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SCHOOL OF COMMERCE SCHOOL OF GRADUATE STUDIES

The Effect of Project Management Tools and Techniques on Project
Performance: The Case of the Oromia Construction Corporation

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DECLARATION

I, Letu Abebe, hereby affirm that the study titled "**The Effect of Project Management Tools and Techniques on Project Performance: The Case of the Oromia Construction Corporation**" is entirely my own work. I conducted the research independently, with the guidance and assistance of my advisor, **Dr. Zegeye Muluye**. I have acknowledged all sources and materials utilized in this study appropriately. Additionally, I confirm that no other educational institution has received this study, in whole or in part, with the intention of awarding a degree or diploma.

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CERTIFICATE OF APPROVAL

This serves to confirm that the thesis titled " **The Effect of Project Management Tools and Techniques on Project Performance: The Case of the Oromia Construction Corporation** " has been submitted to partially fulfill the requirements for the Master's Degree in Project Management. It adheres to the regulations of the college and upholds accepted standards of originality and quality.

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APPROVAL SHEET

I certify that the thesis authored by **Letu Abebe**, titled "**The Effect of Project Management Tools and Techniques on Project Performance: The Case of the Oromia Construction Corporation**," has been prepared in partial fulfillment of the requirements for the Master's Degree in Project Management at the Postgraduate Studies, Addis Ababa University School of Commerce. This thesis represents original research conducted by **Letu Abebe (GSE/6050/14)** under my supervision, and no portion of it has been submitted for any other degree or diploma. I acknowledge the assistance and support received throughout the course of this investigation. Therefore, I recommend its acceptance as meeting the requirements for the thesis.

Advisor: - Zegeye M. (Ph.D.)

Signature _____ Date _____

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ABBREVIATIONS

PM: Project Management

PMI: Project Management Institute

PMTT: Project Management Tools and Techniques

OCC: Oromia Construction Corporation

PM4DEV: Project Management for development

PERT: Program Evaluation Review Technique

ABSTRACT

This study investigates the impact of Project Management Tools and Techniques (PMTTs) on project performance within the Oromia Construction Corporation projects in Addis Ababa and its surrounding areas. It aims to assess the implementation levels of PMTTs (Stakeholder Analysis Matrix, Risk Management, Scope Management, and Program Evaluating Review Technique [PERT]) and their empirical relationships with project performance. The research adopts an explanatory research design using a quantitative approach. The dependent variable, project performance, is measured by quality, budget adherence, completion timelines, and other performance indicators, while the independent variables are the selected PMTTs. A stratified sampling technique was applied with a target population of 300 and a sample size of 169, using primary and secondary sources of data and questionnaire-based surveys. Statistical analyses, including correlation and regression analyses, were used to analyze the data. The study found strong implementation of Stakeholder Analysis, Risk Management, Scope Management, and PERT within Oromia Construction Corporation projects. The study underscores the critical role of Stakeholder Analysis and Risk Management in enhancing project planning, execution, and overall performance within the construction sector. While Stakeholder Analysis and Risk Management significantly improved project outcomes, PERT and Scope Management, though beneficial for project planning, did not demonstrate direct impacts on project performance in this study's context. Strategic implementation of PMTTs is crucial for optimizing project performance, emphasizing stakeholder engagement and proactive risk management as key success factors. The study result recommends Strengthen stakeholder identification, analysis methodologies, and engagement strategies, Implement robust risk assessment frameworks and proactive mitigation plans, Evaluate and refine PERT application for improved scheduling and resource allocation decisions, Enhance scope definition and change control procedures to mitigate scope creep, Implement regular performance monitoring to track PMTT impacts and adjust strategies as needed, Provide ongoing training for project teams to enhance PMTT utilization skills. Future research should explore additional factors influencing project performance across various industries and regions to validate these findings comprehensively.

Keywords: - Project Management Tools and Techniques, Project Management, Project Performance.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The application of information, abilities, tools and methods to a variety of tasks in order to fulfill project requirements is known as project management (Schwalbe, K., 2009). Similarly, development organizations emphasize that project management encompasses the planning, execution, and monitoring of project activities to achieve project objectives by effectively managing time, cost, and scope constraints while delivering quality outcomes that meet or surpass stakeholders' expectations. Project management integrates systems, tools, techniques, and expertise to complete projects within predetermined goals, encompassing time, budget, and scope (Thiry, M., 2002). Despite being a fundamental concept in project management, the literature lacks a standardized definition of 'project performance' (Baccarini, 1999). De Wit (1988) characterizes “project performance as evaluating project outcomes against cost, time, and quality” (Prabhakar, 2008).

As (Keleckaite et al., 2015) stated “The governmental organizational landscape is notably diverse, heterogeneous, and comprises entities of varying sizes, scopes, structures, and motivations. These organizations encounter numerous challenges, including inadequate project management tools and techniques, leading to deficient project planning, accountability gaps, limited stakeholder involvement, complex task interrelations, superficial risk management strategies, demotivated project teams, and ultimately, compromised quality, time, and budget”.

The construction sector stands as a cornerstone of many nations, making significant contributions to their economic prosperity. According to Hai, T. (2009), it typically accounts for 3 to 6 percent of the overall Gross Domestic Product (GDP), marking it as a vital economic force. Moreover, construction is a major source of employment in numerous countries, further solidifying its importance in driving growth and fostering job opportunities globally (Mallick et al., 2010). However, despite its economic significance, the construction industry faces a disproportionately high rate of failure compared to other sectors (Feld et al., 1996). Among the primary factors contributing to this trend are performance-related issues, which are prevalent within the construction domain.

(Hermano, 2013; Ika, 2012) wrote that “Despite the critical importance and unique success factors of projects undertaken by the Oromia Construction Corporation, scholarly attention to best practices, methodologies, and management techniques in this domain has been limited”. Several authors have highlighted the necessity for further research, particularly in the realm of Project Management tools and methodologies which are (Youker, 2003; Khang & Moe, 2008; Landoni et al., 2011).

However, a comparison conducted by Golini (2012) demonstrates “a significant overlap in tools among these guidelines, suggesting that practices from business environments” can also be beneficial for Oromia Construction Corporation project management, and vice versa. Nevertheless, the application of key project management principles, particularly modern tools and techniques, in the context of development project management remains relatively underexplored. Therefore, this study aims to delve into PM applications by evaluating the information and application of tools and techniques, as well as the tools effect on the project performance of Oromia Construction Corporation projects.

1.2 Background of the Organization

Oromia Construction Corporation (OCC), a public developmental enterprise allowed by Regulation No. 213/2012 in Ethiopia, was founded on June 29, 2020, with a capital of ten billion. By 2030, the firm wants to be among the best in East Africa and among the selected companies in Ethiopia. It focuses on providing high-quality services in the areas of water supply, irrigation, dam construction, water well drilling, transport roads, and building projects. By utilizing skilled labor, cutting-edge equipment, and a prompt supply of building supplies, OCC seeks to meet the needs of its clients while expanding the organization's capabilities and effectiveness. These operations are predominantly located in Addis Ababa and its neighboring areas. Presently, OCC boasts a workforce of 3,089 employees and is concurrently managing 181 projects (oromiaconstructioncorporation.com).

As the official website of the company shows OCC works in a number of industries, such as water and sanitation, roads and bridges, and civil engineering. Their services cover a wide range, including building construction, such as hospitals, schools, parking lots, government offices, residential and commercial buildings, water supply, sewerage, and drainage systems; building

dams for irrigation development and hydropower generation; building and repairing roads and bridges; drilling deep and medium wells for drinking water and irrigation development; building irrigation developments, such as hydropower generation dams, weirs, canals, small- and large-scale irrigation, manufacturing spare parts for equipment; and producing various types of pipes and construction materials.

1.3 Statement of the Problem

PM methodologies exhibit considerable variation across different project types. Indeed, within the same organization, diverse tools, techniques, and approaches are tailored to individual project requirements (Salameh, H., 2014). A plethora of PMTTs is employed to strategize and oversee the scope of work necessary for providing satisfactory project outcomes. (Andongndou et al., 2009) stated that “Like other professions, project managers rely on specific tools and techniques to streamline their project management endeavors”. Dildar et al. (2014) further endorse “the pivotal role of project management tools and techniques in facilitating project cycle activities and augmenting the skill sets of project managers to achieve project objectives”. Numerous researchers have highlighted the myriad benefits derived from the utilization of PMTT, (Furumo et al., 2006) “including enhanced resource control (financial and human), elevated customer service, cost minimization, improved quality, increased profitability and productivity, enhanced internal control, and heightened job satisfaction”.

