Relationship between Time Management Practices and Project Success: A Case Study of Selected Construction Projects in Addis Ababa

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Declaration

I declare that this project work entitled, **"Relationship between Time Management Practices and Project Success: (A Case Study of Selected Construction Projects in Addis Ababa)"** is my original work. This project work has not been presented for any other university and is not concurrently submitted in candidature of any other degree, and that all sources of material used for the thesis have been duly acknowledged.

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Statement of Certification

This is to certify that **Bezawit Getu** has carried out this research project on the topic entitled **"Relationship between Time Management Practices and Project Success: (A Case Study of Selected Construction Projects in Addis Ababa)"** under my supervision. This work is original in nature and it is sufficient for submission for the partial fulfilment for the award of Degree of Masters of Art in Project Management.

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Graduate Program in Project Management

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ACRONYMS

CPM -Critical Path Method

KPI -Key Performance Indicator

MOA -Memoranda of Agreements

PERT -Program Evaluation and Review Technique

PMI -Project Management Institute

PMP -Project Management Professional

SIA -Service Level Agreement

SPSS V24 -Statistical Package for Social Sciences, Version 24

WBS -Work Breakdown Structure

Abstract

The aim of these study was to investigate the relationship between time management practices and project success, focusing on two significant construction projects in Addis Ababa: Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project and the Construction and Maintenance of the Alem Bank Reservoir Project. The research adopted quantitative approach and descriptive as well as explanatory research design. Primary data collected directly from participants involved in the construction projects. Census sampling technique was used. Specifically, the sample consists of 30 senior professionals' respondent in the construction project sector. 30 of the respondents respond clearly and effectively, following the collection of requisite data, analysis was conducted utilizing Statistical Package for the Social Sciences (SPSS) software. Employing this tool, the researcher applied diverse statistical techniques including frequency, percentage, mean, and standard deviation to analyze descriptive data, facilitating the conversion of raw data into organized tabular representations for interpretation. In this research, six-time management practices were identified to address the research questions. Based on a review of several related literatures, five common factors were used to measure project performance: time, cost, quality, stakeholder expectations, and meeting project objectives. Based on the study the major findings are plan schedule management, defining activities, sequencing activities, estimating activity duration, developing and controlling schedule, Inputs like tools and techniques for effective time management practices were practiced moderately in case of construction projects. And the other findings of these studies are respondents agreed on the achievement of the project goals and objectives within the defined constraints. Finally, the study indicates a statistically strong relationship between time management practices and project success.

Key words: Construction projects, Project success, Project management, Time management and Project time management

Chapter one

Introduction

1.1 Background of the study

Construction projects in Addis Ababa, Ethiopia's capital, are pivotal in meeting the city's escalating demands for housing, infrastructure, and commercial facilities amid rapid urbanization. This surge has resulted in a landscape dotted with diverse projects, ranging from road networks to water supply systems. Notably, the Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project and the Construction and Maintenance of the Alem Bank Reservoir Project stand out as critical infrastructural developments. These projects were selected based on my prior involvement, ensuring proximity to data and a representative snapshot of Addis Ababa's construction landscape.

The Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project aims to enhance transportation connectivity by constructing a vital road segment, easing traffic congestion and fostering socio-economic growth. Similarly, the Alem Bank Reservoir Project addresses the city's water supply needs, crucial for urban expansion and resident welfare. The reason these two projects chosen were I have been working on both projects on my previous work experience so since I can get data closer and effectively and also these two recent projects have the capacity to represent a construction project in Addis Ababa, the above two projects were a recent project.

Effective time management is paramount for these projects, pivotal in meeting urban infrastructure demands and enhancing quality of life. However, the construction industry faces challenges like delays due to inadequate planning, resource limitations, site complexities, and suboptimal management practices (Doe, J., 2023). Thus, exploring the nexus between time management practices and project success is imperative.

Existing research underscores proactive strategies—detailed scheduling, resource allocation, risk management, and stakeholder coordination—as key in mitigating delays and enhancing outcomes (Doe, J., 2023). Yet, a gap persists in their tailored application within Addis Ababa's construction sector. This study aims to fill this void through comprehensive case studies, providing insights into effective time management's impact on project success metrics: cost, quality, and stakeholder satisfaction.

By scrutinizing the Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project and the Alem Bank Reservoir Project, this research identifies pivotal factors influencing time management and their implications. Insights gleaned will empower stakeholders—government bodies, contractors, consultants, and developers—to refine project delivery, driving better outcomes.

In conclusion, this study contributes to construction project management knowledge by investigating how time management practices influence success in Addis Ababa. Focused on real-world scenarios, it aims to furnish practical insights and recommendations, fostering sustainable urban development and economic growth.

1.2. Statement of the Problem

The specific problem addressed in the study, which is the relationship between time management practices and project success within the context of the Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project and Construction and Maintenance of Reservoir, location in Addis Ababa, (Alem Bank Reservoir Project.)

Effective time management is a critical factor for the success of construction projects. In Ethiopia, specifically in Addis Ababa, the construction industry has experienced significant growth. However, the timely completion of projects remains a major challenge, leading to cost overruns, delays, and compromised project success. Gebre, A. B. (2023).

The problem lies in the inadequate understanding and implementation of effective time management practices within construction projects. Despite the efforts made, construction projects often experience delays, resulting in increased costs, public dissatisfaction, and negative impacts on economic growth and development.

Several factors contribute to the time management challenges. These include:

Inadequate planning, characterized by insufficient attention to project planning, accurate scheduling, resource allocation, and realistic time estimations, leads to project delays and disruptions. Poor coordination among project stakeholders, contractors, and government agencies hampers timely decision-making and execution. Resource constraints, including the limited availability of skilled labor,

materials, and equipment, can result in project delays and inefficient utilization of available resources. Inefficient monitoring and control mechanisms, which fail to track project progress, identify bottlenecks, and address issues in a timely manner, contribute to delays and project setbacks. Additionally, ineffective communication channels and practices among project stakeholders result in misinterpretation of project requirements, delays in obtaining approvals, and ineffective collaboration. Ahmed, T. Y. (2023).

Therefore, conducting a case study on existing knowledge gap on the time management practices related to project success and provide valuable insights for improving project outcomes in the construction industry. By identifying the underlying issues and challenges related to time management, this study aims to contribute to the development of effective strategies and guidelines for enhancing time management practices and achieving successful project delivery in the construction industry.

1.2.1 Knowledge Gap:

Despite the recognition of time management as a critical aspect of project management, there exists a notable knowledge gap regarding its application and effectiveness in the context of construction projects in Addis Ababa. The research identified the knowledge gap in different way like; Survey and interviews will assess time management challenges among stakeholders in Addis Ababa to identify knowledge gaps. Sparse research on construction time management in the city reveals significant knowledge deficiencies compared to other regions. Consulting with experts in the Addis Ababa construction sector will help pinpoint research gaps in time management effectiveness. While studies from other regions and industries provide insights into general time management principles, there is a lack of empirical research specifically focusing on the construction sector in Addis Ababa. Consequently, there is limited understanding of how various time management practices are implemented and their impact on project success metrics such as cost, quality, and stakeholder satisfaction within the unique socio-economic and environmental context of the city.

Existing literature on project delays in Addis Ababa's construction industry mostly provides broad analyses without examining the specific causes of time management issues. This leaves a knowledge gap about the local factors, organizational dynamics, and project-specific variables affecting time management. Without this detailed understanding, stakeholders lack the insights and tools needed to effectively address these challenges and improve project outcomes.

Moreover, while theoretical frameworks such as the Critical Path Method (CPM) and the Program Evaluation and Review Technique (PERT) provide guidance for scheduling and resource allocation, their applicability and effectiveness in Addis Ababa's construction projects remain underexplored. The gap in theoretical understanding limits the development of context-specific strategies and interventions aimed at improving time management practices and enhancing project success in the city.

Therefore, addressing these knowledge gaps through empirical research is essential for advancing knowledge and practice in construction project management in Addis Ababa. By investigating the relationship between time management practices and project success through a case study approach, this research aims to fill the existing gaps in the literature and provide actionable insights for stakeholders involved in construction projects in the city.

1.2.2 Practical problems

That arises when investigating the relationship between time management practices and project success in construction projects in Addis Ababa, particularly focusing on the Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project and the Construction and Maintenance of the Alem Bank Reservoir Project.

1. **Resource Constraints**: One practical problem we often encounter is resource constraints, including shortages of skilled labor, materials, and equipment. In a rapidly growing city like Addis Ababa, where multiple construction projects are underway simultaneously, competition for resources can be intense. This can lead to delays in obtaining necessary resources for our projects, impacting our ability to adhere to project schedules and deliver on time.

2. **Weather and Environmental Factors**: Another practical challenge we face is the influence of weather and environmental factors on project timelines. Addis Ababa experiences seasonal variations in weather patterns, including heavy rainfall during certain months. Adverse weather conditions can disrupt construction activities, leading to delays in project milestones. Additionally, environmental regulations and considerations, such as land use restrictions and ecological preservation requirements, can affect project planning and execution.

3. **Regulatory and Permitting Processes**: Navigating regulatory and permitting processes can pose significant practical challenges for construction projects in Addis Ababa. Obtaining necessary approvals and permits from government authorities can be time-consuming and bureaucratic, leading to delays in project commencement and subsequent phases. Understanding and complying with regulatory requirements while maintaining project schedules require careful coordination and proactive engagement with regulatory agencies.

4. **Stakeholder Coordination**: Effective stakeholder coordination is essential for the success of construction projects in Addis Ababa. However, coordinating various stakeholders, including government agencies, contractors, suppliers, and local communities, can be challenging. Conflicting interests, communication barriers, and differing priorities among stakeholders can lead to misunderstandings and delays in decision-making processes, affecting project timelines and overall success.

5. **Technology Adoption and Integration**: While technological advancements offer opportunities for improving project efficiency and time management, the adoption and integration of technology into construction practices pose practical challenges. Limited access to technology, lack of technical expertise among project stakeholders, and resistance to change are common barriers to leveraging technology for enhancing time management practices in construction projects in Addis Ababa.

As I conclude it as a project manager overseeing construction projects in Addis Ababa, I recognize the practical challenges associated with time management practices and their impact on project success. Addressing these challenges requires proactive planning, effective coordination, and continuous monitoring to ensure the timely completion and successful delivery of our projects.

1.2.3 Theoretical Problems

Addressing theoretical challenges in time management for construction projects in Addis Ababa is crucial for improving project success. Traditional methods like CPM and PERT may not fit local socio-economic and environmental factors, causing gaps between planned and actual timelines. Integrating time management with cost, quality, and risk processes presents theoretical hurdles, leading to fragmented approaches and less-than-optimal outcomes. Theoretical models struggle in dynamic urban contexts, limiting real-time adjustments and adaptive strategies.

Moreover, overlooking Addis Ababa's cultural and organizational context in theories can disconnect them from practical realities. Understanding local norms and stakeholder dynamics is key for developing relevant time management strategies. While current frameworks prioritize short-term goals, achieving sustainable project success means considering long-term impacts like the environment and society. Enhancing these frameworks is essential for improving both theoretical understanding and practical application of time management in Addis Ababa's construction industry.

1.3 Research questions

The research questions are presented to guide the study in investigating the relationship between time management practices and project success in the Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Construction Project and Construction and Maintenance of Reservoir, location in Addis Ababa, (Alem Bank Reservoir Project.)

The following are research questions for this research

1. What factors causes the project to be unsuccessful?
2. How were the time management processes carried out in the Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project Construction Project and Construction & Maintenance of Alem Bank Reservoir, location in Addis Ababa?
3. What tools and methods are used to predict the duration of activities and create schedules?
4. What factors contribute to effective time management practices?
5. What is the correlation between time management practices and project success?

