



Addis Ababa University
School of Commerce
College of Business & Economics
Graduate Program in Project Management

**Effect of Planning Practice on Project Success:
The Case of Water Supply Projects in AAWSA**

**A Project Work Submitted to Addis Ababa University, School of Commerce,
College of Business and Economics in Partial Fulfillment of the Requirements for
the Masters of Arts Degree in Project Management (MAPM)**

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Declaration

I, **Kidist Desalegn** solemnly declare that the project work titled “**Effects of Planning Practice on Project Success: The Case of Water Supply Projects in AAWSA**” presented herein is entirely my original work. It has been conducted under the guidance of my advisor **Abdurezak Mohammed (Ph.D.)** at Addis Ababa University, School of Commerce, College of Business & Economics. All sources of information and data used have been duly acknowledged and referenced. This work has not been submitted in any form for the award of any degree to any other university or institution. I understand the consequences of any breach of this declaration.

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Statement of Certification

This is to certify that I have assisted **kidist Desalegn** as an advisor during the completion of her project work titled “**Effects of Planning Practice on Project Success: The Case of Water Supply Projects in AAWSA**” for the fulfillment of the requirements for the award of **Master of Arts in Project Management** program at **Addis Ababa University School of Commerce**. The project work represents **Kidist Desalegn’s** original and independent project work, adhering to ~~te~~ethical and academic standards set by Addis Ababa University.

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Acknowledgment

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List of Acronyms and Abbreviations

AAWSA	Addis Ababa Water and Sanitation Authority
ASL	Above Mean Sea Level
CPI	Cost Performance Index
CPM	Critical Path Method
CSA	Central Statistical Agency
EV	Earned Value
KPI	Key Performance Indicators
PERT	Program Evaluation and Review Technique
PM	Project Management
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
ROI	Return on Investment
SPI	Schedule Performance Index
UNICEF	United Nations Children's Fund
WBS	Work Breakdown Structure
WHO	World Health Organization

Abstract

This study focuses on evaluating the effect of planning practices on project success in the case of water supply projects in AAWSA. The objective of the study was to assess the planning practice of AAWSA and analyze the effects of time/schedule, financial resource, and risk & quality planning on project success. The study employed a descriptive and explanatory research design with a quantitative approach. Data was collected from 41 respondents through a questionnaire survey, yielding 89% response rate and analyzed using SPSS. The findings show that the organization exhibits a range of planning practices, with both positive aspects and areas for enhancement. These include training, stakeholder identification, cost estimation, and scope definition. Furthermore, the study reveals a significant linear relationship was found between time/schedule, financial resource planning, risk & quality planning, to project success; $F = 67.59$, $p < .05$, $R = .92$, $R^2 = .84$, and $adj. R^2 = .83$. Further enhancements are required in activity duration estimation and meeting contract deadlines, both of which are crucial aspects of effective time planning. The organization exhibits valuable cost estimation but faces challenges related to cost overrun. Risk & quality planning is well-integrated; however, enhancements are required in risk analysis, response strategies, and stakeholder involvement. Despite achieving objectives, challenges persist in project timelines & adherence to budgets. The study recommends provision of training, improved stakeholder identification, utilization of planning techniques, and addressing identified gaps to enhance the organization's planning practices and the success of projects, ensuring sufficient water supply that meet the water demand of the city. The study also suggests the need for future research to investigate the effects of planning practice on project success in a broader context, considering additional factors that were not addressed in this study.

Key Words: AAWSA, Planning, Planning Practice, Project, Project Success,

CHAPTER ONE

1. INTRODUCTION

This chapter provides an overview of the research study, which examines the effect of planning practice on project success. It presents the background of the study, emphasizing the importance of effective planning in project management. The problem statement identifies the gaps and challenges in understanding the relationship between planning and project success. Research questions are formulated to explore this relationship, while the objectives aim to analyze the impact of planning on project outcomes. The significance of the study lies in contributing to project management practices and the scope focuses on the effect of planning practice on project success in the case of AAWSA.

1.1. Background of the Study

Among the diversified basic human needs, the access to safe drinking water is becoming a major global concern. As per the latest data acquired from WHO and UNICEF on the access to clean water, adequate sanitation, and hygiene in worldwide, more than 25% (2.5 billion) of the world's population have no access to basic sanitation, more than 785 million people have no access to basic water services and more than 884 million people have no safe water to drink.

The water need of metropolitan cities is growing as the urban population rapidly grows and the commercial centers expanding. Addis Ababa, the capital city of Ethiopia & the African unity headquarters is one of the fastest growing metropolis in Africa triggered by the rapid economic development of the country. Due to this development exponentially growing water demand is caused that results shortage of potable water supply. As a result, the city water supply & sewerage authority, AAWSA has been making efforts to seek solutions and the public body challenged to properly plan and deliver projects on expected time, cost and quality

Pragmatically, countries around the world are exerting an extreme effort to overcome these deep rooted problems in the provision of sustainable water and sanitation infrastructure. In the mean while water supply projects which have focused excessively on physical construction and increasing coverage targets have been strongly criticized for their planning approaches in which the performance of the project is demolished (Lockwood, 2014).

In project management different studies shows that planning is considered as a major factor that extensively affects the performance of a project and its success (Murphy et al., 1994). Thus project managers are expected to emphasis on the planning phase and prepare a solid project plan to complete projects successfully. As (Ali, 2019) mentioned in his study the

performance of most of projects diminish and become unsuccessful due to poor project planning and the problem and challenges faced during the planning phase of a project.

As success of project is determined by how well the project has progressed towards its objectives it is essential to properly plan and manage if the project plans are being implemented to successfully complete the project (Duran & Savas, 2021). In order to determine the success of a project it is necessary to understand what should be the success criteria and how it is measured. To establish a benchmark for the performance of the project from different point of view, performance measurement metrics is crucial element of project assessment system. (Rui et al., 2017). In the context of construction, measurement of project performance has a great impact on the globe economy and in the management of projects. Hence, effectiveness in project management is essential for increasing the success of construction projects (Demirkesen, S., & Ozorhon, B, 2017).

Practically, project managers were found to make use of time and cost as a measurement as projects generally address their success through them under a limited scope (Sanchez et al., 2017). Because cost is the final result of the project's scope, it is particularly taken into account as a key performance measurement to determine whether the project is successful as per the initial contract amount (Rui et al., 2017). Similarly, as (Thompson et al., 2017) stated in his study time/schedule is equally significant with cost by generating the desired result/outcome of the project within the estimated contract period. But as (Salykova, 2019) depicted instead of using time, cost and performance as measures for project success, perceived performance should be the measure.

According to (Fretty, 2005) the successful accomplishment of projects is determined by project management which is the project accomplishment through application and integration of initiation, planning, execution, controlling, monitoring and closing. Among the phases of project life cycle the planning stage deed as a basis for the integration of execution and closure of the project by developing the components of the project management plan and the project documents used to carry out the project.

From the very beginning project planning should own a set of standards that allows the plans to continue with higher consistency and help the project to succeed. Every projects endeavor considering the triple constraints of the project namely time, cost and quality. It is therefore necessary to perform proper planning since projects are capital intensive and carry along many risks and uncertainties with them. (Telsang, 2014).

In project planning the occurrence of changes is inevitable but can be controlled. Thus, in addition to the initial and regular planning practice, it is advisable to adopt a continuous planning practice so that the project can react to dynamic environmental changes, with internal and external changes triggering planning additionally. Continuous planning involves the

continuous implementation of planning practices in parallel and rapid cycles instead of pre-defined and regular planning occasions (Mankala & Indroju, 2021).

In most countries around the world the planning process perception is not quite (Haddara, F. & Paivarinta, G, 2011). In developed economy countries, the project planning process has mostly a positive impact to the success or Performance of project (Kerzner, 2014). While in developing countries the practice of planning was found to be insignificant and results projects to fail to be delivered under the project success criteria of being delivered on time, on budget, to the standard and quality as planned initially (Gashahun, 2020). As (woldie, 2016) shows in his study 79.06 % of the project fails to meet its objectives in Ethiopia due to improper planning and different factors which shows the performance of the projects is below expected and projects become unsuccessful.

There are different planning factors that affects the success of projects. Practitioners and academics widely acknowledge that time/schedule planning, financial resource planning, and the integration of risk and quality planning are fundamental components of organizational planning processes that have highest impact on the success of projects (Nermina, 2020), (Camilleri, 2012), (Khan, 2019), (PMBOK 2017). These elements are widely recognized as essential by professionals from various fields.

The practices involved in project time planning/scheduling encompass all the necessary procedures to ensure the project is completed on schedule. As per (PMBOK 2004), the planning procedures within the time management knowledge area include defining project activities, determining their sequence, creating a project schedule, estimating the duration of each activity, and assessing the resources required for each activity.

The effect of time and schedule planning on project success is significant and multifaceted. Research by (Robert Lloyd 2020) emphasizes that effective time planning functions directly influence project success in the construction industry. Proactive project planning, involving detailed solutions before execution, addresses challenges and uncertainties, ultimately leading to improved outcomes.

Moreover, schedule overrun and delays are common global issues in construction projects (Alade, 2019). Effective time and schedule planning, as emphasized by (Hwang 2015), involve task breakdown, sequencing, resource allocation, and continuous progress monitoring. This proactive approach prevents bottlenecks, maximizes performance, and allows for timely adjustments, ultimately contributing to project success.

On the other hand, financial resource planning was found to be one of the factors that affect the success of projects. The financial planning phase of a project involves two key components: cost budgeting and cost estimation. Cost planning is focused on the objective of completing the project within the approved budget (Guoli, 2010).

Financial planning and cost management plays a pivotal role in every project, encompassing elements that enable organizations to guarantee the project's completion within the specified financial goals (Kerzner, 2014). Financial resource planning, when integrated with effective cost management, becomes an integral part of ensuring that a project is not only completed within its desired financial targets but also contributes significantly to its overall success.

Effective financial resource planning and project cost estimation, as defined by the (AACE, 2017), play a crucial role in project success. Project financial resource planning encompasses comprehensive budget development, strategic fund allocation, and precise cost estimation, impacting the project's outcome significantly (Verner 2003). Proactive identification and management of financial risks, coupled with regular monitoring and stakeholder engagement, ensure adherence to allocated budgets. In the construction industry, cost planning and accurate estimates are closely linked to project success and preventing wasted investments. Ensuring cost planning accuracy through constant review and relevant data utilization is pivotal for successful construction projects (Valtanen, 2020). In essence, efficient financial resource planning enables optimized budget utilization, risk mitigation, and financial stability, ultimately contributing to project success.

The integration of risk and quality planning as identified by different researchers is the main factor that affects the success of projects. In project management risk and quality planning is a strategic approach that aligns risk assessment and mitigation with quality objectives. It involves identifying potential risks, assessing their impact on project quality, and developing mitigation strategies that not only address these risks but also uphold or enhance quality standards (Popesc 2011). Continuous monitoring, transparent documentation, and stakeholder communication are essential components of this integration, ensuring that project quality remains a central focus throughout the project's lifecycle (Andrei 2016). This approach fosters the delivery of high-quality outcomes while effectively managing and mitigating risks, contributing to project success.

Among the most prevalent contributors to project failures, as evidenced by the study of (Whittaker 1999), is inadequate planning, particularly poor planning practices. This assertion is further emphasized by (Javed 2012), who underscores the vital role of planning in project success. Consequently, comprehensive planning, including the integration of time/schedule planning, financial resource planning, and risk & quality planning processes, emerges as a critical imperative for enhancing project performance and achieving project objectives, ultimately culminating in successful project completion. Therefore, this study seeks to investigate the impacts of planning practice by considering these variables on the success of water supply projects executed by AAWSA.

1.2. Background of the Organization

Since the establishment of Addis Ababa, as a capital city of Ethiopia, it has been the center of gravity of economic and political events of the country. Eventually, relatively large population growth of the city gave rise to increased demand for improved water supply and sanitation facilities, which necessitated the setup of a water supply unit under the municipality in 1942. Thereafter, Addis Ababa Water and Sewerage Authority (AAWSA) was established as an autonomous body, with two functions regulatory and utility service provider by order No. 68/1971 issued on the 26 February 1971, and re-established in 1987 EC by the proclamations No. 10/1995. It was then amended by the proclamation No. 22/2006, with increased mandates. However, since the last decade, the rapid industrialization and urbanization and the population explosion entailed the implementation of huge projects of water supply and sewerage and this requires huge investment in the sector.

To this effect, in 2004, AAWSA has established project office designated as AAWSA-Water and Sanitation Development and Rehabilitation Project Office, under the umbrella of AAWSA entitled to direct, control and supervise the implementation of construction projects. The project office currently has 184 employees including technical, Managerial, engineers, and other supportive staffs.

The authority is organized as an autonomous public authority having its own separate judicial personality. It is fully owned by the regional government of Addis Ababa. The 2007 census estimates that about 2, 7 million people live in Addis Ababa. More recently Addis Ababa's 2023 population is now estimated at 5,460,591. These people in the city are currently being supplied with drinking water through about 375,000 connections.

Studies shows that the city's Population in the near future is expected to grow to exceed 6.5 million residents. To address the increased water demand of the city the firm is executing projects its domestic and municipal water supply source is from surface water, groundwater, hundreds of deep water wells (reaching 500m of depth) drilled in volcanic aquifer. Although both AAWSA and the project office have registered remarkable achievement, however, there are limitations in its organizational efficiency and currently, citywide water and sanitation sector set up reform is underway.

1.3. Statement of the Problem

Addis Ababa, the Capital City of the Federal Democratic Republic of Ethiopia, has grown to become the largest urban and commercial center in the country. As (Mohamed & Kerstin , 2008) noted in their studies, the town has increased in area from 240 km² to about 540 km². Currently the city has a metro area population of 5,461,000 as of 2023 as per the data acquired from CSA. The Town's elevations range from 2800 m above mean sea level (ASL) from the southern parts of Entoto Mountains to the lower parts, in the southern areas, where the altitude is around 2000m

ASL.

Construction of Water Supply projects to such an extended area in size, altitude & variation with growing population and economy, is an enormous challenge. Addis Ababa Water and Sewerage Authority (AAWSA), is a public body that is in charge of the citywide water supply and sewerage services. The total production of water in the city from various sources is around 770,000 m³/day however; the daily demand is about 1,000,000m³/day. (Shewaye & Adam, 2009). Due to this, the supplier increasingly carries huge burden in the provision of adequate and safe water as stipulated in the Transformation and Growth plan of the country.