However, Oromia Construction Corporation's projects encounter specific challenges such as inadequate project planning, intricate task interrelations, scope mismanagement, superficial risk management strategies, and financial and temporal losses. These challenges impede project performance due to the insufficient utilization of effective project management tools and techniques. The appraisal of a project's performance is contingent upon a thorough analysis of multiple critical elements, specifically budget, schedule, and quality. All of these metrics work together to provide important clues about the effect of the tools on success of a project. According to the 2015 E.C. annual execution report of OCC projects, only 51.82% of projects were completed within their stipulated contract duration which is half of the project have failed to be completed within the specified completion date.

Project management is still plagued by the persistent problem of cost overrun, which is particularly noticeable in large-scale building projects. Described as the situation in which real spending exceeds the initially estimated budget, cost overrun has several implications. These include constraints on finances, delays in operations, and possibly project abandonment. In the context of Oromia Construction Corporation, this matter takes on particular importance because none of its projects have been completed within the original budgetary estimates. The company's persistent experience with cost overruns highlights serious flaws in its cost management, resource allocation, and project planning processes. These shortcomings not only jeopardize prudent financial management, but they also delay project completion and erode stakeholder trust.

When projects within the Oromia Construction Corporation encounter setbacks or failures, the consequences extend beyond just internal operational challenges like delays and increased costs. These failures also have profound implications for the broader society over the long term.

Internally, project failures disrupt the corporation's operations, leading to delays in completing construction projects and escalating costs beyond budgeted limits. These setbacks can strain financial resources, damage the corporation's reputation, and diminish stakeholder confidence. Moreover, they may result in operational inefficiencies, affecting employee morale and productivity.

Externally, the ramifications are equally significant. Construction projects undertaken by the Oromia Construction Corporation often have direct impacts on communities, infrastructure development, and public services. Project failures can delay the delivery of essential infrastructure, such as roads, bridges, or utilities, which are crucial for economic growth and societal well-being. These delays can impede local development plans, hinder regional connectivity, and affect public safety.

Furthermore, societal impacts are felt in terms of missed opportunities for economic advancement and improved living standards. Reliable and timely completion of construction projects is essential for attracting investment, creating jobs, and enhancing overall quality of life in communities served by the corporation. When projects falter, these benefits are delayed or denied, hindering socio-economic progress and potentially exacerbating existing challenges.

Therefore, addressing and mitigating project failures through project management tools and techniques within the Oromia Construction Corporation is not merely about internal performance improvement. It is also about safeguarding long-term societal benefits, promoting sustainable development, and fulfilling the corporation's role in contributing positively to the community and regional development agendas (Ika, 2012).

When considering the adoption of PMTT for project performance, it is observed that certain tools are widely recognized and utilized, while others remain more sophisticated and less prevalent. For example, Besner, C., & Hobbs, B. (2008) discovered through their survey that certain tools, like the work breakdown structure, are extensively employed, whereas others, such as the PERT, have limited adoption rates, often contingent on industry contexts. Furthermore, organizations may traverse a maturity curve in project performance, progressing from basic to advanced tool usage levels. The maturity of project management has been extensively discussed in the literature, with numerous studies comparing different industries and companies (Brookes, N., & Clark, R., 2009, Cooke-Davies, 2003, Grant & Pennypacker, 2006). Though, most of these studies have centered on business sectors, leaving the development sector relatively overlooked and lacking in information, especially concerning the Oromia Construction Corporation.

Hence, the objective of the study is evaluating the effect of PMTT for enhancing project performance within context of Oromia Construction Corporation projects.

1.4 Research Questions

According to the issues mentioned above, the following research questions were tried to be answered in this study:

1. What is the level of the Implementation of Project Management Tools and Techniques (stakeholder analysis matrix, risk management, scope management and program evaluating review technique) in Oromia Construction Corporation projects located in Addis Ababa and its surrounding?
2. What is the empirical relationship between Project Management Tools and Techniques (stakeholder analysis matrix, risk management, scope management and program evaluating review technique) with project performance in Oromia Construction Corporation projects located in Addis Ababa and its surrounding?

3. Which project tools contributed for the project performance achieved in Oromia Construction Corporation projects located in Addis Ababa and its surrounding?

1.5 Objectives of the Study

1.5.1 General objective

The main aim of the research was to evaluate the effect of project management tools and techniques on the outcomes of Oromia Construction Corporation's projects in Addis Ababa and its surroundings.

1.5.2 Specific objectives

The study aimed to specifically address the following goals in order to fulfill the overall goal: -

- To find out the level of Implementation of PMTT (stakeholder analysis matrix, risk management, scope management and PERT) in Oromia construction corporation projects located in Addis Ababa and its surrounding.
- To study the empirical connection among PMTT (stakeholder analysis matrix, risk management, scope management & PERT) with project performance in Oromia construction corporation projects sited in Addis Ababa and its surrounding.
- To determine which project management tools, contribute for the attainment of project performance in the projects of Oromia Construction Corporation situated in Addis Ababa and its surrounding.

1.6. Significance of the Study

The significance of the study lies in its potential to provide valuable insights and practical contributions to both academia and industry. Here are key points that highlight its significance:

Practical Insights for Project Management: The study aims to examine how various project management tools and techniques impact project performance within a real-world context, specifically focusing on the Oromia Construction Corporation. By evaluating the effect of tools such as stakeholder analysis, risk management, program evaluation review technique, and scope management, the research seeks to identify which methods are most beneficial in enhancing project outcomes. This can provide practical guidance for improving project management practices not only within the corporation but also across the governmental construction industry.

Addressing Industry Challenges: Cost overruns, delays, and quality issues are prevalent challenges in construction projects globally. By conducting a detailed case study on the Oromia Construction Corporation, the study aims to uncover specific factors contributing to these challenges and propose strategies to mitigate them. This can lead to more efficient resource allocation, better risk management, and improved project planning, thereby helping organizations like Oromia Construction Corporation address these persistent industry-wide issues.

Enhancing Organizational Performance: Understanding the impact of project management tools and techniques on project performance can directly contribute to enhancing organizational performance. By identifying and implementing effective tools, the corporation can potentially reduce costs, shorten project durations, improve quality standards, and ultimately increase stakeholder satisfaction.

Academic Contribution: The study contributes to the academic literature by adding empirical evidence from a specific case study. It enriches existing theoretical frameworks related to project management by validating or challenging established theories in a practical setting. Researchers and scholars can use the findings to further refine theories and develop new methodologies for assessing project management effect in construction and other industries.

Policy and Decision-Making Implications: Insights gained from the study can inform policy decisions related to project management practices within the company. Government bodies, regulatory authorities, and industry associations can use the findings to develop guidelines, standards, and best practices that promote more efficient and sustainable project management across the governmental construction industry.

1.7. Scope of the Study

1.7.1 Geographical Scope:

The study focuses on projects executed by the Oromia Construction Corporation within Addis Ababa, the capital city of Ethiopia, and its surrounding areas. This geographical scope includes urban and peri-urban environments within the region where the corporation undertakes construction projects.

1.7.2 Methodological Scope:

The study employs a quantitative research design. Quantitative methods such as surveys and statistical analysis will complement these qualitative findings by quantifying project performance metrics.

1.7.3 Conceptual Scope:

Conceptually, the study focuses on evaluating a range of project management tools and techniques utilized by the Oromia Construction Corporation. These may include stakeholder analysis, risk management, program evaluation review technique and scope management. The conceptual framework guides the investigation into how these tools are integrated into project management processes and their effect on project outcomes.

1.8 Limitation if the study

The research may be limited by the following list of limitations:

The study's findings may not generalize to other contexts outside of the Oromia Construction Corporation projects in Addis Ababa and its surroundings. The specific cultural, organizational, and environmental factors that impact the effect of PMTT in this context may not be present in other settings.

The study's design may not capture the long-term effects of PMTT on project performance. A longitudinal study would provide more robust evidence of the effect of these tools and techniques over time.

There may be potential confounds that were not accounted for in the study, such as differences in project complexity, team composition, or external factors that could influence project performance. These confounds could obscure the true impact of methods and instruments for project management on project performance.

1.9. Organization of the Study

There are five chapters in the study, and each one has a specific function in the research paper. Chapter One begins with an examination background of the research. It then goes on to outline the problem statement, fundamental research questions, study objectives, significance, scope, and

limitations, as well as the organizational structure and definition of important terms. Chapter Two delves into an analysis of both theoretical and empirical literature, offering insights into the significance of PMTT in influencing project performance. Additionally, it incorporates a conceptual framework derived from previous studies, while also addressing gaps identified in the existing literature. Chapter Three provides an outline the study type as well as design, specifics about participant demographics, data sources, utilized data collection tools and methodologies, collection procedures, employed data analysis methods, and the reliability assessment process. The presentation and discussion of research findings, along with a thorough analysis and interpretation of the data gathered, are the main topics of Chapter Four. As a conclusion, Chapter Five provides a synopsis of the study's results as well as closing thoughts and suggestions for additional study and application.