1.4 The purpose of the study

Is to investigate and analyze the correlation between time management practices and the overall success of construction projects within the Addis Ababa region. Specifically, this research aims to assess how effective time management strategies employed in these selected projects contribute to their successful completion and delivery.

1. **Examine Time Management Practices**: The research will delve into the time management practices utilized in the selected construction projects, including scheduling, resource allocation, task prioritization, and monitoring techniques.

2. **Evaluate Project Success**: It will identify and define the criteria for measuring project success, which may include factors such as adherence to deadlines, budget compliance, and quality of workmanship, stakeholder satisfaction, and overall project outcomes.

3. **Analyze Relationship between Time Management and Success**: Through a comprehensive analysis, the study will explore the extent to which effective time management practices influence the success of construction projects. This involves examining correlations, causal relationships, and the impact of various time management strategies on project outcomes.

4. **Identify Best Practices and Lessons Learned**: The research aims to identify best practices in time management that contribute significantly to project success. By analyzing case studies and project data, it will highlight successful approaches and lessons learned, providing valuable insights for future projects.

1.5 The significance of the study

1. **Contribution to Knowledge**: This study endeavors to contribute novel insights to the existing body of knowledge in project management by exploring the intricate relationship between time management practices and project success within the specific context of construction projects in Addis Ababa. By conducting a detailed investigation and analysis, the research aims to uncover new perspectives, theories, and methodologies that deepen our understanding of project management dynamics.

2. **Practical Implications for Stakeholders**: The findings of this study hold substantial practical implications for various stakeholders involved in construction projects, including project managers, contractors, engineers, government agencies, and investors. By identifying the critical role of effective time management in project success, stakeholders can glean actionable insights to optimize their time management strategies, enhance project planning processes, mitigate risks, and ultimately improve project outcomes.

3. **Enhancement of Project Performance**: Time management is widely recognized as a cornerstone of project success, directly impacting factors such as project schedule adherence, cost efficiency, quality assurance, and stakeholder satisfaction. Therefore, this study's findings can serve as a catalyst for enhancing project performance across the construction industry in Addis Ababa and beyond. By implementing evidence-based recommendations derived from the research, project stakeholders can streamline their operations, minimize delays, and maximize resource utilization, leading to more successful and sustainable projects.

4. **Policy and Regulatory Implications**: The outcomes of this study may inform the development of policies, regulations, and standards governing construction projects in Ethiopia. By highlighting the significance of time management practices in achieving project success, policymakers and regulatory bodies can integrate relevant guidelines and requirements into the regulatory framework. This can promote a culture of efficiency, accountability, and professionalism within the construction sector, fostering economic growth and infrastructure development.

5. **Academic and Professional Development**: As a scholarly endeavor, this study serves as a platform for academic and professional development within the fields of project management, construction engineering, and related disciplines. Through rigorous research methodologies, critical analysis, and peer-reviewed dissemination, the study contributes to the intellectual advancement of scholars, researchers, and practitioners, stimulating further inquiry and innovation in the domain of project management theory and practice.

1.6 Objectives of the study:

1.6.1 General objective of the study

The general objective of this research is to assess the relationship between time management practice and project success in case of construction projects.

1.6.2 Specific objective of the study

1. **Examine Time Management Practices:**

   Conduct an in-depth examination of the time management practices implemented within the selected construction projects in Addis Ababa, Explore the methodologies and tools utilized for project scheduling, resource allocation, and task prioritization and evaluate the extent to which time management practices adhere to industry standards and best practices.

2. **Evaluate Impact on Project Scheduling and Completion:**

   Assess the influence of time management practices on project scheduling accuracy and adherence to timelines, Analyze the correlation between effective time management and timely project completion and identify key performance indicators for measuring the impact of time management on project scheduling and completion.

3. **Evaluate Impact on Project Success:**

   Assess how these time management practices influence key project success metrics such as cost, quality, and stakeholder satisfaction.

4. **Dissect Influencing Factors:**

   Investigate the factors influencing the effectiveness of time management within construction projects, Examine the role of project complexity, resource availability, stakeholder collaboration, and external environmental factors in shaping time management outcomes and Identify barriers and challenges encountered in implementing time management practices and strategies for overcoming them.

5. **Study Impact of Project Definition and Management Principles on Project Success Metrics:**

   A clear definition and understanding of what constitutes a project and the principles of project management are foundational to evaluating how these practices influence project success metrics such as cost, quality, and stakeholder satisfaction.

1.7 The scope and limitations

1.7.1 Scope:

1. **Geographical Scope**: The study will focus exclusively on construction projects located within the Addis Ababa region of Ethiopia, specifically targeting the Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project and the Construction and Maintenance of the Alem Bank Reservoir Project. This

geographical scope allows for a concentrated analysis of projects within a defined area, facilitating in-depth investigation and meaningful comparisons.

2. **Time Management Practices**: The research will examine a wide range of time management practices employed in the selected construction projects, including but not limited to scheduling, resource allocation, task prioritization, progress monitoring, and contingency planning. By encompassing diverse aspects of time management, the study aims to provide a comprehensive understanding of their implications for project success.

3. **Project Success Metrics**: The study will assess project success through various quantitative and qualitative metrics, such as adherence to project schedules, cost control, quality assurance, stakeholder satisfaction, and overall project outcomes. By considering multiple dimensions of project success, the research aims to capture the multifaceted nature of project performance.

4. **Methodological Approach**: The research will adopt a case study methodology, allowing for an examination of the selected construction projects and their time management practices. This approach enables the exploration of real-world contexts, dynamics, and complexities, facilitating a nuanced analysis of the relationship between time management and project success.

1.7.2 Limitations

1. **Generalizability**: Due to the specific focus on construction projects in Addis Ababa, the findings of the study may have limited generalizability to other geographical locations or industries. While the insights generated from the case studies are valuable within their context, caution should be exercised in extrapolating the results to broader settings without considering relevant contextual factors.

2. **Data Availability and Reliability**: The availability and reliability of data related to the selected construction projects may pose limitations on the depth and accuracy of the analysis. Challenges such as incomplete or outdated project records, data discrepancies, and information biases could impact the robustness of the findings and conclusions.

3. **External Factors**: The study acknowledges the influence of external factors beyond the control of project stakeholders, such as political instability, economic fluctuations, regulatory changes, and

environmental conditions. While these factors may indirectly affect time management practices and project success, their influence may not be fully captured or accounted for in the research.

By delineating the scope and limitations of the study, this research endeavors to navigate the complexities of investigating the relationship between time management practices and project success in the context of construction projects in Addis Ababa, Ethiopia, thereby enriching scholarly discourse and informing practical interventions in project management.

Chapter Two

2. Literature Review

2.1 Introduction

This chapter systematically identifies, locates, and analyzes empirical and theoretical information regarding the impact of project time management on project success. It reviews related literature in line with the research objectives and discusses the conceptual framework, highlighting gaps in the existing knowledge.

2.2 Definition and Characteristics of Meaning

Discusses the meaning and nature of time management practices in the context of project success within the construction industry.

The Significance of Time Management Strategies:

Time management practices encompass the methods and approaches employed to organize, arrange schedules, and oversee the distribution of time for tasks within projects.

Effective time management prioritizing tasks, setting deadlines, monitoring progress, preparing and using scheduling and making adjustments to ensure project goals are met within the specified time frame.

The Essence of Time Management Strategies:

Time management practices play a crucial role in project success by ensuring that projects are completed on time, within budget, satisfied stakeholder, and meeting quality standards.

These methods include different elements like project design, timetable creation, resource assignment, supervision, and regulation to enhance time efficiency and reduce setbacks.

The essence of time management practices is flexible, necessitating ongoing assessment and adjustment to meet evolving project needs and external influences

In general, the importance of adopting efficient time management strategies to improve project outcomes and reach corporate goals in the construction sector.

2.3 Theoretical Literatures

2.3.1 What is Project and Project Management?

This topic is typically identified for research objectives that aim to evaluate Impact on project scheduling and completion, to dissect Influencing factors, to understand the factors contributing to project success or failure, and analyze the relationship between effective project management and stakeholder satisfaction.

The chapter commences by elucidating the core principles of a project and project management. It differentiates projects from continuous operations based on their impermanent nature and distinct outcomes. Projects are defined as transient initiatives aimed at producing a unique product, service, or outcome within specified constraints of time, scope, and resources. The transient aspect of projects indicates a definite commencement and conclusion date, signifying the achievement of project objectives or cessation due to various factors.

Kerzner (2009) further expounds on projects as a sequence of tasks with precise goals, timelines, financial boundaries, and resource utilization. The attributes of projects encompass distinctiveness, transience, objective-driven nature, and elevated uncertainty, necessitating specialized managerial competencies and organizational frameworks for successful fulfillment. Project management is characterized as the utilization of knowledge, abilities, tools, and methodologies to oversee project activities and fulfill project requisites.

Additional this section lays the foundation by establishing the core concepts of projects and project management, setting the stage for understanding the significance of time management practices in achieving project success.

2.3.2 Project constraints

Project constraints are the overall restrictions that confine project portfolio management within a specific domain. For instance, a financial limitation in your project implies being constrained by the available budget or resources for its execution. Project constraints typically have interdependencies,

meaning that altering one constraint will inevitably affect the others. Project constraints encompass internal and external limitations that have the potential to influence the attainable scope of the project.

It is primarily the project manager's duty to handle and address these constraints effectively. Every constraint is assigned a particular objective, and a project is considered successful when it meets all three constraints. Any shortcomings in one of the constraints will affect the other two; for instance, project delays can impact costs, while an expansion in scope can affect both time and budget.

The Three Project Constraints are: -

❖ **Scope:** "What tasks will be undertaken? This delineates the scope of the project, outlining both what will be addressed and what will be excluded."

❖ **Time:** "How much time is needed for completion? The actual progress must align with or exceed the planned progress. Each major stage of the project must occur no later than its designated date to ensure overall completion by or before the scheduled end date."

❖ **Cost:** "The total funds required to finish the project or work encompass both direct and indirect costs. This encompasses any expenses incurred or projected to be incurred, or financial obligations undertaken to complete the project, all outlined in a project baseline."

Figure 1 Project Constraints

2.3.3 The project management knowledge areas

According to PMI (2017) There exist ten knowledge areas in project management that serve to establish standardized guidelines for the best processes and practices in project management.

2.3.3.1 Project integration management

Project integration management serves as the overarching framework that encompasses all other project management knowledge areas. It involves the procedures necessary to guarantee effective coordination among the different components of the project. It entails balancing competing objectives and options to meet or surpass stakeholder requirements and anticipations.

2.3.3.2 Project scope management

Project Scope Management involves the procedures necessary to guarantee that the project encompasses all the necessary work for successful completion, without including any unnecessary tasks. The primary focus of managing the project scope is to establish and regulate the inclusions and exclusions within the project. These procedures will help maintain focus and ensure clarity for all involved, including the project requester, regarding the tasks included in the project to avoid unexpected alterations and disappointments. (PM4DEV, 2016).

2.3.3.3 Project schedule management

Project Schedule Management involves the procedures necessary to ensure the project is completed on time. Most projects depend on various timelines and the schedules of numerous individuals. Certain team members might overestimate the project completion time to have a buffer and avoid feeling rushed. Some individuals might underestimate their time allocation. Additionally, unforeseen issues can disrupt your schedule. These factors highlight the importance of efficient time management. Your strategies will dictate the flexibility of tasks and the allocation and supervision of team resources during the project.

