

**UNIVERSITY  
OF  
LUSAKA**

**SCHOOL OF POSTGRADUATE STUDIES**

**APPLICATION OF CONTRACT MANAGEMENT PRACTICES ON THE  
PERFORMANCE OF ROAD CONSTRUCTION PROJECTS IN LUSAKA**

**BY**

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## DECLARATION

I, **KEZIAH CHAKABA**, affirm that the content of this study is solely my own work, and no one else has previously submitted it for academic recognition at any other institution. I have appropriately acknowledged all sources of information used in this work to the best of my knowledge.

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## **DEDICATION**

I dedicate this work to my amazing parents, Richard and Rapture Chakaba, whose boundless love, support, and guidance have been my pillars throughout life. Additionally, I dedicate it to my incredible best friend and partner Hudson Ng'andu, who has continuously provided unwavering support and encouragement, urging me to complete everything I start.

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## **ACRONYMS AND ABBREVIATION**

**ABCEC** Association of Building and Civil Engineering Contractors of Zambia

**EVM** Earned Value Management

**GDP** Gross Domestic Products

**KPI** Key Performance Indicator

**NCC** National Council for Construction

**PBC** Performance Based Contracts

**PMBOK** Project Management Body of Knowledge

**PMI** Project Management Institute

**RDA** Road Development Agency

**TOC** Theory of Constraints

## ABSTRACT

The construction industry, hailed as a cornerstone of national economic growth, assumes a pivotal role in fostering infrastructural development essential for economic progress. Within this sphere, the road construction sector holds global prominence, yet grapples with persistent challenges leading to subpar project performance. This dissertation delves into the specific issue of inadequate project performance within Lusaka, Zambia's road construction projects.

Utilizing a sequential mixed-methods approach, this research assesses the impact of contract management practices on the performance of selected road construction projects. Findings reveal a significant positive correlation between the integration of Key Performance Indicators (KPIs) and contract performance, underscoring the importance of understanding and analyzing contract management metrics for successful project outcomes. Moreover, the study's analysis highlights a weak positive correlation between contract performance metrics and various project aspects such as schedule adherence, budget compliance, quality standards, and client satisfaction.

Despite these correlations, the study underscores the critical role of contract management in achieving project success, advocating for informed decision-making and transparent operations within the road construction industry. Furthermore, recommendations stemming from the study emphasize the prioritization of integrating identified KPIs in road construction projects, alongside active stakeholder engagement in continuous assessments and improvements to ensure consistent project success. This research contributes to informing policymakers, project executors, and stakeholders about the pivotal connection between contract management practices and project success, thereby fostering more effective and transparent road development operations.

**Keywords:** *Construction industry, Road construction sector, project performance, contract management*

# CHAPTER ONE

## INTRODUCTION AND BACKGROUND

### 1.1 Introduction

The construction industry is a nation's growth engine, supplying services and goods to other industries (Dixit, 2020). Construction involves creating physical infrastructure like roads, railways, and harbors, as well as engaging in related civil engineering projects such as dams, irrigation systems, and power plants. It also encompasses all aspects of building construction, including housing, and extends to the ongoing maintenance and repair of existing structures (Wells, 1984). Apart from the creation of new built environment assets, the industry is also involved in the upkeep and restoration of existing assets. Additionally, it manufactures the construction materials essential for the development of these structures (Hampson & Sanchez, 2014).

It is indisputable that road infrastructure projects are becoming increasingly popular in cities worldwide because of benefits such as excellent connectivity, increased municipal competitiveness, and investment attractiveness (Sackey et al., 2023). Hampson and Sanchez (2014) highlight that the industry's importance lies not only in its role as the provider of structures and infrastructure crucial to the dependency of almost every other sector but also in its substantial size as an independent sector. Nevertheless, inadequate road infrastructure hampers the smooth flow of products and goods within an economy, leading to a significant disruption in the transportation system (Lyimo & Ndyalusa, 2022).

According to Meshram et al. (2020), project performance is an essential component often measured in cost, time, and quality. Therefore, because of the competitive nature of the construction sector and rapid technological change, executives must constantly improve project performance. As explained by Ngoma et al. (2022), contract

management serves as a process facilitating the fulfillment of obligations by both parties involved in a contract, aiming to achieve the contract's objectives.

This procedure involves the supervision of every interaction between the customer and contractor, commencing from the initiation of the contract and extending until the completion of the works, acceptance of the deliverables, payment transactions, and resolution of any disputes that may arise.

This study defined contract performance as construction operations accomplished within the stated budget, schedule, quality, and customer satisfaction. Furthermore, the research sought to determine the effects of contract management on the successful completion of a project and establish the relationship between contract management and contract performance in the road construction industry in Lusaka.

## **1.2 Background of the study**

Globally, the road construction sector is rapidly expanding, with significant concentrations in China, the US, and India (Banyenzaki, 2015). China and India's economic growth strategies and poverty eradication have relied heavily on their road infrastructure (Bayane&Yanjun, 2017). Large-scale highway construction in India resulted from the country's need for an effective road transportation system to support economic growth, the demand for ever-increasing passenger and freight movement, and the difficulties in connecting all of India (Das, 2022). On the other hand, roads in China started to receive significant investments in the 1990s, and since then, the length of the road network has doubled, with the expressway system growing by more than 300 times (Bayane&Yanjun, 2017).

Lyimo and Ndyalusa (2022) emphasize that constructing new roads is one of the critical factors in economic growth. While the availability of infrastructure increases productivity and fosters competition and collaboration, its completion increases Gross Domestic Product (GDP) (Deloitte, 2017). As discussed by Hampson and Sanchez (2014), considering only the raw site-based construction activity, the construction sector globally

accounts for between 3 and 10% of GDP. The fifth-largest construction market in the world, Canada's construction industry contributes nearly 7% of the country's GDP and employs more than 1.3 million Canadians (Deloitte, 2017).

In 2010, the Estonian transportation sector constituted over 12% of the country's GDP, and by 2011, it provided employment for approximately 50,000 individuals (KaareKorbe Kati & Koppel Ott, 2012). Likewise, in 2017, China's construction industry grew relatively quickly, with the Construction GDP rate increasing by 4.3% yearly. Furthermore, according to the National Bureau of Statistics of China, infrastructure investment surged 19% in 2016 (Deloitte, 2017). Given the importance of the link between construction activity and GDP growth, the industry is seen as a driver of growth, and as a catalyst for other industries to develop (Ruddock, 2009).

Despite all the highlighted construction benefits, Bello (2017) claims that various reports have indicated poor project performance and underachievement, and there has been a rise in complaints about project performance across countries. According to Lechner et al. (2013), the increasing design complexity and the involvement of numerous stakeholders make it difficult for both the client and the contractor to carry out these projects successfully. Furthermore, despite significant work toward strengthening project management for effective performance over the years Bello (2017), construction projects remain renowned for failing to meet cost and schedule budgets.

Rivera et al. (2016) found that construction companies worldwide underperform when providing services punctually, within budget constraints, and ensuring elevated customer contentment. Dixit (2020) revealed that projects in India are underperforming due to a range of illicit construction tactics that allow contractors to disregard regulations and escape fines. Similarly, road contractors in Kenya fail to perform to standard due to challenges such as project financing, the availability of competent personnel, the contractors' organizational structure, and customer service (Onana, 2018). In addition, Banyenzaki (2015) stated that an estimated 45 percent of the roads in Uganda are in poor condition, with districts having 56 percent in poor condition.

Nsanzimana and Mulyungi (2016) highlighted that Kigali City registered an annual expenditure of US\$12 million on the unit cost of periodic and routine road maintenance. According to Onana (2018), Gabon's most significant issues with road construction projects result from poor contractor performance in delivering projects on schedule, limiting the country's economic development.

Banda (2019) emphasized the importance of infrastructure development in a developing country such as Zambia. According to Kaliba (2010), the construction industry in Zambia has been growing fast in recent years, accounting for around 10.4% of GDP in 2007 at constant 1994 prices. Regrettably, despite substantial investments in the sector, Zambia's construction industry faces numerous challenges, as highlighted by Banda (2019). As per the findings of Zulu and Chileshe (2010), the performance of projects within the Zambian industry falls below acceptable standards. Further investigation of patterns in the construction industry finds a regular pattern of projects costing more than expected, running late, and cancellation before or during implementation (Kaliba, 2010).