1.9 Definition of Terms

Stakeholder Analysis Matrix: A Stakeholder Analysis Matrix is a structured tool used in project management to identify and assess the interests, influence, and roles of stakeholders involved in a project. It categorizes stakeholders based on their level of interest in the project and their influence over its outcomes. The matrix helps project managers prioritize stakeholders' needs, manage their expectations, and develop effective communication and engagement strategies throughout the project lifecycle. (PMI, PMBOK Sixth Edition)

Program Evaluation Review Technique (PERT): PERT is a project management technique used to analyze and represent the tasks involved in completing a project. It incorporates three time estimates for each activity: optimistic (the shortest time), pessimistic (the longest time), and most likely (the best estimate based on current knowledge). By calculating expected durations and identifying critical paths (sequences of activities that determine the project's overall duration), PERT helps project managers schedule activities, allocate resources efficiently, and manage project timelines effectively. (PMI, PMBOK Sixth Edition)

Risk Assessment/Management: Risk assessment and management involve identifying, analyzing, and responding to risks that could potentially impact the project's objectives. Risk assessment identifies potential risks and their characteristics, such as likelihood and impact. Risk management includes strategies for mitigating, transferring, accepting, or avoiding identified risks.

Effective risk management ensures that proactive measures are in place to minimize threats and capitalize on opportunities, thereby enhancing project success and resilience. (PMI, PMBOK Sixth Edition)

Scope Control (Monitoring Change and Requests): Scope control refers to the process of monitoring project scope and managing changes and requests throughout the project lifecycle. It involves evaluating proposed changes against the project's defined scope (scope baseline) and assessing their potential impact on project objectives, timeline, and resources. Scope control aims to prevent scope creep (uncontrolled changes or additions to project scope) and ensures that project deliverables align with stakeholders' expectations and requirements. (PMI, PMBOK Sixth Edition)

Project Performance: project performance refers to the assessment and measurement of how well a project meets its objectives and achieves its intended outcomes. It encompasses Cost Performance, Time Performance, Quality Performance, Scope Performance, Stakeholder Satisfaction and Risk Management Performance dimensions. (PMI, PMBOK Sixth Edition)

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 Introduction

This unit provide a thorough analysis of the research on project management methods and instruments for development organizations in this section. The purpose of this review is to provide evidence for the topics being studied. Within the framework of project management tools and techniques, we specifically examine project performance, the types and applications of project management tools and techniques, and the deliverables of Oromia Construction Corporation projects. Theoretical considerations and empirical insights comprise the two main sections of the discussion structure.

2.2 Theoretical Background

2.2.1 An Introduction to Project Management

Project: According to Dildar et al. (2014), pointed out in his book “a project is characterized as a temporary organization, with its temporal nature being one of the four defining features that distinguish it from permanent organizations”. Other definitions, such as that by the Project Management Institute (PMI, 2021), describe “a project as a temporary endeavor undertaken to create a unique product, service, or result”. Turner (1994) portrays project management as the fusion of art and science, transforming vision into reality. It represents an investment proposal aimed at creating or developing specific facilities to enhance goods and/or services production within a community over a defined period (Hawranek, P. M. & Behrens, W, 1991). Despite the varied descriptions, the fundamental characteristics of projects tend to converge.

Program management involves the harmonized administration of a cluster interconnected projects to attain benefits and control non-attainable through individual project management. Unlike projects, programs are often centrally managed, with the objective of aligning a set of projects to realize the plan's strategic goals. Project management institutions echo similar sentiments. PM entails the implementation of information, skills, tools, and methods in diverse range of activities aimed at meeting project requirements (PMI, 2021). Managing a project can be a daunting task, given the unique nature of each project, which may present novel challenges regularly. As projects are inherently unique endeavors, participants may have limited prior experience, established working relationships, or predefined procedures to director them (Mishra and Soota, 2005).

Portfolio management involves overseeing outcome of a business's portfolio of projects & plans. Tadeu et al., 2011 stated in his book that "Typically overseen by senior management or a dedicated unit within the organization, portfolio management focuses on selecting, initiating, and managing the overall portfolio of projects to align with the organization's strategic objectives. In the government sector, portfolio management is about deciding which projects to prioritize, start, or discontinue to optimize their strategic alignment with the organization's mission". Projects often encounter the challenge of engaging with a diverse array of stakeholders, including donors, host communities, and beneficiaries, who require formal consultation throughout the process. Adapting project systems, tools, processes, and activities to meet the demands of these stakeholders, especially in challenging country environments, is crucial (Shleifer, 2009; Ika et al., 2012).

2.2.2 Project Management Tools and Techniques

To guarantee effective project delivery and execution, project managers and their teams depend on project management tools and techniques. These are frequently productivity tools that have been especially created with project management tasks in mind. Their application not only standardizes project managers' procedures but also expedites their workflows. According to Wirth (1992), project management is generic in nature, which allows it to be tailored to specific needs and be used across a variety of industries. This adaptability is highlighted by the PMBOK® Guide, which advises using appropriate tools and methods in line with project and contextual requirements (PMI, 2021). A range of tools and approaches are used in project management to organize and supervise the amount of work required to produce a product that meets quality standards. Like professionals in other fields, project managers use these tools to streamline their work (Andongndou et al., 2009). It's crucial to remember that using project management tools and techniques is only one quantifiable component of project management practice; they are the particular means by which project management guidelines and principles are applied (Dildar et al., 2014).

We can understand project management practices because they provide quantifiable parameters by looking at tools and techniques. Project managers employ these tools to oversee multiple aspects of project performance, including budget, schedule, quality, output, and client satisfaction. According to Milosevic (2003), organizations have a much higher chance of achieving full project

performance when they match the application of project management tools and techniques with their particular project contexts

2.2.3 Importance of use of Project Management Tools and Techniques

According to Wirth (1992), some researchers argue that project management is inherently generic and that this allows for customized approaches that can be used to apply the discipline across a variety of industries. The PMBOK Guide supports this viewpoint by emphasizing adaptability to particular project needs and contexts (PMI, 2021). Offering a broad overview and a collection of generally recognized project management practices—including abilities, resources, and methods—that are relevant to the majority of projects is the main goal of the PMBOK Guide (PMI, 2021). On the other hand, Besner and Hobbs (2004) contend that practically all projects and circumstances can make use of the fundamental project management toolkit. Shenhar (1998), however, claims that depending on the kind of project, notably different project management techniques are used. This discussion underscores the benefit of employing PMTT for enhancing project outcome.

According to Hobbs (2006), who examines the use of various project management tools, techniques, and methodologies and notes notable differences in their application, the literature establishes a strong correlation between project management practice and project performance. Project activities must be managed effectively during the initiation, planning, execution, monitoring and controlling, and closing phases for project leadership to be successful (PMI, 2021). The PMI provides a generally accepted definition of project management as the application of knowledge, skills, tools, and techniques to accomplish particular project goals and objectives. Turner (1994) defines project management as the art and science of transforming vision into reality. Project performance is unquestionably greatly influenced by project management, including the tools and techniques used in this process. For a considerable amount of time, academics have concentrated on project planning because they think it is crucial to enhancing project management and, in turn, project performance. Furthermore, a growing number of businesses understand the advantages of using project management tools, approaches, procedures, and processes to successfully manage change in challenging and uncertain environments. Although employing these methods and tools greatly increases the likelihood of project success, it is not a guarantee (Mingus, 2002).

Project managers can put rules, principles, and skills into practice in the real world by using tools and techniques. Though many tools, methods, processes, and techniques have been developed and shared, it is still unclear which tools practitioners actually use on a daily basis for project management tasks. Using tools and techniques for project management is essential to project management practice, especially in the planning and execution stages. At different stages of the project life cycle, specific tools and methods are needed. For example, the project charter and logical framework are tools used in the initiation phase, while other sets of tools specific to the project requirements are needed in the planning and execution phases. When White and Fortune (2002) looked into how much project managers used the various methods and techniques that were available, they found that most respondents only used a small number of tools, the most popular being Gantt charts and PM software. Project management and the execution of plans are also shaped by contextual factors. Project management practices and tool usage are impacted by a number of factors, including stakeholder involvement, organizational constraints, project type, project life cycle phase, strategic importance, team experience level, and technological advancements (Dvir & Lechler, 2004). Lastly, there is a lack of effective tools and techniques for crucial project aspects like quality, risk, and communication management, emphasizing the continued need for thorough project planning and effective execution (Globerson & Zwikael, 2002).