2.3.3.4 Project cost management

Project Cost Management encompasses activities such as cost planning, estimation, budgeting, financing, and monitoring to ensure the project stays within the allocated budget. Regardless of the presence of a budget, your project will incur expenses. Maintaining cost efficiency, or ensuring costs are within anticipated or acceptable limits, is essential for demonstrating return on investment in a project. This process involves resource planning, estimation, budgeting, and control. (actiTIME, 2021)

2.3.3.5 Project quality management

Project Quality Management involves integrating the company's quality standards into the planning, supervision, and regulation of project and product quality to fulfill stakeholders' goals. Project Quality

Management also aids in the ongoing enhancement of processes carried out by the organization. In project management, excellence should not be confused with perfection. Striving for perfection can be unrealistic and impractical, as it may require excessive time and resources that could be better utilized elsewhere. Additionally, achieving true perfection may not always be possible. The goal of project quality management is to achieve consistency across your projects (Flett, 2001).

2.3.3.6 Project resource management

Project Resource Management involves the procedures for recognizing, obtaining, and overseeing the resources necessary for the effective conclusion of the project. These procedures are essential in guaranteeing that the project manager and project team have access to the necessary resources at the appropriate time and location. Efficient resource management entails understanding and utilizing the capabilities of your team, recognizing their unique strengths and weaknesses, and how they complement one another within the team. It is also important to focus on the development of team members. Additionally, it is crucial to pinpoint any knowledge deficiencies and potential training opportunities for individual team members and the team as a whole, taking into account the current and future projects.

2.3.3.7 Project communication management

The management of project communications involves the procedures required to guarantee that the information requirements of the project and its stakeholders are fulfilled by creating documents and executing activities aimed at achieving successful exchange of information. Project Communications Management is divided into two components. The initial component involves creating a plan to ensure that communication is efficient for stakeholders. The second component involves carrying out the necessary tasks to put the communication plan into action.

2.3.3.8 Project risk management

To effectively manage project risks, it is essential to take a holistic approach that involves strategic planning, risk identification, analysis, response planning, implementation of mitigation strategies, and ongoing monitoring. This process entails assessing risks, developing plans to reduce their impact, and creating strategies to address potential consequences. A risk mitigation plan aims to either eliminate or reduce the impact of negative events that may impede the project's success.

2.3.3.9 Project procurement management

Procurement Management in a project involves the procedures essential for obtaining products, services, or outcomes from external sources. It encompasses the management and supervision of processes needed to establish and oversee agreements like contracts, purchase orders, memoranda of agreements (MOAs), or internal service level agreements (SLAs). Individuals with the authority to procure necessary goods and services for the project may belong to the project team, management, or the organization's procurement department, if applicable.

2.3.3.10 Project stakeholder management

Project Stakeholder Management encompasses the necessary steps to identify individuals, groups, or entities that may influence or be influenced by the project. It involves analyzing stakeholder expectations and their potential impact on the project, as well as devising suitable management strategies to effectively involve stakeholders in key project decisions and activities. These processes assist the project team in evaluating stakeholder expectations, determining the extent of their influence on the project, and creating strategies to engage stakeholders in supporting project decisions, planning, and implementation.

Figure 2 Project management knowledge areas

In this study project, we delve deeply into the concept of time management. We thoroughly explore the principles and practices of effective time management.

2.3.4 Project time management

As per the Project Management Institute (PMI, 2017), Project Schedule Management involves the necessary procedures to ensure the project is completed on time. It encompasses the process of arranging and strategizing how to allocate time among different tasks. Typically, it includes a predetermined start and end date, duration, and resources designated for each task. Effective project management relies heavily on proper schedule management, as it is a crucial aspect of project success.

Successful time managers excel at planning ahead. They meticulously create lists and sub lists to tackle both major and minor objectives. When faced with a new project, they invest time in carefully considering their goals and meticulously outline every step required to complete the project in an orderly manner (Tracy, 2013). Time management encompasses six key practices:

1. Plan schedule management

2. Define Activities.

3. Sequence Activities.

4. Estimate Activity Durations.

5. Develop Schedule.

6. Control schedule

2.3.4.1 Plan schedule management

The process of Plan Schedule Management involves setting up guidelines, procedures, and documentation for the planning, development, management, execution, and control of the project schedule. The main advantage of this process is that it offers direction on how the project schedule will be handled throughout the project. It is carried out either once or at specific stages in the project and utilizes inputs like project management plan, project charter, enterprise environmental factors, and organizational process assets. The end result is a plan that outlines the approach to be taken to ensure the project is completed on time, known as the schedule management plan.

2.3.4.2 Define activities

In project management, activity is the work done to turn input into output. Defining activities involves identifying specific tasks required to create the project's deliverables. This must be detailed enough to estimate the resources and time needed for completion. Project managers use various tools and

techniques to define activities effectively. Key inputs include the scope baseline, which includes the project scope statement, work breakdown structure, and WBS dictionary. Tools like decomposition, rolling wave planning, templates, and expert judgment are used in the process of defining activities.

Work breakdown structure (WBS):

The concept of work breakdown structure refers to organizing the tasks within a project that focus on the end deliverables, outlining the entirety of the project's scope. This breakdown involves dividing the project work into smaller, manageable tasks and arranging them in a logical order. The development of a work breakdown structure commonly utilizes techniques such as decomposition and expert judgment.

Decomposition:

As per the Project Management Institute (2017), decomposition is a method utilized to break down and segment the project scope and deliverables into smaller, more manageable components. This approach enables effective progress from the beginning of the project until its completion, ensuring efficiency and organization.

2.3.4.3 Activity sequencing

The process involves identifying and documenting logical relationships between interactive tasks. These activities must be accurately sequenced to create a realistic and achievable schedule for the project. This can be done using project management software or manual techniques. The main purpose of sequencing activities is to establish the order in which tasks should be completed to meet project goals and objectives. When determining the sequence of activities, it is important to consider what tasks come before and after each activity, as well as which tasks can be carried out simultaneously. This process also involves identifying dependencies between project activities. According to Jainendra Kumar (2015), there are three types of dependencies.

1. **Mandatory Dependency (hard logic).** The essential principles embedded in the nature of the task at hand are referred to as foundational elements. For instance, the completion of work required to build a framework exemplifies strong logical reasoning.

2. **Discretionary dependency:** The tasks that are determined by the project management team fall into different categories, such as preferred logic, preferential logic, or soft logic. Soft logic allows the project team to make decisions on what tasks to prioritize and whether to do them sequentially or in parallel.

3. **External dependencies:** Relationships between project and non-project activities are known as external dependencies. Once the quality control check is completed, the customer must validate the scope based on their own timeline and preferences. This validation process is considered an external dependency.

2.3.4.4 Estimate activity duration

The process of estimating activity duration involves evaluating the activities listed in the Work Breakdown Structure (WBS) and activity list to determine the time required to complete each task. Time estimates are typically given in hours or days, although for larger projects, durations may be measured in weeks or months. The main advantage of this process is that it provides a clear understanding of how long each activity will take. This assessment is carried out continuously throughout the project's duration.

Once the WBS is established, each activity is carefully examined to determine the estimated duration from start to finish, as well as the necessary resources such as time, materials, facilities, and equipment. Estimations are based on a combination of expertise, past experiences, and logical reasoning. Various tools and techniques are utilized to estimate the duration of project activities, which are then used to create the project schedule. Some of these tools and techniques include:".

1. **Expert judgment:** Expert opinion, informed by historical data, should be utilized whenever feasible. Additionally, members of the project team can contribute their insights on duration estimates or suggest maximum activity durations based on past projects with similarities.

2. **Analogous estimating:** Analogous duration estimation involves using the duration of a similar past schedule activity to predict the duration of a future activity.

3. **Parametric estimating:** Determining the duration of activities can be calculated by multiplying the amount of work required by the rate of productivity.

4. **Three-Points estimating**: Improving the accuracy of estimating activity durations can be achieved by taking into account the level of risk associated with the initial estimate. One way to estimate the duration of an activity is to calculate an average of three estimated durations. The Project Evaluation and Review Technique (PERT) is a method used to estimate activity

durations by combining optimistic, pessimistic, and most likely estimates through a weighted average approach, especially in situations where there is uncertainty in individual activity estimates (PMP, 2012).

5. **Reserve analysis:** Project teams have the option to include extra time, known as contingency reserves, time reserves, or buffers, in the project schedule to account for potential schedule risks. The contingency reserve can be determined as a percentage of the estimated activity duration, a set number of work periods, or calculated using quantitative schedule risk analysis.

2.3.4.5 Develop schedule

The process of analyzing activity sequences, duration, resource requirements, and schedule constraints is essential for creating a project schedule model. Regardless of the size or complexity of your project, the schedule plays a crucial role in project management. It provides guidance on when each activity should be completed, what tasks have already been finished, and the order in which things need to be accomplished. Various tools and techniques are utilized to develop the schedule effectively.

1. **Schedule Network Analysis:** An illustration depicting the various tasks involved in a project, the duration required to finish them, and the order in which they need to be carried out. Project management tools such as Gantt charts and PERT Charts are commonly employed to generate these visual representations.

2. **Critical Path Analysis:** This involves analyzing all the necessary tasks and determining the most efficient sequence, known as the critical path, in order to complete the project in the shortest possible time.

3. **Schedule Compression:** This tool assists in reducing the overall project timeline by cutting down the time assigned to specific tasks.

4. **Resource Optimization**: The purpose of this tool is to modify the beginning and ending dates of tasks in order to align the allocation of resources with the available resources.

Outputs of develop schedule

- **A schedule baseline** the authorized version of a schedule model that can only be altered through formal change control procedures is known as the schedule baseline. This baseline serves as a reference point for comparing actual results. It is endorsed and accepted by relevant

stakeholders, with established baseline start and finish dates. Throughout the monitoring and controlling phase, the approved baseline dates are juxtaposed against the actual start and finish dates to identify any variances that may have occurred. The schedule baseline is an integral part of the project management plan. As per PMI (2017), the outcomes of developing schedule practices encompass: -

- **The project schedules** the project schedule is a representation of a timeline that displays interconnected tasks along with their scheduled start and end dates, expected durations, significant milestones, and allocated resources. Initially, the schedule outlines the intended start and end dates for each task. However, it is considered provisional until resources are assigned and the start and end dates are finalized. This finalization typically takes place before the project management plan is completed.
- **The schedule data** the project schedule model is a crucial tool for effectively describing and managing the schedule. It comprises essential information such as schedule milestones, activities, attributes, as well as documentation of assumptions and constraints.
- **Project calendar:** It identifies the days and shifts where scheduled activities can take place. It differentiates between time periods that can be used for completing tasks and those that are unavailable for work.
- **Change requests:** Changes to the project scope or project timeline could lead to requests for modifications to the scope baseline, as well as other elements of the project management plan. These change requests are reviewed and addressed through the Perform Integrated Change Control process. Proactive measures may involve suggesting adjustments to prevent or minimize the likelihood of unfavorable schedule discrepancies.
- **Project management plan updates:** After the project plan has been finalized, any alterations can only be made through the submission and approval of a change request via the integrated change control process.
- **Project documents updates:** The term "require updates to various project documents" is a broad concept used to indicate that certain processes will necessitate revisions to a range of project-

related paperwork. While specific outputs are outlined, there are instances where additional project documents may also need to be updated.

2.3.4.6 Control schedule

Control Schedule involves overseeing the project's status to adjust the project schedule and handle modifications to the schedule baseline. This process ensures the schedule baseline remains consistent throughout the project, allowing for real-time comparison of actual versus planned progress and prompt corrective actions. Control Schedule is an integral part of the Perform Integrated Change Control process and includes four essential steps.

1. Examining the timetable to identify areas requiring remedial measures
2. Determining the precise corrective measures to implement
3. Adjusting the strategy to include the selected corrective measures
4. Reviewing the timetable to assess the impact of implemented corrective measures

2.3.5 Tips for mastering the art of managing time efficiently

Numerous factors play a crucial role in planning schedule management, defining activities, sequencing activities, estimating activity durations, and developing and controlling the schedule. Some of these key factors will be explored in the subsequent discussion. The project plan serves as a vital input for creating the schedule. Project planning and scheduling are distinct yet interconnected elements in effectively managing projects. Scheduling transforms the project's planned scope, time, budget, and cost into a functional timetable (Moylan & William, 2002). Another essential input for developing a project schedule is the project scope statement, which forms the foundation for planning and overseeing the project schedule (PM4DEV, 2016).