Bobo (2021) asserts that despite the government's establishment of institutions like the National Council for Construction (NCC), established as a statutory entity in accordance with the provisions of the NCC Act No. 13 of 2003 within the Laws of Zambia, there is a continued need for improved project performance among local contractors. Furthermore, Ngoma (2015) states that large-scale road construction projects in Zambia fail due to technically poor specifications and a lack of adequate funding, and corruption is why most Zambian roads do not last. Bello (2017) underscores that the success of a construction project hinges on its performance, gauged through timely completion, adherence to quality standards, accurate cost estimates, and client satisfaction. Consequently, Biafore (2006) highlights the importance of effective contract management in project performance and underscores the significance of drawing lessons from previous failures to enhance overall project outcomes.

In most construction projects, there can frequently be a disparity between the client's motivations and aims and those of the contractors themselves (Lechner et al., 2013), leading to a commercial contract failing to run well during its lifetime.

According to Davison & Sebastian (2011), contract management problems are inevitable in every contractual arrangement because of a lack of transparency and competing interests. Additional contributing factors may include miscommunication between parties, delivery concerns, payment problems, unanticipated market shifts, and poor contract management practices (Harerimana, 2021). Cullen (2015) emphasizes how crucial it is to realize that contract management is an investment rather than a cost. Additionally, contract management is essential to contract execution since it guarantees that each party observes the contract's obligations (Kibuuka Ssempebwa et al., 2014).

Quality road construction is an art that involves careful planning, competent supervision, the correct techniques, and excellent project management throughout the entire life cycle (Sakala, 2018). Project management encompasses the planning, authorization, and oversight of contracts for executing project-related tasks (Rendon, 2016). According to PMI (2021), many projects include a contract development cycle with legal contracting officers prior to the start of the project. After agreeing on the conditions of work and deliverables, the parties sign a contract. Therefore, the amount of success in carrying out construction development operations will be significantly dependent on the quality of the different parties' management, financial, technical, and organizational performance (Takim & Akintoye, 2002).

Within this context, the research developed a framework that integrates contract management methodologies with performance indicators specific to contracts in the road construction sector. Crafted to aid key stakeholders in the construction industry, the framework aims to guide the strategic utilization of contract management, ultimately fostering improvement and heightened performance in construction projects across the Lusaka District.

### **1.3 Statement of the problem**

In the road construction sector in Lusaka Zambia, there exists a substantial disparity between the intended goals of government-funded endeavors and their actual achievements. Despite significant investments from citizens and the presence of regulatory bodies such as the National Council for Construction (NCC), contractors consistently fall short in project performance (Cherono Vivian & Chepwony, 2021; Onyango &Juma, 2020). Recurrent failures to meet quality, cost, and timing benchmarks demonstrate this discrepancy, casting doubt on the effectiveness and transparency of road development operations in the city (Kaliba, 2010).

The central issue this research seeks to address is the deficiency in project performance attributable to suboptimal contract management practices. Financial losses stemming from construction-related irregularities and misconduct, as well as disputes, delays, and escalated costs resulting from mismanagement of project contracts, worsen this challenge (Aluonzi et al., 2016; Dereje, 2021; Cheelo & Liebenthal, 2020).The overarching goal is to explore how enhancing contract management practices can mitigate these obstacles and enhance the efficiency, transparency, and overall success of road construction projects in Lusaka.

Therefore, this study aims to contribute insights into the intricate relationship between contract management practices and project performance. By synthesizing existing literature and conducting empirical research, it endeavors to develop a robust contract management framework tailored to the context of road construction projects in Lusaka. This framework will serve as a valuable tool for policymakers, contractors, and project stakeholders, fostering improved outcomes and facilitating sustainable infrastructure development in the city.

## **1.4 Main Objective**

To carry out an assessment on the effect of contract management practices on the performance of road construction projects in the Lusaka District.

### **1.4.1 Research Objectives**

1. To identify and analyze key performance indicators specific to road construction projects in the Lusaka District.
2. To identify and evaluate the effectiveness of contract management metrics utilized in road construction projects in the Lusaka District.
3. To investigate the correlation between contract performance metrics and the overall performance of road construction projects in the Lusaka District.
4. To develop a tailored contract management framework that integrates contract measurement metrics with key performance indicators specific to road construction projects in the Lusaka District.

### **1.5 Research Questions**

1. What are the key performance indicators for successful road construction projects?
2. What are the contract management metrics for road construction?
3. What is the relationship between contract performance measurement and the performance of road construction projects in Lusaka?
4. How are contract measurement metrics linked to key performance indicators in road construction?

### **1.6 Significance of the study**

The study findings benefit Government policymakers, the public, project executors, project sponsors, the academic pool of research, and all necessary stakeholders. This study will discover the relationship between contract management and the performance of road construction projects in Zambia's capital city Lusaka. The study aims not only to

discover the relationship between the two significant variables but also to develop a framework that will establish the link between contract measurement metrics and KPIs.

The result of this study also benefits policymakers by shedding light on how contract management procedures might affect the success of road construction projects.

As a result, this will contribute to developing more effective and workable procedures that will compel contractors to uphold quality standards and adhere to fundamental needs. These findings may result in a more robust, safer infrastructure benefiting the general population. The same can apply to project executors, especially project managers responsible for implementing contract management through the help of a contract manager.

Finally, the study's findings serve as a guide for subsequent researchers conducting research of a similar nature and increase the knowledge domain.

### **1.7 Scope of the study**

This study evaluates how well road construction projects in Lusaka are performing regarding contract management methods. It seeks to investigate various contract management measures, look at key performance indicators (KPIs) essential for effective execution of road construction contracts, and provide a framework that connects contract measurement metrics to KPIs.

This study focused on road construction contracts between the government and private institutions, also known as Public Private Partnerships (PPPs). This decision was because these projects are open to the public and the project outcomes published. It will only look at selected projects that provide relevant information to the study. The key stakeholders may include the stakeholders comprise consultants, National Council for Construction, Central Statistical Office, contractors, Ministry of Works and Supply, Lusaka City Council, project managers, RDA, ABCEC in Zambia, and civil engineers,

along with governing bodies like the Ministry of Housing and Infrastructure Development.

## **1.8 Research Outline**

The outline of the study is as follows:

### **Chapter One: Introduction and Background**

In this chapter, we get to know the main topic of the study and the background behind it. It gives a quick overview of what the study is about and outlines what the researchers are trying to achieve.

### **Chapter Two: Literature Review**

This chapter reviews important articles and other sources about managing contracts and making road construction projects. The sources include things like academic papers, reports from the government, and information from websites. The chapter carefully looks at each source.

### **Chapter Three: Theoretical and Conceptual Framework**

Here, the chapter explains the relationships within the study using a theoretical framework. The conceptual framework presents the study's overall structure.

### **Chapter Four: Research Methodology**

This chapter tells us how the researchers did the study, including the steps they took and the methods they used. It talks about how they made sure the study was reliable and ethical, and explains things like who they studied, how many people, and how they collected and analyzed data.

### **Chapter Five: Data Finding and Presentation**

This chapter displays the study's results using the tools the researchers used to collect information from the people involved.

## **Chapter Six: Discussion and Analysis**

This chapter gives a detailed look at the study's findings. It talks about any new ideas the researchers got from the findings and discusses why the results are important.

## **Chapter Seven: Conclusion and Recommendation**

This last chapter sums up what the researchers found and suggests the next possible actions.

### **1.10 Chapter Summary**

This chapter covers the background, problem statement and, the goals and objectives. Additionally, it covers the research questions, why the study is important, what it includes, and how the study is organized. It helps us understand the purpose of the research better.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This section gives a comprehensive examination of road construction performance, drawing insights from diverse research sources. It delves into a detailed analysis of literature concerning pivotal performance indicators crucial for the triumph of road construction initiatives and metrics essential for effective contract management.

#### **2.2 Overview of Project Performance in the Road Construction Sector**

In the construction sector, complexity arises from the involvement of stakeholders, including clients, regulators, shareholders, consultants, contractors, and other relevant parties (Enshassi et al., 2009). This inherent complexity, coupled with the industry's fragmented structure and reliance on temporary labor, makes it particularly susceptible to inadequate contract performance (Ifedolapo Helen et al., 2015). Moreover, defining project performance in construction management is a complex task, as noted by Fouché and Rolstad (2010). It demands a delicate balance of various variables, with contractor performance playing a crucial role. As emphasized by Chilongo Sylvia & MbetwaSerah (2017), project performance encompasses diverse aspects, including time, cost, safety, client satisfaction, and quality.