Even though AAWSA has been planning and applying a strategy to narrow the gap between the supply and Demand by implementing different study & design and construction of water supply projects the population is still facing different challenges because of uncertainty in the availability of water, intermittent water supplies and water scarcity that impacts both economic and human development. To minimize these challenges in the town efforts are being made to implement the projects successfully.

However, projects in every corner of the globe are suffering from severe delays in completing the projects within budget, specified time & expected quality (Takele, 2020). Therefore, planning to undertake all the project activities effectively and efficiently throughout the lifecycle of the project by taking in to account different considerations is significant to complete the project successfully.

In real life projects never goes according to their initial plan because it is impossible to predict what is not yet happened, new task statuses are constantly appearing, new details are being discovered and new ideas are coming in. More than half of construction project owners' worldwide experienced underperforming projects in terms of time, cost and quality constraints, despite their expectations in early project planning (Edmondson, 2008).

The planning practice in the water construction industry in Ethiopia clearly indicates that the knowledge and experience of project planning by contractors, public body and consultants is very poor and on top of all other managerial, economic, political and social factors the improper planning practice has contributed its own negative impact on the national economy as well as development of water construction industry hence projects are delivered with the minimum performance with delays as which leads to failure (Tadesse, 2006). In developing countries like Ethiopia one of the main reasons for project failure is lack of effective or poor project planning process (Ricardo, 2008).

In the construction sector, encompassing areas such as building, highway, railway, and water infrastructure, the successful completion of projects is significantly influenced by factors including careful time/schedule planning, strategic financial resource allocation, and

comprehensive risk and quality planning.

A study by (Robert Lloyd 2020) examined the impact of time planning on construction project success. They found that effective time planning directly influences project outcomes in the construction industry. Proactive project planning, considering current certainties and revised expectations, addresses challenges and uncertainties, contributing to improved project outcomes. Furthermore, (Hwang 2015) highlights that effective time and schedule planning are essential, involving breaking down the project, estimating task durations, and allocating resources efficiently.

Financial resource planning, including cost estimation and budgeting, significantly affects project success (PMBOK, 2017). It involves developing a comprehensive budget, strategic fund allocation, and accurate cost estimation. Effective financial risk identification and management ensure project expenses stay within the budget. According to (Valtanen, 2020), project cost planning is vital for bidding, cost monitoring, and project success.

Risk and quality management are closely integrated (Project Management Institute, 2008). Integrating risk and quality planning is vital for project success (Durivage, 2017). It involves proactive identification of threats and measures to mitigate them, ensuring stakeholder expectations are met. Effective risk management reduces disruptions, while quality planning ensures deliverables meet or exceed standards. This integrated approach enhances overall project outcomes. Additionally, (Alchammari, 2021) found that assessing and handling risk incidents strategically increases project adaptability, resilience, and success.

Certainly, here's a combined gap statement based on the provided information:

While numerous studies have explored the importance of planning in project management, there is a lack of comprehensive understanding regarding how different planning practices influence the overall success of projects. Despite the extensive literature available on project management and its impact on project success, there exists a research gap regarding the specific effects of planning practice on project success. Furthermore, while there is a wealth of research examining the influence of time/schedule planning, financial resource planning, and risk & quality planning on project success in various industries, there remains a notable gap in the literature regarding their combined impact within the specific context of water supply projects, such as those undertaken by organizations like AAWSA. Existing studies often focus on individual planning elements in isolation, without delving into how these facets collectively influence the success of water supply projects. This research gap necessitates an in-depth investigation into the relationship between planning practice and project success, offering a more holistic understanding of planning's role in this specific domain.

In addition, in the water supply scheme of Addis Ababa as a result of the un-determined increase in the population and demand it is difficult to properly plan and implement water supply projects

to meet the demand of the city.

Thus this study is an attempt to fill the research gap and to provide valuable insights and practical recommendations for the organization to properly plan water supply projects considering the unforeseen challenges by analyzing and assessing the existing practice of project planning and how the practice affects the success of water supply projects.

1.4. Research Questions

- What is the current project planning practice in AAWSA?
- How time and schedule planning affects the success of water supply projects in AAWSA?
- How financial resource planning affects the success of water supply projects in AAWSA?
- How Risk and Quality planning affects the success of water supply projects in AAWSA?

1.5. Objective of the Study

1.5.1. General Objective

The general objective of the study is to assess the effect of planning practice on success of water supply projects undertaken by AAWSA.

1.5.2. Specific Objectives

- To assess the existing project planning practice in AAWSA
- To determine the effects of time and schedule planning on the success of water supply projects in AAWSA
- To analyze the effects of Financial Resource planning on the success of water supply projects in AAWSA
- To analyze the effects of Risk and Quality planning on the success of water supply projects in AAWSA

1.6. Significance of the Study

To manage the unmet water demand of Addis Ababa city, integrated water management practices including planning for future scenarios are essential. According to (X. X. Huang et al., 2012) organizations which fails to plan projects precisely especially the time and cost of the project at the conceptual design stage have a higher probability project failure, than those who cautiously plan the project initially.

The need to obtain successful projects calls for the need for proper planning and intentions. Therefore, the output of this study will demonstrate the existing planning practice in the organization and it enables the firm to spend additional efforts on the planning activities

identified in the study to improve the performance of their project outcome and to promote sustainable water management and increase the success of projects. the study will also help the organization to manage the unmet water demand of Addis Ababa city, integrated water management practices including planning for future scenarios are essential.

The result of the study will also magnify the relevance of planning phase and direct professionals who engage in the planning process to give proper attention to the phase and by the application of the concepts obtained from the study that contributes a significance role on project success.

1.7. Scope of the Study

The scope of the research focus on the effects of planning practice specifically on project success within the context of water supply projects in AAWSA (Addis Ababa Water and Sewerage Authority) Development and Rehabilitation Project Office; the public institution in the city which is responsible for the supply of potable water. The study analyzed time and schedule planning, financial resource planning and risk & quality planning and their effect on the success of projects. The projects are limited to water supply projects encompassing the surface and groundwater sources that are the main means of potable water supply sources for Addis Ababa city.

The research scope focuses on investigating the effects of planning practice on project success within the context of water supply projects in AAWSA Development and Rehabilitation Project Office, a public institution responsible for the supply of potable water in Addis Ababa.

The study specifically analyzes the planning practices of time/schedule planning, financial resource planning, and risk & quality planning, and their effect on the success of water supply projects.

To address the research problem, the study utilizes a quantitative approach. A questionnaire-based survey is employed to collect statistical data related to the planning practices and project success indicators. The survey participants include project managers, planners, engineers, and other relevant personnel within AAWSA.

The questionnaire is premeditated to capture information on the planning practices, including time /schedule planning, financial resource planning, risk assessment, and quality control measures. The respondents are asked to provide their evaluations and perceptions of these planning practices and their impact on project success.

The collected data are then subjected to descriptive analysis, which involves summarizing and presenting the data using statistical measures. This analysis aims to describe the variables involved in the planning practices and their relationships.

Furthermore, an explanatory analysis is conducted to examine the influence of the independent

variables (time/schedule planning, financial resource planning, risk and quality planning) on the dependent variable, which is the success of water supply projects.

Statistical techniques such as correlation analysis and regression analysis are employed to assess the relationships and determine the impact of planning practices on project success indicators essentially project completion time, budget adherence, and quality outcomes.

The research is specifically focused on water supply projects encompassing both surface and groundwater sources, which serve as the primary means of potable water supply for the city of Addis Ababa.

By conducting a quantitative analysis of the planning practices and their effects on project success within this specific context, the research aims to provide valuable insights and recommendations for improving the planning processes and achieving successful outcomes in water supply projects undertaken by AAWSA's Development and Rehabilitation Project Office.

1.8. Limitation of the Study

The study faced a limitation of gathering the dropped questionnaires on time because some of the professionals were engaged in field work and some are reluctant to fill the questionnaire this constrained the amount of data that could be collected and analyzed.

1.9. Organization of the Study

This study is structured in five chapters. The first chapter provides an introduction, including the research background, objectives, significance, scope, and limitations. Chapter two of the study presents a literature review on project planning and empirical findings regarding the impact of project planning practice on project success, along with a conceptual framework. The third chapter outlines the methodology used, encompassing the research design, sampling technique, target population, data collection tools and techniques, and data analysis and presentation. Chapter four discusses data presentation interpretation and presentation of the findings. Finally, the fifth chapter summarizes the data findings, presents conclusions and recommendations and future research suggestions.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

This chapter focuses on the literature review, which provides an extensive examination of existing research and scholarly works relevant to the effect of planning on project success. It encompasses a comprehensive analysis of conceptual frameworks, theories, and empirical studies related to project planning and its impact on project outcomes. The chapter highlights key findings and identifies gaps in the current knowledge, emphasizing the need for further exploration. By synthesizing and critically evaluating existing literature, this chapter lays the foundation for the subsequent chapters, contributing to a deeper understanding of the relationship between planning and project success.

2.2. Theoretical Review

2.2.1. Project

Based on its diversified aspects many authors and references define project in different ways. This study summarizes these definitions and defines a project as temporary endeavor (with a defined starting and completion time) that is carried out according to a certain cycle of initiation, planning, execution, and closure, in order to create a unique product or result through organization of financial, human and material resources to achieve an objective (Project Management Institute, 2008).

A project is a non-repetitive enterprise, characterized by a clear and logical sequence of events, with a beginning, middle, and end, focused on the accomplishment of a clear and defined objective on deadline, with costs, resources, and quality parameters (Ricardo, 2008)

Project involves a single, definable purpose, product or result having well-defined constraints in terms of cost, schedule (time), and performance requirements. It is a single process consisting of a series of coordinated and controlled activities with specific start and end dates, performed to achieve an objective according to specific requirements, including time, cost and resource constraints” (ISO 10006: 2003). Management of projects involves planning and controlling of these interdependent variables in which changing one variable puts a significant impact on others.

2.2.2. Project Management

Project management is broadly researched and defined by different researchers. Summarizing these definitions project management can be defined as a process of applying modern management principles involving planning, organizing, coordinating, monitoring and

controlling all project dimensions from start to finish, processes, skills, knowledge, and experience to accomplish specific project goals (PMBOK, 2017), (Badewi, 2016).

(Project Management Institute, 2008) defines Project Management as the application of tools, techniques, knowledge and skills to the project these activities/processes to achieve the objectives. Therefore, the achievement is subjected to time, cost and quality constraint. The usage of these Tool and technique in project management varies depending on project phases and activities.

In order to meet project's objectives project managers, apply integration of various tools and techniques ensuring projects are completed within defined cost, time and quality parameters. Effective communication and collaboration play vital roles in motivating all project participants to deliver the desired outcome (Project Management Institute, 2008).

Project management is accomplished through the appropriate application and integration of the 47 logically grouped project management processes categorized into 5 process groups: Initiation, Planning, Execution, Monitoring and Controlling, Closure which are grouped into 10 knowledge areas (Jainendrakumar, 2015).

2.2.3. Project Lifecycle

The European Commission adopted (as the principal body in charge of the implementation of the cohesion policy and management of nations' funds) the term Project Life Cycle Management in 1992 as a primary set of tools for project development and management, based on a logical framework approach. The generic project cycle consists of four phases: Identification (initiation), Formulation (Planning), Implementation and Evaluation/Closure (Feyissa, 2018).

Every project or a program passes through certain phases of development called project life cycle. The four typical phases during which deliverables are created and end with approval of the deliverables are Initiation, Planning, Execution and Closure (Assudani, 2008).

To achieve the desired goal of project managers needs to have a clear understanding of these phases which enables them to have a better control over existing and potential resources.

Different authors investigated that the success of a project is dependent on different stages of the project cycle. The first phase which is **initiation phase** helps to study the feasibility of the study and understands the business value by which the project manager creates a project proposal that contains project approval and project plan having a well-defined scope, clear deadlines and a specific target population. This is a stage that starts with the origin of an idea for a project and culminates in a decision to perform the project or determines project feasibility and informs the decision to proceed with project execution (Assudani, 2008).

In this stage it is necessary that the project is instituted to take an opportunity not to solve a problem (Shariful Islam, 2011).

Project planning the second phase of the project lifecycle, outlines the things that needs to be done and to accomplish the purpose of the project and approaches to do (Phullsunder, 2019). In project planning stage, definition of tasks, development of schedule, organizational planning, recruitment, communication planning and project plan development are influential to project success. During this phase different plans that helps to manage project time, cost, scope, quality and other issues are created. These activities include defining project objectives, scope, goal and expected deliverables. This phase needs identification and assignment of project design team, setting-up project office, and gaining approval to proceed to the next phase (Method123., 2018). Project management team has diverse responsibilities but their most significant tasks are planning, estimating, scheduling, and executing the plan.

On the third phase of project lifecycle that is **project execution** project manager is expected to build physical project deliverables and submit them to the client for approval.

Execution Phase is usually the longest phase in the project life cycle and it typically consumes the most energy and the most resources. Project managers are expected to implement various management processes to monitor and control the project effectively. These processes help the manager and his team to manage time, cost, quality, change, risks and issues.

Project execution also known as implementation phase is the stage where visions and plans come true (Tadesse, n.d.). At this phase procurement, customer satisfaction and communications are well managed (PMBOK, 2017). Many researchers believed that among the four phases of the project lifecycle Project execution including monitoring is found to be the most important stage in the entire project management lifecycle. Execution is the result of planning phase and it is highly dependent on the activities and resources that are chosen to do during the part of project's plan development.

Project closure is the fourth and final phase of project lifecycle aimed in assessing the success of the project and its end product or deliverables. According to (De.PK, 2011) closure is a significant stage in the lifecycle of a project that needs due diligence through initially setting a plan and budget similarly to all other phases of the project lifecycle.

The traditional project close-out phase includes the closing process group, which comprises those processes performed to finalize all activities across all Process Management Groups to formally complete the project, phase, or contractual obligations (Project Management Institute, 2008).

Poor management of project closure will result in a number of negative impacts such as: Time and cost overruns, damage to the reputation and prestige of the project team, tying up valuable

human and other resources that could be better used elsewhere, and a drain on the personal project.

2.2.4. Project Planning

Researchers and experts have different definition for planning, the (PMBOK, 2017) defines planning as the management function that is used to determine missions, goals and strategies to achieve the predetermined objectives. Among the primary phases of project life cycle the planning stage deed as a basis for the integration of execution and control & closure phases by developing the components of the project management plan and the project documents used to carry out the project. Project planning is the systematic arrangement of project resources in the best way to achieve project objective (Faniran.O., 2000). It is the process of thinking about the activities required to achieve a desired goal.