An additional critical factor is the accessibility of resources, as well as the competence and motivation of project team members. It is imperative for the project team to meticulously compile a list of the necessary resources required to successfully complete the project, based on activity lists and attributes. Resources are fundamental elements that must be carefully planned and assigned prior to project commencement; failure to do so may result in delays and subpar outcomes for the company (actiTIME, 2021).

The efficiency of project time management is also influenced by project communication and the presence of efficient communication tools and techniques. Communication plays a vital role in projects by offering written directives, ensuring full transparency throughout the project, and promoting the exchange of feedback to prevent recurring errors (Waida, 2022). Additionally, enterprise environmental factors and organizational process assets are crucial inputs for project time management practices.

2.3.6 Defining project success

The topic of determining project success or failure is intricate and can be difficult to pinpoint, as it varies depending on the viewpoints of various stakeholders (Camilleri, 2011). Furthermore, Pinto and Slevin (1998) suggest that without a standardized set of criteria to evaluate projects, there is a potential for misinterpreting whether a project is successful or not. This has led many academics and researchers to investigate the factors that play a role in the success or failure of a project.

According to Kerzner (2009), project success can be described as the successful execution of a task while staying within the limits of schedule, budget, and quality. A project is deemed successful when it meets the set project objectives, including timeframes, financial constraints, quality standards, and performance targets, while also ensuring the contentment of all stakeholders involved. In general, if the client, end-user, project manager, project team, and developer all feel that their needs and expectations have been fulfilled or surpassed, and then the project can be deemed a success (Nicholas, 2004).

Conversely, certain scholars argue that rather than dissecting individual variables that influence project results, it is more beneficial to consider them collectively as a synergistic force that ultimately determines the success or failure of the project. The contractor's and project manager's success is typically evaluated based on their ability to effectively meet the key criteria of cost, performance, and time. Various measures and strategies must be implemented throughout the project implementation phase to enhance the likelihood of success (Lock, 2007).

In their 2009 study, Abdullah and Ramly outlined the idea of project success as encompassing two key dimensions: 'What to achieve' and 'How to achieve.' They proposed categorizing the factors contributing to success (How to achieve) into four main principles: Human management, Process, Organization, and a separate category of Contractual and Technical considerations based on the project's execution.

Additionally, they identified success criteria (What to achieve) as Stakeholders' satisfaction, timely completion, meeting quality standards, and staying within budget.

In every project, it is crucial to clearly identify all stakeholders involved and recognize their needs. It is important to establish measurable success criteria for these stakeholders in order to gauge the project's effectiveness. Analyzing stakeholders is essential as their interests can greatly impact the outcome of the project, either positively or negatively.

Stakeholder perception plays a significant role as a success criterion for assessing project performance. Success criteria are the benchmarks used to determine the success or failure of a project, while success factors are the key elements within the management system that contribute directly or indirectly to the project's success. Reference: Camilleri, 2011

After reviewing the aforementioned literature, the researcher has pinpointed five key criteria for evaluating project success:

1. Recognition and satisfaction of stakeholders

2. Completion within the allocated time frame

3. Meeting the necessary standards of quality and performance

4. Achieving the set objectives

5. Completing the project within the specified budget.

2.3.7 Project time management and success of projects.

Effective time management within a project has a significant influence on its overall quality, scope, and cost, rendering it a crucial aspect of project management. Being proficient in project time management ensures the project is completed within the specified timeframe and budget. Ultimately, the success of a project is not solely determined by achieving its goals, but also by meeting deadlines to maintain the company's competitive advantage, as noted by Tremel (2021).

As per D. Suresh (2019), effective time management is considered the key factor influencing the successful execution of a project. It can be assessed by monitoring missed deadlines and incomplete deliverables. Poor time management not only causes stress and frustration for the project manager and team members but also leads to project delays, increased costs, work disruptions, decreased productivity, third-party claims, disputes, and contract termination.

2.4 Empirical Studies

In their study, Henry, Jackson, and Bengt (2007) uncovered various factors that could potentially hinder project schedules. These include inadequate materials, incompetent supervisors, lack of proper tools and techniques, absenteeism, poor communication, employee turnover, and rework, which were identified as the most significant contributors. Furthermore, Mahfouz (2019) highlighted poor coordination or communication, ineffective planning, scheduling, monitoring, and controlling practices, a shortage of administrative, technical, or interpersonal skills, delays in the integration of change orders, changes in scope, slow decision-making, lack of support from stakeholders, and unrealistic contract durations as key factors leading to ineffective time management practices.

In a study conducted by Kostalova and Tetrevova (2014) regarding the use of Project Management tools in practice in the Czech Republic, it was found that the primary challenge faced during project implementation is the inability to adhere to the project timeline, with 83% of projects experiencing delays. Additionally, a significant number of projects (around 70%) also struggled with staying within the planned budget.

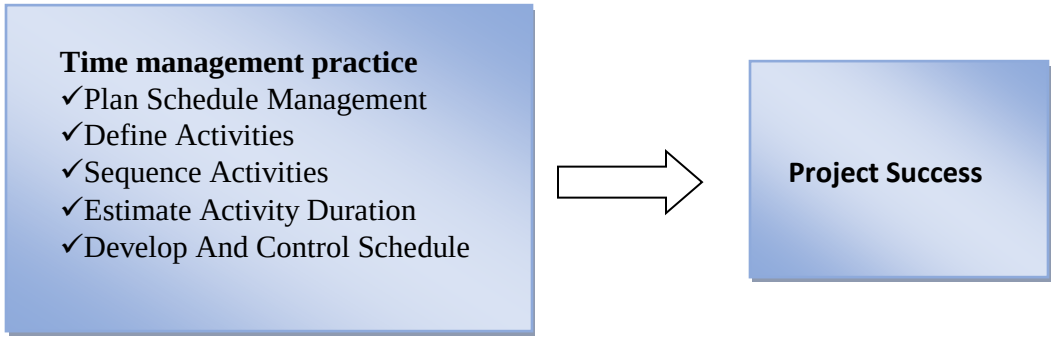
In the study carried out by Nabeel et al. (2013) regarding the Importance of project Scope in Achieving Project Success, they identified cost, time, quality, and stakeholders' satisfaction as the key factors influencing project success. Their research highlighted that time was the most critical factor in determining project success. Although cost also played a vital role, it was considered a rare factor in the overall success of a project. Success was defined by the adherence to project specifications and the demonstration of its intended purpose. Stakeholder satisfaction was highlighted as another essential component of project success. The researchers also concluded that many projects fail to achieve success due to a lack of clear definition of project and product scope, as well as inadequate control over them.

In their study on the correlation between Stakeholders' Perceptions of Project Success and Project Planning, WU and Eisner (2018) found that stakeholders' perception of a project's success is closely linked to its planning. They concluded that when stakeholders believe a project is successful, it is usually because of the thorough planning that went into it. This positive relationship between perception of success and project planning significantly contributes to the project's overall performance. In regards to avoiding project delays, the PMBOK Guide dedicates one of its ten Knowledge areas to Project Time Management, focusing on the necessary processes to ensure the project is completed on time (PMI, 2017). The domain of knowledge encompassing processes like identifying activities, sequencing

activities, estimating resource requirements, estimating activity durations, developing schedules, and controlling schedules is crucial in project management. The effectiveness of project time management serves as a key indicator to evaluate the project manager's proficiency and their ability to successfully complete a project, as well as assess their overall performance.

Conceptual Framework

Drawing from various sources and academic research, the following framework will serve as the backbone of this study. The focus will be on pinpointing the key time management strategies employed in project management.



Source: Developed by the researcher based on Literature reviews, 2024

Project success is the dependent variable and Time management is independent variable as shown in the above.

Figure 3 the management practice

If we implement the above criteria of time management practices these will lead us to project success.

Chapter Three

3. Research Methodology

3.1 Introduction

This chapter offers a comprehensive description of the research methodology employed to achieve the study's objectives. It outlines the research design and approach, identifies the respondents of the study, details the sampling techniques used, and explains the data collection methods and analysis tools applied.

3.2. Description of the study area and population

The focus area of this study is in construction projects, specifically: Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project and the Construction and Maintenance of the Alem Bank Reservoir Project. For the Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project, the study area encompasses the urban and suburban regions spanning from Kotebe Kidanemihret to Kotebe Dehnenet Sefer. This area is characterized by a mix of residential and commercial zones, with diverse infrastructure and transportation needs. The population within this vicinity consists of a vibrant community comprising various socio-economic backgrounds, including residents, commuters, and businesses. Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project which is located at the north part of Addis Ababa Yeka 10 Woreda. Found between altitude 2475 – 2495m, Weina Dega (1500 – 2500masl). This road segment starts at the Center station 0+000 of the Kotebe Kidanemihret Church and travels crossing a small bridge at km 0+240 and at Km 1+174, then goes through rolling terrain mainly occupied by residential area and ends up in front of Kotebe Hana Mariam Church which is at 1+515 Km. The total length of the road is 1.515 Km with the road width of 20m and with a shoulder width of 3.5m. The last section of the road is hilly terrain. The road has no existing pavement except thin layer of gravel placed on existing access road. This stretch of the road travels following master plan of the City; there is densely populated settlement on both sides of the stream along the proposed road alignment The Employer is Addis Ababa City Roads Authority (AACRA).

Regarding the Construction and Maintenance of the Alem Bank Reservoir Project, the study area focuses on the reservoir Located near to Alembank square there is one reservoir with a capacity of 500 m3. The reservoir receives water from Ayertena reservoir and distributes through gravity system to the surrounding area.

3.3 Research Design

Descriptive research design and explanatory research design are utilized for this study. Descriptive research design is a scientific method that involves observing and describing the behavior of a subject without influencing it in any way. This type of research aims to accurately and systematically describe a population, situation, or phenomenon. It does not answer questions about how/when/why the characteristics occurred, which is more about finding correlations. Instead, it addresses the "what" question. Data collection methods in descriptive research often include surveys, observations, and case studies, and the results can be used to identify patterns, trends, and relationships within the subject of study (Nassaji, 2015).

Explanatory research design is a method that aims to clarify why and how there is a relationship between two or more aspects of a situation or phenomenon. This type of research seeks to understand the underlying causes and mechanisms by exploring causal relationships and testing hypotheses. It often involves experiments and advanced statistical techniques to determine the direction and strength of these relationships. By explaining the underlying reasons for a particular event or behavior, explanatory research provides deeper insights and enhances theoretical understanding (Bhattacherjee, 2012).

3.4 Research Approach

This research employs a quantitative approach to analyze the impact of resource constraints on construction projects in Addis Ababa. A structured survey was distributed to a sample of construction professionals. A quantitative approach is a systematic investigation that primarily focuses on quantifying data and generalizing results across groups of people. It involves the collection and analysis of numerical data through structured methods such as surveys, experiments, and statistical analysis. The goal of this approach is to identify patterns, make predictions, and test causal relationships through objective measurements and the use of statistical tools. Quantitative research is characterized by its emphasis on objectivity, replicability, and the ability to produce results that can be statistically validated and generalized to larger populations. (Creswell & Creswell, 2018; Johnson & Christensen, 2020). 40 questionaries were distributed from all 30 respondents were completely fill the questionaries, Specifically, the sample consists of 30 senior professionals in the construction project sector.

