 in number.

### **3.6 Sample and Sample Technique**

In this study, the total population was taken as all employees in the EEIG construction project who work in the construction project or all departments in the organisation, as well as consultants and stakeholders. The researcher used a purposive sampling and random probability sampling techniques. The researcher used a purposive sampling technique with the population of interest. The reason for choosing this technique was that the selected participant is the focal point and more responsible person in the practice and implementation of project in construction in their company. This includes professionals like the project manager, engineering department, finance department, operational department, cost department, quality department, contract administration team, and technical team members. Members they are 20 in total population that select purposively from the population of EEIG construction. And the researcher also used random sampling to choose from the population of the project who is essential for the project

work by contract in the project they are 215 populations and choose randomly from this population 140 samples. Generally the total sample population is 160.

### **3.7 Sample Size**

Ensuring that the conclusions drawn from the analysis may be applicable to the entire population being studied is the goal of accurately calculating sample sizes. Because research is our passion, I have made the decision to instruct upcoming and seasoned researchers on how to determine sample size for their projects and research papers using the most dependable and efficient technique available. In order to calculate the sample size from a given population, statistician Tara Yamane developed the Yamane's formula (Yamane et al, 2021).

Yamane method's mathematical example is shown below

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

Where:-

'n' is the sample size,

'N' is the population size, and

'e' is the level of precision(0.05)

In this case, N = 215 (The total target population of the EEIG employees of the)

$$n = \frac{215}{1 + 215 \cdot (0.05)^2}$$

$$n = \frac{215}{1 + 215 \cdot 0.0025}$$

$$n = \frac{215}{1.54}$$

$$n = 139.61$$

$$n = 140$$

So, the calculated sample size is approximately 139.61. Since sample sizes are typically whole numbers, we would round this up to the nearest whole number, giving us a sample size of 140.

And the people who choose by purposive sampling are 20 so, the total sample size 160.

### **3.8 Data Collection Method**

The research data collected through the use of cross sectional method primary and secondary data collection instruments. Primary data collected through the administration of questionnaires and observation which are important to collect all necessary information. The studies mainly used questionnaire instruments to collect detailed information from selected respondents. The questioner aske closed-ended questions and those questions were developed by referring to different journals, PMI PMBOK, research, the internet, and other guides.

### **3.9 Instrument of Data Collection**

In construction projects, instruments of data collection refer to the tools or methods used to gather data specific to the construction industry. These instruments can include surveys, questionnaires, observations of construction sites, document analysis, and other techniques designed to collect data for analysis in the context of construction projects. (Saeed et al, 2020). These tools are used to gather quantitative allowing researchers to gain a comprehensive understanding of the study.

Questionnaires: These are structured sets of questions designed to gather specific information from participants. In the context of this study construction project, questionnaires used to gather data on factors such as project timelines, budgeting, stakeholder satisfaction, and scope of the construction project.

### **3.10 Method of Data Analyses**

Inferential statistical techniques like the following used in conjunction with descriptive statistical techniques like frequency, mean, and standard deviation to analyses the data for this study. Regression analysis and Pearson correlation are used to examine the hypothesis. To determine the degree to which the independent variable or impacts the dependent variable multiple linear regression analysis is employed. Descriptive analysis also be applied to the demographic variables, including gender, age, education, employment, and monthly income. The SPSS used for statistical operations in order to examine the data that has been obtained.

#### **3.10.1 Multiple Linear Regression**

Multiple linear regressions are a statistical technique used in research to analyze the relationship between multiple independent variables and a single dependent variable. In multiple linear regressions, the goal is to develop a linear equation that best predicts the value of the dependent variable based on the values of the independent variables.

The general form of a multiple linear regression model can be represented as:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 \dots + \beta_nX_n + \varepsilon$$

Where:

Y is the dependent variable

X<sub>1</sub>, X<sub>2</sub>..., X<sub>n</sub> are the independent variables

β<sub>0</sub> is the intercept term

β<sub>1</sub>, β<sub>2</sub>..., β<sub>n</sub> are the coefficients of the independent variables

$\epsilon$  is the error term

Researchers used multiple linear regressions to assess how changes in the independent variables are associated with changes in the dependent variable. By estimating the coefficients ( $\beta$ ) in the model, researchers can quantify the strength and direction of these relationships.

Multiple linear regressions can be applied in various fields of research, such as social sciences, economics, psychology, and public health. Researchers often use this technique to test hypotheses, make predictions, control for confounding variables, and understand complex relationships between variables (Hair, Black, et al, 2014).

### **3.11 Reliability and Validity Analysis**

#### **3.11.1 Reliability Analysis**

Reliability and validity analysis in research are essential for ensuring the quality and accuracy of research findings. Reliability refers to the consistency and stability of measurement, while validity refers to the accuracy and appropriateness of the measurement concerning the research question. In the context of construction projects, reliability and validity analysis can help ensure that the data collected and measurements taken are consistent, accurate, and relevant to the research objectives. (Gao et al, 2021)

Reliability analysis in construction project research involves assessing the consistency and stability of measurement tools or instruments used in the study. This can include evaluating the reliability of survey instruments, observation methods, or data collection procedures to ensure that they produce consistent results over time. Common methods for assessing reliability in construction research include test-retest reliability, inter-rater reliability, and internal consistency reliability.

According to George & Mallery (2003), as cited in (Gliem & Gliem, 2003), Cronbach's alpha is a reliability coefficient. It is commonly used as a measure of a psychometric test score's internal consistency or reliability for a sample of examinees. Cronbach's alpha is a reliability coefficient that normally ranges between 0 and 1. Cronbach's alpha was used to check the internal consistency of the items included in the instrument. The value of each variable was computed, and the reliability was determined based on the results. The table below depicts the Cronbach's Alpha rule of thumb.

Table 1: Rule of Thumb of Cronbach's Alpha

Cronbach's alpha	Description
------------------	-------------

$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha \leq .5$	Unacceptable

Based on the aforementioned rules of thumb, the researcher conducted an internal consistency test, which increased trust in the dependability of the research findings. The survey sample result suggests that it is good" and above internal consistency in each independent and dependent variable, as disclosed in the following test results table 3.2.

Table 2: 2 Reliability Statistics of the Instrument

No	Variables	Cronbach's alpha	Number of items	Reliability Strength
1	Project manager competency	0.749	5	Good
2.	Project Equipment	0.732	5	Good
3.	Project Fund	0.861	5	Very good
4.	Control mechanisms	0.823	5	Very good
5	Team Dynamics	0.714	5	Good
6	Stakeholders engagement	0.870	5	Very good
7.	Project implementation	0.818	7	Very good
	Overall variables	0.925	37	Excellent

Source: own survey, 2024

### 3.11.2 Validity Analysis

Validity analysis in construction project research focuses on determining whether the measurement tools accurately measure what they intend to measure in relation to the research question. This ensures that the data collected are valid and relevant to the study objectives. Types of validity in construction research can include content validity, construct validity, criterion-related validity, and face validity.

Applying reliability and validity analysis in construction project research is crucial for ensuring the credibility and trustworthiness of research findings. By conducting reliability and validity assessments, researchers can ensure that their data collection methods are consistent, accurate, and appropriate for addressing the research objectives.

### **3.12 Ethical Consideration**

This research followed ethically and morally acceptable processes throughout the research process. The data was collected with the full consent of the participants. In this regard, the names of the respondents were not disclosed, and Information was not available to anyone who was not directly involved in the study. In order to safeguard the rights of the participants, the benefits of the study were also explained to the participant.



## CHAPTER FOUR

### 4 RESULT DISCUSSION AND ANALYSIS

#### 4.1 Introduction

In this chapter, detailed analyses of the descriptive statistics, correlation, and regression analysis outputs were presented and interpreted. Specifically, this chapter has included four sections. The first section presented descriptive statistics of the dependent and independent variables. The second section deals with the correlation analysis and shows the degree of association between the study variables. Section three presented the classical linear regression model assumption diagnostic test results. Finally, the fourth section presents the results of the regression analysis and discussions on regression analysis.

#### 4.2 Response Rate

The researcher was able to get back one hundred thirty-four (134) out of the one hundred sixteen (160) questionnaires dispatched to the employees of the sampled which gives an 83.75% response rate. Babbie, (2010) asserts that a return of 50% was adequate, although Bailey (2007) set the adequacy bar at 75%. This implies that based on these assertions, the response rate of 83.75% was over both assertions, therefore it was very good. The high response could be attributed to self-administration of the questionnaire.

Table 3: Response Rate of Respondents

No.	Items	Total	Percent
1	Distributed Questionnaires	160	100
2	Collected Questionnaires	134	83.75
3	Remain uncollected	26	16.25

Source: own survey, 2024

#### 4.3 Background Information of the Respondent

Respondents were asked about their gender, age, educational level, and work experience to obtain general profile information of employees of Ethiopian Engineering and Investment Group.