Furthermore, concerns about project performance have escalated globally, as highlighted by Bello (2017), who underscores the issue of subpar project execution contributing to growing concerns.

Rivera et al. (2016) discovered that construction companies routinely perform poorly in areas such as meeting project deadlines, staying under budget, and ensuring customer satisfaction, underscoring the intricate challenges facing the industry.

Similarly, research in the United Arab Emirates (UAE) by Faridi and El-Sayegh identified factors such as a scarcity of skilled labor, inadequate supervision, and site management, contributing significantly to project delays (Gyadu-Asiedu, 2009). In

Kenya, Mwangi (2016) revealed that issues related to project finances, the availability of skilled workers, the contractor's organizational structure, and client support influenced road construction performance significantly. Moreover, Onana (2018) highlighted the critical issue of contractors' inadequate adherence to project timelines in Gabon, influencing the country's economic progress. Zulu (2015) noted similar challenges in Zambia, where projects consistently fell short of performance standards in terms of time, cost, and quality.

Furthermore, Ngoma (2015) identified subpar technical specifications, insufficient funding, and corruption as primary factors contributing to the lack of success in extensive road construction projects in Zambia. These findings align with the systemic underperformance observed in Zambian construction projects, as corroborated by Muya et al. (2013), emphasizing the urgency of addressing multifaceted challenges within the construction industry.

## **2.3 Literature Based on Research Objectives**

The following section summarizes the relevant literature linked to research objectives.

### **2.3.1 Key Performance Indicators for Successful Road Construction Projects**

The New York Bureau of Municipal Research introduced an innovative method for assessing performance in the 1940s, which underwent gradual enhancement in the subsequent decades (Hussain et al., 2022). A pivotal advancement in this domain has been the integration of performance measurement through the utilization of key performance indicators (KPIs), resulting in a profound enhancement of the construction industry's operational effectiveness by facilitating a comprehensive assessment of project outcomes (Kunkcu et al., 2022).

Introduced as a crucial performance measurement tool, key performance indicators have transformed into a primary metric for analyzing and assessing performance in the construction sector, with this evolution gaining significant impetus through the "Rethinking Construction" initiative, as demonstrated by research by Lop et al. (2018).

Okudan et al. (2022) define KPIs (Key Performance Indicators) as metrics that measure the performance of specific activities, bearing crucial implications for the success of a project. Humaidi and Said (2011) also identify the effectiveness of KPIs in assessing success. Their study underscores the value of Key Performance Indicators (KPIs) as valuable tools for performance evaluation, enabling a comparison between actual outcomes and anticipated ones, thus offering insights into ongoing activities and guiding efforts toward optimal outcomes. Furthermore, Takim and Akintoye (2002) contribute to the discourse on KPIs by presenting them as measures of process performance critical to its ultimate success. Their study underscores the crucial connection between KPIs and attaining desired results in diverse operational contexts, highlighting the widespread acknowledgment of KPIs as tools for performance measurement in the construction industry.

Chovichien and Nguyen (2013) emphasize that the foundation for proficiently managing ongoing projects and planning for future endeavors rests upon achieving project success. Measuring project performance is possible throughout the project's lifecycle, whereas project success becomes quantifiable only after completing the project (Cooke-Davies, 2002). Considering the persistent industry concerns of project delays, cost overruns, and issues related to project quality, the adoption of performance assessment mechanisms for construction projects emerges as a promising and refined strategy (Kunkcu et al., 2022).

Construction project evaluation commonly involves the establishment of KPIs, which provide objective benchmarks for assessing project success (Sibiya et al., 2015). Various construction enterprises have embraced the utilization of KPIs for performance measurement, enabling the sector to gauge project-specific and organizational accomplishments (Ofori et al., 2016).

Various performance indicators spanning dimensions like client satisfaction, client-driven changes, time, cost, quality, business performance, and health and safety

considerations play a crucial role in evaluating project performance within the construction domain (Enshassi et al., 2009). Notably, Chan and Chan (2014) emphasize that assessing the success of construction projects encompasses fundamental criteria such as cost, schedule, and quality. Traditionally, these criteria have functioned as critical Key Performance Indicators (KPIs) within the construction sector and in a separate line of research referred to as "iron triangle." (Leong et al., 2014). Research by Garbharran et al. (2013) emphasizes the need for the construction sector to widen its focus beyond the traditional "golden/iron triangle." This study emphasizes the industry's need to consider crucial success elements beyond typical KPIs, ensuring a better evaluation of project success.

According to M. Elshaikh et al. (2021), the top ten KPIs (Key Performance Indicators) for projects are team experience, client contentment, safety, training, time and expenditure, budget adherence, resource allocation, risk assessment, implementation expenses, and planning duration. Al-Tmeemy et al. (2010) and Garbharran et al. (2013) conducted research in Malaysia, identifying thirteen performance measures as evaluated by contractors, which encompassed factors such as expenditure, time, quality, safety, scope achievement, client contentment, and technical specifications. Conversely, in 2007, the Scottish Construction Industry introduced a KPI framework to foster performance evaluation across the sector (Hussain et al., 2022). The developed framework indicators constitute of quality, time, client satisfaction and cost.

Based on the research findings, the researcher inferred that specific KPIs in the construction industry such as time, cost, quality, defects, and client satisfaction are consistently prioritized and utilized more frequently than other performance indicators. They provide a sturdy structure for measurement and evaluation, and it is becoming progressively clear that adopting a more comprehensive approach that considers critical success factors is essential to attain a holistic comprehension of achievement in the construction domain.

## **2.3.2 Contract Management Metrics for Road Construction**

### **2.3.2.1 Stakeholder Satisfaction**

Contractor performance is determined by the quantity and quality of work accomplished, aligned with the assigned responsibilities (Tumelap, 2014; Ruci&Wita, 2019). Achieving project performance as planned enhances stakeholder satisfaction, and successful construction projects yield high-quality project outcomes (Ardhiansyah et al., 2023). Jha and Iyer (2006) emphasize that project performance is favorable when it aligns with technical requirements and satisfies various stakeholders, including end users, project team members, donors, financiers and organization managers. Armiady (2015) defines stakeholder satisfaction as the emotional response of stakeholders based on the perception of performance quality relative to their expectations. Stakeholder satisfaction pertains to the degree of contentment among individuals or groups involved and assessed by comparing outcomes with plan objectives, accounting for each stakeholder's perspective (Trisnawati et al., 2018). Primarily, the punctual completion of the project relies on the stakeholders participating, exerting varying degrees of influence on the project's schedule performance (Wang et al., 2018).

Infrastructure stakeholders are those who influence infrastructure asset performance (Hartmann &Hietbrink, 2013). Using satisfaction as a measure of project success, meeting stakeholder expectations and needs is believed to enhance project success prospects, whereas failing to do so can lead to project failure (Atkin &Skitmore, 2008; Chinyio et al., 1998; Wang et al., 2018). Primary stakeholders actively engage in road construction project decision-making and execution, while secondary or external stakeholders lack formal involvement and work independently on the project ((Newcombe, 2003; Smith and Love, 2004).

In my analysis, I concur with the importance of stakeholder satisfaction in project success, as it reflects the project's ability to meet the diverse needs and expectations of stakeholders. Moreover, I believe that integrating stakeholders into communication planning, as suggested by Njogu (2016), can empower project managers to enhance

project control and overall performance through improved communication channels. Additionally, engaging key stakeholders in stakeholder management, as advocated by Botwe et al. (2016), is essential for identifying and addressing stakeholder needs and interests, thereby fostering stakeholder satisfaction and contributing to successful project delivery.

### **2.3.2.2 Quality Assurance**

In a research by Obare et al. (2016), several factors are identified as influential in determining project success, including the cost model of quality, assessment of employee empowerment, education, quality management practices, customer focus, teamwork, and continuous improvement. Kerzner (2017) emphasizes that the success of construction organizations hinges on their adoption of continuous quality improvement practices as part of corporate strategies. Quality control during construction operations is crucial to ensure that roads meet the expectations of all stakeholders (Hoonakker et al., 2010). Mahmood et al. (2014) argue that in the construction industry, a project within the built environment aiming to enhance its competitiveness should be capable of quantifying the expenses associated with subpar quality. Furthermore, understanding the repercussions of poor quality on productivity and profitability is crucial.