3.5 Sources of Data

The study utilized primary data collected directly from participants involved in the construction projects, specifically the Kotebe Kidanemihret to Kotebe Dehnenet sefer Road Project construction project and construction and maintenance of Reservoir, location in Addis Ababa (Alem Bank Reservoir project). This data was obtained through structured questionnaires administered by the researcher. Primary data refers to firsthand information gathered by the researcher through methods such as surveys, interviews, and experiments, specifically tailored to address and resolve the research problem at hand (Ajayi, 2017).

When briefly explained Primary data were acquired through questionnaires distributed to construction project staff members across different positions within the industry. These questionnaires were disseminated using both company email systems and internet messaging platforms like Telegram. Meanwhile, secondary data were gathered from published sources such as books, journals, reports, and bulletins, as well as from internal documents like work governance policies, company profiles, and unpublished reports. By combining these two sources of data, the researcher can able to access the necessary information crucial for reaching sound conclusions and addressing the research questions effectively.

Before analyzing the data, the data are first subjected for reliability and validity tests using appropriate statistical tools and finally it is subjected to descriptive statistics analysis in which case individual and composite mean scores and frequency percentages are used.

3.6 Population of the Study (target population), Sampling Technique and Sample Size

The study selects Project manager, Senior Office Engineers, Senior Site Engineers, Senior Supervisors, Resident Engineers and senior members / staffs which works and have a high exposure on Construction projects located in Addis Ababa. Who are in charge of or participating in the construction projects. The sampling technique used in this study is non-probability purposive sampling. This method was chosen because the selected population is particularly useful and relevant for the research instrument, purpose, and overall objectives of the study. 40 questionaries were distributed from all 30 respondents were completely fill the questionaries, Specifically, the sample consists of 30 senior professionals in the construction project sector. These individuals were selected due to their extensive theoretical and

practical knowledge regarding the relationship between time management practices and project success. Given their expertise and experience, these 30 respondents are deemed the most appropriate participants for providing valuable insights into the study's focus. And Census sampling technique was used Census sampling technique involves gathering data from every member of the population, ensuring a comprehensive representation (Investopedia, 2024).

3.7 Method of Data Analysis

Following the collection of requisite data, method of analysis was conducted utilizing Statistical Package for the Social Sciences (SPSS) software. This method was chosen from other analysis methods was because SPSS is user-friendly interface that simplifies complex statistical analysis and it also offers a wide range of powerful analytical techniques for robust data analysis. Employing this tool, the researcher applied diverse statistical techniques including frequency, percentage, mean, and standard deviation to analyze descriptive data, facilitating the conversion of raw data into organized tabular representations for interpretation. Additionally, correlation analysis was utilized to explore the relationship between time management practices and project success.

3.7.1 Reliability and Validity

3.7.1.1 Reliability Test

Reliability pertains to the extent to which the measurement of a construct remains consistent or dependable (Drost, 2011). It focuses on the stability or consistency of scores obtained from an assessment measure. One widely used method to assess reliability in SPSS is through Cronbach’s Alpha. Typically, reliability coefficients of 0.70 or higher are deemed "acceptable" in most research contexts, with coefficients between 0.80 and 0.90 considered good, and those exceeding 0.90 regarded as excellent. from the below table the Cronbach’s Alpha coefficients range from 0.707 to 0.958. Since for the measuring instrument to be reliable, it’s Cronbach’s Alpha value should be minimum 0.70.

Table 1 Reliability statistics

NO	Variables	No of Items	Cronbach's Alpha
1	Plan Schedule Management	5	0.811
2	Defining Activity Practice	5	0.725
3	Activity Sequencing Practice	4	0.707
4	Estimating Activity Duration	6	0.866
5	Developed Schedule Practice	6	0.921
6	Control Schedule practice	5	0.743
7	Inputs For Effective Time Management Practices	7	0.922
8	Project Success	5	0.958

(Source Field Survey, 2024)

3.7.1.2 Validity Test

Hair et al. (2014) identify validity as the extent to which a measure accurately represents what it Is supposed to ensuring validity requires a thorough understanding of what is to be measured and making it as accurate and right as possible.

3.8. Ethical Considerations

Adhering to ethical guidelines is paramount in research endeavors. Henceforth, the following ethical principles will be upheld throughout the course of this study: The researcher personally conducted all surveys, Prior to the surveys, participants were thoroughly briefed on the research objectives and anticipated duration, Adequate time was allotted for participants to respond to each inquiry, ensuring comprehensive data collection, Participants were assured that their data would be utilized solely for academic purposes as intended and Request for collaboration from respondents was made in a manner respectful of their autonomy and dignity.

Chapter Four

4: Data Presentation, Analysis and Interpretation

4.1 Introduction

This chapter presents the data analysis and interpretation of the results obtained from the questionnaire survey distributed to professionals in the construction project sector. Initially, the collected data were rearranged and coded to ensure completeness and readiness for analysis. Statistical procedures were then applied to examine the data in alignment with the research's overall objectives, using SPSS statistics version 27 software. Descriptive statistics, including mean, frequency, standard deviation, and percentage, were employed to describe and interpret the results effectively. The first part discusses the demographic profile of the respondents. Next, mean scores with standard deviations are computed, based on ratings determined using the questionnaire (see Annex I), which comprises a five-level Likert scale.

4.2 Response rate

A total of 40 questionnaires were distributed to participants involved in the construction projects spanning from Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project and the Construction and Maintenance of the Alem Bank Reservoir. Of these, 30 questionnaires were completely filled and returned. And the rest 10 of them are found to be incomplete. As a result, the overall response rate is 75 % and is subjected for data analysis and discussion of the study.

4.3 Demographics of the Respondents

The demographic data of the respondents collected for this study are gender, age, level of educational, work experience in the organization, experience in construction projects and profession.

Table 2 Demographic data

Variables	Category	Frequency	Percentage	Valid percent
Gender	Male	25	83.3	83.3
	Female	5	16.7	16.7
Age	Below 30	10	33.3	33.3
	31-40	19	63.3	63.3
	41-50	1	3.3	3.3
	Above 51	0	0	0
Level of education	Certificate	2	6.7	6.7
	Diploma	0	0	0
	First Degree	22	73.3	73.3
	MA/M.sc	6	20	20
Work Experience in the organization	0-5 years	14	46.7	46.7
	6-10 years	9	30	30
	11-15 years	6	20	20
	Above 15	1	3.3	3.3
Your experience in construction project	Less than 6 month	0	0	0
	6 month – 1 year	0	0	0
	1 year -2 years	0	0	0
	More than 2 years	30	100	100
Job Title	Staff	6	20	20
	Project manager	6	20	20
	Site engineer	3	10	10
	Office engineer	7	23.3	23.3
	Resident engineer	8	26.7	26.7
	Supervisor	0	0	0

Source: Survey Data (2024)

Table 2 shows that 83.3 % of the respondents are male and 16.7% are female. This indicates that most of the professionals are male. The age distribution shows that 33.3% are below 30 years old, 63.3% are between 31 and 40 years old and 3.3% are between 41-50 years old. Regarding their education background, all the respondents, 6.7% are certificate, 73.3% are first degree and 20.0 % have a M.A/MSc.

Regarding their Experience in the organization, 46.7 % have 0-5 years' experience, 30.0 % 6-10 years' experience, 20.0 % have 11-15 years and 3.3% are above 15 years' experience.

Regarding their Experience in construction projects, 100.0% are more than 2 years which implies they have enough experience for the analysis.

Considering their Job title 20.0 % of the respondents are staffs on the construction project, 20% are project managers, 10% are site engineers, 23.2% are office engineers and 26.7% are Resident engineer. The senior staffs include senior material engineer, senior contract engineer, senior laboratory technician and senior mechanical engineer these staffs are also an engineer which have main role in the construction project.

4.4 Mean Score Ranking

Mean scores are further interpreted back to reflect the average of the respondents' Likert scale Rating converted to a continuous index, which then is split into discrete categories.

Table 3 Mean score ranking

Likert Scale	**Likert Ranking**	**Mean Score Category**
1	Strongly Disagree	1.0-1.49
2	Disagree	1.5-2.49
3	Neutral	2.5-3.49
4	Agree	3.5-4.49
5	Strongly Agree	4.5-5.00

Source: (Moohammad, 2014)

4.5 Analysis of time management practices

In this section, respondents were asked to rate the six practices of time management in construction projects using a five-point Likert scale. The scale ranged from 1 to 5, with 1 indicating "strongly disagree" and 5 indicating "strongly agree." This rating system was applied to all questions related to plan schedule management, define activities, sequencing activities, estimating activity duration, developing and controlling schedule.

4.5.1 Analysis of plan schedule management practice

Table 4 Analysis of plan schedule management practice

	SD	D	N	A	SA	Mean	Std. Deviation
Clear guidelines, processes, and records were created to plan, execute, and manage the project timeline effectively.	-	6.7%	40.0%	40.0%	13.3%	3.60	0.828
The necessary resources for successfully finishing the project have been identified.	-	-	20.0%	60.0%	20.0%	4.00	0.655
The company has supplied suitable tools and methodologies for planning and managing schedules.	-	6.7%	26.7%	60.0%	6.7%	3.67	0.724
The monitoring and controlling of the schedule were clearly established and outlined.	-	13.3%	33.3%	40.0%	13.3%	3.53	0.915
The correct unit of measurement to track and manage schedule progress is identified.	-	6.7%	26.7%	33.3%	33.3%	3.93	0.961
Average Mean Value						3.75	0.82

Source: Survey Data (2024)

In this sub section, the respondent asked to rate their level of agreement on variables that are related with plan schedule management. The survey results indicate that 40% of respondents agreed and 13.3% strongly agreed that efficient guidelines, processes, and written records were established to effectively manage the project timeline, while 40% remained neutral and 6.7% disagreed. Additionally, 20% of respondents were neutral, 60% agreed, and 20% strongly agreed that the necessary resources for project completion were identified. Regarding the provision of suitable tools and methodologies for planning and managing schedules, 60% agreed, 6.7% strongly agreed, 26.7% were neutral, and 6.7% disagreed. The clarity of monitoring and controlling the schedule was affirmed by 40% who agreed and 13.3% who strongly agreed, while 33.3% were neutral and 13.3% disagreed. Finally, 33.3% strongly agreed and 33.3% agreed that the unit of measurement used to monitor and manage schedule progress was correctly identified, with 26.7% neutral and 6.7% disagreeing. Overall, while the majority of respondents view the project's time management practices favorably, a significant portion remains neutral or disagrees,

indicating areas for potential improvement. Regarding Analysis of plan schedule management practice, the respondent agreed up on with 3.75 mean values. Moreover, the average standard deviation is 0.82. The detail results shown on table 4.

The survey results highlight key strengths and areas for improvement in plan schedule management. There is general agreement on the presence of established guidelines, processes, and records, though some respondents remain neutral. Resource identification is positively viewed, aligning with best practices in project management. While tools and methodologies are adequate, enhancements are needed to meet all needs. Clarity in monitoring and controlling schedules requires improvement for better transparency. Confidence in the unit of measurement for schedule progress is solid but could benefit from standardization. The overall mean agreement and standard deviation indicate a predominantly positive perception with some variance, suggesting room for addressing concerns and aligning with literature on continuous improvement and stakeholder engagement.