Project planning involves the process of preparing for the commitment of resources in the most economical manner. It defines the activities and events of the project together with the time, cost, required resources and success milestones to achieve project objectives. The plan must indicate the materials, equipment, facilities, human and other resources that are necessary to complete the project (Whittaker, 1999).

Every project has a starting, a middle period during which project activities are undertaken to move the project toward completion, and an ending (which might be successful or unsuccessful). With planning in a project the project will be more successful which was believed as a traditional wisdom by (Gibson & Gebken, 2003). Another definition of planning is what comes before action (Al-Nabae & Sammani, 2021).

There are different types of projects in different industries. These projects have different needs for project management which affects the need and effect of planning on project success. (Collyer et al., 2010). The decisions made at the early definition stages set the strategic framework, get it wrong here and the project will be wrong for a long time (Morris.P.A., 1998). Surprisingly little research has been done on how much planning should be done in projects. (Daly, 1977) States that schedule planning should be 2%, specifications 10%, and final design 40%, of the total cost; however, not much design is done during execution. Similarly, (Poston, 1985), states that plans and requirements should be 6% of project cost; productdesign should be 16%, and detailed design 25%. Empirical guidance on how much time to plan has become less common over time. The reasons for this change in guidance are notclear, as it could be due to its ineffectiveness, the increasing diversity of technology or simply a shift in popularity.

In the context of project, planning is a dominant activity that serves as a core stone of any project (Blomquist et al., 2012). Accordingly, project managers should be careful on what they are planning to do in the remaining phases with increased performance.

2.2.5. Project planning process

In the integration of project management processes required to ensure that the various elements of the project are properly coordinated. (Jainendrakumar, 2015) noted in his study the processes and the activities are needed to connect, define, unify and coordinate various project management process and activities within the project management process group. The process of planning refers to the specific steps followed in developing organizational plans (Kerzner, 2014) To define project objectives, develop strategies and create a comprehensive project plan, the project planning process passes through a series of steps and activities. The knowledge area for planning encompasses nine knowledge areas in which each encompass a specified process (Project Management Institute, 2008). However, all the processes under each knowledge areas are not uniformly performed.

The stages of the planning process include defining project objectives, stakeholder identification, developing project scope, schedule and budget, risk identification, communication planning, quality management planning and procurement planning (Maleka, 2014).

2.2.5.1. Defining Project Objectives

Defining project objectives clearly articulates the goals and objectives of the project by ensuring their alignment with overall organizational strategy. The Objectives of the project can be achieved by using existing organizational structures, different resources, applying a collection of tools and techniques. In project planning process defining project objectives is a crucial step involving, involving identification of specific, measurable, achievable, relevant, and time-bound (SMART) goals (Macleod, 2015).

Project manager can set a clear direction and focus for the project by clarifying the desired project outcomes, establishing measurable criteria, and aligning objectives with stakeholder expectations and organizational goals (Tesfaye, 2016).

To ensure the objectives of a project are attainable within project constraints it is necessary to assess the feasibility and setting a realistic framework. Regular review and communication of objectives throughout the project lifecycle enables effective planning, execution, and evaluation, contributing to project success and value.

2.2.5.2. Identifying project stakeholders

Stakeholders in a project include individuals or groups who have an influence or interest in the project and whose needs and expectations impact on the success of the project. The identification of stakeholders is based on data from the project. In project planning stakeholder identification consists of identifying the persons, groups or organizations that may affect a decision, or be affected by a project activity, or its final outcome. It also analyzes and documents relevant information about stakeholder interests, interdependencies, participation, procurement documents, influence & potential charter, environmental factors of the business and organizational assets (Riahi, 2017).

Project managers should engage stakeholders effectively by understanding their interests, analyzing their influence and managing their expectations throughout the project. This ensures that project planning considers the needs of all relevant parties, leading to greater stakeholder satisfaction and successful project outcomes.

In his study (Jainendrakumar, 2016) shows that in the process of planning identification of stakeholders is crucial for project success. By promoting effective communication, addressing stakeholder expectations, gaining stakeholder support, managing risks and conflicts and considering long-term impacts, project managers can enhance project outcomes, stakeholder satisfaction, and overall project success.

2.2.5.3. Developing project scope

The scope of a project defines the extent or boundaries of the project including the requirements, deliverables, assumptions and constraints. Defining project scope using input from all stakeholders is a vital task that needs to be adequately carried out at the early stage. In the success of projects, defining scope is critical, establishing a clear objective which enables scope management and control by facilitating resource allocation, planning and stakeholder management (Fageha & Aibinu, 2013).

The purpose of scope definition is to provide adequate information that is needed to identify the activities to be performed in order to avoid major changes that may negatively affect project performance (Gibson, 2006). This information is needed before making the decision whether or not to proceed with the project execution.

While adequate front-end project planning, including a clear definition of project scope, can help mitigate the risk of cost overruns, inadequate project planning and poor scope definition can lead to expensive changes, delays, rework, cost overruns, schedule overruns, and project failure. Changes often reflect the uncertainties that occur during the early stages of the project.

2.2.5.4. Creating work breakdown structure (WBS)

The Work Breakdown Structure (WBS) is a hierarchical breakdown of the project work that needs to be completed by the project team. It is organized in a deliverable-oriented manner,

meaning it focuses on the desired outcomes and required deliverables to achieve the project objectives. The WBS breaks down the project work into manageable components, providing a clear and structured framework for the project team to execute the necessary tasks and create the desired deliverables.

The Work Breakdown Structure (WBS) is a powerful tool for project management. It is the cornerstone of effective project planning, execution, controlling and reporting. All the work contained within the WBS is to be identified, estimated, scheduled, and budgeted. The WBS serves as the framework and coding system that integrates and relates all project work (scope, schedule, and cost) (Burghate, 2018). By providing a visual representation of the project scope and work breakdown, the WBS facilitates effective planning, coordination, and control, ultimately contributing to the successful completion of the project.

2.2.5.5. Developing a project schedule

A project schedule or a timetable, as a basic time-management tool, consists of a list of times at which possible tasks, events, or actions are intended to take place, or it consists of a sequence of activities in the chronological order in which such activities are intended to take place. The process of creating a schedule - deciding how to order these tasks and how to commit resources between the varieties of possible tasks - is called scheduling (Rauzana, 2016)

Developing a project schedule involves identifying project activities, estimating their durations, sequencing them based on their dependencies and creating a visual representation of activities is a vital component of project management and directly impacts project success. In his study (Kibuka, 2013) depicted there is not a much better conclusion to be made than that of project managers being the project success determinants through their tracking of project schedules, resources, budgets and project related assets in real time. The project schedule can be reviewed and updated by team members associated with the project, keeping everyone well informed on the overall project status. Additionally, (kerzner, 2014) states that project manager and the team should keep in mind why the schedule was developed.

Project managers can effectively plan and manage activities by developing a well – structured schedules which enhances productivity, facilitates on time project completion and achieving objectives within defined time frame contributing to overall project success.

2.2.5.6. Developing project budget

Project Budgeting is performed on the initial stages of project planning and usually in parallel with the development of the project schedule. Project managers can effectively allocate financial resources, identify expenses and make decisions about resource allocation and cost management by developing project budget (ERASMUS, 2015).

By developing an accurate project budget by estimating the costs project manager can avoid budget overruns, maintain financial stability and optimize resource usage in which this process helps in achieving project objectives within the defined financial constraints, contributing to overall project success.

2.2.5.7. Identifying project risks

Risk is an important concept that cuts across many disciplines and therefore requiring sufficient attention in order to minimize its impact when it occurs (George, 2020). To better understand the potential threats and uncertainties systematic project risk identification is essential which helps to develop risk response strategies including risk mitigation, avoidance, transfer, or acceptance.

Risk management field and needs analysis sheds light on the fact that regardless of the specific type of risk to face, the resources or processes exposed to that specific risk, the shape the threat might take, the different consequences it might have: the approach in dealing with risks, in general, is common in all possible scenarios (Castro, 2008).

Effective risk identification enables proactive risk management, enhances project decision-making, and increases the likelihood of project success by addressing potential challenges before they become major issues.

2.2.5.8. Developing communication plan

In project management developing a communication plan involves developing a strategy to ensure effective and timely communication with project stakeholders.

Effective communication is essential for conveying the interrelationship between cost, scope, time, and quality in a project. It serves as the integrating function that aligns these key project elements to ensure the delivery of a high-quality product. Communication acts as a foundational component, enabling effective coordination and collaboration among stakeholders to achieve project success (Zulch, 2014).

Communication plays a vital role in encouraging collaboration, reducing misunderstandings, and enhancing project coordination and success.

2.2.5.9. Quality Management Planning

Quality is the degree to which the project fulfills requirements (Jainendrakumar, 2015). In the process of developing quality management plan quality standards should be identified stated. The quality practices of an organization (which take place within a quality culture or context) are defined as the actions and procedures undertaken by a company or organization to ensure the delivery of a high-quality service or product (Barros et al., 2014).

For the success of a project, quality management plan having a defined clear objective, processes, risk mitigation strategies are very important which ensures the consistency of

delivering high quality products or services. The plan sets the foundation for meeting or exceeding customer expectations, enhancing customer satisfaction, and ultimately achieving project success.

2.2.5.10. Developing Procurement Plan

Procurement planning is an integral part of the program or service planning process. The core idea behind procurement is that by engaging in advance planning, establishing schedules, and making bulk purchases, organizations can achieve cost savings, streamline their operations, and maximize the value they receive for the money spent.

Procurement process is a set of stages that takes place from when a need is identified until the final satisfactory delivery is made and the supplier paid (Oenga, 2022).

A well-executed procurement plan is critical to project success by ensuring fast and cost-effective procurement of resources. By choosing the right suppliers and negotiating productive contracts, risk is limited and high quality products are delivered. Effective procurement management contributes to the overall performance and success of the project.

2.2.6. Evaluation of Quality of Planning

Assessing the quality of each planning efforts by considering factors such as accuracy of budgeting and scheduling, effectiveness of resource allocation, scope definition, risk identification and mitigation measures and communication planning in each component is a way of evaluating the quality of planning in which it determines whether the planning process is realistic, comprehensive and aligned with project objectives.

Poor planning leads to failure of the project while planning with high quality Planning increases the chance of project success (Zwikael & Globerson, 2004). In the process of planning (Meredith & Mantel, 1995) identified six basic planning sequences: preliminary coordination, detail task description, budget deriving, project schedule deriving, description of status and progress reports and planning the project termination. These sequences are included under defining project goals, task identification, establishing order of activities, time frame estimation, project completion time determination, project schedule objective evaluation and resource assessment were found to be additional planning processes (Russell, 2003).

To assess the quality of planning in a project, several tools and techniques can be employed. These tools help evaluate various aspects of the planning process and identify areas for improvement. Here are some commonly used tools for measuring planning quality:

- a) **Checklist:** planning quality can be measured by developing a checklist of key planning elements and best practices. The process can be evaluated against the checklist to ensure that all necessary components have been considered and incorporated into the project plan. This helps ensure that critical planning steps are not overlooked.

- b) **Work Breakdown Structure (WBS) Analysis:** WBS is a deliverable-oriented hierarchical decomposition of the project into phases and work packages (Aluytbi, 2020). The analysis is used to examine the structure and hierarchy of the project's work breakdown structure. It also evaluates whether the WBS is comprehensive, logically organized, and adequately defines all project deliverables and tasks. Assess if the WBS aligns with the project objectives and provides a solid foundation for scheduling and resource allocation.
- c) **Gantt chart Analysis:** to measure the quality of planning the Gantt chart analysis is necessary particularly where displaying information about schedules is important. (Wilson, 2003) Assess whether the schedule is well-defined, realistic, and accurately reflects task dependencies, durations, and milestones. Look for any scheduling conflicts, bottlenecks, or resource over allocation. Compare the planned schedule with the actual progress during project execution to identify deviations and assess the accuracy of the planning.
- d) **Resource Allocation Review:** Resource allocation decisions that consider equity, efficiency, and sustainability in every sector should be treated as the main goal of decision-makers. (Frehiwot, 2019). Evaluate how resources, such as personnel, equipment, and materials, have been allocated in the project plan. Assess whether the allocated resources align with project requirements, task dependencies, and skill sets. Look for any imbalances or shortages that may impact project execution.
- e) **Risk Management Assessment:** this assessment includes reviewing project's risk management plan and its effectiveness in identifying, assessing, and mitigating risks. It also evaluates if risks are categorized, identified and prioritized. Recent experience has shown that risk management techniques employed on development projects can help reduce unexpected delay, assets failure (Tanmoy Sinha, 2019). So it is essential to assess whether appropriate risk mitigation strategies have been developed and integrated into the project plan.
- f) **Stakeholder Analysis:** stakeholder analysis is an approach, a tool or set of tools that describes how to identify and approach stakeholders and considers the use of qualitative or quantitative data collection methods for estimating stakeholder positions, levels of interest and influence around an issue (Varvasovszky, 2000). It helps to analyze the stakeholder engagement and communication plan and evaluate whether all relevant stakeholders have been identified and their needs and expectations have been considered. It improves assessment of effectiveness of communication channels and the level of stakeholder involvement and satisfaction.
- g) **Peer Review:** peer review of the project plan is conducted by involving experienced project managers or subject matter experts to get their recommendation and feedback on

the completeness, effectiveness, feasibility and reliability of the plan. In (PPPR Handbook 12-2021.Pdf, n.d.) Peer reviews are described as a non-competitive, quality development and evaluation process that is more analogous to manuscript review by an outside expert panel and does not involve ranking or funding decisions. The insights of peers will help to identify potential blind spots or improvement opportunities.

- h) Lessons Learned Analysis:** to evaluate quality of planning it is essential to review lessons learned from previous projects or similar initiatives (Vignos & Bowes, 2014). The analysis helps to identify recurring issues, challenges, or successes related to planning. Incorporating the lessons learned into the planning process helps to avoid previous mistakes and leverage best practices and project managers become more effective at managing projects by learning lessons from previous projects.
- i) Expert Judgment:** Expert judgment provided based upon expertise in an application area, knowledge area, discipline, industry, etc. as appropriate for the activity performed (Paul Szwed, 2016). Experts selected should possess high professional standing and widely recognized competence. It needs to seek input from experienced project managers or industry experts who can provide their professional judgment on the quality of the planning efforts. They can offer insights based on their knowledge, expertise, and past experiences, which can help identify areas for improvement.

These tools can be used individually or in combination, depending on the specific needs and requirements of the project. They provide a structured approach to assess the quality of planning and identify potential gaps or areas that need improvement, ultimately contributing to the overall success of the project.