Quality, like cost and time, is a critical aspect of infrastructure development (Abas et al., 2015). It serves as a tool for owners and contractors to ensure that they achieve the desired outcomes, leading to the production of high-quality and durable pavements (Berens et al., 2004). A study conducted in Gaza strip by Rustom and Amer (2006) identified various factors influencing project quality throughout the construction phase. These factors include the experience of site staff, consistency of design documents, the financial strength of the contractor, site layout characteristics and construction material availability. Furthermore, management leadership, contractor supervision, cooperation among project parties, management commitment, and contractor selection are key factors influencing construction project quality (Rustom & Amer, 2006).

Infrastructure development holds a central position in the government's agenda in Zambia, as reflected in both the Seventh National Development Plan (seventh NDP) and the national Vision 2030 (Mwanaumo et al., 2021). Notwithstanding the government's initiatives and progress, there has been a consistent rise in the occurrence of delayed and abandoned projects over time (Zulu and Chileshe, 2008). Kaliba et al. (2009) carried out research in Zambia aimed at pinpointing the underlying reasons for quality deficiencies in construction projects, utilizing structured interviews and questionnaire surveys as research methods. Results from the structured interviews indicated that prevalent contributors to quality deficiencies within construction projects include corruption, a lack of qualified on-site personnel, low motivation, unreliable material, inadequate quality control, and insufficient supervision. Construction performance issues manifest in various dimensions in Zambia, with instances of projects experiencing delays in time performance, cost overruns, and quality shortcomings (Zulu & Chileshe, 2010).

Reflecting on this literature, I agree with the importance of quality control measures in ensuring project success and stakeholder satisfaction. Additionally, the identification of factors influencing project quality, as highlighted in the literature, provides valuable insights for improving project management practices. However, further research is necessary to address the persistent challenges facing infrastructure development in Zambia and other similar contexts.

### **2.3.3 Relationship between Contract Performance Measurement Metrics and Road Construction Performance**

This literature review explores the multifaceted nature of performance measurement in the context of road infrastructure, drawing upon the insights of several scholars and experts in the field.

### **2.3.3.1 Performance Measurement**

Construction projects, despite their significance, encounter an array of varied and unforeseeable management hurdles that imperil their performance, notably the management of escalating requirement complexities (Patil et al. 2013). Within construction management, the successful completion of project tasks within stipulated timeframes, budgetary constraints, and adhering to specifications stands as essential benchmarks for evaluating success, efficiency, and overall performance (Abdellatif&Alshibani, 2019; Singh et al., 2018). According to Trisnawati et al., (2018), evaluating performance involves considering various indicators such as cost, quality, time, environmental management, and occupational safety and health (OSH) management. In the analysis conducted by Ibironke et al. (2013) on non-excusable delay factors impacting contractors' performance in Nigeria, critical delay factors identified encompassed insufficient equipment availability, inaccurate time estimations, challenges with monthly payments, change orders, and inaccuracies in cost estimates.

In road infrastructure sector, Haas et al. (2009) outline various dimensions of performance evaluation:

1. **Assessment of Infrastructure States:** Performance measurement allows stakeholders to appraise the present and prospective conditions of road infrastructures, which is essential for informed decision-making.
2. **Efficiency Assessment of Road Agencies:** Performance measurement extends beyond infrastructure conditions and includes evaluating the efficiency of road agencies. This evaluation encompasses factors such as service quality, productivity, environmental conservation efforts, and cost-effectiveness, among others.

### **2.3.3.2 Fundamental Dimensions of Performance Measurement**

#### **2.3.3.2.1 Time Variance**

In the construction industry, project delays represent a significant challenge, commonly defined as deviations from planned schedules beyond agreed-upon delivery dates or contractual completion dates (Abubeker, 2015). Researchers have addressed this issue

by shedding light on various factors contributing to these disruptions. For example, Siraw (2014) conducted a thorough investigation into road construction projects in Addis Ababa, identifying factors such as slow site clearance, financial difficulties faced by contractors, inflation, delays in progress payments by project owners, inaccurate cost estimations, and delays in project commencement as major causes of time overruns.

Reflecting on Siraw's findings, it becomes apparent that inadequate planning and financial constraints can significantly affect project timelines. This resonates with my research, where I aim to explore the implications of project delays on infrastructure development in Zambia. By understanding the root causes of delays, I can better assess their impact and propose effective strategies for mitigating them in the Zambian context.

Furthermore, Honrao and Desai (2015) highlighted payment disputes, material shortages, and ineffective construction methods as significant contributors to project delays, particularly from the contractors' perspective. While these findings offer valuable insights into the challenges faced by contractors, it is essential to acknowledge that delays can also stem from broader systemic issues within the construction industry. By engaging with these perspectives, I can provide a more nuanced analysis of the factors influencing project delays and their implications for infrastructure development.

In addition, Mahamid's (2013) study on contractors' perceptions of delay frequency revealed a range of issues, including equipment inefficiency, political factors, and financial constraints. These findings underscore the complex interplay of factors contributing to project delays and highlight the importance of considering multiple perspectives in understanding this phenomenon.

#### **2.3.3.2.2 Cost Variance as a Design Performance Metric**

Operational efficiency within the realm of road construction exhibits significant global disparities, characterized by high costs in developing nations and comparatively lower costs in developed nations (The World Bank, 2022). The efficiency of construction projects is closely tied to effective supervision and project management, as inadequate

oversight can lead to cost overruns and delays that directly impact contractors' performance (Baloyi&Bekker, 2011). A study by Wambugu (2013) emphasized that insufficient supervision and limited inspection in construction projects result in rework, particularly in cases of subpar workmanship. This, in turn, leads to project cost overruns and, in some instances, project abandonment.

Tran and Carmichael (2013) further contributed to this discussion by underscoring the critical impact of late or intermittent payments, or non-payments, on contractor performance. Delays initiated by clients in issuing work commencement instructions can introduce fluctuations in material and labor costs, thereby influencing the overall project cost. This unpredictability necessitates additional, unforeseen resources, ultimately affecting contractor performance (Mwangi, 2016).

#### **2.3.3.2.3                      Quality                      Performance                      Metric**

In the assessment of performance within construction projects, factors such as time, quality, and cost are of paramount importance. Quality, in particular, holds a significant place in the construction industry, traditionally considered a fundamental Key Performance Indicator (KPI) (Chan & Chan, 2014). Alongside cost and time, quality forms an essential aspect of infrastructure development across all environments (Abas et al., 2015). However, many construction projects suffer from substandard quality of work and low productivity, indicating poor performance (Alinaitwe et al., 2013).

One crucial element in ensuring quality compliance at project sites is the positive attitude exhibited by project managers and participants (Kenig et al., 2012). Quality not only influences the perceived value for clients and contractors but also carries significant implications for the construction industry as a whole. The International Federation of Consulting Engineers (FIDIC) has highlighted the repercussions of poor quality in construction, including subpar workmanship, unsafe structures, project delays, cost overruns, and contractual disputes (Banyenzaki M, 2015).

Moreover, the Southern African region faces persistent challenges related to poor work quality and mediocre productivity, which adversely impact project performance (Kikwasi, 2011). Kenig et al.'s (2012) research emphasizes the critical role of project managers and participants' positive attitude in ensuring adherence to quality standards at project sites. Concerns regarding quality and value in construction extend to clients in both the public and private sectors (Ngosong, 2015). Effective contract management and monitoring, as asserted by Basheka (2013), can lead to improved quality of goods and services while simultaneously reducing procurement costs. This approach aligns with three overarching objectives: delivering high-quality products, ensuring timely provision, and achieving cost-effectiveness within the allocated budget.

Reflecting on these findings, it is evident that a proactive approach towards ensuring quality standards and positive attitudes among project stakeholders is crucial for the successful delivery of construction projects. By engaging with these perspectives, my research aims to contribute to the discourse on enhancing quality performance metrics within the construction industry, particularly in the Southern African region.