4.5.2 Analysis of defining activities practice

Table 5 Analysis of defining activities practice

	SD	D	N	A	SA	Mean	Std. Deviation
In order to successfully reach the project goals that have been clearly identified and listed, it is crucial to execute the necessary activities.	-	-	6.7%	46.7 %	46.7 %	4.40	.632
The company supplied essential tools and methodologies for delineating project tasks.	-	13.3 %	13.3 %	40.0 %	33.3 %	3.93	1.033
The missed deliverables that require clarification or correction have been identified.	-	-	26.7 %	66.7 %	6.7 %	3.80	.561
Tasks were aligned with the project's objectives and boundaries.	-	-	20.0 %	53.3 %	26.7 %	4.07	.704
The necessary resources needed to carry out the tasks were correctly identified and accurately estimated.	-		20.0 %	60.0 %	20.0 %	4.00	.655
Average Mean Value						4.04	0.72

Source: Survey Data (2024)

In this sub section respondents were requested to express their level of agreement on 5 variables that are related with readiness of requirements for effective defining activities and how project activities defined were practiced in Construction projects. The data reveals that 93.4% of respondents agree or strongly agree that executing necessary activities is crucial for reaching clearly identified project goals. Additionally, 73.3% believe the company provided essential tools and methodologies for delineating project tasks, though 13.3% disagreed. For identifying missed deliverables needing clarification or correction, 73.4% agree or strongly agree. Furthermore, 80% concur that tasks were closely aligned with project objectives and boundaries. Lastly, 80% agree or strongly agree that necessary resources were correctly identified and accurately estimated. Overall, the majority view the project management practices positively, with a few areas noted for improvement. Regarding Analysis of plan schedule management practice, the respondents agreed up on with 4.04 mean values. The average standard deviation is 0.72. The detail results shown on table 5.

The survey findings affirm key principles in project management literature: the importance of precise execution of activities for achieving project goals, the need for comprehensive tools and methodologies, continuous monitoring for identifying missed deliverables, alignment of tasks with project objectives, and accurate resource identification. The overall positive perception aligns with literature on effective project management but highlights opportunities for continuous improvement and refinement.

4.5.3 Analysis of activity sequencing practice

Table 6 Activity sequencing practice in construction projects

	SD	D	N	A	SA	Mean	Std. Deviation
The coherent connection among the tasks effectively established.	-	-	13.3%	66.7%	20.0%	4.07	.594
The project activities were effectively organized according to their significance.	-		20.0%	60.0%	20.0%	4.00	.655
The methods and tools utilized to sequence the project activities were appropriate.	-	-	13.3%	46.7%	40.0%	4.27	.704
Project Schedule Network Diagrams show relationships and dependencies among project activities.	-	13.3%	6.7%	60.0%	20.0%	3.87	.915

Average Mean Value						4.05	0.72

Source: Survey Data (2024)

In this sub section respondents were requested to express their level of agreement on four questions that are associated with the practice of project activity sequencing in construction projects. The survey data indicates that 66.7% of respondents agree and 20.0% strongly agree that there is a coherent connection among tasks, with 13.3% remaining neutral. Additionally, 60.0% agree and 20.0% strongly agree that project activities were effectively organized according to their significance, while 20.0% were neutral. Regarding the appropriateness of methods and tools used to sequence project activities, 46.7% agree and 40.0% strongly agree, with 13.3% neutral. Lastly, 60.0% agree and 20.0% strongly agree that Project Schedule Network Diagrams were effectively created by defining relationships and dependencies among various project activities, though 13.3% disagreed and 6.7% were neutral.

The survey data indicates strong satisfaction with the project's time management practices, particularly in task coherence, organization, and sequencing methods. Project Schedule Network Diagrams were also viewed positively. However, a small percentage of respondents were neutral or disagreed, suggesting room for improvement. Regarding Analysis of activity sequencing practice, the respondents agreed up on with 4.05 mean values. The detail results shown on table 6.

The survey reveals strong satisfaction with project activity sequencing in construction, consistent with established literature. High agreement on task coherence, organization by significance, and effective sequencing methods reflects adherence to project management best practices. Positive feedback on Project Schedule Network Diagrams demonstrates adept management of activity relationships. However, neutral and dissenting responses suggest areas for improvement, echoing literature advocating continuous refinement in sequencing practices. The mean agreement score supports a positive evaluation aligned with effective project management principles, indicating opportunities for ongoing enhancement.

4.5.4 Analysis of estimating activity duration practice

Table 7 Analysis of estimating activity duration practice

	SD	D	N	A	SA	Mean	Std. Deviation

The estimation process was grounded in specific tasks and a predetermined order of actions.	-	6.7%	20.0%	73.3%		3.67	.617
The company offered suitable tools and methodologies for estimating the duration of activities.	-	6.7%	26.7%	66.7%		3.60	.632
The limitations and underlying beliefs of the project were carefully recognized and taken into account.		20.0%	13.3%	66.7%		3.47	.834
When planning timelines, we considered project risks and prepared a backup plan for unexpected uncertainties.	6.7%	20.0%	20.0%	20.0%	33.3%	3.53	1.356
We estimated activity resources based on available resource requirements and capabilities.	-	13.3%		46.7%	40.0%	4.13	.990
The projected timeline for each task in the project was deemed feasible in order to adhere to the set deadline.	-	6.7%	6.7%	40.0%	46.7%	4.27	.884
Average Mean Value						3.78	0.89

Source: Survey Data (2024)

In this sub section respondents were requested to express their level of agreement on six questions with the practice of estimating project activities duration in Construction Projects. According to the survey results, it was found that 73.3% of respondents agreed that the estimation process was structured around specific tasks and a predetermined sequence of actions. Additionally, 66.7% agreed that suitable tools and methodologies were provided by the company for estimating activity durations. Furthermore, 66.7% acknowledged that project limitations and underlying beliefs were carefully acknowledged and considered. Moreover, a significant proportion, 53.3% (20.0% agree and 33.3% strongly agree), recognized the inclusion of project risks and contingency plans in timeline projections. The majority, 86.7% (46.7% agree and 40.0% strongly agree), also affirmed that resource estimation was aligned with available resources. Lastly, 86.7% (40.0% agree and 46.7% strongly agree) agreed that projected task timelines were deemed feasible to meet set deadlines.

In summary, the survey indicates a strong level of agreement among respondents regarding various aspects of the project estimation process. Specifically, most respondents agree that the process is structured around specific tasks, utilizes suitable tools and methodologies, and considers project limitations and risks. Additionally, the majority perceive that resource estimation aligns with available resources and that projected task timelines are feasible to meet set deadlines. Overall, these findings suggest a positive perception of the project estimation procedures within the surveyed population.

Regarding Analysis of estimating activity duration practice, the respondents agreed up on with 3.78 mean values. The detail results shown on table 7.

The survey reveals strong consensus among respondents regarding project activity duration estimation in construction, echoing established literature. They agree the process is well-structured around specific tasks and follows a predetermined sequence, reflecting best practices in project management. Positive feedback on tools and methodologies, consideration of project limitations and risks, and alignment of resource estimation with available resources indicate robust planning and risk management practices. High agreement on the feasibility of task timelines underscores effective project planning. The mean agreement scores of 3.78 supports a positive evaluation, consistent with literature on effective project estimation practices, suggesting room for further refinement.

4.5.5 Analysis of Developed Schedule Practice

Table 8 Analysis of developed schedule practice

	SD	D	N	A	SA	Mean	Std. Deviation
The timetable was adaptive and versatile in order to accommodate any changes in circumstances.	-	26.7%	6.7%	26.7%	40.0%	3.80	1.265
The company provided sufficient resources and methods to estimate activity durations.	-	13.3%	33.3%	26.7%	26.7%	3.67	1.047
The timetable specifies start and end dates, duration, and allocated resources for each task.		6.7%	6.7%	46.7%	40.0%	4.20	.862
The timetable effectively showed how tasks are interconnected and adjustable.		6.7%	20.0%	40.0%	33.3%	4.00	.926

The established timetable aligned seamlessly with both the organizational structure and the organizational culture.	6.7%		26.7%	26.7%	40.0%	3.93	1.163
The planning considered external factors such as government regulations, industry standards, and communication methods when developing the schedule.	6.7%	6.7%	40.0%	20.0%	26.7%	3.53	1.187
Average Mean Value						3.86	1.08

Source: Survey Data (2024)

In this sub section respondents were requested to express their level of agreement on six questions with the practice of estimating project activities duration in Construction Projects. The survey results reveal varying degrees of agreement among respondents regarding different aspects of the project timetable. Notably, 66.7% strongly agree and 40.0% agree that the timetable is adaptive and versatile to accommodate changes. Additionally, 66.7% strongly agree and 26.7% agree that adequate resources and methodologies were provided for estimating activity durations. Furthermore, 86.7% (46.7% agree and 40.0% strongly agree) find the scheduled commencement and completion dates, as well as allocated resources, well-defined. Moreover, 73.3% (40.0% agree and 33.3% strongly agree) perceive the timetable effectively demonstrates task connections and allows adjustments. Lastly, 66.7% strongly agree and 26.7% agree that the established timetable aligns seamlessly with organizational structure and culture. Overall, while some disagreement and neutrality exist, the majority of respondents express positive perceptions of various aspects of the project timetable. Overall, the majority of respondents express positive perceptions of various aspects of the project timetable, indicating strong alignment with organizational needs and effective facilitation of task management and adaptation. Regarding Analysis of Developed Schedule Practice, the respondents agreed up on with 3.86 mean values. The detail results shown on table 8.

The survey reveals varying levels of agreement among respondents on project activity duration estimation in construction, echoing insights from literature. A majority express positive views on the timetable's adaptability to changes and its effectiveness in showing task connections, reflecting proactive project management. Feedback on adequate resources and well-defined timelines aligns with best practices in scheduling and resource management. However, some disagreement and neutrality suggest

areas for improvement, emphasizing the need for ongoing refinement in scheduling practices to better meet organizational needs. Overall, the findings indicate effective development of project schedules with room for enhancement, in line with literature on schedule management.

4.5.6 Analysis of Control Schedule Practice

Table 9 Analysis of control schedule practice

	SD	D	N	A	SA	Mean	Std. Deviation
A performance report was prepared for each activity according to the outlined schedule.	6.7%	13.3%	6.7%	60.0%	13.3%	3.60	1.121
Corrective measures have been implemented for each deviation found between the planned and actual schedule.	6.7%	13.3%	13.3%	46.7%	20.0%	3.60	1.183
Progress was assessed according to the criteria determined in the initial planning phase.		6.7%	26.7%	40.0%	26.7%	3.87	.915
Schedule variances can affect the overall performance of the project including cost and quality of the project.			26.7%	20.0%	53.3%	4.27	.884
The knowledge acquired throughout the project was efficiently recorded and documented.		20.0%	13.3%	33.3%	33.3%	3.80	1.146
Average Mean Value						3.83	1.050

Source: Survey Data (2024)

In this sub section respondents were requested to express their level of agreement on five questions with the practice of Analysis of Control Schedule Practice in Construction Projects. The survey results highlight a range of perceptions regarding project performance tracking and management. While a minority expressed disagreement or neutrality, the majority agreed that performance reports were prepared for each activity according to schedule and that corrective measures were implemented for deviations from the planned schedule. Furthermore, respondents generally agreed that progress was assessed based on predetermined criteria and recognized the impact of schedule variances on project performance. Additionally, a significant proportion agreed that knowledge acquired during the project

was efficiently recorded and documented. These findings underscore the importance of systematic performance tracking and documentation in project management processes. The survey underscores the importance of systematic performance tracking and documentation in effective project management, with most respondents acknowledging the significance of performance reports, corrective measures, progress assessment, and knowledge documentation. Regarding Analysis of Control Schedule Practice, the respondents agreed up on with 3.83 mean values. The detail results shown on table 9.

The survey reveals varying perceptions among respondents on Control Schedule Practice in construction projects, consistent with previous literature. While some expressed neutrality or disagreement, most affirmed key practices like preparing performance reports, implementing corrective measures, assessing progress, and documenting project knowledge. These findings underscore the importance of systematic performance tracking and documentation in effective project management, aligning with literature that promotes these practices to improve project outcomes and manage risks. The mean agreement score of 3.83 supports a positive evaluation of control schedule practices, reflecting alignment with effective project control principles in the literature.