2.2.4 Project Performance

Although project performance is a key concept in project management, Baccarini (1999) points out that there isn't a consensus definition for the term in the literature. As Prabhakar (2008) noted, different assessors have different definitions of what constitutes a successful project, which results in a variety of interpretations of what constitutes project performance. Drawing on data from a study involving more than 650 project managers, Pinto & Slevin (1988) contend that meeting complex specifications, like client satisfaction, is part of project performance, which goes beyond simply meeting cost, schedule, and performance requirements. As De Wit (1988) also emphasizes, Baker, Murphy, and Fisher (1983, 1988) highlight the critical role that client satisfaction plays in determining the perceived success or failure of a project. They also stress the importance of poor product performance over time, outweighing even the best schedule and cost performance.

Lim and Mohamed (1999), on the other hand, choose not to distinguish between project performance and project management success, viewing the latter as a necessary component of the former. In order to prevent conflicting views on project performance, which can result in project failure, as highlighted by Baccarini (1999), they conduct a study to establish criteria for evaluating project performance by various stakeholders. For a project to be successful, it is essential to establish and reach consensus on criteria that meet the expectations of various stakeholders regarding project performance.

2.2.4.1. Project Performance Criteria

Lim and Mohamed (1999) define success criteria as "the set of principles or standards by which project performance can be judged." Early research on project performance criteria commonly referred to the Iron Triangle of "time, budget, and quality" as the basis for evaluating project success. Muller and Turner (2007) felt that external factors were too complicated, so they focused on assessing project performance on internal organizational factors. In evaluating project performance, other researchers—such as Pinto and Mantel (1990)—advocate for taking into account both internal and external aspects of project organizations and incorporating intricate criteria like stakeholder satisfaction, community benefits, and organizational benefits. Together with the established Iron Triangle and efficiency of implementation phase criteria, Mantel (1990) added two more success criteria: "the quality of the project" as evaluated by the project team and "an external performance indicator," such as client satisfaction. Andersen and Jessen (2000) extended the scope of project performance criteria in a follow-up study to ten elements. These elements included the Iron Triangle components as well as other elements such as stakeholder perceptions, learning experiences, knowledge acquisition, motivation for future work, final report preparation method, and project termination approach. Andersen and Jessen (2000) thus offered a more thorough framework that took task- and people-oriented factors into account when assessing project success.

2.3 Empirical Review

Within government organizations managing international development projects, project managers' Implementation of project management tools and methodologies was investigated in an international survey. Most of these projects are now supervised by government organizations, and

some of them are becoming very well-known worldwide (Korten, 1987). Project performance was found to be correlated by Golini et al. (2012) with the use of these tools and methodologies, both internally (by the project) and externally (by stakeholders). Their research showed a progressive Implementation of project management tools, ranging from more sophisticated methodologies to fundamental frameworks like the Logical Framework. Their conclusion was that, with the right tools, project managers could improve long-term project impact and accomplish satisfactory project performance with a minimal toolkit.

Furthermore, research suggests that project success hinges on the proper utilization of project management tools and techniques, while improper use may lead to project failure (Kerzner, 2001). Although specific tools and techniques are discussed in the literature, empirical evidence validating their effect in enhancing project performance remains scarce. Addressing this gap, Patanakul et al. (2010) empirically investigated the use of project management tools and techniques across various phases of the project life cycle and their influence on project success.

Project management guidelines specifically designed for government organizations have been developed to address the special challenges associated with overseeing international development projects. Practitioners are familiar with these guidelines, which provide good substitutes or additions to industry standard tools and methods (e.g., IPMA competence baseline or PMBOK by PMI). Comparative studies of these approaches, however, show a great deal of tool similarity (Golini et al., 2013), indicating benefits shared by business environments and international development. Notably, internal project performance and the proper use of tools can both result in long-term project outcomes (Ika et al., 2011).

Moreover, given the growing similarities between conventional business projects and international development initiatives (such as complexity and stakeholder involvement), our study's findings could be beneficial to academics and professionals working in other fields. In spite of this, research on the Implementation of standards and procedures within organizations is still scarce in the development and project management literature (Ahlemann et al., 2009). This disparity highlights continued efforts by scholars and industry professionals to expand project management guidelines customized for particular situations (Besner and Hobbs, 2008). Even though project management techniques are universally applicable, various contexts give rise to unique approaches to project

management (Wald et al., 2012). This is especially true of the special qualities of international development projects (Golini et al., 2012). Although there are particular strategies for international development projects.

2.4 Literature Gaps

The effect and application of PMTT, including PERT, scope management, risk management, and stakeholder analysis matrix, in improving project performance are still not sufficiently addressed. As a result, the researcher started a study to find out where these tools and techniques were not being applied as much in relation to project performance.

Based on empirical evidence, government organizations appear to be lacking in the application of PMTT, as specified by PM4DEV standards. According to the researcher, it is necessary to conduct a thorough analysis of important project management tools and techniques and their effects on project performance within the Oromia Construction Corporation.

This survey aimed to evaluate the utilization of project management techniques and tools in alignment with the principles of the PMBoK and PM for Development. Additionally, it sought to delineate indicators linking PMTT to project performance within Oromia Construction Corporation projects.

2.5 Conceptual Framework

The advent of project-management tools and techniques within government organizations, supported by established guidelines, facilitates the management of development projects. These guidelines are widely recognized among practitioners and are regarded as a viable option for integrating standard tools and methods (Golini et al., 2014). Based on these well-established guidelines, various variables have been identified concerning independent and dependent variables. According to the literature, an organization's ability to manage processes related to time, scope, quality, and other aspects of a project is referred to as project management effectiveness. The selection of tools is informed by a comprehensive review of prominent reference guides in project management. Performance attainment was gauged through diverse criteria relating to both internal and external project outcomes, mirroring the approach outlined by Ika et al. (2012).

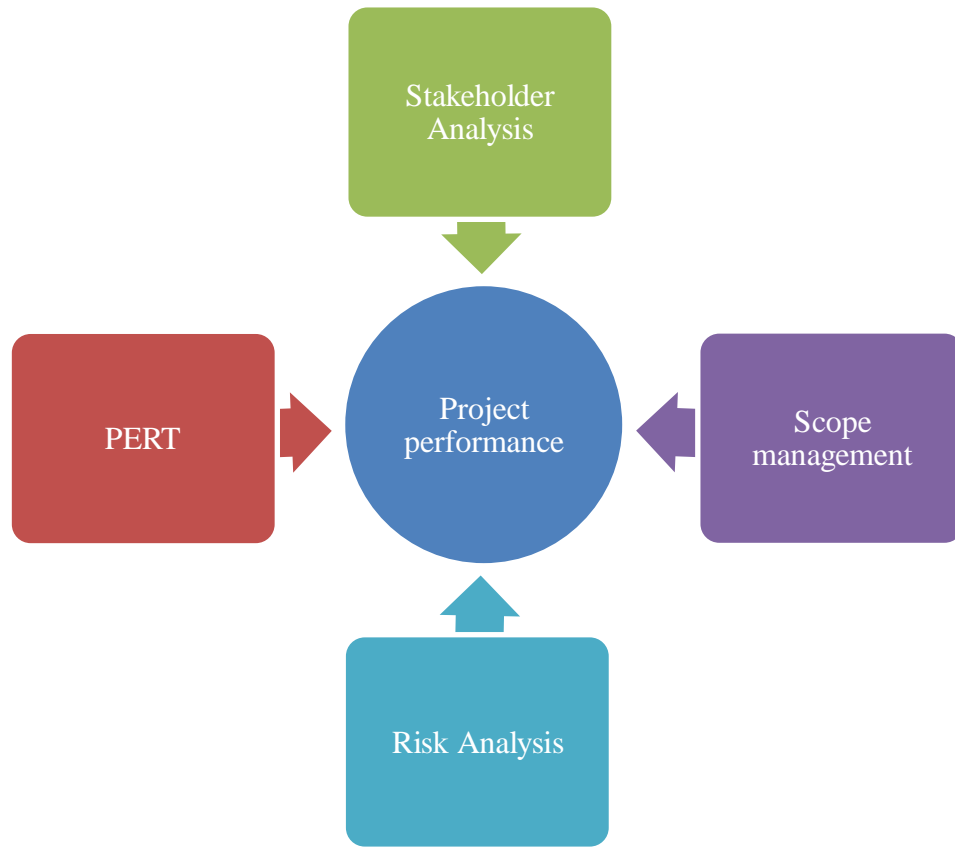


Figure 1 Dependent and independent Variables

2.6 Research hypothesis

To accomplish the study's goal, the following theories were examined and put to the test.