#### **2.3.4 Integration of Contract Measurement Metrics and Key Performance Indicators in Contract Management Frameworks**

The literature on construction contract management encompasses a multifaceted array of components. Hughes et al. (2015) highlighted that this domain includes activities such as contract formation, bidding, tender development, proposal creation, and the drafting of legal documents vital within the construction industry. One notable stride in this field has been the incorporation of performance measurement through the utilization of Key Performance Indicators (KPIs), leading to a profound enhancement in the operational efficiency of the construction industry and enabling a comprehensive evaluation of project outcomes (Kunkcu et al., 2022). Expanding on this perspective, Hupare et al. (2016) expounded that KPIs exert a direct influence on project performance, especially from the standpoint of diverse project stakeholders.

Key Performance Indicators (KPIs) have emerged as essential instruments for evaluating performance effectiveness through the comparison of actual and estimated outcomes (Thoor&Ogunlana, 2010; Humaidi & Said, 2011). The success of construction projects utilizing KPIs is contingent on their alignment with these metrics, with particular emphasis on factors like cost, time, and quality, as emphasized by Bello (2017). Furthermore, Gorelov and Gyazova (2018) highlight the critical importance of incorporating KPIs into construction contracts to support lean operations in the construction sector. From an alternative perspective, Kumaraswamy et al. (2017) proposed that the adoption of charters and KPIs in construction is rooted in industry-driven initiatives aimed at enhancing the overall experiences of construction clients. This multifaceted body of literature underscores the central role of KPIs in the management of contracts and their extensive influence over project performance and efficiency.

#### **2.3.4.1 Performance Measurement Frameworks in Construction Projects**

##### **2.3.4.2 Performance-Based Contracts (PBC)**

Several studies have delved into the concept of performance-based contracting (PBC) within the context of road construction and maintenance.

KipkuruiMutai and Aila (2018) define PBC as a contract model where payments to contractors are intricately linked to the attainment of well-defined performance indicators, with a primary focus on measurable 'outputs' that represent specific and targeted road conditions, in contrast to traditional 'inputs' or quantities of work determined by unit prices. Anastasopoulos et al. (2009) have highlighted the distinctions between conventional method-oriented contracts, where the road agency outlines various technical details, materials, methods, quantities, and contract durations, and prescribes minimum performance benchmarks to be achieved or surpassed during the contract period.

Traditional method-based contracts, as discussed by Sultana, Rahman, and Chowdhury (2013) have exhibited a range of issues, including cost and time overruns, subpar work quality, insufficient motivation amongst contractors, ambiguous mutual risk participation

arrangements between the road agency and the contractor, and project delays. In contrast, Susanti et al. (2016) conducted a research to evaluate the how the implementation of Performance-Based Contracting (PBC) influences the operational effectiveness of road maintenance projects in Indonesia, particularly those involving flexible pavement. Their research, based on a case study of a PBC pilot project along the northern side of West Java, demonstrated that PBC effectively ensures long-term road quality and service performance.

Glas and Kleemann (2017) conducted a comprehensive multiple-case study on performance-based contracting (PBC) in Germany, emphasizing the significance of contextual factors and buyer-supplier integration. Their study, incorporating data from 21 cases and employing diverse analytical methods, revealed that pivotal factors contributing to successful PBC implementation encompassed clear responsibilities, well-defined performance indicators, transparent measurement processes, a collaborative organizational culture, and precise utilization profiles of core assets. Lastly, Wirahadikusumah et al. (2015) conducted a study investigating PBC for road projects in Australia and Indonesia. This research concentrated on PBC case studies from Australia, offering insights into aspects such as contract scope, bidding procedures, risk distribution, and influential factors. Their findings highlighted the additional advantages brought about by PBC adoption, including cost savings and enhanced road asset conditions for government entities and the public.

The highlighted research on performance-based contracting (PBC) in road construction and maintenance underscores its significant benefits and distinctive features, representing a pivotal shift away from traditional input-based contracts as defined by KipkuruiMutai and Aila (2018). This transition effectively addresses persistent issues, such as cost overruns and project delays, as noted by Anastasopoulos et al. (2009). Research carried out by Susanti et al. (2016) and Glas and Kleemann (2017) demonstrate how PBC not only ensures long-term road quality and performance but also delivers cost savings and improved road assets, underlining its potential to enhance infrastructure projects and promote collaboration and transparency.

### **2.3.4.3 Earned Value Management (EVM)**

The Earned Value Management (EVM) method, endorsed by the Project Management Institute (PMI), stands as a globally recognized best management practice for project performance evaluation. EVM offers a structured approach to gauge project performance by assessing cost and schedule indicators, which in turn enable the anticipation of potential financial and operational setbacks, facilitating timely corrective measures and the attainment of successful project completion (Project Management Institute, 2017). EVM is widely employed in project management for monitoring and controlling project progress. This methodology serves the dual purpose of tracking project advancement and forecasting total project costs and completion dates. Moreover, it indirectly contributes to risk management, preventing project failures due to budget or timeline overruns (Al-Fadhli& Al-Bazaz, 2020). Bryde et al. (2018) highlight EVM's increasing adoption across various sectors, including construction, owing to its ability to integrate scope, cost, time, and schedule control within a unified framework. Gasparotti et al. (2017) describe EVM as a technique predominantly used to evaluate project performance, with a focus on project management for early performance assessment and corrective action.

A survey conducted by Sunarti et al. (2018), revealed that 52% of respondents incorporated EVM into their projects. Notably, 6% applied it to small projects, 28% to substantial and critical tasks and 18% utilized EVM as a standardized control method for projects across their organizations. (Rezouki and Mortadha (2020) investigated construction professionals' perceptions of the factors influencing EVM implementation. They found that these factors, interconnected with project development, exert a significant impact on project outcomes, encompassing cost and time evaluations, financial liquidity, product quality, execution risks, safety considerations, and the social environment. Ziyash (2018) demonstrated that EVM offers numerous benefits to project managers, including the timely detection of schedule delays, cost overrun prediction, analysis of cost and schedule variances, and forecasts of cost and time outcomes. However, Nizam et al. (2020) took a contrary stance, asserting that the utility of EVM in

project management varies based on project type and the conservative approach adopted by project team members in defining the measurement baseline. EVM serves as a comparative tool for assessing cost and schedule variances, rendering it particularly sensitive to evaluation criteria, although this study's focus was on the project-manufacturing domain.

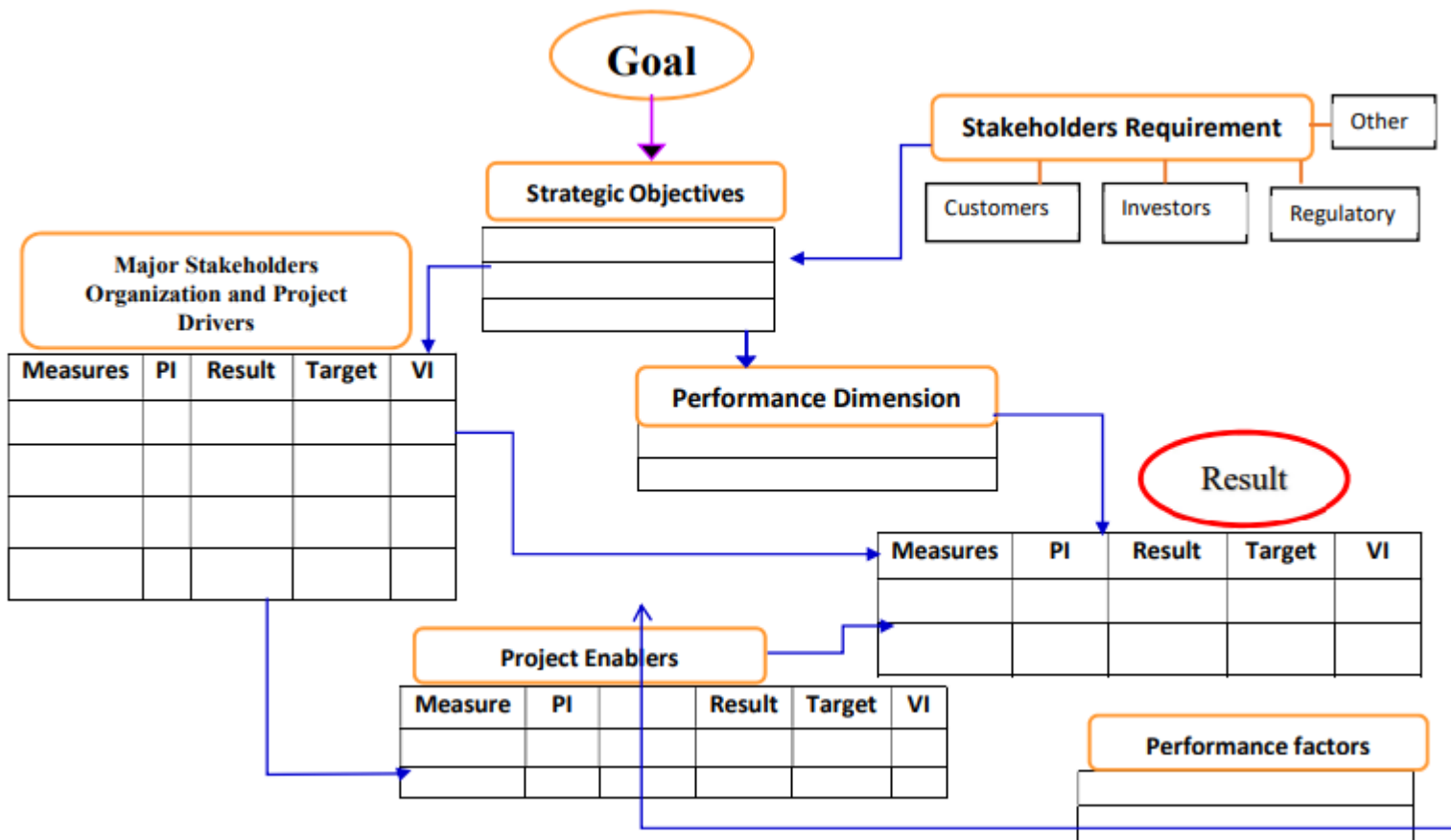
#### **2.3.4.3 Performance Measurement Framework**