2.2.7. Project Success

In project management, project success refers to the achievement of project objectives and desired outcomes within the defined constraints of time, cost, quality, and scope (PMBOK, 2017). It signifies the successful completion of a project, meeting or exceeding stakeholder expectations and delivering the intended benefits.

(Thomas, 2008) state that measuring project success is not straightforward: numerous instances thrive where the original objectives of the project are not met, but the client was highly satisfied.

Project success is not solely measured by meeting technical specifications, but also by satisfying the broader goals, objectives, and requirements of the project and its stakeholders. It encompasses factors such as delivering the project within the allocated budget, adhering to the planned schedule, achieving the desired level of quality, fulfilling stakeholder needs and expectations, and effectively managing project risks and uncertainties (McLeod et al., 2012).

Ultimately, project success is determined by the extent to which the project achieves its intended purpose and provides value to the organization and its stakeholders.

2.2.8. Project Success Criteria

Project success consists of two fundamental components: project success criteria and project success factors. Success criteria are measurable indicators of a project's successful outcome and are considered dependent variables. Success factors, on the other hand, are independent elements that increase the likelihood of success.

Success criteria are used to measure the success of a project, while success factors contribute to achieving that success (Lamprou & Vagiona, 2018). Project success criteria serve as dependent variables, encompassing principles, measures, and standards that evaluate and measure the project's successful outcome. They provide a tangible way to assess whether a project has met its objectives.

On the other hand, project success factors are independent elements of a project, comprising various circumstances, facts, elements, and influences that contribute to increasing the likelihood of success. These factors create an environment conducive to achieving project success by providing necessary support and facilitating the accomplishment of project goals (Ika, 2009), (Turner, 2009).

Together, success criteria and success factors form a comprehensive framework that enables the understanding, assessment, and enhancement of project success.

Project success is determined by several criteria established during the planning stage. These criteria include time, cost, user satisfaction, quality-performance, and business performance (Ofori, 2013). They are commonly used to evaluate the success of a project.

In addition to the core criteria, other factors are considered significant in measuring project success. These factors encompass technical specifications, stakeholder satisfaction, strategic goals/objectives, competitiveness, functionality, project team satisfaction, and safety (Muller & Jugdev, 2012). They provide valuable insights into the overall project performance.

By considering a comprehensive set of criteria and factors, project managers gain a holistic understanding of project success. This approach enables informed decision-making and facilitates continuous improvement throughout the project lifecycle.

Project success goes beyond the achievement of short-term goals and encompasses strategic objectives and benefits, such as market impacts, business development, and adaptability to future opportunities and challenges (McLeod et al., 2012). This broader perspective highlights the long-term value and significance of project outcomes.

Different researchers emphasize the importance of tailoring project success criteria to each specific project. They suggest that stakeholders should be actively involved in determining success criteria at the project's outset (Romão, 2016). This approach ensures that success is defined in a way that aligns with the unique goals and expectations of the project, increasing the likelihood of achieving desired outcomes.

Critical success factors are essential components that directly contribute to achieving the identified success criteria. They encompass specific circumstances, factors, or actions that play a crucial role in ensuring effective project execution and the attainment of desired outcomes. Acting as key drivers or enablers, these factors have a direct influence on project success and contribute to its overall achievement.

By identifying and prioritizing critical success factors, project managers can focus their efforts and allocate resources effectively. These factors serve as the foundation for project success, guiding decision-making and actions throughout the project lifecycle. Understanding and addressing these key drivers increase the likelihood of project success and the realization of desired outcomes.

Project success criteria are specific and measurable criteria or standards used to assess the success of a project (Cooke-Davies, 2002). These criteria help determine whether a project has achieved its intended goals and objectives while the specific criteria may vary depending on the nature of the project and stakeholder perspectives.

Based on different researchers findings the most commonly used project success criteria are achievement of project objectives, delivering within budget, meeting the project schedule, quality of deliverables, stakeholder satisfaction, scope management, risk management, change management, team performance and collaboration, and lesson learned scope (PMBOK, 2017), (Kothandath, 2017), (Shenhar, 2013).

However, project success criteria are not universal or fixed; they can vary depending on factors such as project context, industry, and stakeholder requirements. It is crucial to customize the project success criteria to align with the specific goals of the project and meet the expectations of stakeholders. By tailoring the success criteria to the project's unique circumstances, it increases the relevance and effectiveness of measuring and evaluating the project's success.

2.2.9. Planning Practice and Project Success

A typical project passes through different phases; among these different phases of the project, project planning is one of the important phases. Previous studies have identified various factors that influence project success, and among them, effective planning has been consistently highlighted as a crucial factor for project success. Poor project planning is one of the reasons for project failure. Moreover researches discovered that there is positive interaction between

project planning and project success. (Tesfaye, 2016)

Researches indicated that project success is influenced by project planning. By engaging in thorough and effective planning, project managers can set clear objectives, define project scope, allocate resources efficiently, and establish realistic schedules.

(Munns and Bjeirmi, 1996) State that for a project that is flawed from the start, successful execution may matter only to the project team, while the wider organization will see the project as a failure. The most effective team cannot overcome a poor project and projects that begin on the wrong path have the potential to result in significant project failures. A well-developed plan serves as a roadmap for project execution, guiding the project team and stakeholders towards the desired outcomes (Khan et al., 2019). The plan allows for better communication, coordination and control, reducing the likelihood of project delays, cost overruns, and scope creep.

(Blomquist et al., 2012) state Plans are a cornerstone of any project; consequently, planning is a dominant activity within a project context. This is a recurring theme: planning is inherently important to project success or one could argue project management would not exist.

Adequate planning also helps identify and mitigate potential risks and uncertainties, ensuring that appropriate measures are in place to address them. Ultimately, a strong planning practice increases the probability of project success by providing a solid foundation for project execution and enabling proactive decision-making.

In his study (Gibson W. a., 2008) conveyed the connection between planning and project success considering planning as the foundation for all successful projects. Careful planning reduces risks and increases project success rates by enabling project managers to anticipate and prepare for potential challenges (Serrador, 2013). It allows for the consideration of various scenarios, leading to the

development of proactive measures to prevent adverse events. This proactive approach minimizes disruptions, optimizes resource allocation, and ensures that projects stay on track, ultimately enhancing the overall likelihood of project success.

Apart from organizational structure, human factors, technical factors and management factors affect project success positively. Moreover, factors inhibiting the contribution of project efforts to project success in the construction industry include; human factors, cost performance baseline, lack of clear goals and risk and quality of projects and objectives (Opuku, 2021).

(Dvir, Raz, and Shenhar, 2003), in a rigorous paper noted the correlation between aspects of the planning phase and project success. In terms of project success, defining functional and technical requirements of the project has been found to be more significant than the planning procedures effort.

Thorough planning practices directly contribute to project success by reducing risks and

increasing the likelihood of achieving desired outcomes. Project managers who engage in effective planning anticipate and prepare for potential challenges, resulting in minimized disruptions and optimized resource allocation. Factors such as organizational structure, human factors, and technical considerations positively influence project success, while issues like unclear goals and risks can impede project contributions to achieving success. This study also considers the effect of planning process on project success.

2.3. Empirical Review

2.3.1. Time/Schedule Planning and Project Success

In a study by (Robert Lloyd et al., 2020), the impact of time planning functions on construction project success was examined. Through data collected via a survey, the researchers analyzed the relationship between effective time planning and project outcomes in the construction industry. The study revealed that time planning functions directly influence project success.

The study emphasized the significance of proactive project planning, which involves developing a detailed project solution before project execution. By considering current certainties and revised expectations, construction projects can address potential challenges and uncertainties. This proactive approach to time planning contributes to improved project outcomes in the construction industry.

(Amoatey, 2015) in his study examined the impact of cost planning on project success in Ghanaian state housing construction projects. The study highlighted the challenges of planning and scheduling during project inception, particularly in dealing with uncertainty. Expert planners, with their knowledge and experience, play a crucial role in conducting accurate and long-term planning to align project schedules with objectives, allocate resources efficiently, and minimize risks.

The study emphasized the significance of proper scheduling and planning in the construction process. Expert planners are essential in managing uncertainties and overcoming challenges at project inception. By considering various factors and potential obstacles, they develop effective schedules that contribute to the success of Ghanaian state housing construction projects. Amoatey's research sheds light on the importance of cost planning and expert planners in achieving project success.

Nowadays Schedule overrun is becoming very common in construction projects globally. (K T Alade et al., 2019) has consistently highlighted the global issue of schedule delays in construction projects. Constant project delays usually lead to time and cost overruns. This persistent problem has led to extensive research efforts aimed at understanding and addressing this phenomenon.

(Hwang et al., 2015) shows in his study effective time and schedule planning is essential for project success. It involves breaking down the project into manageable tasks and estimating

their durations. By sequencing tasks and identifying dependencies, project managers can create a realistic project schedule.

Allocating resources effectively ensures that the right people and materials are available when needed. This prevents bottlenecks and maximizes project performance (Fathi & Stevovic, 2016). On the other hand, the study shows Continuous monitoring of progress against the schedule allows for timely adjustments and proactive management of risks and uncertainties. Clear communication and collaboration among team members are vital throughout the process to ensure everyone is aligned and working towards the project's objectives.

2.3.2. Financial Resource Planning and Project Success

The Association for the Advancement of Cost engineering defines financial resource planning/project cost estimates as “the determination of the quantity and the predicting, or forecasting, within a defined scope of the costs required to construct and equip a facility, to manufacture goods, or to furnish a service. Included in these costs are assessments and evaluation of risks and uncertainties” (AACE, 2017)

As outlined in (PMBOK, 2017), project financial resource planning including the cost and budgeting as well as cost estimating process affects the success of project. In project management financial resource planning was found to be crucial factor for the successful execution of projects. The planning involves developing a comprehensive project budget, allocating funds strategically, and accurately estimating costs.

By proactively identifying and managing financial risks, project managers can ensure that project expenses remain within the allocated budget. Regular monitoring, reporting, and stakeholder engagement enable effective control and informed decision-making.

(Valtanen, 2020) studied in the construction industry project cost planning is a bit challenging but very effective for bidding, negotiations, cost monitoring and controls and it is closely related to the success or failure of projects. When projects fail or are abandoned, the resources already allocated to them result in wasted investments for the organization or nation, especially when there are competing needs. However, if the project succeeds, it becomes a valuable asset that fulfills its intended purpose and brings added value to the organization, industry, or nation.

(Bello and Odusami, 2013) in their study discussed cost planning is vital to construction contract tendering and provides the basis for establishing the likely cost of resource elements of the bid price for construction projects in Nigeria. The study clearly shows in construction and engineering projects plans and cost estimates are usually drawn to ensure that the work is carried out to the desired quality, within allowed time, and within budget which results to the success of the project.

(Tayefeh Hashemi et al., 2020) oversees the process of cost planning is an iterative process that requires constant review and update as circumstances change and new facts emerge by

analyzing different articles. Project cost planning must be accurate, reliable, efficient, transparent, and based on relevant and high-quality data with clearly documented assumptions to effectively serve their purpose. The study clearly shows in cost planning or estimating at the early stage of the project is a great concern which highly impacts the success of construction projects.

consequently, with effective financial resource planning, projects can optimize budget utilization, mitigate risks, and maintain financial stability, ultimately leading to project success.

2.3.3. Risk & Quality Planning and Project Success

Risk and quality management share multiple points of integration (Project Management Institute, 2008). At the strategic level, the project management plan incorporates both a quality management plan and a risk management plan. These plans are interrelated and developed in consideration of each other, recognizing that they are not created in isolation. This holistic approach ensures that quality management and risk management align and complement each other within the project framework.

During the initial risk assessment phase, the risk planning is typical on identifying high-level risks and understanding the stakeholders' risk tolerances. This involves identifying risks that impact specific project objectives as well as those that have a broader impact on the overall project (Pritchard, 2015). By considering both individual project risks and the overall project risks, project managers can gain a comprehensive understanding of potential threats and align risk management strategies with stakeholder expectations. Quality standards are generally contractually stipulated quality acceptance protocols while quality objectives are the organizational adopted quality goals (Jainendrakumar, 2015).

(Ford, 2019) investigates risks that may impact the quality of project deliverables should be identified by conducting a qualitative and quantitative risk assessment including identification of resource limitations, external dependencies, uncertainty in technologies, and other factors that may have an impact on the desired level of quality. The findings of the risk assessment will be then use to inform the quality planning process, which enables to establish quality requirements and define appropriate strategies and measures to mitigate or address the identified risks.

(Durivage, 2017) studied that integrating risk and quality planning is vital for project success. In the study it was discussed by considering potential risks and quality requirements together, project managers can proactively identify threats and implement measures to mitigate them. This integrated approach minimizes surprises, ensures stakeholder expectations are met, and enhances overall project outcomes. Effective risk management reduces disruptions, while quality planning ensures deliverables meet or exceed standards. The synergy between risk and quality planning leads to a comprehensive and proactive approach, increasing the chances of

achieving project objectives successfully.

(Alchammari, 2021) investigated the relationship between project planning, risk management and knowledge integration on project success. The study quantitatively demonstrates project planning and risk management positively influence the project success. The study findings also show the strategic planning of assessing and handling risk incidents increases project adaptability, resilience and robustness resulting in project success.

(Rabechini Junior & Monteiro De Carvalho, 2013) studied the impact of risk management on project success in Brazilian companies. The investigation result shows there is a positive impact from the presence of risk planning and risk manager on project success. The study also demonstrates organizations with developed processes, techniques and tools aimed at identification of risks and managing strategies at achieving efficiency will have improved chance of completing projects successfully.

2.4. Research Gap

Multiple studies consistently emphasize the critical role of project planning in achieving project success. For instance, (Jainendrakumar, 2015) depicted the how planning process that connects the defining, unifying and coordination of project management activities within project management process group lead to the success of projects. Furthermore (Whittaker, 1999) revealed poor/improper project planning is the main reason for project failures. (Aladwani, 2002) shows in his study that there exists a positive relationship between project planning and project success. Adequate project planning lays the foundation for effective execution by defining project objectives, scope, and strategies. It enables stakeholders to have a clear understanding of project requirements, timelines, and resource allocation. The results of the study indicated a strong correlation between planning practices and overall project success. While previous studies have explored various factors influencing project outcomes, planning was consistently highlighted as a critical factor for achieving project success. This highlights the significance of effective planning in ensuring project success and underscores the need for emphasis on planning practices in project management.

Although numerous studies have extensively examined the effect of factors inhibiting the contribution of project efforts to project success in construction industry most of the cases relies on road and building projects while there was found limited research that has been conducted to explore the effects of properly planning of time and schedule , cost performance baseline, lack of clear goals, and risk and quality of projects and objectives on project success within the water construction context specifically in Addis Ababa.