4.5.7 Analysis of Inputs for effective time management practices

Table 10 Analysis of inputs for effective time management practices

	SD	D	N	A	SA	Mean	Std. Deviation
The company carefully selected a project strategy and conducted thorough planning and organization.		20.0%	26.7%	26.7%	26.7%	3.60	1.121
The project's parameters were appropriately established.		13.3%	13.3%	46.7%	26.7%	3.87	.990
The organization has dedicated the necessary resources for the successful implementation of the project.		20.0%	13.3%	40.0%	26.7%	3.73	1.100
The organization allocated sufficient funds and skilled personnel to accomplish the task.		6.7%	20.0%	26.7%	46.7%	4.13	.990

The members of the project team were highly motivated and possessed a wealth of technical expertise.	6.7%		33.3%	26.7%	33.3%	3.80	1.146
The project team maintained clear communication channels for effective collaboration among members and engagement with stakeholders.		13.3%	13.3%	60.0%	13.3%	3.73	.884
We prepared for change request approvals with a streamlined decision-making process for swift responses.		26.7%	20.0%	20.0%	33.3%	3.60	1.242
Average Mean Value						3.78	1.07

Source: Survey Data (2024)

In this sub section respondents were requested to express their level of agreement on seven questions with the Analysis of Inputs for effective time management practices in Construction Projects. The survey data reveals a spectrum of viewpoints on critical aspects of project management. While 20.0% of respondents disagreed and 26.7% remained neutral, an equal proportion agreed and strongly agreed that the company adeptly selected a suitable project strategy and meticulously organized thorough planning. Regarding project parameters, 46.7% agreed and 26.7% strongly agreed that they were appropriately established, although 13.3% disagreed. Similarly, while 20.0% disagreed, 40.0% agreed, and 26.7% strongly agreed that the organization allocated necessary resources for project implementation. Notably, 46.7% strongly agreed and 26.7% agreed that sufficient funds and skilled personnel were allocated, despite 6.7% expressing strong disagreement. Furthermore, respondents varied in their perceptions of team motivation and expertise, communication channels, and preparation for change requests, highlighting both areas of consensus and divergence in their evaluations of project management effectiveness. The survey depicts a diverse range of opinions on critical project management aspects, revealing both areas of agreement and divergence among respondents, ultimately emphasizing the nuanced nature of evaluating project management effectiveness. Regarding Analysis of Inputs for effective time management practices, the respondents agreed up on with 3.78 mean values. The detail results shown on table 10.

The survey captures a broad spectrum of opinions among respondents regarding Inputs for effective time management practices in construction projects, echoing insights from previous literature. While there was agreement on key aspects such as selecting suitable project strategies, thorough planning, and establishing project parameters, a significant proportion expressed disagreement or neutrality on resource allocation and team-related factors like motivation and communication. The varying perceptions underscore the complexity of evaluating project management effectiveness, highlighting both areas of consensus and divergence among respondents. The mean agreement scores of 3.78 indicates a generally positive evaluation of time management inputs, suggesting alignment with literature advocating for comprehensive planning and strategic alignment in project management practices.

4.5.8 Project Success

Table 11 Project success

	SD	D	N	A	SA	Mean	Std. Deviation
The project was accomplished within the given timeframe with great success.	20.0%	13.3%	46.7%	20.0%		2.67	1.047
The project has effectively achieved the intended goals and objectives.	13.3%	20.0%	20.0%	20.0%	26.7%	3.27	1.438
The project was completed within the budget as planned	20.0%	6.7%	26.7%	46.7%		3.00	1.195
The project effectively fulfilled the stakeholders' expectations.	20.0%		33.3%	33.3%	13.3%	3.20	1.320
The project effectively achieved the necessary performance standards.	20.0%		13.3%	46.7%	20.0%	3.47	1.407
Average mean						3.12	1.281

Source: Survey Data (2024)

In this sub section respondents were requested to express their level of agreement on five questions with the Analysis of Project Success in Construction Projects. The survey findings reveal a diverse range of perspectives regarding the success of the project. Concerning adherence to the specified timeframe, 20.0% expressed strong disagreement, with an additional 13.3% in disagreement, while 46.7% remained neutral, and 20.0% expressed agreement. Regarding the attainment of intended goals and objectives, opinions varied, with 13.3% strongly disagreeing, 20.0% disagreeing, 20.0% remaining neutral, 20.0% agreeing, and 26.7% strongly agreeing. Budget adherence also saw a mix of responses, with 20.0% strongly disagreeing, 6.7% in disagreement, 26.7% neutral, and 46.7% in agreement. Fulfillment of stakeholders' expectations elicited diverse opinions, with 20.0% strongly disagreeing, 33.3% remaining neutral, 33.3% in agreement, and 13.3% strongly agreeing. Lastly, regarding the achievement of necessary performance standards, 20.0% strongly disagreed, 13.3% remained neutral, 46.7% agreed, and 20.0% strongly agreed. The survey reveals varied perspectives on project success, with notable divisions on adherence to timelines and stakeholder fulfillment, while performance standards garnered more agreement. And also, regarding Analysis of Project Success in Construction Projects, the respondents agreed up on with 3.12 mean values. The detail results shown on table 11.

The survey reveals diverse perspectives among respondents regarding Project Success in construction projects, consistent with prior literature. Opinions varied widely on adherence to timelines, goal attainment, budget management, stakeholder expectations, and performance standards. While timelines and stakeholder satisfaction garnered mixed responses, there was more agreement on meeting performance standards. These findings underscore the complex nature of evaluating project success, highlighting both areas of consensus and divergence. The mean agreement score suggests a moderately positive overall assessment, indicating opportunities for aligning practices with literature advocating comprehensive project goal achievement and stakeholder satisfaction.

4.6 Relationship between project time management practices and project success

In this study, Pearson correlation coefficients were calculated to determine if there was a significant relationship between the dependent and independent variables. According to Mukaka (2012), correlation is a statistical method used to assess the potential linear association between two continuous variables and to measure how closely they co-vary. The correlation coefficient can range from -1, indicating a

perfect negative correlation, through 0, indicating no correlation, to +1, indicating a perfect positive correlation.

Table 12 Guidelines of correlation coefficient interpretation

Value Of Correlation Coefficient	Relationship Interpretation
0.000-0.199	Very Weak
0.200-0.399	Weak
0.400-0.599	Moderate
0.600-0.799	Strong
0.800-1.000	Very Strong

Source: Research Gate (2018)

The researcher conducted a correlation analysis to examine the relationship between project time management practices and project success. The correlation analysis table presents the Pearson correlation coefficients among various project time management practices: plan schedule management, defining activities, activity sequencing, estimating activity duration, developed schedule, and control schedule. Each of these correlations is statistically significant, as indicated by the Sig. (2-tailed) values of 0.00, confirming significance at the 0.01 level. The results show very strong positive correlations between plan schedule management and the other practices, with coefficients ranging from 0.700 to 0.895.

The correlation analysis table demonstrates significant positive relationships between various project time management practices. Specifically, plan schedule management shows very strong correlations with defining activities, activity sequencing, estimating activity duration, developed schedule, and control schedule, all significant at the 0.01 level. Defining activities also strongly correlates with activity sequencing, estimating activity duration, developed schedule, and control schedule. Similarly, strong correlations are observed among other pairs, such as between activity sequencing and estimating activity duration, developed schedule, and control schedule. The high significance ($p < 0.01$) across all correlations suggests that effective management in one area of project time management is likely associated with improvements in other areas, emphasizing the integrated nature of these practices. The detailed analysis is presented in the following table.

The correlation analysis underscores significant positive relationships among various project time management practices, aligning with insights from previous literature. Particularly strong correlations, such as those between plan schedule management and defining activities, activity sequencing, estimating activity duration, developed schedule, and control schedule, highlight the interconnectedness and mutual reinforcement of these practices. The findings suggest that effective management in one aspect of project time management tends to enhance performance in others, indicating a cohesive approach is crucial for project success. These results support literature emphasizing integrated project management practices to achieve comprehensive project outcomes efficiently.

Table 13 Correlations

Correlations

		Plan schedule management	Defining activities	Activity sequencing	Estimating activity duration	Developed Schedule	Control Schedule
Plan schedule management	Pearson Correlation	1	.882**	.895**	.871**	.866**	.800**
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	0.00	0.00
Defining activities	Pearson Correlation	.882**	1	.729**	.849**	.809**	.812**
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	0.00	0.00
Activity sequencing	Pearson Correlation	.895**	.729**	1	.700**	.888**	.802**
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	0.00	0.00
Estimating activity duration	Pearson Correlation	.871**	.849**	.700**	1	.885**	.823**
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	0.00	0.00
Developed Schedule	Pearson Correlation	.866**	.809**	.888**	.885**	1	0.795
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	0.00	0.00
Control Schedule	Pearson Correlation	.800**	.812**	.802**	.823**	.795**	1
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	0.00	0.00

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Source survey data 2024

Chapter Five

5.Summary, Conclusion and Recommendation

5.1 Introduction

The main objective of this research was to investigate the effect of project success related to project time management in construction projects specifically in Addis Ababa, particularly the case study spanning from Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project and the Construction and Maintenance of the Alem Bank Reservoir located in Addis Ababa. Based on this study the main summary, conclusions and recommendations given presented as follows.

5.2 Summary

The population of this study is Project manager, Senior Office Engineers, Senior Site Engineers, Senior Supervisors, Resident Engineers and senior members / staffs which works and have a high exposure and main role on Construction projects located in Addis Ababa; The age of the respondents falls under the age interval below 30, 31-40 and 41-50. From the total respondents 83% are male and the remaining 16.7% are females. Out of the total respondents 6.7% hold certificate, 73.3% acquired BSc. And 20 % have acquired MSc. /MA. This indicates that the team members of the project have sufficient educational qualification to run the project and out of the total respondents 46.7% have more than 0-5 year of experience on specific project in the organization, 30% of them have 6-10 year of experience on specific project in the organization, 20% of them have 11-15 year of experience on the specific project in the organization and 3.3 of them have above 15 years of experience on specific project in the organization. Furthermore, 100% of the respondents have worked in a construction sector more than 2 year which make them a senior on the construction projects. 20% are staffs on the construction sector, 20% of them are project manager, 10% of them are site engineers, 23.3% of them are Office Engineers and 26.7% of them are Resident Engineers for the specified projects.

5.2.1 Plan Schedule Management

The study required to determine the influence of plan schedule management on project success. The study found out that the average mean obtained in the practice of planning schedule management is 3.75; this implies that the practice is above moderate which is good. The monitoring and controlling of the schedule were clearly outlined and established were the least practiced of all the components that issued for preparing plan schedule management and the necessary resources for successfully finishing

the project have been identified were the highest practiced of all the components that issued for preparing plan schedule management.

5.2.2 Defining Activities

The study indicated that the practice of defining activities, which is one of the components of project time management, is above moderate which is good and scoring 4.04 out of five. Moreover, the company supplied essential tools and methodologies for delineating project tasks is very low as compared to other sub components that need a due attention on the other hand in order to successfully reach the project goals that have been clearly identified and listed, it is crucial to execute the necessary activities have a high mean scoring.

5.2.3 Activity Sequencing

The study further described that the average mean obtained in the practice of activity sequencing is 4.05; this implies that the practice is above moderate. Among other Project Schedule Network Diagrams are created by defining the relationships and dependencies among various project activities relatively have low mean which needs further concern on these and on the coherent the methods and tools utilized to sequence the project activities were appropriate have high mean value compared to others.

5.2.4 Estimating Activity Duration

The average mean obtained in the practice of estimating activity duration is 3.78, which is above moderate average that is rated by respondents. In addition, the projected timeline for each task in the project was deemed feasible in order to adhere to the set deadline have a high mean score. and on the other hand, the limitations and underlying beliefs of the project were carefully recognized and taken into account are relatively low compared to other sub components of estimating activity duration.