Evaluating success is an essential aspect of gauging the effectiveness of entities or individuals in accomplishing their goals and strategies (Kaviya and Hema, 2015). This evaluation spans different tiers, including industry, sector, company, project, and specific activities (Sezer, 2016). Effective performance measures play a pivotal role in providing insights into project performance, goal attainment, customer satisfaction, and areas requiring improvement (Gameli et al., 2016). As noted by David and Joseph (2014), measuring performance is an ongoing activity involving the continuous monitoring and reporting of program accomplishments, specifically in relation to progress toward pre-established goals. In the construction domain, which is inherently project-oriented and characterized by unique projects resembling prototypes, a robust performance measurement system is essential for guiding projects at any stage (Ahmad et al., 2015).

Project performance measurement serves multiple purposes, including benchmarking, rewarding, and monitoring the effectiveness of the organization's strategy across all levels (Sezer, 2016). Ayele (2019) emphasizes that optimization of the construction industry's performance can be achieved by accurately defining its primary components, which include customers, firms, practitioners, products, suppliers, the public, and other stakeholders. To attain specific objectives, each component necessitates dedicated performance indicators for effective monitoring and evaluation (Ayele, 2019).

Ayele (2019) contributes to this discourse by presenting a comprehensive framework for the road construction sector, demonstrating an integrated approach to performance measurement. Figure 3 illustrates the framework, allowing for the identification and

utilization of a tailored list of performance measures based on the unique characteristics of a specific project and contextual factors influencing the project. Table 1.1 outlines the key components of the framework, providing further clarity on its structure and facilitating a deeper understanding of its application.



**Figure 2.1 Performance Measurement Framework**

Source: (Ayele, 2019)

<b>Framework component</b>	<b>Terminology</b>
Goal	The reason for the stakeholders organization doing business
Stakeholders requirement	Interest of various stakeholders from the project output and outcome.
Strategic objectives	Comprehensive action plan that emanates from Goal and stakeholder requirement
Performance Dimension	Category for the strategic objective created
Major Stakeholders Organization & project Driver measures	Determine the organization and project measures as determinant of project achievement
Project Enablers.	Indicate the statues of the project in terms of indicators
Result	Determine degree of stakeholders business operation success against strategy seated.
Performance Factor	Factors which cause performance problem

**Table 2.1: Key components of the measurement framework**

**Source:(Ayele, 2019)**

## **2.4 Summary of the Literature**

The construction and road infrastructure sectors face a multitude of intricate challenges and pivotal considerations when it comes to evaluating performance. The construction industry's inherent complexity, characterized by numerous stakeholders and its reliance on temporary labor, exposes it to challenges related to contract performance. Performance evaluation in construction projects spans a wide array of dimensions, including time, expenditure, quality, client contentment, and safety. A particularly noteworthy concern revolves around contractor performance, particularly in the realm of time management, underscoring the urgent need for robust performance assessment mechanisms. Globally, various nations have come to acknowledge the critical necessity of enhancing the performance of their construction industries, driven by instances of inadequate project execution and underachievement.

Illustrative instances from diverse countries, such as the United Kingdom, the United Arab Emirates, Gabon, Zambia, and Kenya, shed light on recurrent challenges encompassing project delays, budget overruns, and quality deficiencies. Contributing factors to these challenges span a spectrum, encompassing factors such as a shortage of skilled labor, insufficient supervision, leadership deficits, equipment malfunctions, and instances of corruption. The literature underscores the paramount importance of active on-site presence, vigilant monitoring, effective supervision, and comprehensive evaluation processes.

Key Performance Indicators (KPIs) emerge as indispensable tools for gauging project success in the realm of road construction. The evolution of KPIs over time has established them as central instruments for evaluating performance within construction projects. KPIs encompass a wide array of dimensions, spanning time, cost, quality, safety, and client satisfaction. Nevertheless, the review also highlights the need to broaden the scope beyond traditional KPIs to obtain a more holistic comprehension of project success. Furthermore, contract metrics specific to road construction come into focus, with a primary emphasis on stakeholder satisfaction and quality assurance. Stakeholder contentment proves pivotal in ensuring project success, underlining the significance of involving key stakeholders in communication and management processes. Quality assurance within construction projects encompasses factors such as quality cost models, customer-centric approaches, collaborative teamwork, employee empowerment, and a commitment to continuous improvement. The literature underscores that poor quality in road construction represents a contributing factor to project failures.

A tangible connection exists between contract measurement metrics and road construction performance. The assessment of performance concerning predefined objectives, assumes a vital role in fostering accountability and sustainability in transportation systems. Three fundamental dimensions of performance measurement—time, cost, and quality—are underscored, each offering unique insights into project performance.

The literature emphasizes the critical nature of efficient cost management and the imperative of adhering to budgetary constraints. The existing studies listed in the research knowledge gap, while informative, are limited to specific countries like Uganda, Rwanda, Kenya, and Ethiopia. Zambia's unique challenges, regulations, and context can significantly influence contract management and project performance. Each country has its distinct political, economic, and social factors shaping these practices and outcomes, necessitating tailored approaches. Zambia's policies and regulations for road construction projects may differ from those in the cited studies, potentially leading to variations in contract management's impact. Data disparities in collection methods and quality make foreign findings less directly applicable to Zambia, underlining the importance of conducting a dedicated study. With this perspective in mind, the researcher embarked on this study to explore the connection between road construction performance and contract management practices in Zambia. To assist local policymakers in improving contract management and enhancing project success in Zambia, a framework was developed.

## 2.5 Research Knowledge Gap

Table 2.2: Research Gaps

No	Author(s) and Year of Publication	Research Topic	Methodology	Findings and conclusion	Limitations or weaknesses	Research Gap
1	Godfrey Aluonzi, Pross N Oluka & Alex Nduhura (2016) <sup>2</sup>	Contract Management and Performance of Road Maintenance Projects: The Case of Arua Municipality	<p><b>Approach:</b> The study employed a quantitative approach, collecting data through self-administered questionnaires.</p> <p><b>Sample size:</b> 102 respondents</p> <p><b>Sampling technique:</b> Purposive and simple random technique</p> <p><b>Data analysis:</b> Correlation, Regression, and</p>	The study finds that contract management, including administration, relationship management, and contract closure, moderately but significantly influences road maintenance project performance in	A significant limitation of this study is its restricted scope, focusing solely on contract management within Arua Municipality.	Exclusion of other Local Government Entities (LGEs) and central governments in Uganda.