Addressing this literature gap is crucial to gain a comprehensive understanding of the barriers that impede project success in water supply construction projects and to develop effective strategies for mitigating these factors.

Therefore, this research is aimed to address this gap which will provide valuable insights into the influences of these planning practices on project success, thereby enhancing the effectiveness of project management strategies.

2.5. Conceptual framework

The conceptual framework illustrates the relationship between planning practices and project success. It identifies time and schedule planning, financial resource planning and Risk & Quality planning as independent variables, while project success is the dependent variable. By analyzing these factors, the framework provides insights into improving planning practices and enhancing project success.

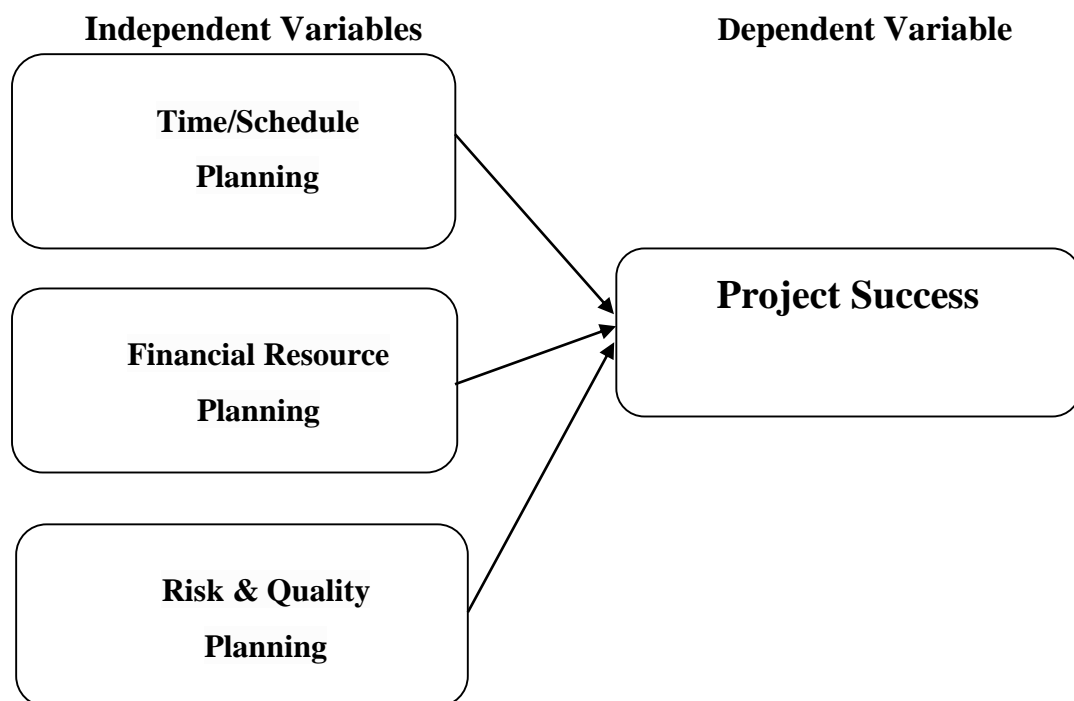


Figure 2-1:-: Conceptual Framework

Source: Researcher 2023

CHAPTER THREE

3. RESEARCH METHODOLOGIES

3.1. Introduction

This chapter describes the research methodologies used to investigate the effect of planning on project success. It outlines the research design, data collection methods, sample selection, and data analysis techniques. By employing appropriate and rigorous methodologies, this chapter ensures reliable findings, contributing to a comprehensive understanding of the relationship between planning and project success.

3.2. Description of the Study Area

The study area encompasses existing boundaries of Addis Ababa city administration and geographically located at longitude of 38° 44' E and latitude of 9° 1' N, and areas bordering Addis Ababa city Administration official boundary where the city water supply sources are developed and projects are executed. The map of proposed study area is indicated in Figure 3-1 encompassing the four water supply projects of the study.

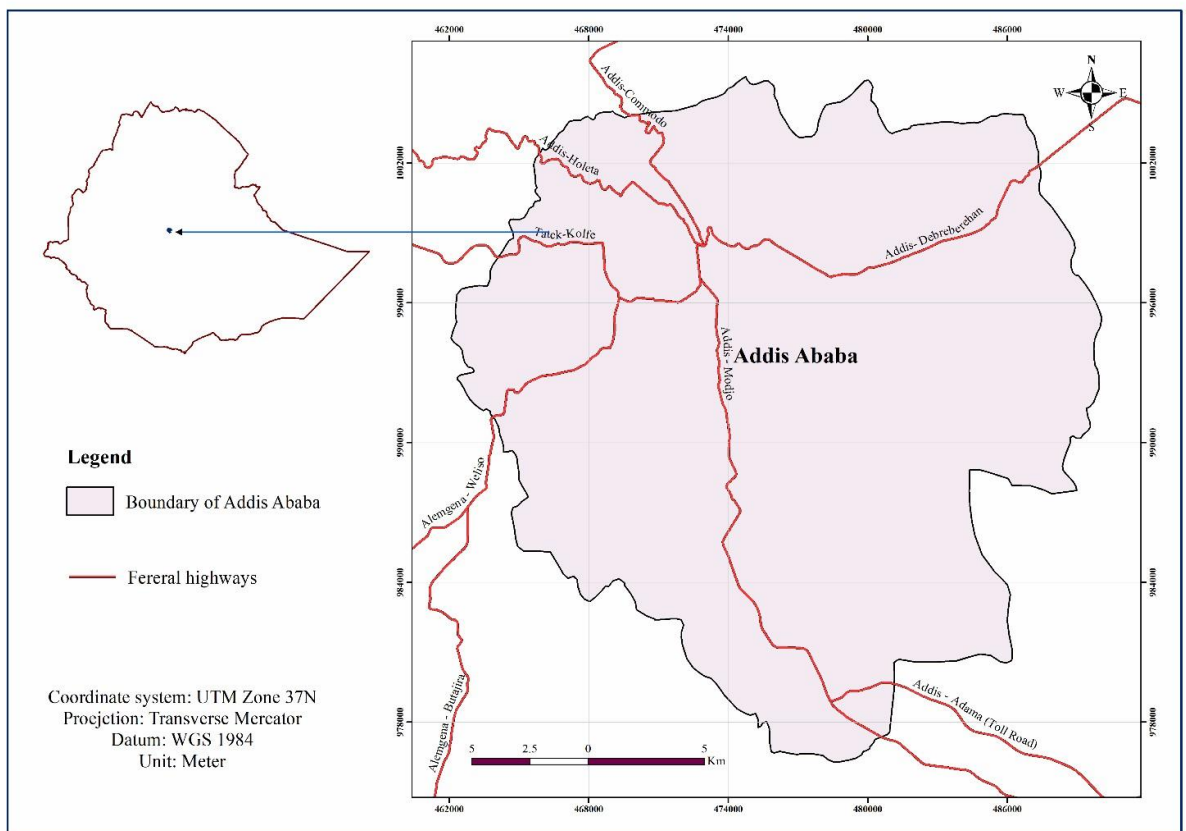


Figure 3-1: Location Map of Addis Ababa City

Source: <https://www.researchgate.net/>

3.3. Study Design and Approaches

The function of a research design is to ensure that the evidence obtained enables the researcher to effectively address the research problem, plan and implement the study in a way that will help the researcher to obtain the intended results. (Burns, N. and Grove, S.K., 2005).

The study used a descriptive and explanatory design in which the descriptive analysis helps to describe the variables and the relation to each other and the influence of the independent variables on the dependent variables is analyzed through explanatory analysis. A quantitative approach was used to emphasize the statistical data collected through questionnaires. The analysis provides a statistical data, information and figures regarding the existing planning practice in the firm and the effects of planning practice of the success of water supply projects in AAWSA.

3.4. Target Population

The target populations of the study are professionals in different level of job position who engaged in the planning and study & design of water supply projects whose sources are surface water and groundwater in AAWSA-Water and Sanitation Development and Rehabilitation Project Office.

3.5. Determination of Sample Size

According to (Castillo, 2009) sampling is the process of selecting units of the target population to be included in a particular study such that the sample of selected elements represents the entire population. For the purpose of the study, research samples were collected from the professional employees of the firm, as indicated in Table 1.1. Out of the total 134 employees, specific focus was given to the professionals directly involved in the planning process. These selected individuals possess the necessary expertise and play a significant role in strategic decision-making within the organization. By targeting this group, the study aims to obtain valuable insights and perspectives related to the planning activities within the firm. Since the number of total sample is of manageable size, a census of all the population was conducted.

Table 3-1: Target population

Team of Professionals	No. off Professionals
Technical Management Team	2
Planning Team	4
Water Supply Construction and Contract Administration Team	5
Water Supply and Surface Water Development Team	10
Sewer and Waste Water Study and Design Team	9
Sewage and Waste Water Treatment Design and contract administration team	8
Procurement Team	8
Total	46

Source: AAWSA-Water and Sanitation Development and Rehabilitation Project Office Human Resource

3.6. Method of Data Collection

For the purpose of this study a structured questionnaire that consists of a set of standardized questions with a predetermined framework that sets the precise language and sequence of questions was used as a primary data collection tool.

The questionnaire was administered to all the 46 (Forty-Six) respondents who are employees of AAWSA-Water and Sanitation Development and Rehabilitation Project Office individually. The questionnaire was carefully designed in light of getting high response rate from respondents. The answer to the structured part of the questioner was based on Likert scale of five ordinal measures of agreement towards each statement (from 1 to 5) to provide simplicity for the respondents to answer and to make evaluation of collected data easier.

3.7. Model Specification

The major aim of this research is to analyze the effect of time/schedule planning, financial resource planning and risk & quality planning on the success of water supply projects. The independent variables are taken from different studies as discussed in the literatures. The regression model of this study estimated in the following form:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$$

Where, Y= Independent Variable (Project Success)

β_0 = constant(Intercept)

β = regression coefficients

X1= Time/Schedule Planning

X2= Financial Resource Planning

X3= Risk and Quality Planning

ε = Coefficient of errors Source

Note: This model is developed for the purpose of this research

3.8. Data Analysis Techniques

The analysis of the study was conducted using descriptive analysis to quantitatively describe the variables using mean and standard deviations and the relation between the variables is analyzed by regression analysis. The data analyzed and presented in the form of diagrams and tables using SPSS (Statistical Package for Social Science) software version 23. To see the relationships of the three explanatory independent variables of the study on the success of water supply project in AAWSA reliability test and regression analysis were conducted. Data was interpreted with the help of significance P-values; if the P-value is less than 0.05, the variables deemed significant to give an explanation on the changes in the dependent variable.

The findings of Likert scale measures were evaluated according to (Kazdin, 1992); the score from 1- 1.80 is strongly disagree, from 1.81- 2.61 is disagree, from 2.62-3.41 is neutral, from 3.42-4.21 is agree, and 4.22-5 is considered strongly agree in a five-point Likert scale.

The findings obtained from the data analysis were used as a basis to reach conclusions about the research questions and objectives. Additionally, based on the conclusions the study formulated practical recommendations to address the identified challenges.

3.9. Validity and Reliability of the Study

The extent in which the measuring instrument measures in a research is called validity (Asika, 2005). The validity of a research was measured by content validity which implies whether the instrument is right to measure the concept the researcher is trying to measure.

In this study the content validity of the questionnaire was addressed from the feedback of the advisor in which the questionnaires are properly evaluated so that they can give the expected information and it was agreed that the questionnaire was valid and suitable enough to measure the purpose that the questionnaire is designed for.

3.10. Cronbach's Alpha (α) Statistics

Cronbach's Alpha was used to measure the internal consistency, or reliability, of the research data. In this study in order to calculate the Cronbach's alpha SPSS 23 was used in determining the reliability of the questionnaire over the collected data.

Cronbach's a reliability coefficient normally ranges between 0 and 1, the closer α is to 1.0, the greater the internal consistency of the items in the scale. Reliability of data is at low level when Cronbach's α is less than 0.3 this suggests that data is not reliable and cannot be accepted. As (Holtom et al., 2022) stated when the value of Cronbach's α is greater than 0.7 the reliability is high. The reliability statistics value of these study is shown in the table 1.2 below which ranges between 0.704 – 0.782 which was found as an acceptable value.

Table 3-2: Reliability statistics result

Variables	#of items	Scale	Cronbach's Alpha Value
Planning Process	15	1-5	.704
Time and Schedule Planning	6	1-5	.782
Financial Planning	5	1-5	.721
Risk and Quality Planning	7	1-5	.751
Project Success	3	1-5	.753

Source: Survey data 2023

3.11. Ethical Considerations

Ethical consideration is one of the most important parts of the research. The research participants should not be subjected to harm by any means and full consent should be obtained from the participants prior to the study. The study took measures to ensure the privacy

and confidentiality of the participants by maintaining the collected information in a secure and confidential manner. By informing the purpose of the study and its implications on the respondent's deception was avoided. Accordingly, the respondents were voluntary to take part in the study by providing the required information without manipulation or pressure. All sources of information were duly acknowledged.

CHAPTER FOUR

4. DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1. Introduction

This chapter presents the collected data and conducts a comprehensive analysis of the effect of planning on project success. The data is visually presented using appropriate representations, followed by a rigorous analysis applying statistical or qualitative techniques. The findings are then thoroughly discussed, providing valuable insights into the relationship between planning and project success. This chapter contributes empirical evidence and facilitates a meaningful understanding of the research topic.

This chapter presents the descriptive analysis on variables of the study and results of correlation and regression analysis that constitute the main findings of this study. All the data were coded and entered in to SPSS version 23 and inferences were made based on the statistical results.

4.2. Response Rate

In a generalization study, a response rate of 50% is considered sufficient for analysis, while a rate of 60% is considered good. An excellent response rate is typically regarded as 70% or higher (Badewi, 2016).

The research involved surveying on 46 professionals who are employees of AAWSA-Water and Sanitation Development and Rehabilitation Project Office. Nevertheless, only 41 of the distributed questionnaires were filled out and returned, indicating a response rate of 89% as shown in Figure 4.1.