H1: Implementation of stakeholder analysis has a significant positive effect on Project performance.

H2: Implementation of Risk Analysis has a significant positive effect on Project performance.

H3: Implementation of PERT has a significant positive effect on Project performance.

H4: Implementation of Scope Management has a significant positive effect on Project performance.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research Approach

Crafting research approach stands as a pivotal pillar in any study, as it delineates the roadmap for addressing a research question using real-world data. It entails making thoughtful decisions across various dimensions, including overarching research goals, reliance on primary or secondary research, sampling methodologies, data collection techniques, and strategies for data analysis, among others. Such design ensures that the chosen methods harmonize with the research objectives and facilitate pertinent data interpretation.

Different research approach exists, contingent upon whether a qualitative, quantitative, or mixed-methods approach is adopted.

Quantitative approach, characterized by their more rigid and deductive framework, entailing clearly defined variables and hypotheses prior to data collection. Because quantitative research methods are structured and often involve large sample sizes, their findings can be more broadly applied to various groups or populations. Additionally, they can be reused in similar studies or projects.

The present study embraced a Quantitative method approach. Data for quantitative research can be gathered passively. Data points are generated over a predetermined period of time through surveys, polls, and other asynchronous data collection methods, freeing up researchers to concentrate on more crucial tasks.

For the current study, which investigates the efficacy of project management tools and techniques within OCC projects, a sequential explanatory quantitative method was adopted. This entails placing the quantitative paradigm (due to the prevalence of research questions involving quantitative data) aspects of the effect of Project Management Tools and Techniques for Project Performance within the Oromia Construction Corporation project.

3.2 Research Design

The research design was the conceptual arrangement in which research is conducted. There are three types of research designs; exploratory, descriptive, and explanatory. Explanatory studies clarify the relationship between two aspects of a situation. Thus, explanatory research designs were

used to describe the demographic and general information of the respondents, and examine the effect of project management tools and techniques on project: the case of Oromia Construction Corporation construction projects

3.2 Study Variables

The study is about assessing the effective usage of project management tools and methods and their effects on performance of Oromia construction corporation projects located in Addis Ababa and its surrounding. It contains variable both dependent and independent variables.

Variables are essential components of research as they help us understand relationships, effects, and outcomes within the investigations. The below listed items are the variables that help us understand and measure the effect of project management tools and techniques for building project performance in the case of the Oromia construction corporation projects.

Dependent variable: The project performance is the dependent variable in this study, which can be determined or measured by the project's quality, budget, completion date, and other performance indicators.

Independent variable: The Project management tools and techniques, there are many projects management tools and techniques that can be applied but in this case Stakeholder analysis, Program evaluation review technique (PERT), Risk analysis/management, & Scope Management (Tracking Change and request) are the independent variables to be compared to the project performance.

3.3 Study Area

The Oromia Construction Corporation has been actively engaged in development initiatives across 59 area programs, strategically dividing its objectives across various regions. Among these, the Oromia regional office stands as a key hub where numerous projects are executed following the tenets of project management for development. This study investigation is specifically scoped in operations of the Oromia Construction Corporation, centered around its headquarters in Addis Ababa and the projects it oversees in the surrounding areas. By honing in on this particular organization and its projects, the study aims to evaluate the influence of project management tools and techniques on the performance and outcomes of these construction endeavors. This targeted

approach affords a more intricate examination of how project management practices are applied and their effect within a defined context, providing insights that can be instrumental in enhancing project performance within similar environments.

3.4 Target Population

The study's intended participants comprise project managers, division managers, project coordinators, officers, and office engineers located at both the head office and project sites. The total targeted population size consists of 300 individuals actively engaged in project management practices.

Table 1 Number of total Population of study area

No	Position	Target Population
1	Project Managers	96
2	Division Managers	11
3	Project Coordinators	69
4	Office Engineers	105
5	Officers	19
Number of total Population size		300

3.4 Sample Size

As stated by Kothari (2004), sample size refers to the number of items drawn from the population for a given sample. To ascertain the appropriate sample size for investigating the effect of project management tools and techniques in augmenting project performance at the Oromia Construction Corporation, the Morgan Table was utilized. The study population consisted of project managers, division managers, project coordinators, and officers located exclusively in head offices and adjacent projects. A total of 300 people make up the population under investigation. From the Morgan Table, a recommended sample size of about 169 respondents directly involved in project management practices is suggested, assuming a 95% confidence level (corresponding to a Z-score of 1.96) and setting the margin of error at about 5% in social science research.

Table 2 Morgan’s Sampling Table

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	100000	384

Note - N is population size

S is sample size

Source: Krejcie & Morgan, 1970

3.4.2. Sampling Techniques

In research studies, selecting an appropriate sampling technique is crucial to insure the validity and reliability of the results. This study applies the Quantitative research approach it is a mandatory to apply probability sampling method. When dealing with a target population of 300, various types of probability sampling methods can be considered based on the research objectives, resources available and the level of precision required. One common sampling technique that could be suitable for this study is stratified random sampling since it has the advantage of ensuring proportional representation from different segments of the population, increases precision and reduces sampling error compared to other sampling methods and allows for comparisons between different sub groups within the population.

3.5 Data Collection Tools and Procedure

3.5.1 Source of Data

Information for this research sourced from both primary and secondary outlets. Primary data were acquired through questionnaire distributed by project managers. The preference for primary sources stemmed from the necessity of acquiring firsthand information directly from respondents associated with the Oromia Construction Corporation's operations in Addis Ababa and its vicinity. Additionally, project documents served as a secondary data source. These documents were reviewed to bolster the investigation with further insights grounded in the context of the Oromia Construction Corporation.

3.5.2 Types of Data Collection / Questionnaire

Because of the extensive area covered by the data collection, the researcher decided to use an email-based questionnaire distributed within the organization's internal internet system. This questionnaire included a Likert scale to gauge how project implementers at the Oromia Construction Corporation perceive the effect of various PMTT. The selection of tools and methods included in the questionnaire was drawn from previous research, particularly the work of Golini et al. (2015) on the "Implementation of project management practices: The impact on international development projects of government organizations." Additionally, insights from LA. Ika's study (2009) on "Project management in the international development industry: the project coordinator's perspective" provided valuable input from project coordinators, shedding light on key factors influencing project success in this specific context. In their comprehensive study, Golini et al. (2015) investigated the ways in which project management methodologies' Implementation influences the success and results of government-funded international development projects.

3.5.3 Document Analysis

To ensure data triangulation, document analysis was undertaken by cross-referencing gathered data with reports from the Program office and other pertinent documents stored in the organization's central server. Permission and acknowledgment were obtained from the company to access and retrieve cross-sectional data from their central server.

3.6 Method of Data Analysis

Using the most recent SPSS 20 tools, the researcher used both descriptive and inferential statistics, more specifically correlation analysis. Every area of expertise and standard was taken into account when evaluating the practical efficacy of project management tools and methods. The data analysis commenced with descriptive statistics, which were used to summarize and elucidate the collected data regarding independent variables. The data acquired from the sample was then used to infer and generalize characteristics of the population through the application of inferential statistics. The researcher analyzed the data collected from data sources by using regression and correlation analysis method. By clearly identifying the dependent and the independent variables, the researcher used multiple regression model to show the relationship between the dependent and independent variables by using SPSS version 20 and was interpret the outputs through charts, tabular and graphics.

3.7 Validity and Reliability

Validity is about whether a study method or technique actually assesses what it intends to assess. It is crucial in ensuring that the results obtained from a study are meaningful and relevant to the research question being investigated.

Reliability pertains to the consistency of measurements across the entirety of the study's findings and denotes the ability to obtain consistent results within the sample of respondents.

The questionnaire's tool and technique selection were derived from two well-researched studies: "Adoption of project management practices: The impact on international development projects of government organizations" by Golini et al. (2015) and "Project management in the international development industry: the project coordinator's perspective" by LA. Ika (2009).

In order to better understand project coordinators' perspectives on project management in the international development sector, LA. Ika conducted a study that was published in the International Journal of Project Management. 138 project coordinators from different international development organizations were surveyed as part of the study. The study's questionnaire demonstrated a satisfactory degree of internal consistency, according to the validity analysis report. The overall scale's Cronbach's alpha coefficient was recorded at 0.764, while the subscales' values ranged from 0.685 to 0.837 (Ika, 2009).

Golini et al.'s research, featured in the Journal of Construction Engineering and Management, aimed to comprehend the impact of adopting project management practices on international development projects undertaken by government organizations. Their study involved surveying 134 respondents from diverse government agencies involved in international development projects. The validity analysis report demonstrated that their questionnaire demonstrated a high level of reliability, with Cronbach's alpha coefficients ranging from 0.75 to 0.92 for various constructs (Golini et al., 2015).