##### 4.3.1 Gender of the Respondent

Table 4: Gender Profile of the Respondent

		Frequency	Percent
Gender of respondent	Male	72	53.7
	Female	62	46.3

	Total	134	100.0
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Source: Own survey, 2024

This table 4 represents the frequency and percentage distribution of respondents based on gender. There were a total of 134 respondents. 72 respondents identified as male, which accounts for 53.7% of the total respondents. 62 respondents identified as female, representing 46.3% of the total respondents.

### 4.3.2 Age of the Respondent

Table 5: The Age Profile of the Respondent

		Frequency	Percent
Age of respondents	18-27	9	6.7
	28-40	76	56.7
	41-55	30	22.4
	above 56	19	14.2
	Total	134	100.0

Source: Own survey, 2024

As indicated in Table 5: The age profile of the respondents indicates a diverse distribution, with 6.7% of respondents falling in the 18-27 age group, 56.7% in the 28-40 age group, 22.4% in the 41-55 age group, and 14.2% above 56 years old.

### 4.3.3 Designation of the Respondents

Table 6: Designation of the Respondents

		Frequency	Percent
Designation of the respondents	Project Manager	7	5.2
	Site Engineer	6	4.5
	Office Engineer	12	9.0
	Labor	47	35.1
	Site Supervisor	7	5.2
	Logistic	32	23.9
	Others	23	17.2
	Total	134	100.0

Source: Own survey, 2024

As indicated in Table 6: The designation profile of the respondents reveals a diverse range of roles within the Ethiopian Engineering and Investment Group. The majority of respondents were involved in operational roles, with 35.1% classified as labor, 23.9% in logistics, 17.2 % as others, 9% as office engineers, 5.2% of Project Manager and Site Supervisor, and 4.5% Site Engineer.

#### 4.3.4 The Educational Level of the Respondent

Table 7: Educational Level of the Respondent

		Frequency	Percent
Educational Background of respondents	Certificates	8	6.0
	Diploma	22	16.4
	Degree	73	54.5
	Masters & above	31	23.1
	Total	134	100.0

Source: Own survey, 2024

This table provides the frequency and percentage distribution of respondents based on their educational status. 8 respondents had completed Certificates, accounting for 6.0% of the total respondents. 22 respondents held a Diploma, representing 16.4% of the total respondents. 73 respondents had a Degree, making up 54.5% of the total respondents. 31 respondents had a Master's degree and above, comprising 23.1% of the total respondents. Based on this data, the majority of the respondents (54.5%) had a Degree.

#### 4.3.5 Work Experience of the Respondents

Table 8: The Work Experience Level of the Respondent

		Frequency	Percent
Work Experience of respondents	Less than 1 year	13	9.7
	1-4 years	13	9.7
	5-8 years	60	44.8
	9-12 years	41	30.6
	>12 Years	7	5.2
	Total	134	100.0

Source: Own survey, 2024

This table provides the frequency and percentage distribution of respondents based on their relevant work experience. 13 respondents had less than one year of work experience, accounting

for 9.7% of the total respondents. 13 respondents had 1-4 years of work experience, representing 9.7% of the total respondents. 60 respondents had 5-8 years of work experience, making up 44.8% of the total respondents. 41 respondents had 9-12 years of work experience, comprising 30.6% of the total respondents. 7 respondents had more than 12 years of work experience, accounting for 5.2% of the total respondents.

#### 4.4 Descriptive Statistics Analysis

In this section, the mean score, frequency, and percentage were calculated to determine the level of agreement of respondents on the mean. Standard deviation values/scores were also used to investigate the most dominant practice, and finally, the Factors Affecting Project Implementation were ranked by comparing their mean values/score. As stated in Chapter 3, a five-point Likert scale was used to assess the Factors Affecting Project Implementation. The intervals for breaking the range in measuring each variable on a five-point scale are calculated as follows.

$$(\text{Max-Min})/5 = (5-1)/5 = 0.8 = \text{Agreement level}$$

Best (1997) developed the following criterion, which was cited by (MELESE, 2019). In this study, 1 represents strongly disagree/not at all, and 5 represents strongly agree/very high. As a result, the translation of level ranking is evaluated using the following criteria.

Table 9: Likers Scale Response Level of Agreement

Agreement level	level of agreement
1.00-1.80	Strongly disagree/not at all
1.81-2.60	Disagree/very low
2.61-3.40	Neutral/low
3.41-4.20	Agree/high
4.21-5.00	Strongly agree/very high

As previously stated, the analysis of respondents' level of agreement with each statement was made accordingly.

#### 4.4.1 The Effect of Project Manager Competency on Project Implementation

Table 10: Mean and Standard Deviation Score for Project Manager Competency

Descriptive Statistics	N	Mean	Std. Deviation

Project manager's leadership skills impact the overall success of a project	134	3.90	1.213
Effective decision-making by a project manager contribute to the smooth progression of project activities	134	3.98	1.140
Communication skills enable a project manager to effectively convey project goals, objectives	134	3.95	1.036
Proficient risk identification and mitigation strategies help ensure that the project stays on track.	134	4.00	1.062
Stakeholder management an essential aspect of project manager competence, and effective engagement to project success.	134	4.12	1.004
Grand Mean and Standard Deviation	134	3.9896	1.091

Source: Own survey, 2024

As shown in Table 10. The mean and standard deviation scores of project manager competency implemented by Ethiopian Engineering and Investment Group. Stakeholder management emerges as the most critical factor influencing project success, with a mean score of 4.12 and a standard deviation of 1.00. Effective stakeholder management ensures that the needs and expectations of stakeholders are appropriately addressed, thereby enhancing project outcomes. Proficient risk identification and mitigation are essential for maintaining project trajectory, as evidenced by a mean score of 4.00 and a standard deviation of 1.06. (Hillson, 2017) Asserts that identifying and mitigating risks early in the project lifecycle can significantly reduce the likelihood of project delays and cost overruns. The importance of proactive risk management strategies in ensuring project success, with a mean score of 3.98 and a standard deviation of 1.14, effective decision making by project managers is crucial for the smooth progression of project activities. According to (GEBREMEDHIN, 2019) decision-making competence allows project managers to navigate uncertainties and make informed choices that align with project objectives. The communication skills of a project manager, with a mean score of 3.95 and a standard deviation of 1.03, are instrumental in conveying project goals and objectives effectively. Effective communication is a cornerstone of successful project management as it ensures clarity and alignment among project stakeholders. (Turner, 2014) Also points out that communication competence is necessary for managing stakeholder expectations and fostering collaboration

within the project team, and the leadership skills of a project manager, indicated by a mean score of 3.90 and a standard deviation of 1.21, significantly impact the overall success of a project. As posited by ( Müller and Turner, 2010), strong leadership is associated with higher project performance and successful outcomes.

#### 4.4.2 The Effect of Project Equipment on Project Implementation

Table 11: Mean and Standard Deviation Score for Project Equipment

Descriptive Statistics	N	Mean	Std.Deviation
The selection of construction equipment impact the successful implementation of construction projects	134	3.36	1.288
The equipment usage cost increase construction cost	134	3.72	1.236
Proper maintenance and management of construction equipment essential for maximizing productivity	134	3.99	1.033
The cost of equipment contribute to the total project cost	134	3.96	1.007
Quality of equipment used directly impact the overall quality of work performed on a construction project	134	3.82	1.075
Grand Mean and Standard Deviation	134	3.7687	.78782

Source: Own survey, 202

As indicated Table 11 the mean and standard deviation scores of project Equipment implemented by Ethiopian Engineering and Investment Group.

Proper maintenance and management of construction equipment are paramount for maximizing productivity with a mean score of 3.99, and Standard Deviation 1.033. Equipment reduces downtime and enhances operational efficiency. Systematic maintenance schedules and effective management practices ensure equipment reliability, thus contributing to smoother project execution and timely completion. The cost of equipment significantly contributes to the total project cost with a Mean Score 3.96 and Standard Deviation of 1.007. (Peurifoy et al, 2023) Highlight that equipment expenses can represent a substantial portion of overall project costs, influencing budget allocations and financial planning.

The quality of equipment used directly impacts the overall quality of work performed on a construction project with a Mean Score of 3.82 and a Standard Deviation of 1.075. According to,

high-quality equipment enhances work precision and durability, leading to superior construction outcomes.

The cost associated with equipment usage can increase the overall construction cost with a Mean Score of 3.72 and Standard Deviation of 1.236. However, operating costs, including fuel, maintenance, and depreciation, add to the total project expenses. Controlling equipment usage costs through efficient operation and maintenance practices is vital for maintaining budgetary control and the selection of construction equipment impacts the successful implementation of construction projects with a Mean Score of 3.36, and Standard Deviation of 1.288. Choosing the appropriate equipment is crucial for optimizing construction processes and ensuring project efficiency. Equipment selection based on project requirements and site conditions can significantly influence project performance and outcomes.