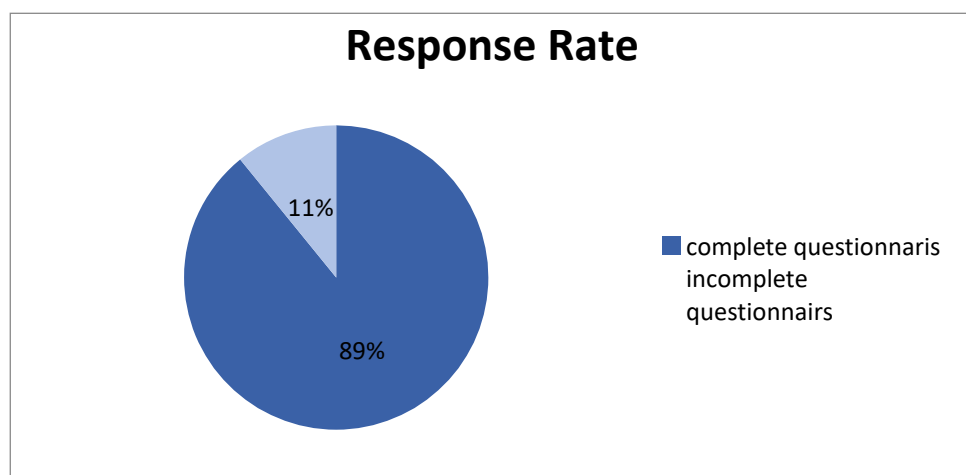


Figure 4-1: Response Rate

Source: Survey Data 2023

The figure shows 89% of the questionnaires is appropriately filled and returned by the respondents while the remaining 11% of the questionnaires are not returned because the respondents are on site investigation and field work.

4.3. Demography of respondents

The characteristics and attributes of the individual professionals who are the target population of the study are presented hereunder.

4.3.1. Role of employees

The role of the professionals is sought as managerial and non-managerial in which the management staffs are responsible for overseeing and managing the projects, teams and resources while the non-managerial experts contribute in project execution depending on the organization and project's structure. The result of the data collected is shown in the table below in which the 34% are managerial and the remaining 66% non-managerial.

Table 4-1: Role distribution of professionals

Number of professionals	Number of Professionals	Percentage (%)
Managerial Position	14	34%
Non Managerial	27	66%
	41	100%

Source: Research Data 2023

4.3.2. Level of Education

The study found out a diverse level of educational background among respondents with a significant proportion as indicated in table 4.2 below.

Table 4-2: Respondent's level of education

Educational Background	Number of Respondents	Percentage
Diploma	2	5%
Degree	14	34%
Masters	18	44%
PhD and Above	7	17%
Total	41	100%

Source: Research Data 2023

The result shown in table 4.2 provides a breakdown of the educational background of the respondents in the study. Out of the total 41 respondents, 5% held a diploma as their highest educational qualification. The majority of the respondents, accounting for 34%, had a degree as their highest educational attainment. The highest percentage of the respondents (44%) holds Master's degree. And the remaining 17% of the respondents had a PhD or above as their highest level of education.

Higher levels of education provide the professionals to have a broad understanding of principles, analytical skills, ability of critical thinking and knowledge of factors and considerations involved in the effectiveness of project implementation.

4.3.3. Project Management Educational background

Table 4-3: Respondent’s PM Educational Background

	Number of Responder	Percentage
Professionals with PM Background.	13	32%
Professionals with no PM background	28	68%
Total	41	100%

Source: Research Data 2023

The result in the table 4.3 shows 32% of the respondents had educational background in project management which indicates they have adequate knowledge in the project managing principles. While the remaining 68% with majority of the respondents do not have PM educational background.

4.3.4. Respondent’s Work Experience in the Organization

This section presents the experience of the respondents in the research study. To make it easier for participants to respond, the survey included different ranges of experience. The ranges spanned from 0 to more than 15 years. Most of the professionals in the organization have an experience in a range of 5 -10 years which is 44% of the total population under study. The table below displays the respondents' experience levels within the context of the research study.

Table 4-4: Distribution of Respondent’s work experience in the organization

Experience	Number	Percent
0-5	6	15%
5-10	18	44%
10-15	8	20%
Above 15	9	22%
Total	41	100%

Source: Research Data 2023

4.3.5. Familiarity with Organization’s Planning Practice

As shown in Table 4.4 approximately 17% of the individuals are very familiar with the practice which indicates they possess a high level of understanding and knowledge of the planning processes and strategies of the organization. About 32% are moderately familiar with the practice. The largest group, representing 41% of the respondents have partial understanding of

the practice in a level of somewhat familiar and the remaining 10% are not familiar with the organization's planning practices.

Table 4-5: Familiarity of respondents with the organization's planning practices.

Familiarity	Number	Percentage
Very Familiar	7	17%
Moderately Familiar	13	32%
Somewhat Familiar	17	41%
Slightly Familiar	4	10%
Total	41	100%

Source: Research Data 2023

4.4. Results of Descriptive Analysis

The descriptive analysis revealed key findings regarding the dependent and independent variables under investigation based on data gathered. Summary statistics by measures of means and standard deviation were computed and presented to provide a comprehensive understanding of the data.

In interpreting the study's results, the mean score of each item holds significance. The threshold values include a score range of 1-1.80 for strongly disagree, 1.81-2.61 for disagree, 2.62-3.41 for neutral, 3.42-4.21 for agree, and 4.22-5 for strongly agree. These thresholds serve as benchmarks for interpreting the respondents' level of agreement or disagreement with the statements.

The item with the minimum mean score indicates a strong disagreement among the respondents, signaling an inadequately performed planning process. Conversely, the item with the maximum mean score reflects a strong agreement among the respondents, highlighting their positive endorsement of the statements regarding the planning process. By analyzing both the threshold values and the minimum and maximum mean scores, the study gains valuable insights into the participants' perspectives on the planning process and its effectiveness.

4.4.1. Descriptive analysis of planning practice

To analyze the existing practice of planning in AAWSA, descriptive statistics of the planning process analyzed and the result is presented as shown in table 4.6.

By comparing the mean and standard deviation of the items the main problem areas of the existing practice in the organization are identified.

Table 4-6: Descriptive Statistics of Planning practice

Descriptive Statistics			
	N	Mean	Std. Deviation
The planning activities in the organization are well integrated and aligned with the overall objectives	41	4.12	.458
Project managers are engaged in planning process	41	4.05	.865
Project managers are experienced in the planning process	41	3.76	.916
Project team members are engaged in the planning process	41	3.00	.894
Project planning team have adequate experience in planning	41	3.29	1.031
Adequate training is given to team members	41	2.37	.859
The project scope is clearly defined	41	2.73	1.245
Project schedule are developed	41	3.76	1.090
Resources are identified and allocated effectively to meet project schedules	41	3.68	.789
Project costs are estimated and budgeted accurately during the planning phase	41	2.54	1.185
Different planning techniques were used	41	3.15	1.062
Quality planning was done	41	3.51	.925
The organization plans and manages communication among project stakeholders effectively during the planning phase.	41	3.59	.805
Project risks are identified and managed	41	3.54	.977
Stakeholders are identified during the planning phase.	41	2.54	1.075

Source: Research Data 2023

The result in table 4.6 shows conducting adequate training is not being given to team members have the lowest mean value (mean= 2.37, standard deviation= 0.859), indicating proper training and knowledge development is not being addressed to the project team. The second lower mean of the planning process is stakeholder identification (mean=2.545 and Sd=1.075) in planning of projects in AAWSA stakeholders are not properly identified. The result also indicates there is a huge gap in cost estimation (Mean=2.54 and Sd=1.185) in which project costs are not sufficiently estimated during the initial planning phase of the projects. In determination of scope of projects, the result shows there is lesser practice of defining scope (mean=2.73 and Sd1.245), regarding the project team engagement and experience in planning process the result shows there is neither positive nor negative inclination (mean =3.00 and Sd=.894, and

Mean=3.29 and Sd 1.031 respectively), in using different planning techniques the result shows an average result (Mean=3.15 and Sd=10.62) which shows less effort is being used in using different techniques to increase the quality of planning. In the planning process of the organization it was shown that risk identification and management, quality planning, resource identification and the communication between stakeholders is being implemented averagely with an average mean value of 3.58 and a standard deviation of 0.874. The result acquired for schedule developing and project managers experience shows approximate value in which the project managers have adequate experience in developing project plans and also for each project schedules were being developed according to the scope and complexity of the projects (Mean value 3.76 & Sd=0.916 and Mean=3.76 & Sd=1.090)

The study findings also show that the planning activities in the organization are well integrated and aligned with the overall objectives having the highest mean value of 4.12 and a standard deviation of 0.458 which implies as the mission of the organization is the starting point for planning and the vision is its destination the plan is being used as a roadmap to navigate from one to the other. The study also shows that project managers have a high engagement in planning process (Mean=4.05 and Sd=0.865) which indicates the project managers for each project are highly responsible in developing project plans.

To end with, the final result showed that the grand mean of the planning process was found to be 3.31 which means the firm implements good planning practices; however, some of the components of the planning process are not being implemented effectively/ not properly practiced. Accordingly, conducting trainings to team members, stakeholder identification, project cost estimation, defining scope and engaging team members in the planning process are identified as inadequately/ poorly performed planning process components.

4.4.2. Time/Schedule Planning

The study analyzes how time/schedule planning affects the success of the projects and based on the data collected the following result under table 4.7 was originated.

Table 4-7: Descriptive statistics of Time/Schedule Planning

	N	Mean	Std. Deviation
Schedules are prepared for each projects	41	3.88	1.077
Activity durations are estimated	41	3.07	1.191
The project schedule developed effectively considering resource availability and project constraints	41	3.66	.990
Scope of projects is defined on the planning phase	41	2.95	1.117
Projects are completed on agreed contract period	41	1.98	1.084
Projects are completed on planned schedule	41	2.49	1.121

As indicated in table 4.7 the respondents agreed that schedules are prepared for each projects depicted by mean value of 3.88 and a standard deviation of 1.077 showing there is a scheduling mechanism and procedure in the organization; the respondents also agreed that the project schedule developed effectively considering resource availability and project constraints (Mean=3.66 and SD. 0.990); the activity durations for each activities is estimated but needs improvement in which the result shows an average response of Mean=3.07 and Sd=1.191. On the other hand, the result shows that the scope of projects is defined on planning phase with average significance in which depicted by mean=2.95 and Sd=1.117. Despite the developed schedules the results from the respondents shows that projects face difficulties to be completed on planned schedule as the value of mean 2.49 and standard deviation of 1.121 indicates. Time being the crucial factor in execution of projects the mean value of 1.98 and standard deviation of 1.084 shows projects are not being completed on the initial contract period.

The findings of this study with a grand mean of 3.01 revealed that time planning have a greater impact on the success of a project. Projects having more accurate time planning are likely to achieve project goals within the contract period and budget. On the other hand, projects with poor time planning are prone to cost overrun, delays and lowered success rates. The results show project managers need to apply sufficient effort in planning and accurately estimating project timelines to enhance the success of projects.

The study agrees with (Andrew 2006) which is an empirical study on scheduling practices and project success. The study examines the effectiveness of project scheduling practices on project success in the context of investment projects and identified that project scheduling and planning for project time affect the success of projects. The study also pinpoints the scheduling practices and planning aspects that influence the overall success of projects.

Even though project activity schedules are prepared for every projects project managers need to allocate resources, set realistic time bound, and monitors progress of the project against the milestone by accurately estimating project duration.

Managing time efficiently helps to identify critical tasks and allows taking measures to mitigate delays by giving proper attention to time and schedule planning. This ensures timely completion of projects, enhancing performance and attains project success.

4.4.3. Financial Resource Planning

Table 4-8: Financial Resource Planning and Project Success

	N	Mean	Std. Deviation
Project cost was estimated	41	3.98	.851
The budgeted funds were enough to complete the project	41	3.15	1.152
The project team considers cost-saving measures or alternatives while planning and utilizing resources	41	3.85	.760
Budget for the project was properly determined	41	2.98	1.060
Projects are completed without cost overrun	41	1.71	.814

Based on the result in table 4.8 most of the respondents strongly agreed that the cost for projects is estimated having the highest mean value of 3.98 and standard deviation of 0.851; During planning and utilizing resources the project team actively considers cost-saving measures and utilization of alternative strategies as the mean value of 3.85 and standard deviation of 0.760 indicates which helps to make decision to changes. By examining the availability of resources and options that are cost effective the team aims to optimize allocation of resources by reducing the expense of projects; the results shows that the there is an average value for the items budget funds were enough to complete the project and the budget for the projects is properly determined as depicted in the mean value of 3.15 and standard deviation of 1.152 and mean value of 2.98 and standard deviation of 1.060 respectively since knowing the initial budget from funders is difficult and disclosed most of the time. The respondents strongly disagreed on the completion of projects without cost overrun as the mean value 1.71 and standard deviation of 0.814 shows which indicates projects are not being completed with the initial planned budget.

Practically even though completing projects without cost overrun is an ideal goal of projects it was found to be very difficult to achieve. Due to various factors including scope changes, improper cost estimation, market price fluctuation, unforeseen circumstances or delays in project implementation and execution cost overrun can be occurred.

The results with a grand mean of 3.43 show that financial planning has a significant impact on the success of the projects. Therefore, project managers and project teams needs to minimize cost related problems by adjusting project plans accordingly, prepare a regular financial planning mechanisms and implementing effective cost controlling measures.

Generally, the result shows by effectively addressing the considerations on financial planning and making informed decisions on the impact of financial planning the success of projects within budgetary constraints can be achieved.

The study agrees with (Guoli, 2010) by which the study empirically discovered that when a professional budget is created to manage project costs, it leads to positive cash flow conditions within the project. Additionally, the study observed that a lack of sufficient cash flow in a

project often results in delays and significant additional expenses, with the potential for the entire project to temporarily come to a halt. Which shows project financial resource planning has an effect on the success of projects.

4.4.4. Risk and Quality Planning

Table 4-9: Risk and Quality Planning and Project Success

	N	Mean	Std. Deviation
Project Risks are systematically identified	41	3.69	1.161
Risk response strategies were effectively developed	41	2.83	1.181
Risk are well communicated to relevant stakeholders	41	1.98	.935
Quality planning carried out	41	3.59	1.072
Quantitative and qualitative risk analysis are prepared	41	3.02	1.193
Standards for quality are identified	41	2.66	1.063
Quality assurance processes were effectively implemented to ensure compliance with established quality standards	41	2.34	1.015

The respondents in table 4.9 mostly agreed that the project risks are systematically identified and quality planning was carried out based on the identified risks (Mean=3.69, Sd=1.161 and Mean=3.59, Sd=1.072 respectively). Quality planning based on risk assessment is a proactive approach to ensure that potential risks are considered when defining quality requirements for a project. In his study (Dai et al., 2010) shows without risk assessment quality planning cannot be done. The results show the practice of quality planning with risk assessment was properly practiced.