The most commonly accepted value is 0.70 as it should be equal to or higher than to reach internal reliability (Hair et al., 2003). As a result, the study uses reliable and valid research methods and techniques.

Table 3 Summary of adopted variables reliability value

Research Title	Author of the	Range of Cronbach's alpha	Questionnaire Adopted
Adoption of project management practices: The impact on international development projects of government organizations	Golini et al. (2015)	0.685 - 0.837	Project Management Tools and Techniques
Project management in the international development industry: the project coordinator's perspective	LA. Ika (2009)	0.75 - 0.92	Project Performance Indicators

3.8 Ethical considerations

The success of this research depends critically on people's willingness to divulge important information. Therefore, throughout the study procedure, the researcher endeavored to ensure equitable treatment for both respondents and the information they provided, adhering to principles of honesty and respect. Several crucial ethical guidelines were strictly observed, including confidentiality, wherein all information shared by individuals and organizational documents was treated with utmost confidentiality (AERA, April 2011).

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1. Introduction

This unit discusses the study and then interprets and analyzes the results, based on the results of the questionnaire and empirical reviews from other academics, to support the primary research focus, which is the efficiency of project management tools and techniques in the context of OCC projects. Both descriptive and inferential statistics are used in this analysis and discussion.

A comparison of means, valid and cumulative percentages, frequency and frequency distribution, percentage, and other central tendency measurements are all included in descriptive analysis. To improve clarity, SPSS figures and tabular explanations are also used.

The Statistical Package for Social Sciences (SPSS) software facilitates the use of inferential statistical methods, such as correlation analysis, in the presentation and analysis of the study's results. All of the variables are added up individually and then averaged to analyze the information that was collected from the respondents. The degree to which variables are related is determined using Pearson correlation (r).

4.2. Response rate

The number of completed and returned questionnaires divided by the total number of questionnaires sent to respondents yields the response rate, which is then multiplied by 100. In this study, 99.4% of questionnaires were collected from respondents, with 169 questionnaires distributed and all 168 completed and returned.

The reason we had such a great response rate could be because some of the Project Management methods and tools are pretty familiar to the folks in the organizations we reached out to. So, naturally, they were probably more interested in taking part in the study, which helped bump up our response rate.

4.3 General Features of the respondents' Profile

Table 4 General Features of Respondent's Profile

		Count	Column N %	Mean	Standard Deviation
Gender of the respondent	Male	98	58.0%		
	Female	71	42.0%		
Educational Status of the respondent	1st Degree	80	47.3%		
	Master's Degree	89	52.7%		
How Many years of experience do you have in your current organization?	0-2 years	46	27.2%		
	3-5 years	22	13.0%		
	6-8 years	61	36.1%		
	over 8 years	40	23.7%		
How long have you been with your current position?	0-2 years	45	26.6%		
	3-5 years	74	43.8%		
	6-8 years	32	18.9%		
	over 8 years	18	10.7%		
Which of the following categories describes your current position?	Project Manager	54	32.0%		
	Project Coordinator	39	23.1%		
	Office Engineer	59	34.9%		
	Support Officer	11	6.5%		
	Division Manager	6	3.6%		
How Many projects have you managed in the last 2 years?	1 Project	11	6.5%		
	2 Projects	71	42.0%		
	3 Projects	17	10.1%		
	4 Projects	24	14.2%		
	5 and Above Projects	46	27.2%		
Average Annual Budget Managed by your Project in the last 2 years was?	Less than 300,000,000 ETB	18	10.7%		
	300,000,001 - 500.000.000 ETB	56	33.1%		
	500,000,001 - 1,000.000.000 ETB	16	9.5%		
	More than 1,000,000,000 ETB	79	46.7%		
Average age of the Projects you are managing now?				2.92	1.17
Specify the prevalent aim of the project you managed in the last 2 years	Provision of materials and tools	6	3.6%		
	Cons. of Buildings and Infrastructure	145	85.8%		
	Development of social, economic, health and environmental services (Education, Livelihood, WaSh etc)	6	3.6%		
	Other	12	7.1%		

From the above table we can see that all staff members possess educational qualifications, ensuring the reliability of their responses.

Based on the findings 59.5% of respondents have more than 6 years of work experience, indicating that the majority of participants possess a deep understanding of the company.

As previously discussed in the sampling technique section of Chapter Three, the organization comprises three primary levels of project practitioners: project managers, project coordinators, and project supportive officers. According to the survey results, 97 (57.7%) respondents identified as project coordinators, 54 (32.1%) as project managers, 11 (6.5%) as project supportive officers, and 6 (3.6%) as division managers completed the questionnaire. It's worth noting that all respondents are actively involved in the implementation of project management tools and techniques.

4.4. Project Management Tools and Techniques

4.4.1 Project Management Tools and Techniques Implementation in Occ project

Based on the responses collected in Part III of the questionnaire, each project management tool and technique are assessed in terms of its utilization by project practitioners. To provide a clearer overview of the utilization patterns, it is beneficial to categorize the tools into three groups. The categories of PMTT, are as follows: -

Table 5 Mean Score Interpretation Scale

Level	Mean Score Interpretation Scale
Low	1.00 – 2.99
Moderate	3.00 – 3.99
High	4.00 – 5.00

Source: (Zafikha Aida Bidin, 2022)

Table 5 provides evidence that Scope Management (Tracking Change and Requests) is applied correctly. Stakeholder analysis and the Program Evaluation Review Technique (PERT) are used to a moderate degree. On the other hand, risk analysis, which project practitioners consider to be of little use, is used less frequently.

Table 6 Utilization Analysis of Tools and Techniques Through Descriptive Statistics

Utilization Analysis of Tools and Techniques Through Descriptive Statistics					
	N	Mini	Max	Mean	Std. Deviation
Stakeholder analysis	167	3.0	5.0	3.9	0.7
Program evaluation review technique (PERT)	168	2.0	4.0	3.1	0.7
Risk analysis/management	168	2.0	3.0	2.4	0.5
Scope Management (Tracking Change and request)	168	3.0	5	4	1
Valid N (listwise)	167				

Source: SPSS result 2024

4.4.2 Tools and Techniques Importance to the Organization

Similarly, when project management is used, significance of each tool and approach is assessed in relation to the project managers, coordinators, and officers based on the responses gathered in part III of the questionnaire. It is preferable to classify each instrument and approach into three groups so that project owners can see how important they are. Using table 4.

Table 7. Tools and Techniques Importance to the Organization

The Organization's Use of Tools and Techniques					
	N	Minimum	Maximum	Mean	Std. Deviation
Stakeholder analysis	168	1.0	5.0	4.09	0.97
Program evaluation review technique (PERT)	168	1.0	5.0	3.67	0.82
Risk analysis/management	168	1.0	5.0	4.04	0.84
Scope Management (Tracking Change and request)	168	3.0	5.0	4.07	0.66
Valid N (listwise)	168				

Source: SPSS result 2024

Unlike the utilization analysis indication PMTT, Table 6 indicates that stakeholder analysis, scope management and risk analysis project management tools and techniques are vastly important and the remaining tool which is PERT is moderately important.

4.6 Inferential Analysis

4.6.1 Correlation

Correlation shows the magnitude, direction, and strength of the relationship between the variables. A linear relationship between variables can be measured using the correlation coefficient (r),

commonly referred to as the Pearson product-moment correlation. Muluadam (2015) states that a person's "r" is mainly used to compute deviations from the mean and measures data from the interval or ratio level.

Consequently, a detailed discussion of the dependent and independent variable results will be provided below. Table 14 below shows the descriptive adjectives and measures of association between the variables in the predictor, which was initially developed by MacEachron (1982).