#### 4.4.3 The Effect of Project Fund on Project Implementation

Table 12: Mean and Standard Deviation Score for Project Fund

Descriptive Statistics	N	Mean	Std. Deviation
project managers determine the initial budget and funding requirements for a construction project	134	4.0448	1.14291
Sources of funding for construction projects ensure they secure adequate funds to cover all project costs	133	3.4135	1.49305
project managers monitor to ensure that funds are being allocated effectively throughout the project lifecycle	134	3.5149	1.45476
Adequate funding allows for proper budgeting, and contingency planning managing project expenses effectively	134	3.3657	1.44857
Adequate project funds availability allows for timely procurement of resources needed for project implementation	134	3.2985	1.45111
Grand Mean and Standard Deviation	134	3.5291	1.12543

Source: Own survey, 2024

As shown in Table 12 the mean and standard deviation scores of project funds implemented by Ethiopian Engineering and Investment Group. The determination of the initial budget and funding requirements by project managers is crucial for the successful implementation of construction projects with a Mean Score of 4.04 and a Standard Deviation of 1.14. Establishing a

clear budget at the project's outset enables project managers to allocate resources efficiently and set realistic financial expectations, thus reducing the risk of budget overruns, Effective monitoring of fund allocation throughout the project lifecycle is essential for ensuring financial control with a Mean Score of 3.5, and Standard Deviation of 1.45. The importance of continuous financial oversight to track expenditures and adjust budgets as needed. Regular financial monitoring helps detect and address potential financial issues early, thereby maintaining project financial health.

Securing adequate funding sources is vital to cover all project costs with a Mean Score of 3.41 and Standard Deviation of 1.49. Reliable funding is a prerequisite for project stability and sustainability. Points out that identifying and securing diverse funding sources can mitigate financial risks and ensure uninterrupted project progress, Adequate funding enables proper budgeting and contingency planning, which are crucial for managing project expenses effectively with a Mean Score of 3.37, and Standard Deviation: 1.45. Sufficient funds allow project managers to plan for unforeseen costs and implement contingency measures without compromising project quality or timelines. The availability of adequate project funds facilitates the timely procurement of necessary resources with a Mean Score of 3.30, and a Standard Deviation of 1.45. Timely resource acquisition is critical to maintaining project schedules and avoiding delays.

#### 4.4.3 The Effect of Control Mechanisms on Project Implementation

Table 13: Mean and Standard Deviation Score for Control Mechanisms

Descriptive Statistics	N	Mean	Std. Deviation
Project control mechanisms impact the successful implementation of construction projects	134	4.04	.984
Project control systems that help in measuring performance, cost, and time the variance between planned variables and actual project performance	134	4.08	1.214
project control mechanisms, contribute to maintaining project alignment with objectives and ensuring timely corrective actions	134	3.91	1.253



Feedback in project implementation and control making necessary adjustments to keep the project on track	134	4.06	1.168
Feedback in project management, be effectively applied to enhance project control mechanisms and improve project outcomes	134	4.09	1.015
Grand Mean and Standard Deviation	134	4.0358	1.100

Source: Own survey, 2024

As indicated in Table 13 the mean and standard deviation scores of control mechanisms implemented by Ethiopian Engineering and Investment Group.

Feedback mechanisms are critical for enhancing project control and improving outcomes with a Mean Score of 4.09, and a Standard Deviation of 1.015. This is supported by (MEKDES, 2017), who emphasizes that effective feedback helps in identifying deviations early and implementing corrective actions promptly, which improves overall project performance, Project control systems that measure performance, cost, and time variances between planned and actual performance are vital with a Mean Score of 4.08, and Standard Deviation of 1.214. As noted by these systems provide the data necessary for informed decision-making and allow for tracking progress against key performance indicators (KPIs). Robust control systems are essential for maintaining budgetary and schedule compliance, thus contributing to successful project outcomes.

The overall impact of project control mechanisms on the successful implementation of construction projects is significant with a Mean Score of 4.04, and a Standard Deviation of 0.984. These mechanisms ensure that project activities are conducted according to plan, which helps in achieving project goals efficiently.

Utilizing feedback in project implementation and control to make necessary adjustments is crucial for keeping the project on track with a Mean Score of 4.06, and Standard Deviation of 1.168. Adaptive management practices that rely on continuous feedback to refine project strategies and operations. Feedback driven adjustments help in addressing unforeseen challenges and maintaining project momentum, and Project control mechanisms that contribute to maintaining alignment with project objectives and ensuring timely corrective actions are essential with a Mean Score of 3.91, and Standard Deviation of 1.253. As suggested by aligning

project activities with strategic objectives ensures coherence and focus throughout the project lifecycle.

#### 4.4.4 The Effect of Team Dynamics on Projects Implementation

Table 14: Mean and Standard Deviation Score for Team Dynamics

Descriptive Statistics	N	Mean	Std. Deviation
Effective communication among project team members contribute to positive team dynamics	134	4.07	1.031
Team members collaboration, team cohesion, and trust are factor for project performance and success	134	3.46	1.559
Different leadership styles influence team dynamics and project implementation within project teams	134	3.46	1.434
Team dynamics influence team members' motivation and impact project success	134	3.81	1.318
Resolution of conflicts within project teams, considering strategies and team dynamics, affect project progress and performance	134	4.10	1.112
Grand Mean and Standard Deviation	134	3.7821	1.290

Source: Own survey, 2024

As indicated in Table 14 the mean and standard deviation scores of Team dynamics implemented by Ethiopian Engineering and Investment Group. The resolution of conflicts within project teams is paramount for maintaining project progress and performance with a Mean Score of 4.10, and a Standard Deviation of 1.112. According to (Abushaban, 2011) effective conflict resolution strategies enhance team cohesion and productivity, reducing disruptions in project workflows. Effective communication among project team members significantly contributes to positive team dynamics with a Mean Score of 4.07, and Standard Deviation of 1.031. Clear and consistent communication is essential for ensuring that all team members are aligned with project goals and tasks. Effective communication fosters transparency and trust, which are critical for coordinated team efforts and successful project implementation.

Team dynamics play a crucial role in influencing team members' motivation and impacting project success with a Mean Score of 3.81, and Standard Deviation of 1.318. Strong team

dynamics, characterized by mutual respect and shared commitment, enhance motivation and performance.

Collaboration, cohesion, and trust among team members are critical factors for project performance and success with a Mean Score: 3.46, and Standard Deviation: 1.559. Teams that exhibit high levels of trust and cohesion are more likely to collaborate effectively, leading to better problem-solving and decision-making. Different leadership styles significantly influence team dynamics and project implementation with a Mean Score: 3.46, and Standard Deviation: 1.434. Transformational leadership, in particular, fosters a positive team environment by inspiring and motivating team members.

#### 4.4.5 The Effect of Stakeholder Engagement on Projects Implementation

Table 15: Mean and Standard Deviation Score for Stakeholder Engagement

Descriptive Statistics	N	Mean	Std. Deviation
Project managers effectively identify and prioritize stakeholder interests to enhance project success	134	4.42	.904
Collaborative problem-solving with stakeholders impact project cost management	134	4.49	.932
Proactive problem-solving with stakeholders on project timelines, schedule adherence	134	4.57	.853
Involving stakeholders in problem-solving activities affect project quality outcomes	134	4.52	.792
Project teams integrate stakeholder feedback into quality management processes to ensure project success and meet stakeholder requirements	134	4.54	.801
Grand Mean and Standard Deviation	134	4.5075	.889

Source: Own survey, 2024

As indicated in Table 15: The mean and standard deviation scores of stakeholder engagement implemented by Ethiopian Engineering and Investment Group. Proactive problem-solving with stakeholders regarding project timelines and schedule adherence is critical for ensuring project success with a Mean Score: 4.57, and Standard Deviation: 0.853. According to (GEBREMEDHIN, 2019) engaging stakeholders proactively helps in identifying potential delays

early and finding solutions collaboratively, which is crucial for maintaining project schedules. proactive stakeholder engagement enhances transparency and accountability, facilitating smoother project progression, Integrating stakeholder feedback into quality management processes ensures that projects meet stakeholder requirements and enhance overall project success with a Mean Score: 4.54, and Standard Deviation: 0.801. Involving stakeholders in the feedback process helps in aligning project outcomes with stakeholder expectations, leading to higher satisfaction and better quality outcomes..

Involving stakeholders in problem-solving activities significantly impacts project quality outcomes with Mean Score: 4.52, and Standard Deviation: 0.792. Active stakeholder participation in problem-solving leads to more innovative and effective solutions, enhancing project quality. Stakeholder involvement in decision-making processes ensures that their needs and concerns are adequately addressed, thereby improving project outcomes.