The results also show that there is a moderate practice on the qualitative and quantitative risk analysis and developing risk response strategies as indicated by Mean=3.02, Sd=1.193 and Mean=2.83, Sd=1.181 which implies the assessment made was not enough so that risk response strategies that are moderately used in projects to effectively address the identified risks are being practiced accordingly. Qualitative analysis prioritizes and categorizes risks, guiding targeted response strategies, while quantitative analysis quantifies risks, aiding cost- benefit analysis and simulation for effective response planning so the result shows there is a need for improvement. Since quality standards are not properly identified the quality assurance process were effectively implemented to ensure compliance with established quality standards as depicted by mean value of 2.66, Sd=1.063 and Mean 2.34, Sd=1.015. The result also shows that the identified risks were not being communicated to relevant stakeholder with the lowest Mean=1.98 and Sd=0.935 which indicates less attention is being given to engaging stakeholders in decision making process of measures to take to risks.

Therefore, the findings of the results in general with a grand mean of 2.87 shows that risk & quality planning has also an effect on the success of the water supply projects. In the firm even though risks are systematically identified based on the risk analysis, the risks are not being communicated with the stakeholders which makes it difficult to develop risk management strategies.

The results agree with the study of (Shrivastava, 2012) which comprehensively addresses both the theoretical and practical aspects of risk management methodologies and their effect on project success. It shows creating a risk management plan, identifying potential risks, prioritizing those risks, developing strategies to address them, and continuously monitor and control risks throughout the project lifecycle contributes to the success of project. Additionally, it shows how project risks affect the project at various stages by analyzing real world project examples that serve to clarify concepts and illustrate the significance of proper project risk planning in achieving project success.

Ineffectively communicating risks to relevant stakeholders in an unclear or untimely manner hinders their awareness of potential risks, understanding of their impact, and ability to contribute to risk mitigation strategies. This lack of effective communication can lead to misinformed decisions, inadequate risk management, and increased vulnerability to potential negative outcomes in the project. On the other hand, quality planning is effectively developed for the identified risks in the firm but a huge gap was found in setting standards and setting implementing quality assurance.

By integrating risk assessment into quality planning, project teams can proactively manage risks, enhance the quality of deliverables, and increase the chances of project success.

4.4.5. Project Success

Table 4-10: Project Success

	N	Mean	Std. Deviation
Projects are completed on time	41	2.00	.922
Projects are completed within the planned budget	41	2.29	.901
Projects meet their objectives	41	3.63	1.090

The results in the above table illustrate the respondents from the organization agreed that the objectives of the projects were met (Mean=3.63, Sd=1.090) this indicates despite the problems and challenges occurring completing the projects was considered as meeting the objectives. On the other hand, the respondents claimed that the projects were not delivered on time and planned contract amount with Mean=2.00, Sd=0.922 and Mean=2.29 and Sd=0.901) this indicates projects the success of projects within time and cost is not achieved but they met their objectives.

From the descriptive analysis result as depicted by the grand mean value of 2.64 the respondents disagreed on the success of the water supply projects. Because the planning practice in the firm are not properly implemented the projects failed to be completed within the planned budget and time under the constraint of scope.

The study findings agree with (Mohammed, 2019) which in an empirical investigation on the project management capabilities on project success in Pakistan using Partial Least Squares Structural Equation Modeling. The study underscores the core objective of project management: meeting or surpassing project sponsor expectations, which are typically centered on delivering desired results with minimal defects, within the expected cost and schedule, and within the specified timeframe.

4.5. Inferential Analysis

This section investigates the correlation between variables, tests the possibility of multicollinearity, presents the model summary, analysis of variance and the coefficients of the independent variables.

4.5.1. Correlation Analysis

In this study to determine the correlation between the dependent variable (Project Success) and the independent variables (Time/schedule planning, financial resource planning and risk & quality planning) correlation analysis was conducted. To calculate the correlation (strength) between the study variables and their findings the Survey Data used the Karl Pearson's coefficient of correlation (r); if the Pearson's r varies between +1 and -1, where +1 is a perfect positive correlation, and -1 is a perfect negative correlation. The findings were presented in table below.

Table 4-11: Correlation analysis

		Financial Resource Planning	Project Success	Time /Schedule Planning	Risk &Quality Planning
Financial Resource Planning	Pearson Correlation	1			
	Sig. (2-tailed)		1		
	N				
Project Success	Pearson Correlation	.692**	1		
	Sig. (2-tailed)	.010			
	N	41	41		
Time/Schedule Planning	Pearson Correlation	.611**	.682**	1	
	Sig. (2-tailed)	.030	.005		
	N	41	41	41	
Risk &Quality Planning	Pearson Correlation	.627**	.628**	.558**	1
	Sig. (2-tailed)	.027	.000	.004	
	N	41	41	41	41

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

Source: Survey Data 2023

The study findings reveal a positive correlation between project success and financial resource planning, with the highest Pearson correlation value of 0.892. Similarly, the relationship between project success and time/schedule planning exhibits a strong positive association, as indicated by an R-value of 0.682. Additionally, the correlation value of 0.828 between risk and quality planning highlights the direct impact of an integrated risk and quality plan on project success. These results underscore the importance of the selected effective planning factors in driving successful project outcomes.

The results indicated that there is a strong positive relationship between the success of the water supply projects and the planning of the selected key factors mainly time/schedule, financial resource, and risk & quality. This means when these features are adequately planned and managed, they increase the likelihood of achieving successful outcomes in water supply projects. Effective planning in terms of project scheduling, financial allocation and addressing risks and quality issues plays a significant role in project success.

The study findings agree with the findings of (Nermina, 2020) which shows there is a direct positive relationship with time planning, budget planning, scope planning and quality planning with project success. The study also supports the findings of (Almarzooqi, 2023) that establish a framework for linking project risk and quality management to enhance project outcomes. It shows that a correlation exists between project quality and risk management with project success, and that the results of quality management and risk management are mutually interconnected.

4.5.2. Multiple Regression Analysis

In this study, multiple regression analysis was employed to examine the presence of a relationship between the dependent variable and the independent variables. The coefficient of determination was used to assess the strength of the relationship between the predictor and response variables. To create composite indices, mean scores were calculated for indicator variables related to project planning, stakeholder involvement, project funding, contractor capacity, and monitoring and evaluation.

Diagnostic tests for multiple regressions

Regression diagnostics are used to evaluate the model assumptions and investigate whether or not there are observations with an outsized, undue influence on the analysis. In his study (Kuada, 2012) highlights before conducting a multiple regression analysis several assumptions need to be examined. These assumptions include testing for normality, non- multicollinearity, homoscedasticity of variance, and independence of errors. In this study, the tests for these assumptions were conducted in the following manner.

I. Normality of distribution

To assess the normality of a distribution, commonly used tests include the Kolmogorov-Smirnov test and the Shapiro-Wilk test. The Shapiro–Wilk test is more appropriate method for small sample sizes (<50 samples) therefore in this study the Shapiro-Wilk test was used to evaluate normality of distribution in this study.

This test states that if the significance value (pv) > 0.05, the data is normal and if it's below 0.05, then the data significantly deviates from normal. Based on the Shapiro-Wilk test as shown in table 4.12 below, the significance value obtained was 0.884, which is greater than 0.05 therefore the data was normally distributed for regression analysis to be undertaken.

Table 4-12: Test for Normality of distribution

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Studentized Residual	.079	41	.200*	.986	41	.884

II. Multicollinearity

To assess multicollinearity, the Variance Inflation Factor (VIF) is commonly used, along with examining tolerance values. They are used to describe how much multicollinearity or correlation between predictors exists in a regression analysis. VIF > 10 and/or tolerance value < 10% indicates there is a possibility of multicollinearity. Based on the results of the analysis's shown in table 4.13 below, all the VIF column values are less than ten and tolerance is greater than 10% respectively which indicates there is no possibility of multi- collinearity between the variables, so regression analysis can be conducted to demonstrate the relationship between dependent variable (Project success) and independent variables (time/schedule planning, financial resource planning and risk & quality planning). This also suggests the independent variables included in the regression model were not highly correlated with each other, which allows for a valid examination of their individual effects on the dependent variable.

Table 4-13: Tests for Multicollinearity Table

Model		Collinearity Statistics		
		B	Tolerance	VIF
1	(Constant)	.323		
	Time/Schedule Planning	.178	.618	1.619
	Financial Resource Planning	.608	.284	3.520
	Risk and Quality Planning	.253	.312	3.206

(Constant = Project success)

Source: Survey data 2023

The findings in the above table indicates that the tolerance level are above 10% and the VIF is

less than 10 indicates that there was no possibility of multicollinearity between variables thus regression analysis could be done to show the relationships between the dependent and independent variables

III. Homoscedasticity of variances

(Osborne & Waters, 2002) stated the assumption of homoscedasticity refers to equal variance of errors across all levels of the independent variables this is also known as homogeneity. The assumption that errors are consistently spread out among variables is demonstrated when the variance around the regression line remains the same for all values of the predictor variable. Homoscedasticity can be checked by visual examination of a plot of the standardized residuals by the regression standardized predicted value (Osborne & Waters, 2002). The plot of standardized residuals vs standardized predicted values showed no obvious signs of funneling; suggesting the assumption of homoscedasticity has been met.

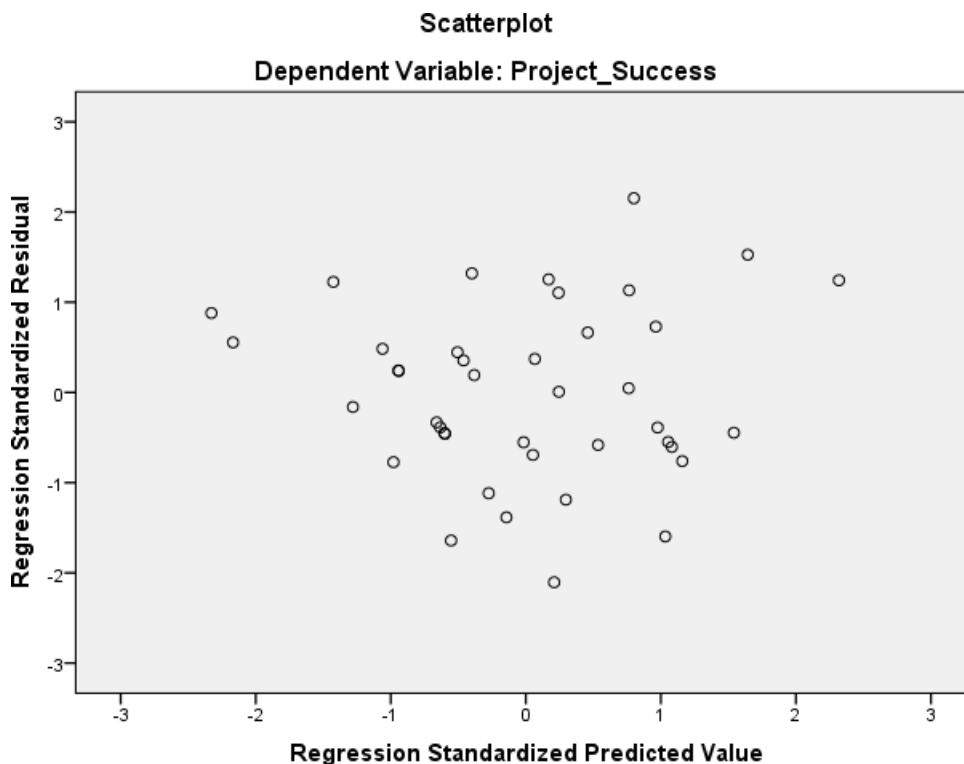


Figure 4-2: Homoscedasticity of variances

IV. Normality

The residual normality assumption entails that errors are normally distributed, and that a plot of the values of residuals will approximate a normal curve (Keith, 2006). The assumption is based on the shape of normal distribution and gives the researcher knowledge about what values to expect (Keith, 2006). The P-P plot for the model suggested that the assumption of normality of the residuals may have been met.

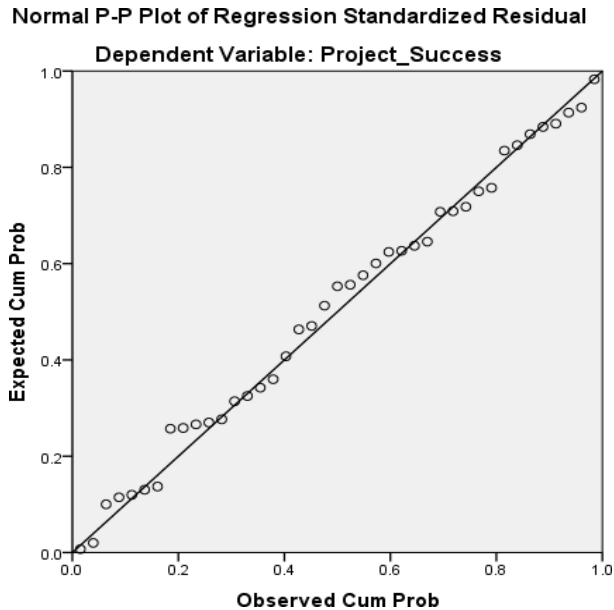


Figure 4-3: Normality P-P plot of standardized residual

I. Coefficient of determination

Coefficient of determination measures the strength of the relationship between the predictor and responsive variables in a regression analysis. Thus, it determines the extent to which changes in independent variables explain the variation in the dependent variable. Regression analysis was undertaken to assess the influence of the independent variables on the success of the water supply projects. 4.14 below provides a summary of the coefficient of determination (R Square) for the regression analysis.

Table 4-14: Model Summary

				Model Summary		
Model	R		R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1		.920	.846	.833	.281	1.867

Source: Survey data 2023

The independent variables (time/schedule planning, financial resource planning and risk & quality planning) contributes 83.3 % on the success of water supply projects as depicted by adjusted R Square = .833. However, the remaining 16.7% of the variance is explained by considering other factors that are not covered in this study. The R (Coefficient of correlation value) R=.920 shows there was found a very strong positive relationship between the independent variables and dependent variable.

V. Analysis of variance

The overall significance of the model fit is determined and the results are shown in the table below.

Table 4-15: analysis of variance

		ANOVA ^a				
Model		Sum of Squares	d f	Mean Square	F	Sig.
1	Regression	15.992	3	5.331	67.589	.000 ^b
	Residual	2.918	37	.079		
	Total	18.911	40			

Source: survey data 2023

As indicated in the above table the overall model was found to be significant, as indicated by the calculated F statistic of 67.589 (p-value 0.000), which was greater than the critical F statistic. These findings suggest that the variables: time/schedule planning, financial resource planning, and risk & quality planning serve as strong predictors of the success of water supply projects. In other words, the study results support the conception that effective planning in these areas contributes significantly to achieving successful outcomes in water supply projects.