Table 8 Descriptive Association Measurement

Measures	Description
> 0.00 to 0.20; < -0.00 to - 0.20	Very weak
> 0.20 to 0.40; < -0.20 to - 0.40	weak
> 0.40 to 0.60; < -0.40 to - 0.60	Moderate
> 0.60 to 0.80; < -0.60 to - 0.80	strong
> 0.80 to 1.0; < -0.80 to - 1.0	Very strong

Source: (MacEachron, 1982)

Table 9 Project Performance and Independent Variables Correlation Matrix

		Correlation Value				
		PP	PERT	RA	SM	SA
PP	Pearson Correlation	--				
	N	169				
SA	Pearson Correlation	.797**	--			
	Sig. (2-tailed)	0				
	N	169	169			
PERT	Pearson Correlation	.778**	.904**	--		
	Sig. (2-tailed)	0	0			
	N	169	169	169		
RA	Pearson Correlation	.771**	.827**	.852**	--	
	Sig. (2-tailed)	0	0	0		
	N	169	169	169	169	
SM	Pearson Correlation	.714**	.853**	.798**	.745**	--
	Sig. (2-tailed)	0	0	0	0	
	N	169	169	169	169	169

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

Source; SPSS Results, 2024

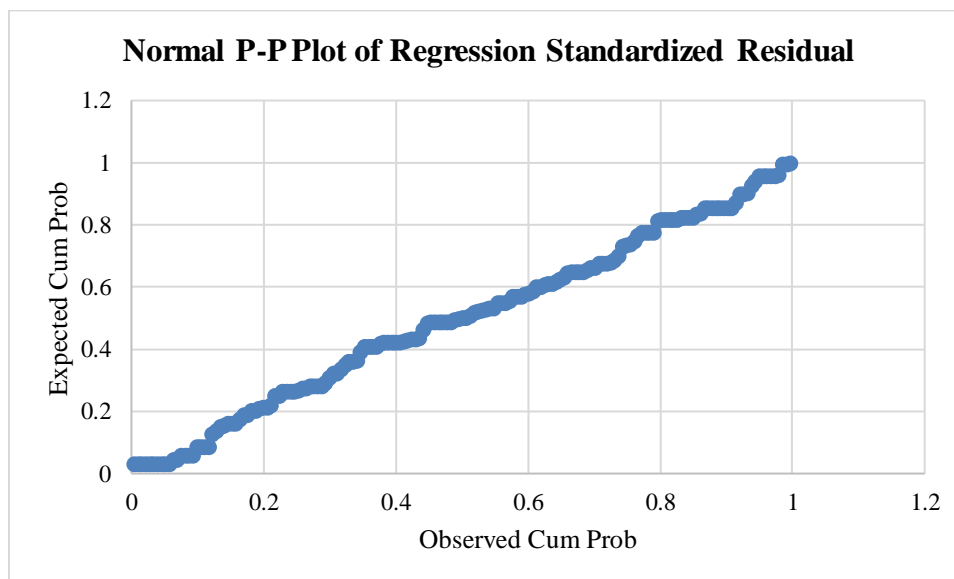
Using the results of the above correlation matrix, with MacEachron measurement category all project management tools and techniques that are listed Stakeholder Analysis (significance value of “0” < “0.01” and R= 0.797), Program Evaluation Review Technique (significance value of “0” < “0.05” and R= 0.778), Risk Management (significance value of “0” < “0.05” and R= 0.771) and Scope Management (significance value of “0” < “0.05” and R= 0.714) have A strong positive relationship with project performance.

4.6.2 Regression

4.6.2.1 Regression Assumption Test

4.6.2.1.1 Normality test

The output of a normal P-P plot can be used to visually assess normality.



Source; SPSS Results, 2024

Figure 2 Normal P-Plot test

The data points will be near the diagonal line if the data are normally distributed. The data are not normally distributed if there is a noticeable non-linear deviation of the data points from the line. The data is normally distributed, as shown by the normal P-P plot above in Figure 2.

4.6.2.1.2 Multicollinearity analysis test

A state of multicollinearity occurs when there are extremely high intercorrelations or inter-associations between the independent variables. As such, it is a form of data disturbance, and

should it exist in the data, the statistical conclusions drawn from it might not be trustworthy. Multicollinearity needs to be corrected when VIF value is upto 4 it is assumed to have no multicollinearity and it is accepted, if it ranges between 5 to 10 it shows that it has a little multicollinearity which is accepted too, but if it is greater than 10 it is rejected. All of the VIF values fall within the acceptable range, as table 9 demonstrates.

Table 10 Multicollinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
SA	0.134	7.490
PERT	0.156	6.391
RA	0.265	3.777
SM	0.266	3.754

Source; SPSS Results, 2024

4.6.2.1.3 Autocorrelation test

The test for first order autocorrelation is the Durbin-Watson (DW) test. Accordingly, it only looks for a connection between an error and its most recent value (Brooks, 2019:196). The DW test determines whether autocorrelation is present in the residual or not. It has a range of 0 to 4. A critical value for the DW autocorrelation test result is 0 to 2 shows that it has no autocorrelation.

Table 11 Autocorrelation test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.813 ^a	0.661	0.653	0.37529	1.297

Source; SPSS Results, 2024

As table 10 indicates a DW statistic of 1.297 is less than 2 but not extremely low. It indicates a moderate positive autocorrelation in the residuals

4.6.2.2 Regression Analysis

Multiple regression analysis was used in this study to examine the relationship between the

predictor variables. SPSS V 20.00, a statistical package for social sciences, was utilized in the research to code, enter, and compute the multiple regression measurements.

Table 12 Multiple Regression Analysis

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.568	0.181		3.140	0.002
	Stakeholder Analysis	0.355	0.111	0.397	3.193	0.002
	PERT	0.090	0.122	0.085	0.738	0.462
	Risk Analysis	0.369	0.096	0.339	3.840	0.000
	Scope Management	0.032	0.077	0.036	0.410	0.682
2	(Constant)	0.582	0.178		3.276	0.001
	Stakeholder Analysis	0.377	0.097	0.422	3.881	0.000
	PERT	0.094	0.121	0.089	0.776	0.439
	Risk Analysis	0.373	0.095	0.343	3.901	0.000
3	(Constant)	0.622	0.170		3.664	0.000
	Stakeholder Analysis	0.428	0.071	0.479	5.980	0.000
	Risk Analysis	0.403	0.087	0.370	4.624	0.000
a. Dependent Variable: Project Performance						

Source; SPSS Results, 2024

The following proposed hypotheses for this study were tested using the results of the multiple regression coefficient.

H1: Utilization of stakeholder analysis has a significant positive effect on Project performance.

The application of a stakeholder analysis project management tool has a positive and significant influence on project performance at the 5% critical value ($p < 0.05$), according to the results of multiple regression analysis of table 11 above. Additionally, it can be inferred that stakeholder analysis contributes to the project performance of Oromia Construction Corporation projects (Beta=0.355, Sig. = 0.002). As a result, the suggested hypothesis is approved. when there is a 35.5% chance that a unit increase in stakeholder analysis will result in an increase in project performance.

H2: Utilization of Risk Analysis has a significant positive effect on Project performance.

The application of a risk analysis project management tool has a positive and significant influence on project performance at the 5% critical value ($p < 0.05$), according to the results of multiple regression analysis of table 11 above. Additionally, it can be inferred that risk analysis contributes to the project performance of Oromia Construction Corporation projects (Beta=0.369, Sig. = 0.000). As a result, the suggested hypothesis is approved. when there is a 36.9% chance that a unit increase in risk analysis will result in an increase in project performance.

H3: Utilization of PERT has a significant positive effect on Project performance.

The above analysis report indicates that ($S = 0.462$) and ($B=0.09$). considering the significance value 5% PERT project management tool has no significant effect on project performance. If a unit increased in implementing PERT leads to an increase in project performance in 9%. Therefore, the proposed hypothesis is rejected.

H4: Utilization of Scope Management has a significant positive effect on Project performance.

The above analysis report indicates that ($S = 0.682$) and ($B=0.032$). considering the significance value 5% scope management project management tool has no significant effect on project performance. If a unit increased in implementing scope management leads to an increase in project performance in 3.2%. Therefore, the proposed hypothesis is rejected.

Table 13. Hypothesis Result Summary

No	Alternative Hypothesis	Tool	Result
H1	Utilization of stakeholder analysis has a significant positive effect on Project performance.	Regression	Accepted
H2	Utilization of Risk Analysis has a significant positive effect on Project performance.	Regression	Accepted
H3	Utilization of PERT has a significant positive effect on Project performance.	Regression	Rejected
H4	Utilization of Scope Management has a significant positive effect on Project performance.	Regression	Rejected

Source; Own survey, 2024

4.7 Discussion of the Study

The previously mentioned the study, which focused on the topic "The effect of project management tools and techniques on project performance in the context of OCC project," offered quantitative and statistical justifications for the variables that were known.

The current theories, scholarly empirical literature, statistical significance, the frequencies and means of each predictor's variable questions, and the relative importance weights of each variable are all included in the main discussion section that follows.

This study identifies Stakeholder Analysis, Risk Management, Scope Management, and Program Evaluation Review Technique (PERT) as extensively implemented tools within the Oromia Construction Corporation projects. Other research, such as that by Verma and Williams (2012), supports the notion that these tools are widely recognized and utilized across construction projects globally due to their effectiveness in enhancing project outcomes (Verma & Williams, 2012).