			Hierarchical Regression analyzed variable relationships, project performance variance, and individual variable impact, respectively.	Arua Municipality, explaining 58.8% of performance variance.		
2.	Charles Harerimana (2021)	Contract Management Practices and Performance of Roads Construction Projects in Rwanda: Case of Rwanda Transport Development Agency	<p><b>Approach:</b> The research utilized an explanatory research design to investigate the relationship between independent and dependent variables.</p> <p><b>Sample size:</b> 110 respondents</p> <p><b>Data analysis:</b> A 5-point Likert scale questionnaire gathered data, and inferential statistics,</p>	The research findings indicate a significant relationship between contract negotiation practices and the performance of road construction projects in Rwanda Transport Development Agency. However, there	The study focuses on a specific organization (Rwanda Transport Development Agency) and may not be easily generalizable to other contexts or regions, as the relationship between contract monitoring practices and project performance could vary in different settings.	Exclusive focus on the Rwanda Transport Development Agency context of Rwanda.

			specifically multiple linear regression, were used to test hypotheses.	is no significant relationship between contract monitoring practices and project performance.		
3.	Mayie Banyenzaki (2015)	Contract Management Practices and Performance of The Road Construction Projects in Wakiso District - Uganda	<p><b>Approach:</b> The research employed a cross-sectional study design, incorporating both quantitative and qualitative research methods.</p> <p><b>Sample size:</b> 98 respondents</p> <p><b>Sampling technique:</b> Stratified random and purposive sampling</p> <p><b>Data analysis:</b> Quantitative data was analyzed using</p>	The study concludes that heightened monitoring intensity is associated with improved performance in road construction projects. Comprehensive risk management across all project stages contributes to	The research tools were originally in English, resulting in a time-consuming translation process.	Limited sample size of 98 respondents compared to the total population of 241 road construction stakeholders.

			descriptive statistics and Pearson Correlation.	enhanced performance. Moreover, road inspections conducted by district authorities significantly boost project performance, irrespective of its public or private nature.		
4.	Gloria SyombuaMulinge (2017)	Contract Management Practices and Completion of Road Construction Projects by the County Government of	<b>Approach:</b> The study adopted a descriptive survey design and utilized a Likert scale for quantitative data. <b>Sample size:</b> stratified sampling and simple random sampling techniques	The study revealed that contractor prequalification and payment practices significantly influenced road project	The study's findings are based on a relatively small sample size (145 respondents) drawn from a total population of 458 staff in the county government.	The study did not explore whether the identified variables might interact or combine in ways that have a more substantial or nuanced effect on project outcomes.

		Machakos, Kenya	<p><b>Sampling technique:</b> 145 respondents</p> <p><b>Data analysis:</b> The research adopted a quantitative data analysis approach, utilizing both descriptive and linear regression analyses.</p>	<p>completion, with 45.3% and 64.1% impact, respectively.</p> <p>Contract change management practices also played a significant role in completion, while contractor supervision had no significant predictive power.</p>		
5.	YehyesDereje (2021)	Assessment of the Contract Management Practice in Ethiopian Federal Road Construction Projects	<p><b>Approach:</b> The study utilized both qualitative and quantitative research methods and adopted a descriptive research design.</p> <p><b>Sample size:</b> 64</p>	<p>The study identified multiple challenges and deficiencies in contract management practices within federal road</p>	<p>Omission of a comprehensive exploration of the reasons for the infrequent occurrence of disputes in federal road projects</p>	<p>The lack of investigation into the underlying causes of poor communication and poorly drafted contracts in federal road construction projects</p>

			<p>respondents</p> <p><b>Sampling technique:</b> non-probability sampling techniques</p> <p><b>Data analysis:</b> “Mean Score” or “Average Index” method</p>	<p>construction projects, emphasizing the need for improvements in compliance, monitoring, claims administration, and communication among project stakeholders to enhance project outcomes.</p>		
6.	JanvierNsanzimana and Dr. Patrick Mulyungi (2018)	Effect of Contract Management Practices on Performance	<p><b>Approach:</b> descriptive research design</p> <p><b>Sample size:</b> 62 respondents</p> <p><b>Data analysis:</b> The data in this study</p>	<p>The study results reveal a significantly strong and positive correlation between</p>	<p>The study's narrow focus on the Remera-Rwandex project may limit its applicability to other projects with varying contexts and variables.</p>	<p>The study lacks a comparative analysis or an evaluation of its generalizability, which would enable the findings to be applied to a broader spectrum</p>

		of Road Construction Projects in Kigali, A Case of Rwandex- Remera Road Construction Project	underwent quantitative analysis, which involved the utilization of percentages, frequencies, and linear regression techniques.	management techniques and the performance of the Remera- Rwandex road construction project.		of projects beyond the specific Rwandex- Remera case.
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## **2.6 Chapter Summary**

In conclusion, this literature review provides a comprehensive overview of the challenges and complexities in assessing performance in the construction sector, with a specific focus on road construction projects. It underscores the importance of considering various dimensions of performance and the role of KPIs in evaluating success. Additionally, it highlights the significance of stakeholder satisfaction and quality assurance in project performance. Overall, this review offers valuable insights for researchers and practitioners in the construction industry.

In the following chapter, the researcher will present the theoretical and conceptual frameworks, which will provide a detailed explanation of how the dependent and independent variables are interconnected.

## **CHAPTER THREE**

### **CONCEPTUAL AND THEORETICAL FRAMEWORK**

#### **3.1 Introduction**

This chapter focused on the examination of theoretical and conceptual frameworks employed to steer the comprehension of the research inquiries.

#### **3.2 Theories of the study**

A theoretical framework comprises a system of statements or principles devised to explain a set of observations, particularly one that has undergone repeated validation or is widely accepted and utilized to predict outcomes related to natural occurrences (Kogi, 2013). Such a framework provides researchers with a structured roadmap for interpreting their observations, offering a comprehensive foundation for their studies (Maxwell, 2012). Adom et al. (2018) emphasize that a theoretical framework represents the specific theories relevant to the aspects of human endeavors that can significantly benefit the understanding of events. It serves as the structural support underpinning the theory of a research study (Kivunja, 2018). Madara, Namango and Katana (2016) assert that theories comprise a set of meticulously crafted analytical principles and statements designed to align with our observations, perceptions, and descriptions of the world. The utilization of a theoretical framework empowers researchers to discern, elaborate upon, and establish meaningful connections between data that may initially seem negligible or contrasting (Maxwell, 2012).

This study employs the following theories:

##### **3.2.1 Agency Theory**

Agency theory provides valuable insights into various principal/agent relationships and strategies for addressing agency problems (Bryde et al., 2019). This model, rooted in the principles of limited rationality, personal interests, and agent risk aversion, elucidates the dynamics of the principal–agent relationship (Fitri, Elmanizar, Nugraha, Yakub, & Cahyono, 2019). It is broadly applicable to situations where scenarios in which one party (the principal) entrusts authority and decision-making responsibilities to

another (the agent), as elaborated by Parker et al. (2018). Over time, agency theory has emerged as a significant theoretical lens within the social sciences, extending its reach to various relationship contexts (Ablander, Roloff, & Nayi, 2016). Managers find agency theory a valuable tool for categorizing and managing their relationship portfolios and addressing behavioral uncertainties (Fayezi, O'Loughlin, & Zutshi, 2012). These theoretical perspectives assist in managerial decision-making and strategy formulation, especially in the context of supplier and customer relationships (Fayezi et al., 2012).

Within construction contracts, the client-contractor relationship often exhibits the defining features of a principal-agent relationship marked by conflicting goals and risk attitudes (Osipova, 2015). Such conflicts can lead to contractors prioritizing their interests over the project and client's welfare, often withholding critical information (Erik Eriksson & Lind, 2016). Principal-agent issues have been implicated in project failures across various business sectors, particularly in situations characterized by uncertainty (Alsabban, 2017). Addressing agency problems becomes imperative, and discussions in the literature emphasize the importance of allocating benefits and risks between the parties involved (Melese et al., 2016). Agency theory further explores strategies to ensure agents prioritize the principal's best interests, addressing the challenge of control-ownership separation stemming from information asymmetry (Tembo, 2018).

Integrating agency theory into this study offers a researcher's perspective on how effective contract management can proficiently tackle agency challenges. This approach underscores the importance of precise contractual terms, performance metrics, and vigilant monitoring procedures. By adopting this approach, principals strategically align agents' interests and motivations with their own objectives. This alignment acts as a catalyst, motivating agents to prioritize the principal's best interests, thereby promoting improved project outcomes, heightened efficiency, and reduced agency-related costs.