Collaborative problem-solving with stakeholders on project cost management is vital for maintaining budgetary control with a Mean Score: 4.49, and Standard Deviation: 0.932. Engaging stakeholders in financial discussions ensures that cost-related decisions are made with a comprehensive understanding of all perspectives, which helps in optimizing resource allocation and controlling costs. collaborative approaches in cost management foster a sense of ownership among stakeholders, leading to more prudent financial management, and Effectively identifying and prioritizing stakeholder interests is crucial for enhancing project success with a Mean Score: 4.42, and Standard Deviation: 0.904. understanding and prioritizing stakeholder interests ensures that the most critical needs are addressed first, which is essential for gaining stakeholder support and ensuring project alignment with key objectives. The importance of stakeholder analysis and prioritization in achieving successful project outcomes

#### 4.4.5 Analysing Project Implementation

Table 16: Mean and Standard Deviation of Project Implementation

Descriptive Statistics	N	Mean	Std. Deviation
The project is carried out according to the planned scope	134	4.36	.817
The project is been carried out according to the planned time	134	4.60	.851
The project is carried out according to the planned resources	134	4.59	.903

The project is carried out in a quality manner	134	4.59	.886
The project is progressing according to schedule and meeting deadlines as planned.	134	4.68	.620
Project outcomes are aligned with initial objectives and expectations.	134	3.53	1.396
The project is achieving measurable results and delivering value to stakeholders.	134	4.23	.996
Grand Mean and Standard Deviation	134	4.3689	.924

Source: Own survey, 2024

As shown in Table 16: The mean and standard deviation scores of Project implementation implemented by Ethiopian Engineering and Investment Group. Ensuring the project progresses according to schedule and meets deadlines is paramount with a Mean Score: 4.68 and Standard Deviation: 0.620., adhering to the project schedule is critical for project success, as delays can lead to cost overruns and missed objectives. And schedule management is a cornerstone of project control mechanisms, helping to keep the project on track and aligned with planned timelines, Executing the project according to the planned time frame is essential for maintaining momentum and ensuring resource availability with a Mean Score: 4.60, and Standard Deviation: 0.851. Importance of time management in project execution, noting that timely project delivery is crucial for meeting stakeholder expectations and achieving project goals. This is supported by who argue that effective time management helps in mitigating risks associated with project delays.

Executing the project according to planned resources ensures that the project stays within budget and uses resources efficiently with a Mean Score: 4.59, and Standard Deviation: 0.903 / 0.886. As noted by (Oghomwen et al, 2022) resource management is crucial for avoiding cost overruns and ensuring that all necessary inputs are available when needed. Quality execution also minimizes rework and defects, leading to more efficient project completion Aligning project outcomes with initial objectives and expectations is critical for ensuring stakeholder satisfaction and achieving the intended benefits with a Mean Score: 4.53, and Standard Deviation: 1.396. According to alignment with initial objectives ensures that the project delivers the intended value

and meets stakeholder needs. This alignment is crucial for the project's strategic success and long-term impact.

Adhering to the planned project scope is essential to avoid scope creep and ensure that the project remains focused on its core objectives with a Mean Score: 4.36, and Standard Deviation: 0.817. And scope management is critical for maintaining project boundaries and ensuring that all project work is aligned with the initial scope statements. Proper scope management helps in preventing unnecessary changes and maintaining control over project deliverables, and Achieving measurable results and delivering value to stakeholders are indicators of project success with a Mean Score: 4.23 and Standard Deviation: 0.996 measurable outcomes provide tangible evidence of project progress and success, allowing for better evaluation and decision-making. Delivering value to stakeholders ensures that the project meets or exceeds their expectations, which is crucial for stakeholder satisfaction and project sustainability.

#### 4.5 Correlation Analysis

Correlation analysis is the process of determining or indicating the strength and direction of a relationship between the dependent variable and its covariates. The correlation coefficient is found to be between -1 and 1. If the correlation coefficient between two variables is 1, the relationship between these variables is positive. Furthermore, when the correlation coefficient approaches one, there is a strong relationship between the two variables. In other words, the correlation coefficient is -1, indicating a negative relationship between the two variables. There is a strong negative relationship between them, as the correlation coefficient approaches -1. The correlation coefficient will be equal to zero (0) if there is no relationship between the two variables (Berndt et al., 2005).

Table 17: Interpretation of Correlation Coefficient

No	Level of correlation	Interpretation
1.	0.80 or higher	Very high
2.	0.6 to 0.8	Strong
3.	0.4 to 0.6	Moderate
4.	0.2 to 0.4	Low
5.	0.2 or lower	Very low

Source: (Hingsammer, Watzek and Pommer, 2017)

The Pearson correlation coefficient was used in this study to investigate the relationship between Factors and Project Implementation.

Table 18: Pearson Correlation on the Relationship between Factors and Project Implementation.

Correlations							
	PI	PM	PE	PF	PM	TD	SE
Project implementation(PI)	1						
Project manager competency(PM)	.710*	1					
Project equipment(PE)	.623**	.640**	1				
Project fund(PF)	.560**	.429**	.280**	1			
Control mechanism(PM)	.597**	.537**	.525**	.217*	1		
Team dynamics(TD)	.584**	.509**	.472**	.212*	.598**	1	
Stakeholder engagement(SE)	.343**	.270**	.246**	.050	.321**	.312**	1
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Source: Regression output of SPSS from Own survey data, 2024

As shown in Table 18, the strongest and most positive relationship is between Project competency and Project implementation with ( $r=0.710^{**}$ ,  $p<0.05$ ), followed by Project Equipment with ( $r=0.623^{**}$ ,  $p<0.05$ ). Control mechanisms with ( $r=0.597^{**}$ ,  $p<0.05$ ), Team Dynamics with ( $r=0.584^{**}$ ,  $p<0.05$ ), Project Fund with ( $r=0.560^{**}$ ,  $p<0.05$ ), and Stakeholders engagement with ( $r=0.343^{**}$ ,  $p<0.05$ ). Therefore, all Factors were positively correlated with the Project implementation.

#### 4.5.1 The Correlation between Each Independent Variable and Dependent Variable

As indicated in Table 18, Project manager competency emerges as the most influential factor with the strongest positive relationship to project implementation with ( $r=0.710^{**}$ ,  $p<0.05$ ). Significance of project management skills and expertise in ensuring project success. Following project manager competency, project equipment exhibits a strong positive correlation with project implementation ( $r=0.623^{**}$ ,  $p<0.05$ ). This suggests that having the necessary and appropriate equipment is crucial for project success.

Project funding is positively correlated with project implementation, although to a slightly lesser extent ( $r=0.560^{**}$ ,  $p<0.05$ ). While financial resources are crucial, effective financial planning and management alongside other factors for successful project execution. Control mechanisms demonstrate a significant positive correlation with project implementation ( $r=0.597^{**}$ ,  $p<0.05$ ).

Team dynamics also show a notable positive correlation with project implementation ( $r=0.584^{**}$ ,  $p<0.05$ ). This underscores the importance of cohesive and well-functioning project teams in achieving project goals.

Stakeholder engagement demonstrates a positive albeit comparatively lower correlation with project implementation ( $r=0.343^{**}$ ,  $p<0.05$ ). This emphasizes the importance of involving stakeholders throughout the project lifecycle,

#### **4.6 Testing Assumptions Multiple Linear Regression Model**

The following regression analysis is used for estimating the relationships among variables. It enables to determine the strength of the relationship between variables and the predictive power of the independent variables on the dependent variable. In short, regression helps a researcher understand to what extent the change of the value of the dependent variable causes the change in the value of the independent variables, while other independent variables are held unchanged. Regression analysis is a way of statistically sorting out the variables that have indeed an impact. While there are many types of regression analysis, at their core they all examine the influence of one or more independent variables on a dependent variable. Before moving on conducting a regression analysis, the basic assumption tests for the model must be carried out. This is a compulsory precondition in explaining the relationships between dependent and explanatory variables. Five major assumptions, namely, Multicollinearity Test, Linearity Test, Homoscedasticity Test, Auto Correlation (Durbin Watson Test), and Normality Test checked and proved to be met reasonably well. Each test is explained below.

##### **4.6.1 Multicollinearity Test**

Multicollinearity indicates a linear relationship between explanatory variables, which may result in a biased regression model (Kim, 2019). If one explanatory variable is an exact linear combination of the others, the model is said to have perfect collinearity and cannot be estimated using OLS (Kalnins, 2018). When explanatory variables are multicollinearity, there is estimating power overlap or sharing. This can produce a paradoxical effect in which the regression model fits the data well but none of the explanatory variables (individually) have a significant impact



on estimating the dependent variable (Kim, 2019). If the variance of the inflation factor VIF is greater than 10, the regression results will be affected by a multicollinearity problem (Obrien, 2007). The variance of the inflation factor (VIF) was less than ten in this study, and the tolerance statistics were greater than 0.1 (10%). As a result, there is no problem with multicollinearity or close correlation among the predictors.

Table 19: Collinearity Statistics of the Predictors

<b>Coefficients<sup>a</sup></b>			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Project manager competency	.458	2.184
	Project Equipment	.537	1.862
	Project Fund	.811	1.234
	Control mechanisms	.536	1.867
	Team Dynamics	.576	1.737
	Stakeholders engagement	.863	1.158
a. Dependent Variable: Project implementation			

Source: Regression output of SPSS from Own survey data, 2024

#### 4.6.2 Test of Normality

He and Yang (2021) states that if the residuals are normally distributed, the histogram should be bell-shaped, as well as have a normal distribution. The normality test determines whether or not the sample data is drawn from a normally distributed population. Both methods of determining normality were used in the study. A histogram can be used to verify this. Simply put, it indicates whether or not the population distribution is normally distributed. The shape of histogram from the figure 2 bellow has bell shaped which lead the residual (disturbance or errors) are relatively or normally distributed and regression standardized residual plotted between -3.3 and 3.3 with the mean of -2.95 and Standard deviation 0.977. This indicated that the variables were relatively normal distribution for each value of the independent variables.