The other finding of this study finds a strong positive relationship between Stakeholder Analysis, Risk Management, Scope Management, and PERT with project performance, as evidenced by correlation and regression analyses. Similar studies by Lim & Mohamed (1999) and Shenhar et al. (2001) also highlight significant correlations between these PMTTs and project success metrics like cost, schedule adherence, and quality (Lim & Mohamed, 1999; Shenhar et al., 2001).

Stakeholder Analysis and Risk Management are found to significantly influence project performance, with substantial percentage increases in project outcomes associated with their effective use. Research by Pinto & Slevin (1987) and Turner (1999) provides additional support for the positive impact of Stakeholder Analysis and Risk Management on project success, reinforcing your regression findings (Pinto & Slevin, 1987; Turner, 1999).

PERT and Scope Management did not show significant direct impacts on project performance in your study. This aligns with findings from studies such as that by Meredith & Mantel (2006), which suggest that while PERT and Scope Management are crucial for project planning and control, their direct impact on performance metrics can vary based on project specifics (Meredith & Mantel, 2006).

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter identifies research gaps, provides recommendations, conclusions, and summaries as well as ideas for future directions.

5.1 Summary of the Findings

The study found that Stakeholder Analysis, Risk Management, Scope Management, and Program Evaluation Review Technique (PERT) were significantly implemented within the Oromia Construction Corporation projects. These tools were observed to have strong positive relationships with project performance. Specifically, Stakeholder Analysis showed a correlation coefficient (R) of 0.797, PERT had an R of 0.778, Risk Management had an R of 0.771, and Scope Management had an R of 0.714. These findings suggest that higher utilization of these PMTTs correlates with improved project performance outcomes.

Multiple regression analysis further substantiated the correlation findings. It revealed that Stakeholder Analysis and Risk Management significantly and positively influenced project performance. Stakeholder Analysis showed a beta coefficient (Beta) of 0.355 ($p < 0.05$), indicating that a unit increase in Stakeholder Analysis implementation led to a 35.5% increase in project performance. Similarly, Risk Management had a Beta of 0.369 ($p < 0.05$), suggesting a 36.9% increase in project performance with increased implementation.

However, PERT and Scope Management did not show significant effects on project performance according to the regression results. PERT had a beta coefficient of 0.09, indicating a non-significant positive effect ($p > 0.05$), while Scope Management had a beta coefficient of 0.032, also indicating a non-significant positive effect ($p > 0.05$). Therefore, the hypotheses related to PERT and Scope Management were rejected.

5.2 Conclusion

The study revealed that Stakeholder Analysis, Risk Management, Scope Management, and Program Evaluation Review Technique (PERT) are extensively implemented within Oromia Construction Corporation projects. These tools play a crucial role in enhancing project planning, execution, and overall performance.

Through correlation and regression analyses, it was established that: Stakeholder Analysis, Risk Management, Scope Management, and PERT exhibit strong positive relationships with project performance. Stakeholder Analysis and Risk Management were found to significantly influence project performance, with notable increases in project outcomes associated with their effective utilization. PERT and Scope Management, while beneficial for project planning, did not show significant direct impacts on project performance in this context.

The findings underscore the importance of robust implementation and strategic use of PMTTs to enhance project outcomes. Stakeholder engagement, proactive risk management, and precise scope control emerge as critical factors for achieving successful project delivery within the construction sector.

5.3 Recommendations

Enhance Stakeholder Analysis Practices: Strengthen stakeholder identification, analysis methodologies, and engagement strategies to better align project goals with stakeholder expectations.

Optimize Risk Management Strategies: Implement rigorous risk assessment frameworks, proactive mitigation plans, and continuous monitoring to minimize project uncertainties and maximize opportunities.

Refine Project Evaluation Techniques: Evaluate and potentially refine the application of PERT to ensure it effectively supports project scheduling and resource allocation decisions.

Improve Scope Management Approaches: Enhance scope definition, change control procedures, and monitoring mechanisms to mitigate scope creep and ensure project deliverables meet stakeholder requirements.

Continuous Monitoring and Evaluation: Implement regular performance monitoring to track the impact of PMTTs on project success and adjust strategies as necessary.

Training and Development: Provide ongoing training and development opportunities for project managers and teams to enhance their skills in utilizing PMTTs effectively.

Future research could explore additional factors influencing project performance and further validate these findings across diverse industries and geographic regions.

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Appendix-



ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE

MASTER OF ARTS IN PROJECT MANAGEMENT

QUESTIONNAIRE FOR RESPONDENTS AT OROMIA CONSTRUCTION CORPORATION

I really appreciate your participation in this survey about the Effect of Project Management Tools and Techniques on Project Management. I have created this questionnaire to get information about this crucial field of study as part of my postgraduate project management program at Addis Ababa University's School of Commerce.

Kindly dedicate a few minutes to filling out this questionnaire. Your answers are very important for supporting scholarly research. All responses to this survey will be kept private and anonymous. Participation is completely voluntary. Your input will be used exclusively for academic purposes, and you will not be personally identified.

With a particular focus on the Oromia Construction Corporation project, your insightful comments will be very helpful in the investigation of the efficacy of project management tools and techniques. Thank you for your time and contribution to this study.

PART I: - General Profile of Respondents

Please check the box next to each answer you would like to provide for each question below.

1. Gender:

- Male
 Female

2. Educational Status:

- Elementary
- High School
- Certificate
- College Diploma
- 1st Degree
- Master's Degree
- Alternative options _____

3. How long have you been working at your current organization?

- Less than two years
- Between 3 to 5 years
- Between 6 to 8 years
- More than 8 years

4. How long have you held your current position?

- Less than two years
- Between 3 to 5 years
- Between 6 to 8 years
- More than 8 years

5. What best describes your current role?

- Project manager
- Project Coordinator
- Office Engineer
- Support officer
- Division Manager
- Alternative options _____

6. In the past two years, how many projects have you overseen?

- Just one project
- Two projects
- Three projects
- Four Projects
- Five and More Projects

PART II: - Questionnaires on Projects

2. Details about the project

2.2 Over the past two years, what was the average yearly budget for your project?

- Less than 300,000,000ETB
- 300,000,001- 500,000,000 ETB
- 500,000,001-1,000,000,000 ETB
- More than 1,000,000,000 ETB

2.3 How long, on average, have the projects you are currently managing been ongoing?

- Less than one years
- Between 1 to 2 years
- Between 2 to 3 years
- Between 3 to 4 years
- More than 4 years

2.4 Can you describe the main goal of the project you've managed within the past two years?

- Supplying materials and equipment
- Building and infrastructure construction
- Enhancing social, economic, health, and environmental services (such as education, livelihood, and water, sanitation, and WaSh)
- Promotion of awareness campaigns (focused on human rights and environmental conservation)
- Alternative options _____

PART III: - Percentage of using project management tools

The questionnaire includes a list of tools and techniques derived from established research studies such as the study "Adoption of project management practices: The impact on government organizations' international development projects" was carried out by Golini et al (2015).

Please provide each tool's percentage of utilization for each project phase. To show your degree of utilization, place a checkmark"√" on it. Apply the grading system that follows:

	What percentage of your project employs this tool in each project phase?				
	1 (0%)	2 (1-25%)	3 (26-50%)	4 (51-75%)	5 (76-100%)
Stakeholder analysis					
Program evaluation review technique (PERT)					
Risk analysis/management					
Scope Management (Tracking Change and request)					

PART IV: Importance level of project management tools and techniques

The questionnaire comprises a compilation of tools and techniques sourced from established research studies, the study "Adoption of project management practices: The impact on government organizations' international development projects" was carried out by Golini et al (2015).

Please assign a score to each tool based on its significance for your specific project. Then, utilize a checkmark (√) to denote the level of importance. Refer to the ranking system below:

	Average importance level of tools in your specific project				
	1 Very low	2 low	3 Medium	4 High	5 Very high
Stakeholder analysis					
Program evaluation review technique (PERT)					
Risk analysis/management					
Scope Management (Tracking Change and request)					

PART V: Average performance level of project management tools and techniques

Kindly express your agreement level regarding the subsequent statements, which delineate the performance dimensions of your project. Utilize the provided scale to indicate your stance: Please denote your average performance level with a check mark "√".

	The attained average performance level in the project				
	1 Strongly Disagree	2 Disagree	3 Neither Agree nor Disagree	4 Agree	5 Strongly agree
quality					
The beneficiaries are satisfied by the goods or services generated					
The goods and services produced by the project conform to those described in the project documents					
The initially identified objectives were attained					
Time					
The project operated on time					
Budget					
The project operated within budget					
Others Performance indicator					
The project achieved a high national profile					
The project had a good reputation among the principal donors					
The project has a good chance of being extended with additional funding					
The design or implementation of my project was unique					
The project had a visible impact on the beneficiaries					
The project built institutional capacity within the country					