II. Results of Multiple Regression and Test of Hypothesis

Multiple regression analysis was undertaken to assess the nature and statistical significance of the relationship between each of the independent variables (time/schedule planning, financial resource planning and risk & quality planning) and the dependent variable (success of water supply projects in AAWSA). This was performed using data collected from the field and tested at 5% significance level. The results of the test are summarized in table 4.16 below.

Table 4-16: Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.323	.230		1.405	.016
	Time/Schedule Planning	.178	.074	.197	2.399	.022
	Financial Resource Planning	.608	.131	.561	4.632	.000
	Risk and Quality Planning	.253	.115	.254	2.200	.034

Source: survey data 2023

The regression analysis model can therefore be presented as below;

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon:$$

$$\text{Project Success} = 0.323 + 0.608*X_1 + 0.178*X_2 + 0.253*X_3$$

Where, X1= Time/Schedule Planning

X2= Financial Resource Planning

X3= Risk and Quality Planning

The above equation implies that holding all other independent variables constant, changing

the variable under consideration by a single unit leads to a change in the success of the projects by the indicated coefficient (0.323).

In the course of this analysis as shown on the table above, it was observed that for every unit increase in Time/Schedule Planning, there is an associated expected increase of 0.178 units in the dependent variable, project success, as indicated by the unstandardized coefficient. Moreover, the standardized coefficient (beta) of 0.197 reaffirms this relationship, signifying a positive effect of Time/Schedule Planning on the dependent variable.

These empirical findings align harmoniously with the conclusions drawn in a study conducted by (Eyas, 2019). The convergence of results between Eyas's study and this study underscores the pivotal role of time estimation and planning in influencing project outcomes. Importantly, the statistical analysis of this study robustly establishes a direct, positive relationship between time planning and project success.

These findings not only reinforce the significance of specific time management in project execution but also offer empirical validation of the assertion that effective time planning substantially contributes to project success. Consequently, this study underscores the importance of prioritizing time estimation and planning as a strategic element in project management. The study also agrees with (Chizea and Akpan, 2012) which clearly shows that in construction firms, time/schedule planning system has a significant effect on the performance and success of projects.

On the other hand, the results in table 4.6 shows that for each unit increase in Financial Resource Planning, the dependent variable is expected to increase by 0.608 units (unstandardized coefficient). The standardized coefficient (beta) of 0.561 indicates that Financial Resource Planning has a significant positive effect on the dependent variable.

The finding supports the study findings of (Suresh & Sivakumar, 2019) in which they made analysis on the impact of schedule management planning and financial resource planning on project success. The study findings show that effective time resource planning contribute positively to the outcome or project success being measured. In the context of the study, which focused on schedule management planning's impact on project management effectiveness, the result suggests that financial resource planning could be one of the factors affecting project management effectiveness when combined with schedule management planning. Both efficient schedule management and financial resource planning may contribute to improved project outcomes and organizational performance and the success of projects. The study results also align with the findings of a study based on the Project Management Body of Knowledge (PMBOK, 2017), which investigated the impact of cost planning on project performance. The study revealed that practices related to project cost

planning, encompassing both cost budgeting and cost estimating processes, have a positive influence on project performance and the success of projects.

The results under table 4.6 also shows that for each unit increase in risk and quality planning, the dependent variable is expected to increase by 0.253 units (unstandardized coefficient). The standardized coefficient (beta) of 0.254 indicates that Risk and Quality Planning has a moderate positive effect on the dependent variable. (Ibrahim, 2019) agrees with this study that the cause for project success or failure can directly be related to the extent of risk planning and management undertaken. The study also shows the level of risk management process undertaken during project implementation has a direct impact on the success or otherwise of the project. Furthermore, the study shows that effective risk planning and management should be continuously undertaken throughout the project lifecycle to enhance project success.

The results of the findings show that the increase in the time/schedule, financial resource planning and risk & quality planning increases the tendency success of projects. The study findings agree with (Zwikael & Globerson, 2016) in which they found out in their study “Faulty planning will result in project failure, whereas high-quality project planning increases the project’s chances of success”. (Tryon, 2018) shows in his study the assumptions and constraints of a project plan helps as a roadmap to identify, limit or restrict factors that may affect the success of a project. Therefore, proper planning of a project has a significant role in the success of projects.

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter summarizes the research study on the effect of planning on project success, highlighting key findings and insights. It draws conclusions based on the analysis of data and discussions, addressing the research objectives and questions. Practical recommendations are provided to enhance planning effectiveness and improve project success rates. This chapter serves as a conclusive section, offering a comprehensive understanding of the relationship between planning and project success and providing actionable guidance for the organization.

5.2. Summary of the Findings

Planning practice of the organization

The study findings indicate that there are several areas of concern in the planning process within AAWSA as the grand mean of the planning process 3.31 shows. The result implies training of team members, stakeholder identification, project cost estimation, defining project scope, and engaging team members in the planning process are identified as areas where improvements are needed. Additionally, the study highlights that the planning activities are well integrated and aligned with overall objectives, and project managers show a high level of engagement in the planning process. These findings suggest the need for focused efforts to address the shortcomings and enhance the effectiveness of project planning in AAWSA.

Time and Schedule planning and project success

The study findings reveal that scheduling mechanisms and procedures are in place within the organization, as indicated by a mean value of 3.88. However, there is room for improvement in accurately estimating activity durations (mean=3.07) and completing projects within the initial contract period (mean=1.98). as a whole the respondents agreed that time planning have a greater impact on the success of the water supply projects as depicted by grand mean value of 3.01. therefore, time planning is identified as a critical factor in project success, with projects that have more accurate time planning demonstrating higher success rates.

Financial resource planning and project success

The study findings indicate that cost estimation is well-implemented in the organization, with a high mean value of 3.98. The project team actively considers cost-saving measures and alternative strategies, aiming to optimize resource allocation and reduce project expenses (mean=3.85). However, respondents expressed concerns about cost overrun, indicating the difficulty in completing projects within the initial planned budget (mean=1.71). The total result of the study as shown by the grand mean of 3.43 show that the respondents agreed that

financial planning has a significant impact on the success of the projects therefore it is recommended for project managers to address cost-related challenges by adjusting project plans, implementing effective cost control measures, and regularly reviewing financial planning mechanisms.

Risk and quality planning and project success

The study findings indicate that project risks are systematically identified and quality planning is carried out based on the identified risks, reflecting a proactive approach to ensure quality requirements are defined (mean=3.69 and mean=3.59). However, there is a moderate practice in qualitative and quantitative risk analysis and developing risk response strategies (mean=3.02 and mean=2.83), suggesting the need for more comprehensive risk assessment and implementation of effective risk response strategies. The quality assurance process is effectively implemented, but there is a gap in identifying quality standards and engaging stakeholders in decision-making regarding risk measures. The respondents slightly agreed that risk & quality planning has also an effect on the success of the water supply projects as shown by the grand mean of 2.87

Project Success

The results indicate that the respondents agreed that the objectives of the projects were met (mean=3.63, sd=1.090), highlighting successful achievement despite challenges. However, projects were not delivered within the planned time (mean=2.00, sd=0.922) and cost (mean=2.29, sd=0.901), suggesting a lack of success in meeting project timelines and budget constraints. From the descriptive analysis result as depicted by the grand mean value of 2.64 the respondents disagreed on the success of the water supply projects according to the plan.

5.3. Conclusion

The study was aimed to analyze the existing planning practice at AAWSA and analyzing the effects of time and schedule, financial resource and risk & quality planning on project success. Regarding the existing planning practice, the study findings highlight both strengths and areas for improvement in the project planning practices. The study highlights deficiencies in project planning at AAWSA, including inadequate training for team members, poor stakeholder identification, and gaps in cost estimation and scope definition. While the planning activities align with organizational objectives and project managers show high engagement, improvements are needed to enhance implementation effectiveness.

Analyzing time and schedule as a factor for project success the study highlights the importance of time planning in project success. The findings show there is positive relation between the time and schedule planning and project success. While the organization has established scheduling mechanisms, there is a need to enhance the accuracy of activity duration estimation and improve project completion within the initial contract period.

The study reveals that the organization demonstrates effective cost estimation and consideration of cost-saving measures. However, challenges related to cost overrun and staying within the initial budget were identified as a main challenge in the planning practice.

Analyzing the third factor the results of the study indicates that the organization effectively identifies project risks and incorporates quality planning based on the identified risks. However, there is a need to improve the thoroughness of risk analysis and the development of response strategies. Additionally, it is important to address the gap in establishing quality standards and involving stakeholders in risk-related decision-making

On the other hand, the study findings indicate that while the projects were able to meet their objectives, there were significant challenges in terms of project timelines and adherence to the planned budget. Although the objectives were achieved, the lack of success in delivering projects on time and within the planned cost is a concern

In conclusion, the study findings indicate that the organization has a moderate planning practice in which some improvements need to be addressed. Additionally, the study concludes project success is positively correlated with financial resource planning, time and schedule planning, as well as risk and quality planning. The integration of these planning practices is crucial for achieving successful project outcomes. Effective planning in these areas contributes to better resource allocation, improved project timelines, and proactive management of risks and quality, ultimately enhancing overall project success.

5.4. Recommendations

Based on the objective of the study and the gaps shown in the analysis the study forwards the following recommendations to improve the existing planning practice of AAWSA and enhance the performance of projects and become successful.

- To improve the skills and competence of the team in project planning the organization should provide adequate training and knowledge development programs
- As stakeholder involvement is essential throughout the project lifecycle the organization needs to strengthen the process of stakeholder identification at the planning stage and ensure they are engaged in the planning process.
- In order to enhance the cost estimation, practice the study recommends the firm to conduct a thorough market research taking into account design considerations including population and water demand projections by bearing in mind the potential risks and uncertainties

- The study also recommends the firm to use different schedule techniques including PERT, CPM, Gant Chart, Resource leveling and other planning mechanisms to enhance the accuracy of activity duration estimation.
- Should integrate risk identification and analysis with establishment of quality standards through qualitative and quantitative risk assessment and define a clear standard in the decision making process.

5.5. Suggestions for Further Research

This study was an attempt to investigate the effects of planning practice on the success of water supply projects in AAWSA considering three independent variables namely time/schedule planning, financial resource planning and risk & quality planning. The results of the findings show that these variables contribute 83.3% on the success of water supply projects as depicted by adjusted R^2 value of .833. Therefore, the study suggests further similar studies should be conducted to establish contribution to the remaining 16.7% on the success of water supply projects. The study also recommends similar studies should be conducted for different regional water supply and sanitation authorities to reflect the practical situation of the challenges of planning practices. These findings will provide as a guideline that will help to plan adequate water supply scheme to reach the demand considering the unpredicted increase of the population.

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APPENDIX I: QUESTIONNAIRE FOR SURVEY

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS SCHOOL OF COMMERCE

QUESTIONNAIRE FOR SURVEY

Consent Letter

Dear Sir/Madam,

I kidist Desalegn MA Student in Addis Ababa University School of commerce, currently carrying out a project work on titled “Effects of planning practice on success of projects: the case of water supply projects in AAWSA”.

The objective of the study is to assess the existing practice in AAWSA and to analyze how different factors affect the success of water supply projects.

I kindly request your truthful and confidential responses to the questions provided with this letter. The information you provide will be collated and analyzed along with other respondents/participants, and will constitute your valuable; immeasurable and positive contributions to the organization.

Your cooperation in this matter is greatly appreciated.

Sincerely,

Kidist Desalegn

Phone No.: +251920745506

Email: kiddykiddy2103@gmail.com

Instructions: I would like to kindly request all participants to carefully take into account the projects undertaken by your organizations and responded to the following questions. Use the provided scale to select the most appropriate answer by placing a tick [X] in the designated space. If a question is not applicable to you, please mark it as "N/A" or leave it blank. Your responses will be treated as confidential, and your individual identity will not be disclosed. Please answer all the questions to ensure the research meets its objective. If you have any questions or concerns about the questionnaire, please feel free to reach out to the designated contact person.

Section I: General Information

1. Your current position in the organization?
 Managerial Non Managerial
2. Age: Below 30 31-40 41-50 Above 50
3. What is your highest level of education?
 Diploma Degree Masters PhD & Above
4. Do you have educational background on project management field?
 Yes No
5. Your work experience/service year/ in the organization?
 0-5 5-10 10-15 Above 15
6. How familiar are you with the organization's planning processes?
 Very Familiar Moderately Familiar Somewhat Familiar Not Familiar

Instructions: For sections 2– 6 Kindly mark [√] the appropriate option using the provided scale in the designated space. It is important to answer all the questions, taking into account the projects you have participated in to ensure the objectivity of the project work is enhanced.

Section 2: Planning Process

No.	Description	Scale				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	The planning activities in the organization are well integrated and aligned with the overall objectives					
2	Project managers are engaged in planning process					
3	Project managers are experienced in the planning process					
4	Project team members are engaged in the planning process					
5	Project planning team have adequate experience in planning					
6	Adequate training is given to team members					
7	The project scope is clearly defined					
8	Project schedule are developed					
9	Resources are identified allocated effectively to meet project schedules.					
10	Project costs are estimated and budgeted accurately during the planning phase					
11	Different planning techniques were used					
12	Quality planning was done					
13	The organization plans and manages communication among project stakeholders effectively during the planning phase.					
14	Project risks are identified and managed					
15	Stakeholders are identified during the planning phase					

Section 3: Time and Schedule Planning

No.	Description	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Schedules are prepared for each projects					
2	Activity durations are estimated					
3	the project schedule developed effectively considering resource availability and project constraints					
4	Scope of projects is defined on the planning phase					

5	Projects are completed on agreed contract period					
6	Projects are completed on planned schedule					

Section 4: Financial Resource Planning

No.	Description	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Project cost was estimated					
2	The budgeted funds were enough to complete the project					
3	The project team considers cost-saving measures or alternatives while planning and utilizing resources					
4	Budget for the project was properly determined					
5	Projects are completed without cost overrun					

Section 5: Risk and Quality Planning

No.	Description	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Project Risks are systematically identified					
2	risk response strategies were effectively developed					
3	Risk are well communicated to relevant stakeholders					
4	Quality planning carried out					
5	Quantitative and qualitative risk analysis are prepared					
6	Standards for quality are identified					
7	Quality assurance processes were effectively implemented to ensure compliance with established quality standards					

Section 6: Project Success

No.	Description	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Projects meet their objectives					
2	Projects are completed within the planned budget					
3	Projects are completed on time					