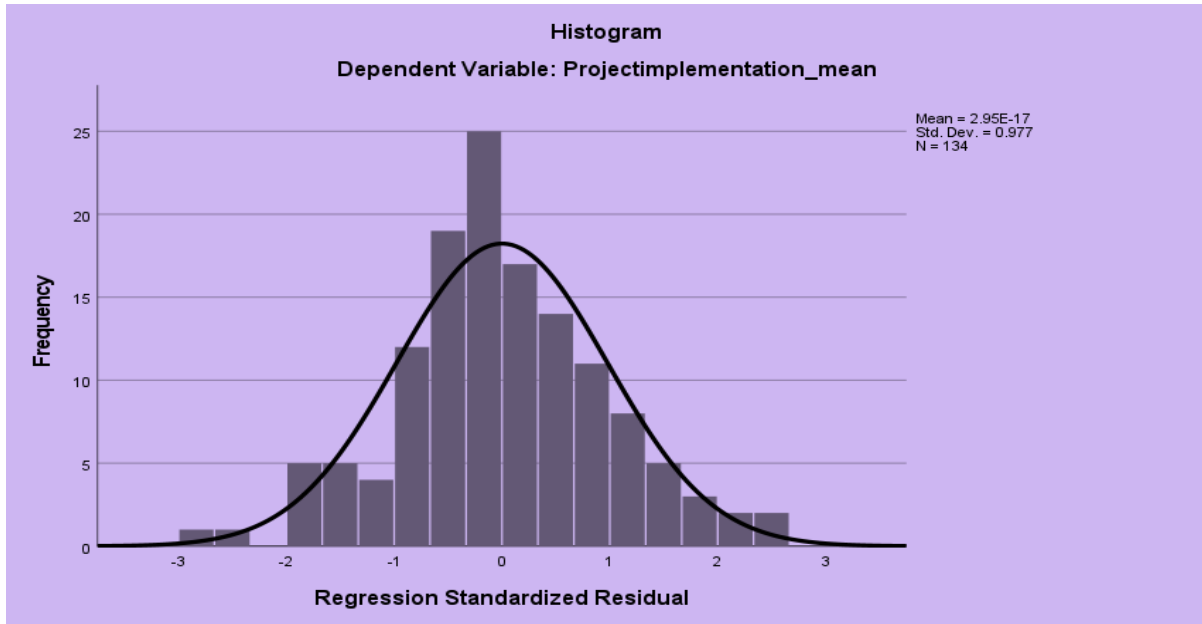


Figure 2: Histogram That Shows the Normal Distribution of the Population

#### 4.6.3 Linearity Test

Linearity defines the dependent variable as a linear function of the predictor (independent) variables. The model should be linear in the parameters regardless of whether the explanatory and the dependent variables are linear or not. This is because of the difficulty of estimating the parameters if they are non-linear and do not know their value given with data of both dependent and independent variables. Plot the standardized residuals against the standardized predicted values to check for linearity and equality of variances. From the diagram below the data is distributed without any increment or decrement. This indicates there is linearity between the dependent and independent variables, and also the normal probability plot would lie in a reasonably straight diagonal line from bottom left to top right. As indicated in figure 3 show that the population distribution was normally distributed. Because all plotted points lie near the straight diagonal line from bottom left to top right.

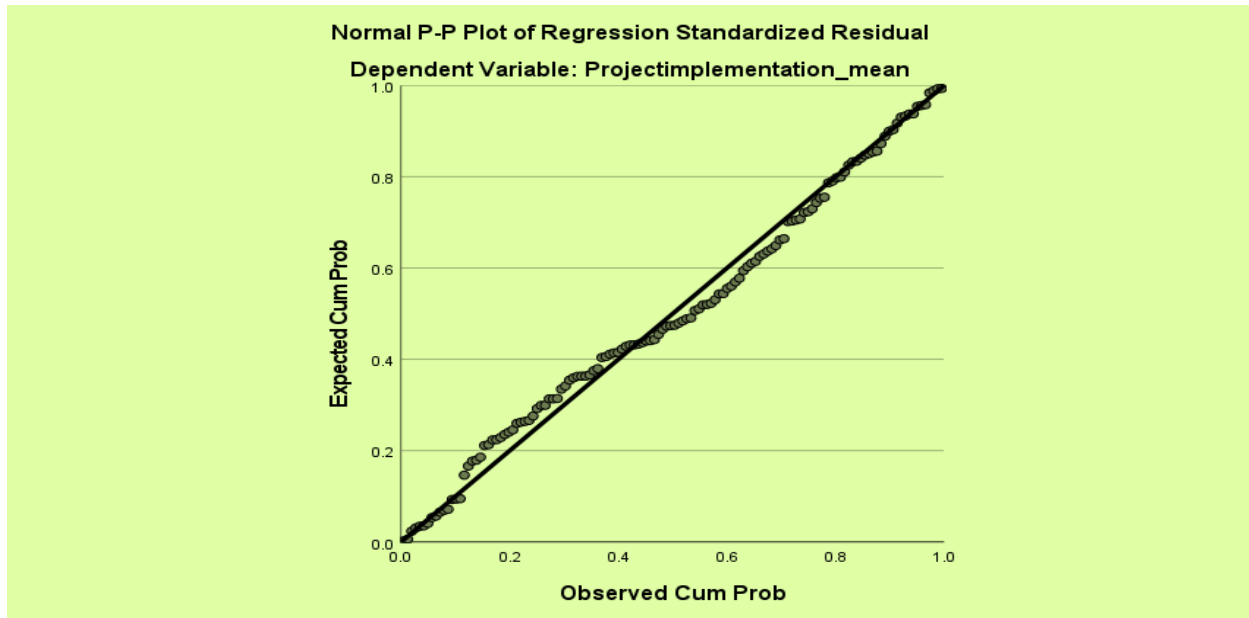


Figure 3: Probability Plot (P-P) Graph Shows the Linearity Test

#### 4.6.4 Homoscedastic Test

Homoscedastic assumption tells that the variance remains constant for all observations. For each value of the predictors, the variance of the error term should be constant. But there are many situations in which this assumption may not hold. So, plot the standardized residuals against the standardized predicted values to check for linearity and equality of variances. For example, the variance of the error term may increase or decrease. Based on the graph below it can be concluded that there is no Heteroscedasticity problem the point distributes randomly and no increment or decrement behaviors. For basic analysis, we first plot \*ZRESID (Y-axis) against \*ZPRED (X-axis) on SPSS because this plot is useful to determine whether the assumptions of random errors and homoscedasticity have been met (Field, 2009).

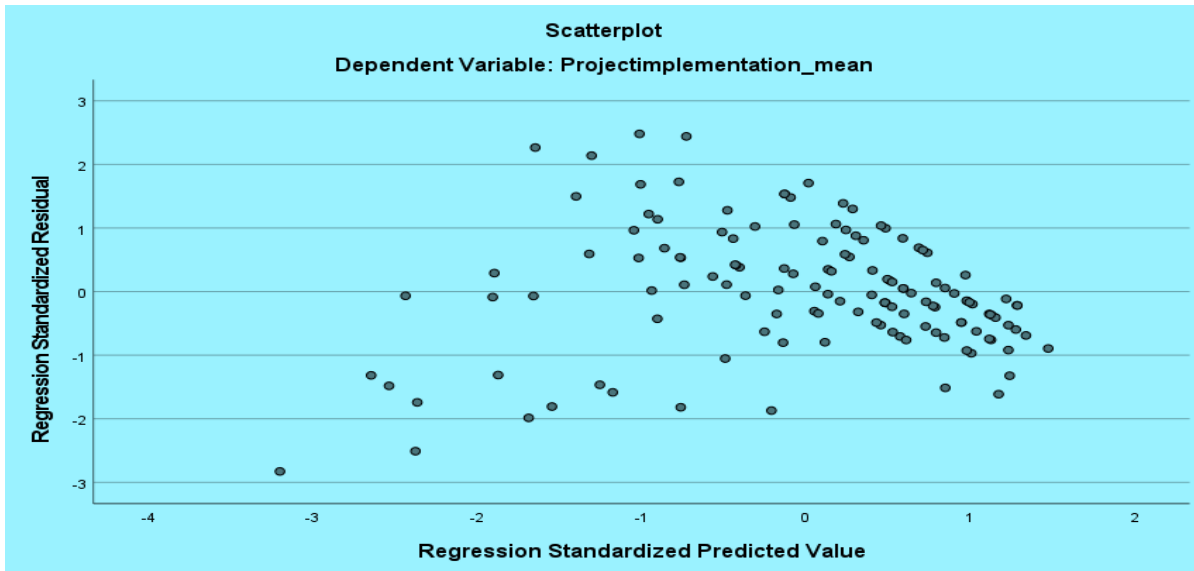


Figure 4: Homoscedasticity Assumption Checked By Regression

#### 4.6.5 Autocorrelation Test

The autocorrelation test determines the relationship between a variable's current value and its previous values. The Durbin-Watson (DW) test was used to examine the autocorrelation in the proposed data. In theory, the DW statistic ranges between 0 and 4, with each circumstance implying a different meaning. In general, a reasonable range is 1.50-2.50 (Durbin-Watson).