5.2.5 Developed Schedule

Based on the findings of the study, the average mean obtained in the practice of developing schedule is 3.86 which is above moderate that is rated by respondents. In addition, the planning process has taken into account external factors like government regulations, industry standards, and communication methods when developing the schedule are low as compared to variables under develop schedule. The scheduled commencement and completion dates, length of time required, and allocated resources for each individual task specified in the timetable which is highly rated by respondents.

5.2.6 Control Schedule

The study further portrayed that the average mean obtained in the practice of control a schedule is 3.83. Among other sub practices in schedule control, A performance report was prepared for each activity according to the outlined schedule and Corrective measures have been implemented for each deviation found between the planned and actual schedule have lowest mean and Schedule variances can affect the overall performance of the project including cost and quality of the project have the highest mean among other sub practices in schedule control.

5.2.7 Inputs for Effective Time Management Practices

The study described that the average mean obtained from the variables that could affect the project time management practice is 3.78 which is above moderate that is rated by respondents. These sub-Component which is the company effectively chose a suitable project strategy and meticulously executed thorough planning and organization for the project and Preparations were made in anticipation of approval of change requests and a streamlined decision-making process was implemented for quick responses have low mean relative to others. And more of the respondents agree on these which have high mean relative to the others components The organization allocated sufficient funds and skilled personnel to accomplish the task.

5.2.8 The relation between time management and project success

Based on the findings of the study, on the relation between time management and project success the average mean is 3.12 which is moderate. These sub-Component the project effectively achieved the necessary performance standards have a mean of 3.47 which is high relative to the other components and the sub component the project was accomplished within the given timeframe with great success have least mean which is 2.67 as rated by the respondent relative to the others sub component.

5.3 Conclusion

This study identified and evaluated major project time management practices using 35 questions, yielding ratings between 2.67 and 4.4 across all dimensions. The average respondent rating ranged from 3.12 to 4.05, indicating generally positive perceptions. While the project achieved success within the timeframe, areas with lower scores highlight the need for improvement in future projects to enhance efficiency.

Overall, the study found moderate to high effectiveness in time management practices, with all other dimensions scoring above 3. Effective time management correlates significantly with project success, emphasizing the importance of well-practiced strategies for achieving goals within designated timelines.

Construction projects demonstrated strong time management practices, supported by clear guidelines and robust tools. Strengths included effective activity organization and comprehensive performance tracking. Opportunities for improvement lie in enhancing schedule transparency and aligning timetables with organizational needs to optimize project outcomes and stakeholder satisfaction.

In conclusion, this study underscores the critical role of effective time management practices in achieving successful construction projects. The findings reveal a moderate level of implementation of time management practices, which correlates significantly with project success. While the overall satisfaction with time management practices was demonstrated through robust scores across various dimensions, there remains a need to address specific areas for improvement identified in this research, particularly enhancing schedule transparency and aligning timetables with organizational needs. Moving forward, it is essential for construction stakeholders to prioritize the rigorous application of time management strategies, such as planning schedule management, activity definition, sequencing, duration estimation, schedule development, and control. These practices not only contribute individually to project success but also demonstrate strong interrelations, highlighting the importance of integrated time management approaches. By implementing these insights and recommendations, construction projects in Addis Ababa can enhance their efficiency, meet timelines more consistently, and ultimately achieve greater stakeholder satisfaction and project success.

5.4 Recommendation

Based on the conclusions drawn from the study on the impact of time management practices on the success of construction projects, I have recommended the lists here below and these can be made to enhance future construction projects outcomes:

1. Enhance Activity Sequencing and Defining Practices:

Given the importance of activity sequencing and defining activities practices, provide additional training and resources to project managers and teams to enhance their skills in these areas. Implement detailed guidelines and best practices for sequencing and defining activities to ensure consistency and efficiency.

2. Continuous Improvement:

Establish a feedback loop where lessons learned from completed projects are documented and analyzed. Regularly review and update time management practices based on the feedback and evolving industry standards to ensure continuous improvement.

3. Comprehensive Training Programs:

Invest in training programs that focus on the best time management practices, especially those areas where the scores indicated moderate implementation. Ensure all team members are well-versed in the latest tools and techniques for effective time management.

4. Monitoring and Evaluation:

Implement robust monitoring and evaluation systems to track the progress of time management practices throughout the project lifecycle. Use Key Performance Indicators (KPIs) to measure the effectiveness of time management and make adjustments as necessary.

5. Enhanced Communication and Collaboration:

Foster an environment that promotes clear communication and collaboration among all stakeholders.

Use collaborative tools and platforms to ensure that all team members are aligned with the project schedule and any changes are communicated promptly.

6. Performance Metrics:

Establish clear performance metrics related to time management practices. Regularly review these metrics to identify areas for improvement and ensure that time management practices are aligned with project goals.

7. Stakeholder Engagement:

Engage all relevant stakeholders in the planning and scheduling process to ensure their input and buy-in. regularly update stakeholders on project timelines and any changes to maintain transparency and accountability.

By implementing these recommendations, construction projects can achieve a higher level of efficiency and success through improved time management practices. The above listed recommendation will help

ensure that future construction projects are completed within the designated timeframe and meet their intended goals more effectively.

5.5 Future Researches

This study concentrated exclusively on six key practices of project time management, thoroughly examining their impact on the success of construction projects. While these practices are essential and provide valuable insights, they represent only a portion of the broader time management framework. Consequently, there is a significant opportunity for future research to delve into other dimensions of project time management that were not covered in this study.

By expanding the scope to include additional practices, such as resource allocation, risk management, and stakeholder communication, future research can offer a more holistic understanding of how various time management strategies contribute to project success. Additionally, investigating the interplay between different time management practices and other project management areas could uncover deeper insights and lead to more effective methodologies.

Overall, a broader analysis encompassing a wider range of time management dimensions will enhance the robustness of the findings and provide a more comprehensive foundation for improving time management practices in construction projects and beyond.

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Appendix 1

A Survey Questionnaire

Relationship between Time Management Practices and Project Success: A Case Study of Selected Construction Projects in Addis Ababa specifically Kotebe Kidanemihret to Kotebe Dehnenet Sefer Road Project and the Construction and Maintenance of the Alem Bank Reservoir Project, (To be filled by construction project Staffs)

Instructions

1. Please, answer all questions.
2. In all cases where answer options are available, tick (√) inside the given box.

Section 1: Profile of the Respondents' Demographics

Please indicate your appropriate choice among the options provided by ticking (√) that best represents you.

1.Gender

☐Male

☐Female

2.Age

☐Below 30

☐31 – 40

☐41 – 55

☐Above 55

3. Level of education

☐Certificate

☐Diploma

☐First Degree

☐M.Sc./MA

☐Above

4. Work experience in the organization

☐0- 5 years

☐6-10 years

☐11-15 years

☐Above 15 years

5. Your Experience in construction projects

☐Less than 6 months

☐6 months to 1 year

☐1 year to 2-year

☐More than 2 years

6. What is your job title?

☐Staff

☐Project Manager

☐Site Engineer

☐Office Engineer

☐Resident Engineer

☐Supervisor

Section 2: Efficient time management strategies in Construction Projects.

Indicate how much you agree or disagree with the following statements concerning time management practice in Construction Projects in Addis Ababa.

Use the scale of (SD-Strongly Disagree, D- Disagree, N- Neutral, A-Agree, SA-Strongly Agree)

No	**Plan schedule management practice in construction project**	**SD**	**D**	**N**	**A**	**SA**
2.1	Clear guidelines, processes, and records were created to plan, execute, and manage the project timeline effectively.					

2.2	The necessary resources for successfully finishing the project have been identified.					
2.3	The company has supplied suitable tools and methodologies for planning and managing schedules.					
2.4	The monitoring and controlling of the schedule were clearly established and outlined.					
2.5	The correct unit of measurement to track and manage schedule progress is identified.					
	Defining activities practice in Construction Projects	**SD**	**D**	**N**	**A**	**SA**
2.6	In order to successfully reach the project goals that have been clearly identified and listed, it is crucial to execute the necessary activities.					
2.7	The company supplied essential tools and methodologies for delineating project tasks.					
2.8	The missed deliverables that require clarification or correction have been identified.					
2.9	Tasks were aligned with the project's objectives and boundaries.					
2.10	The necessary resources needed to carry out the tasks were correctly identified and accurately estimated.					
	Activity sequencing practice in construction projects.	**SD**	**D**	**N**	**A**	**SA**

2.11	The coherent connection among the tasks effectively established.					
2.12	The project activities were effectively organized according to their significance.					
2.13	The methods and tools utilized to sequence the project activities were appropriate.					
2.14	Project Schedule Network Diagrams show relationships and dependencies among project activities.					
	Estimating Activity Duration practice in a construction project.	**SD**	**D**	**N**	**A**	**SA**
2.15	The estimation process was grounded in specific tasks and a predetermined order of actions.					
2.16	The company offered suitable tools and methodologies for estimating the duration of activities.					
2.17	The limitations and underlying beliefs of the project were carefully recognized and taken into account.					
2.18	When planning timelines, we considered project risks and prepared a backup plan for unexpected uncertainties.					
2.19	We estimated activity resources based on available resource requirements and capabilities.					
2.20	The projected timeline for each task in the project was deemed feasible in					

	order to adhere to the set deadline.					
	Developed Schedule practice in construction project.	**SD**	**D**	**N**	**A**	**SA**
2.21	The timetable was adaptive and versatile in order to accommodate any changes in circumstances.					
2.22	The company provided sufficient resources and methods to estimate activity durations.					
2.23	The timetable specifies start and end dates, duration, and allocated resources for each task.					
2.24	The timetable effectively showed how tasks are interconnected and adjustable.					
2.25	The established timetable aligned seamlessly with both the organizational structure and the organizational culture.					
2.26	The planning considered external factors such as government regulations, industry standards, and communication methods when developing the schedule.					
	Control Schedule Practice in construction projects.					
2.27	A performance report was prepared for each activity according to the outlined schedule.					
2.28	Corrective measures have been implemented for each deviation					

	found between the planned and actual schedule.					
2.29	Progress was assessed according to the criteria determined in the initial planning phase.					
2.30	Schedule variances can affect the overall performance of the project including cost and quality of the project.					
2.31	The knowledge acquired throughout the project was efficiently recorded and documented.					

Section 3: Major inputs for effective time management practice.

In table below assumed as the major inputs for effective project time management practice are listed and you are kindly requested to indicate how much you agree or disagree with the following statements concerning construction projects.

Use the scale of (SD-Strongly Disagree D- Disagree N- Neutral A-Agree SA-Strongly Agree)

No	**Major inputs for effective time management practices.**	**SD**	**D**	**N**	**A**	**SA**
3.1	The company carefully selected a project strategy and conducted thorough planning and organization.					
3.2	The project's parameters were appropriately established.					
3.3	The organization has dedicated the necessary resources for the successful implementation of the project.					
3.4	The organization allocated sufficient					

	funds and skilled personnel to accomplish the task.					
3.5	The members of the project team were highly motivated and possessed a wealth of technical expertise.					
3.6	The project team maintained clear communication channels for effective collaboration among members and engagement with stakeholders.					
3.7	We prepared for change request approvals with a streamlined decision-making process for swift responses.					

Section 4: time management practices on construction projects in relation with critical project success criteria.

Indicate how much you agree or disagree with the following statements concerning time management practice in relation with criteria that used to measure project success. Use the scale of (SD-Strongly Disagree D- Disagree N- Neutral A-Agree SA-Strongly Agree).

No	**Major criteria that used to measure project success.**	**SD**	**D**	**N**	**A**	**SA**
4.1	The project was accomplished within the given timeframe with great success.					
4.2	The project has effectively achieved the intended goals and objectives.					
4.3	The project was completed within the budget as planned					
4.4	The project effectively fulfilled the					

	stakeholders' expectations.					
4.5	The project effectively achieved the necessary performance standards.					

Thank you!