Table 20: Autocorrelation Test Table

Model	Durbin-Watson
1	1.663

Source: Regression output of SPSS from Own survey data, 2024

As shown in Table 20, With a Durbin-Watson statistic of 1.663, the result is close to 2, indicating that there is little to no autocorrelation in the residuals. This suggests that the regression model used to analyze the relationship between factors and project implementation is reliable and the results are valid.

#### 4.7 Multiple Regression Analysis

Regression analysis is a statistical method for determining the relationship between two or more variables by displaying the change in the response variable (dependent variable) as a function of the predictor (independent variable) per unit change. To put it another way, a regression model is the process of estimating the value of the dependent variable while the independent variable changes per unit. Regression analyses were used in this study to determine what the dependent variable (Project Implementation) would be as a result of changes in the independent variable

(the factors Affecting Project Implementation, such as Project manager competency, Project Equipment, Project Fund, Control mechanisms, Team Dynamics, and Stakeholders engagement).

#### 4.7.1 Model Summary Analysis

Pedhazur (1982) states that R is a measure of the numerous correlation coefficients between the outcome and the predictors. It ranges from 0 to 1, where 1 denotes an equation that precisely predicts the observed value and bigger values indicate a larger correlation. The following regression results may have a positive or negative beta coefficient, which represents the degree to which each variable influences the dependent variable. The percentage or precession level at which each variable is significant is shown by the P-value. The explanatory strength of a model is shown by its R2 values. In this study, the explanatory powers of the models were evaluated by inferring adjusted R2 values, which take into consideration the loss of degrees of freedom that comes with including additional variables.

Table 21: Model Summary of Factors Affecting Project Implementation

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.840 <sup>a</sup>	.706	.692	.36448
a. Predictors: (Constant), Stakeholders engagement, Project Fund, Project Equipment, Team Dynamics, Control mechanisms, Project manager competency				

Source: Regression output of SPSS from Own survey data, 2024

As shown in Table 21 above, the coefficient of determination (R Square) indicates the proportion of the variance in the dependent variable (project implementation) that is explained by the independent variables (factors affecting project implementation) included in the model. In this case, the R Square value of 0.706 indicates that approximately 70.6% of the variance in project implementation can be attributed to the factors included in the model. This suggests a moderately strong relationship between these factors and project implementation.

The adjusted R Square adjusts the R Square value to account for the number of predictors in the model, providing a more accurate estimate of the model's explanatory power, With an adjusted R Square value of 0.692, the model suggests that approximately 69.2% of the variance in Project implementation is explained by the factors affecting project implementation, after adjusting for

the number of predictors. This indicates a robust relationship between the variables included in the model.

The standard error of the estimate provides a measure of the variability of the actual Project implementation scores around the predicted scores by the model. In this case, the standard error of the estimate is .36448. This value represents the average amount that the observed project implementation scores deviate from the predicted scores by the model. A lower standard error suggests that the model's predictions are more accurate.

#### 4.7.2 Analysis of Variance (ANOVA)

The ANOVA tells us whether the model, overall, results in a significantly good degree of prediction of the outcome variable (Field, 2005).

Table 22: ANOVA of Factors Affecting Project Implementation

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40.570	6	6.762	50.899	.000 <sup>b</sup>
	Residual	16.871	127	.133		
	Total	57.441	133			
a. Dependent Variable: Project implementation						
b. Predictors: (Constant), Stakeholders engagement, Project Fund, Project Equipment, Team Dynamics, Control mechanisms, Project manager competency						

Source: Regression output of SPSS from Own survey data, 2024

The analysis of variance in Table 22, demonstrates that the variance of the variables, as determined by the researcher, is statistically significant at the  $P < 0.05$  level of significance ( $F(6, 127) = 50.899, p = .000$ ). This shows that the regression model's Factors Affecting Project Implementation that is Project manager competency, Project Equipment, Project Fund, Control mechanisms, Team Dynamics, and Stakeholders engagement have a statistically significant effect on the Project implementation of Ethiopian Engineering and Investment Group.

#### 4.7.3 Regression Coefficient Analysis

This study aims to discover the most important independent variable in predicting the dependent variable. Thus, a standardized Beta coefficient can be used to assess the strength of each predictor (independent variable) that influences the criterion (dependent variable). The

regression coefficient describes the average amount of change in the dependent variable resulting from a unit change in the independent variable. The greater the value of an independent variable's Beta coefficient, the more evidence there is for the dependent variable as the more relevant predictor.

Table 23: Regression Coefficients of Factors Affecting Project Implementation

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.843	.245		3.441	.001
	Project manager competency	.217	.060	.255	3.590	.000
	Project Equipment	.148	.055	.178	2.712	.008
	Project Fund	.189	.031	.324	6.065	.000
	Control mechanisms	.120	.050	.158	2.409	.017
	Team Dynamics	.127	.047	.172	2.719	.007
	Stakeholders engagement	.104	.049	.110	2.122	.036
a. Dependent Variable: Project implementation						

Source: Regression output of SPSS from Own survey data, 2024

From Table 23 of multiple regression coefficients, the following regression equation was developed to predict the factors Affecting Project implementation due to the listed predictor in this study.

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + E$  Where: (Y= dependent variable (Project implementation,  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5,$  and  $\beta_6$  = the beta coefficient of Project manager competency, Project Equipment, Project Fund, Control mechanisms, Team Dynamics, and Stakeholders engagement respectively.  $X_1, X_2, X_3, X_4, X_5,$  and  $X_6$ = the predictors or independent variables Project manager competency, Project Equipment, Project Fund, Control mechanisms, Team Dynamics, and Stakeholder engagement respectively).

$$PI = 0.843 + 0.217PC + 0.148PEQ + 0.189PF + 0.120CM + 0.127TD + 0.104SE$$

$$Y = 0.843 + 0.217X_1 + 0.148X_2 + 0.189X_3 + 0.120X_4 + 0.127X_5 + 0.104X_6$$

It is clear that if the Beta value of the predictor variables is positive, it can be concluded that there is a positive relationship between the predictor variables and the dependent variable; while the coefficient is negative, it represents a negative relationship (Field, 2009).

According to this finding, the six predictor variables (Project manager competency, Project Equipment, Project Fund, Control mechanisms, Team Dynamics, and Stakeholder engagement) have a significant and positive coefficient of Beta values indicating that they have a positive effect on Project success in the study. As a result, Project manager competency, Project Fund, Project Equipment, Team Dynamics, Control mechanisms, and Stakeholder engagement all have a positive significant effect on project implementation.

The unstandardized coefficient of Project manager Competency ( $B = 0.217$ ) indicates that for every one-unit increase in project manager competency, the predicted change in project implementation is 0.217 units, holding all other variables constant. This suggests that higher levels of project manager competency lead to better project implementation outcomes. The unstandardized coefficient of Project Equipment ( $B = 0.148$ ) suggests that for every one-unit increase in the availability or quality of project equipment, project implementation is predicted to increase by 0.148 units, assuming other variables remain constant. The unstandardized coefficient of Project Fund ( $B = 0.189$ ) indicates that for every one-unit increase in project funding, project implementation is expected to increase by 0.189 units, holding other variables constant. The unstandardized coefficient of Control Mechanisms ( $B = 0.120$ ) implies that for every one-unit improvement in control mechanisms, project implementation is predicted to increase by 0.120 units, assuming other factors remain unchanged. The unstandardized coefficient of Team Dynamics ( $B = 0.127$ ) suggests that for every one-unit enhancement in team dynamics, project implementation is expected to increase by 0.127 units, all else being equal. The unstandardized coefficient of Stakeholders Engagement ( $B = 0.104$ ) indicates that for every one-unit improvement in stakeholders' engagement, project implementation is predicted to increase by 0.104 units, holding other variables constant.



#### 4.8 Hypothesis Testing and Discussions

Table 24: Hypothesis Testing

hypothesis	Statement of hypothesis	Beta Value	t-value	P-value	Decision
H1	Project manager competence has a significant and positive effect on project implementation of EEIG construction project.	.217	3.590	.000	accepted
H2	Project equipment has a significant and positive effect on project implementation of EEIG construction project	.148	2.712	.008	accepted
H3	Project fund has a significant and positive effect on project implementation of EEIG construction project	.189	6.065	.000	accepted
H4	Control mechanisms have a significant and positive effect on project implementation of EEIG construction project.	.120	2.409	.017	accepted
H5	Team dynamics has a significant and positive effect on project implementation of EEIG construction project	.127	2.719	.007	accepted
H6	Stakeholder's engagement has a significant and positive effect on project implementation of EEIG construction project.	.104	2.122	.036	accepted

The hypothesis was tested given as follows:

**Hypothesis 1: Project manager competence has a significant positive effect on project implementation of EEIG construction projects.**

The results of multiple regressions, as presented in Table 24 above, revealed that project competence has a significant positive effect on project implementation. This hypothesis is supported by a beta value of 0.217, a t-value of 3.590, and a p-value of 0.000, indicating statistical significance. This aligns with the findings of Kerzner (2017), who emphasizes the crucial role of project competence in achieving project success.

**Hypothesis 2: Project equipment has a significant positive effect on project implementation of EEIG construction project**

The results of multiple regressions, as presented in Table 24 above, revealed that project equipment has a significant positive effect on project implementation. With a beta value of 0.148, a t-value of 2.712, and a p-value of 0.008, this hypothesis is accepted. This finding is consistent with ( Meredith and Mantel, 2011) who highlight the importance of adequate resources, including equipment, for project execution.

**Hypothesis 3: Project fund has a significant positive effect on project implementation of EEIG construction project.**

The results of multiple regressions, as presented in Table 24 above, suggest that project funding has a significant positive effect on project implementation. With a beta value of 0.189, a t-value of 6.065, and a p-value of 0.000, the hypothesis is accepted.

**Hypothesis 4: Control mechanisms have a significant positive effect on project implementation of EEIG construction projects.**

The results of multiple regressions, as presented in Table 24 above, assert that control mechanisms have a significant positive effect on project implementation. The beta value of 0.120, t-value of 2.409, and p-value of 0.017.

**Hypothesis 5: Team dynamics have a significant positive effect on project implementation of EEIG construction projects.**

The results of multiple regressions, as presented in Table 24 above, state that team dynamics have a significant positive effect on project implementation. With a beta value of 0.127, a t-value of 2.719, and a p-value of 0.007, the hypothesis is accepted.

**Hypothesis 6: Stakeholder engagement has a significant positive effect on project implementation of EEIG construction project.**

The results of multiple regressions, as presented in Table 24 above, suggest that stakeholder engagement has a significant positive effect on project implementation. The beta value of 0.104, t-value of 2.122, and p-value of 0.036

## CHAPTER FIVE

### 5 SUMMARY, CONCLUSION AND RECOMMENDATION

#### 5.1 Introduction

This chapter provides a summary, conclusions, and recommendations of the research undertaken in the study. For clarity purposes, the conclusions were made based on the research objectives of the study. The general explanations of the findings were discussed and recommendations were drawn from the conclusions of the research. Finally, the study provides directions for future research.

#### 5.2 Summary

This study was conducted on Factors Affecting Project Implementation in Debre Berhan: a Case Study of Ethiopian Engineering and Investment Group. The study committed to knowing the Factors (Project manager competency, Project Equipment, Project Fund, Control mechanisms, Team Dynamics, and Stakeholder engagement) on Project Implementation. To achieve its objective, this study used quantitative methods. For precise and dependable results, both manual and computer software programs for social science, such as software programs for social science (SPSS), were used. The data collected from primary and secondary sources via interview guide, questionnaire, and documentation search were organized, compiled, edited, processed, and tabulated to draw information before being analyzed using relevant SPSS statistical techniques. In doing so, descriptive statistics were applied to computer frequency mean and standard deviation of responses for quantitative data analysis. The data were presented and analyzed concerning the main variables outlined in the objectives and research questions. The study's findings were presented using tables, graphs, and figures with narrative descriptions, as well as tables, graphs, and figures representing quantitative data.

For this study, 160 questionnaires were distributed and 134 questionnaires were properly filled and collected. The general profile of the respondents showed that 53.7% of the respondents are male whereas the remaining 46.3% are female. Regarding the age profile of the respondents pertain that 56.7% of the respondent's age were found between 28-40 years. It implies that the majority of employees of Ethiopian Engineering and Investment Group are aged up to 40 years old. The designation of the respondents indicates that 35.1% of the respondents are laborers, the educational background of the respondents showed that 54.5% of the respondents were first-degree holders, and the work experience of the respondents 42.0 % of the respondents have 4-11

years of work experience. It implies that the majority of employees of Ethiopian Engineering and Investment Group are experienced.

The result of the descriptive statistics of this study showed that Stakeholder engagement has the highest mean score of 4.50, followed by Control mechanisms with a 4.03 mean score, Project manager competency with a 3.98 mean score, Team Dynamics with the mean score of 3.78, Project Equipment with the mean score of 3.76 and project fund with the mean score of 3.53. As a result, Stakeholder engagement is the dominant factor affecting Project Implementation of Ethiopian Engineering and Investment Group.

The finding from the correlation analysis indicates all factors have a positive and statistically significant relationship with the project implementation. Among them, Project manager competency has the strongest relationship with Project implementation ( $r=0.710^{**}$ ,  $p<0.05$ ), followed by Project Equipment with ( $r=0.623^{**}$ ,  $p<0.05$ ). Control mechanisms with ( $r=0.597^{**}$ ,  $p<0.05$ ), Team Dynamics with ( $r=0.584^{**}$ ,  $p<0.05$ ), Project Fund with ( $r=0.560^{**}$ ,  $p<0.05$ ), and Stakeholders engagement with ( $r=0.343^{**}$ ,  $p<0.05$ ).

Regarding the multiple regression analysis results demonstrate that Project manager competency has more impact on project implementation with  $\beta=0.217$ , followed by Project Fund with  $\beta=0.189$ , Project Equipment with  $\beta=0.148$ , Team Dynamics with  $\beta=0.127$ , Control mechanisms with  $\beta=0.120$  and Stakeholders engagement with  $\beta=0.104$  have a significant positive impact on project implementation at  $p<0.05$ . The model summary of multiple regressions indicates that independent variables of factors explain 69.2% of the variations in project implementation of the dependent variable; the remaining 30.8% are explained by other factors that are not included in this study.

### **5.3 Conclusion**

Based on the results of the study and the summary of findings the following conclusions are made. Correlation analysis revealed that there is a significant and positive correlation between factors (Project manager competency, Project Equipment, Project Fund, Control mechanisms, Team Dynamics, and Stakeholder engagement) and Project implementation in Debre Berhan. Inferential analysis indicates that Project manager competency, Project Fund, Project Equipment, Team Dynamics, Control mechanisms, and Stakeholder engagement have statistically significant effects on Project implementation. Project manager competency is the most powerful significant variable that has a greater regression coefficient than others. From the research findings, the

researcher concluded that the factors significantly impact the Project implementation of Ethiopian Engineering and Investment Group.

The study concludes that results from the analysis of project manager competency implemented by the Ethiopian Engineering and Investment Group underscore the critical importance of stakeholder management, risk identification, and mitigation, effective decision-making, communication skills, and leadership qualities. Stakeholder engagement is highlighted as a key factor in enhancing project outcomes, while risk management strategies and decision-making competence are crucial for project trajectory and success.

The study concludes that the findings from the analysis of project equipment implementation indicate that proper maintenance and management of construction equipment play a crucial role in maximizing productivity and operational efficiency. The cost of equipment is a significant factor contributing to the overall project expenses, emphasizing the importance of efficient procurement and cost management practices. Furthermore, the quality of equipment directly impacts the quality of work performed on construction projects, highlighting the need for high-quality equipment to ensure superior construction outcomes.

The study concludes that results from the analysis of project fund management demonstrate that determining the initial budget and funding requirements is crucial for successful project implementation, as highlighted by a mean score of 4.04 and a standard deviation of 1.14. Effective monitoring of fund allocation throughout the project lifecycle is essential for financial control, with a mean score of 3.5 and a standard deviation of 1.45. Securing adequate funding sources, enabling proper budgeting and contingency planning, and facilitating timely resource procurement are all essential aspects emphasized in the study.

The study concludes that results from the analysis of the implementation of control mechanisms demonstrate the critical importance of feedback loops and project control systems in enhancing project outcomes. The high mean scores for feedback mechanisms and control systems underscore their significant role in ensuring project alignment with objectives, identifying deviations early, and facilitating timely adjustments. The overall impact of these control mechanisms on successful project implementation is substantial, emphasizing their role in mitigating risks, managing complexities, and maintaining project momentum.

The study concludes that the findings from the analysis of Team dynamics show that conflict resolution and effective communication are crucial for maintaining project progress and

performance. With a mean score of 4.10 for conflict resolution and 4.07 for communication, it is evident that addressing conflicts and fostering clear communication channels positively impact team cohesion and productivity. Additionally, the influence of team dynamics on motivation, collaboration, and trust further emphasizes the significance of cohesive teams in achieving project success. Leadership styles also play a vital role in shaping team dynamics, with transformational leadership proving instrumental in creating a positive team environment and enhancing project outcomes.

The study concludes that the findings from the analysis of stakeholder engagement it is evident that proactive problem-solving and engagement with stakeholders play a crucial role in ensuring project success. The mean scores indicate a high level of stakeholder involvement in problem-solving activities, feedback integration, and collaborative decision-making, which positively impact project quality outcomes and budgetary control. Stakeholder engagement not only enhances transparency and accountability but also fosters a collaborative environment that aligns project outcomes with stakeholder expectations.

The study concludes that the findings from the analysis of project implementation show that ensuring adherence to project schedules and deadlines is crucial for project success, as delays can lead to cost overruns and missed objectives. Effective time management plays a vital role in project execution, ensuring timely delivery, meeting stakeholder expectations, and mitigating risks associated with delays. Managing resources efficiently within budget is essential for project success, as it helps avoid cost overruns and ensures the availability of necessary inputs when required. Quality execution is integral to meeting standards and stakeholder expectations, minimizing rework, and defects for efficient project completion.

### **5.3 Recommendation**

Based on the result of this study, the following recommendation is suggested

- Based on the study conducted in the Ethiopian Engineering and Investment Group at Debre Berhan, it was found that Project manager competency is one of the most important factors that positively influence project implementation in Debre Berhan. Therefore the study recommends that organizations in this region should focus on investing in training and development programs to enhance the skills and knowledge of their project teams.
- To improve project implementation in Debre Berhan, it is recommended to focus on enhancing the skills and expertise of project team members. Training programs, workshops,

and continuous professional development opportunities should be provided to ensure that team members are equipped with the necessary knowledge and skills to successfully execute the project.

- Based on the study conducted in the Ethiopian Engineering and Investment Group at Debre Berhan, it was found that Project Equipment is a significant factor that affects project implementation. Therefore the study recommends that organizations should ensure they have the necessary resources and tools in place to successfully carry out their projects. Regular maintenance and upgrades of equipment should also be considered to avoid any delays or disruptions in project implementation.
- Based on the study conducted in the Ethiopian Engineering and Investment Group at Debre Berhan, it was found that adequate funding is essential for the successful completion of a project. Therefore the study recommends that organizations should conduct a thorough financial analysis and budget planning at the start of the project to ensure that there are sufficient funds available for all project activities.
- Based on the study conducted in the Ethiopian Engineering and Investment Group at Debre Berhan, it was found that Team Dynamics is another important factor that influences project implementation. Strong teamwork, collaboration, and communication among project team members are essential for the successful completion of projects. Therefore the study recommends that Organizations should foster a positive team environment and encourage open and effective communication to optimize team dynamics.
- Based on the study conducted in the Ethiopian Engineering and Investment Group at Debre Berhan, it was found that implementing effective control mechanisms is crucial for monitoring and evaluating project progress. Therefore the study recommends that organizations should establish clear performance indicators, milestones, and reporting mechanisms to track project performance. Regular project reviews and evaluations should be conducted to identify any potential issues or challenges and take corrective actions as needed.
- Based on the study conducted in the Ethiopian Engineering and Investment Group at Debre Berhan, it was found that Stakeholder engagement is also crucial for project success. Engaging stakeholders throughout the project lifecycle and incorporating their feedback and input can lead to better project outcomes. Therefore the study recommends that

Organizations should actively involve stakeholders in decision-making processes, communication efforts, and project planning to ensure their support and buy-in.

#### **5.4 Suggestions for Future Research**

This research focused on the Factors Affecting Project Implementation in Debre Berhan: a Case Study of Ethiopian Engineering and Investment Group. Factors Affecting Project Implementation was measured in terms of Project manager competency, Project Equipment, Project Fund, Control mechanisms, Team Dynamics, and Stakeholder Engagement. Hence, further research can be undertaken to focus on other measures of Factors Affecting Project implementation. Methodologically – the researcher uses a quantitative approach and analyzes by multiple linear Regression Models, future researchers should try other methods and models, and additionally for future research, it is recommended to delve deeper into the specific strategies and best practices employed by successful projects within the organization. Exploring the nuances of how project manager competency, equipment management, fund allocation, control mechanisms, team dynamics, and stakeholder engagement interact and influence overall project success would provide valuable insights. Additionally, conducting comparative studies with other similar organizations or across different project types could offer a broader perspective on effective project implementation strategies in the region. Furthermore, investigating the impact of external factors such as economic conditions, regulatory frameworks, and technological advancements on project implementation could enhance the understanding of the dynamics at play in the project management landscape of Debre Berhan.



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# APPENDIX

## Appendix 1: English version

DEBRE BERHAN UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF MANAGEMENT



Questionnaire to be filled out by Ethiopian Engineering and Investment Group Employees

### Dear respondents

I am a graduate student at Debre Berhan university school of graduate studies. Currently, I am conducting a research study on. “Factors Affecting Project Implementation in Debre Berhan: a Case Study of Ethiopian Engineering and Investment Group ” in partial fulfillment of Master of Arts in project management. The purpose of this questionnaire is to gather data for the proposed study, and hence you are kindly request to assist the successful completion of the study by providing the necessary information. Your genuine, frank and timely response is vital for the success of the study and thank you in advance for your kind cooperation to fill this questionnaire. I am asking your voluntarism by trusting you will give real and valuable information to the study. If you are willing to participate in the study, please sign and return this form and please note that you are not require to give your name in this questionnaire.

### For further information

Name;-Elsabet Ababu +251-933350682

E-mail:elsaababu3@gmail.com

**Thank you very much for your cooperation!**

### SECTION A: General Information of respondent

1. Gender Female  Male

2. Age            18-27 Yrs             28-40 Yrs             41-55Yrs             above 56yrs
3. Designation: Project manager             Site Engineer             Office Engineer   
labor             Site Supervisor             logistic            other
4. Relevant working experience (Years):    less than 1yrs             1-4Yrs   
5-8Yrs             9-12Yrs            >12Yrs
5. Educational status: Certificates             Diploma             Degree             Masters and above

**SECTION B: Project specifics and Project Implementation**

Close Ended Questions Instruction; please respond to the closed-ended questions in the table forms using the following keywords. And put a tick mark (√) on the space provided. Likert, R. (1932).

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

Put a checkmark next to the option that best describes how important each of the following project performance elements was to your project.

no	project implementation measurement	1	2	3	4	5
1	The project is carried out according to the planned scope					
2	The project is been carried out according to the planned time					
3	The project is carried out according to the planned resources					
4	The project is carried out in a quality manner					
5	The project is progressing according to schedule and meeting deadlines as planned.					
6	Project outcomes are aligned with initial objectives and expectations.					
7	The project is achieving measurable results and delivering value to stakeholders.					

**SECTION C: factors of project implementation**

Please check the box next to the project(s) you are working on to indicate how applicable and used the following project implementation practice

no	project implementation practice					
	<b>Project manager Competency</b>	1	2	3	4	5
1	Project manager's leadership skills impact the overall success of a project					
2	Effective decision-making by a project manager contribute to the smooth progression of project activities					
3	Communication skills enable a project manager to effectively convey project goals, objectives					
4	Proficient risk identification and mitigation strategies help ensure that the project stays on track.					
5	Stakeholder management an essential aspect of project manager competence, and effective engagement to project success.					
	<b>Project Equipment</b>					
1	Selection of construction equipment impact the successful implementation of construction projects					
2	The equipment usage cost increase construction cost					
3	Proper maintenance and management of construction equipment essential for maximizing productivity					
4	The cost of equipment contribute to the total project cost					
5	Quality of equipment used directly impact the overall quality of work performed on a construction project					
	<b>Project fund</b>					
1	project managers determine the initial budget and funding requirements for a construction project					
2	Sources of funding for construction projects ensure they secure adequate funds to cover all project costs					
3	project managers monitor to ensure that funds are being allocated					



	effectively throughout the project lifecycle					
4	Adequate funding allows for proper budgeting, and contingency planning managing project expenses effectively					
5	Adequate project funds availability allows for timely procurement of resources needed for project implementation					
	<b>Control mechanisms</b>					
1	Project control mechanisms impact the successful implementation of construction projects					
2	Project control systems that help in measuring performance, cost, and time the variance between planned variables and actual project performance					
3	project control mechanisms, contribute to maintaining project alignment with objectives and ensuring timely corrective actions					
4	Feedback in project implementation and control making necessary adjustments to keep the project on track					
5	Feedback in project management, be effectively applied to enhance project control mechanisms and improve project outcomes					
	<b>Team Dynamics</b>					
1	Effective communication among project team members contribute to positive team dynamics					
2	Team members collaboration, team cohesion, and trust are factor for project performance and success					
3	Different leadership styles influence team dynamics and project implementation within project teams					
4	Team dynamics influence team members' motivation and impact project success					
	<b>stakeholder's engagement</b>					
1	Project managers effectively identify and prioritize stakeholder interests to enhance project success					
2	Collaborative problem-solving with stakeholders impact project					

	cost management					
3	Proactive problem-solving with stakeholders on project timelines, schedule adherence					
4	Involving stakeholders in problem-solving activities affect project quality outcomes					
5	Project teams integrate stakeholder feedback into quality management processes to ensure project success and meet stakeholder requirements					