### **3.2.2 Stakeholder Theory**

R. Edward Freeman initially introduced the stakeholder theory in 1984 through his book "Strategic Management: A Stakeholder Approach." (Mwangi, 2016). This theory, as

suggested by Harrison et al. (2015), advocates for a pragmatic, efficient, effective, and ethical approach to managing organizations in a complex and dynamic environment, where ethical considerations are just as significant as practical aspects in support of managing for stakeholders. Tantalo and Priem (2014) established that stakeholder theory underscores the importance of treating all stakeholders well, fostering a synergistic dynamic. Moreover, Mahajan et al. (2023) underscore the ongoing value of stakeholder theory due to its holistic approach to decision-making that considers the diverse interests and demands of various stakeholders, not solely shareholders.

Stakeholders, defined as individuals, groups, or organizations with a stake in both the processes and outcomes of a project, where there is a link between project's success and achievement of its objectives (Harrison et al. 2015). In contrast, as outlined by the Project Management Institute (PMI), project stakeholders are individuals, groups, or organizations that possess the potential to influence, or perceive themselves as influenced by the decisions, activities, or outcomes of a project (Project Management Institute, 2013). Drawing upon stakeholder theory, a well-established framework for analyzing the behavioral and cognitive facets of project management, contemporary literature underscores that stakeholder dissatisfaction is often a fundamental issue contributing to the failure of many projects (Eskerod et al., 2015).

Mojtahedi (2017) further argues that stakeholder participation has a significant influence on the effective execution of projects, presenting opportunities for public engagement.

Applying stakeholder theory to this study was instrumental in enhancing the researcher's comprehension. It underscored that by considering the multifaceted interests, requirements, and demands of the myriad stakeholders, researchers and decision-makers can promote more informed and fair decision-making processes. This depth of insight proved invaluable in the context of efficient contract management. Stakeholder theory also aided the researcher in understanding the value of conducting a comprehensive analysis to identify the diverse array of stakeholders engaged in road construction projects, encompassing both internal and external actors.

### **3.2.3 Theory of Constraints (TOC)**

Within the context of the theory of constraints, various authors offer insights into its significance and application. Şimşit et al. (2014) elaborate on TOC's pivotal role in recognizing and addressing bottlenecks by viewing processes as interconnected links within a unified chain. They highlight the transformative effect of the integrated management philosophy on managerial perspectives and its effectiveness in resolving core issues. Aluonzi et al. (2016) emphasize TOC's principle of treating projects and organizations as goal-oriented systems, stressing the importance of evaluating every action based on its impact on the overarching objective. Chawla and Kant (2017) provide further insight into TOC, emphasizing its perspective that organizations inherently face constraints limiting superior performance.

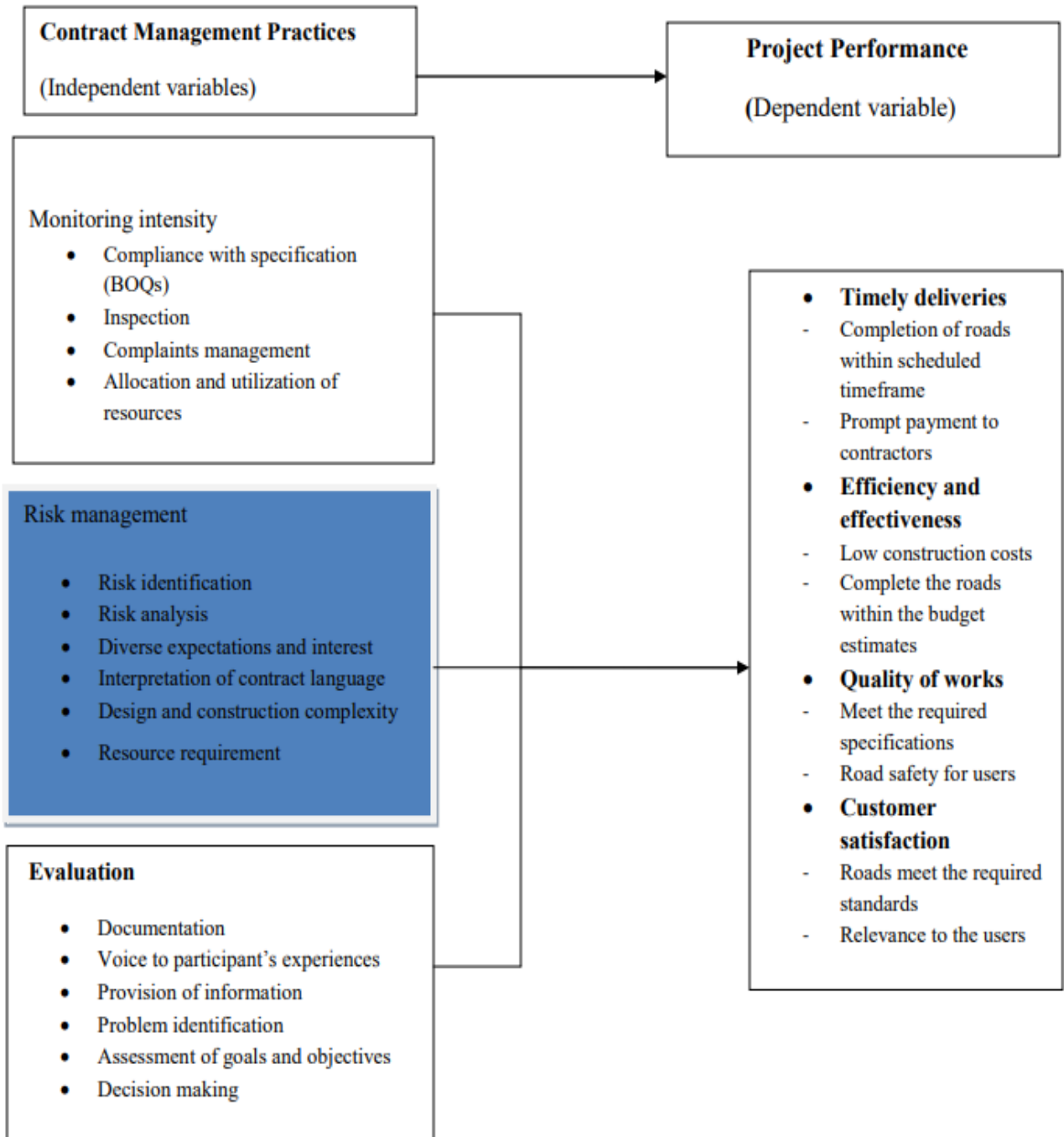
The theory of constraints challenges conventional thinking by regarding constraints as opportunities for improvement, operating under the belief that enhancing a system's constraints can ultimately enhance its performance (Zakaria et al., 2020). The application of TOC presents the potential to elevate the quality of management and the performance of organizations (Vasudevan, 2021). It is widely employed across various business sectors to optimize production processes, enhance service quality, and improve overall enterprise performance (Melendez et al., 2018; Sumardi et al., 2020).

The theory of constraints is suitable for this study because it directly relates to the challenges faced in road construction projects in Lusaka, Zambia. By providing a structured framework to identify and mitigate limitations within these projects, TOC offers practical solutions to enhance performance and minimize the risk of failure.

Its applicability lies in its ability to address the multifaceted nature of construction projects, including scope, schedule, quality, and resource constraints. Therefore, integrating TOC into this study strengthens its theoretical foundation and enhances its practical relevance in improving the efficiency and effectiveness of contract management practices within the context of road construction projects in Lusaka.

### **3.3 Conceptual Framework**

The conceptual framework, according to Crawford (2020), serves to clarify, justify, support, and articulate the author's understanding of the research's underlying rationale and its connections to the identified research gap or issue. Within this conceptual framework, the study incorporates a diverse array of elements, encompassing variables classified as dependent, independent, and occasionally intervening or control variables. The intricate web of presumed connections among these variables forms a pivotal aspect of the study's analytical structure (Miles et al., 2014). The conceptual framework precisely delineates the relationships between the study variables and their integration with the research design and methodologies (Robson & McCartan, 2016). Therefore, the conceptual framework encompasses all the notions and concepts that occupy one's thoughts while contemplating, planning, executing, and concluding a research project (Kivunja, 2018). In developing a conceptual framework for the present study, the points of reference were the frameworks devised by two distinct authors who conducted similar research.

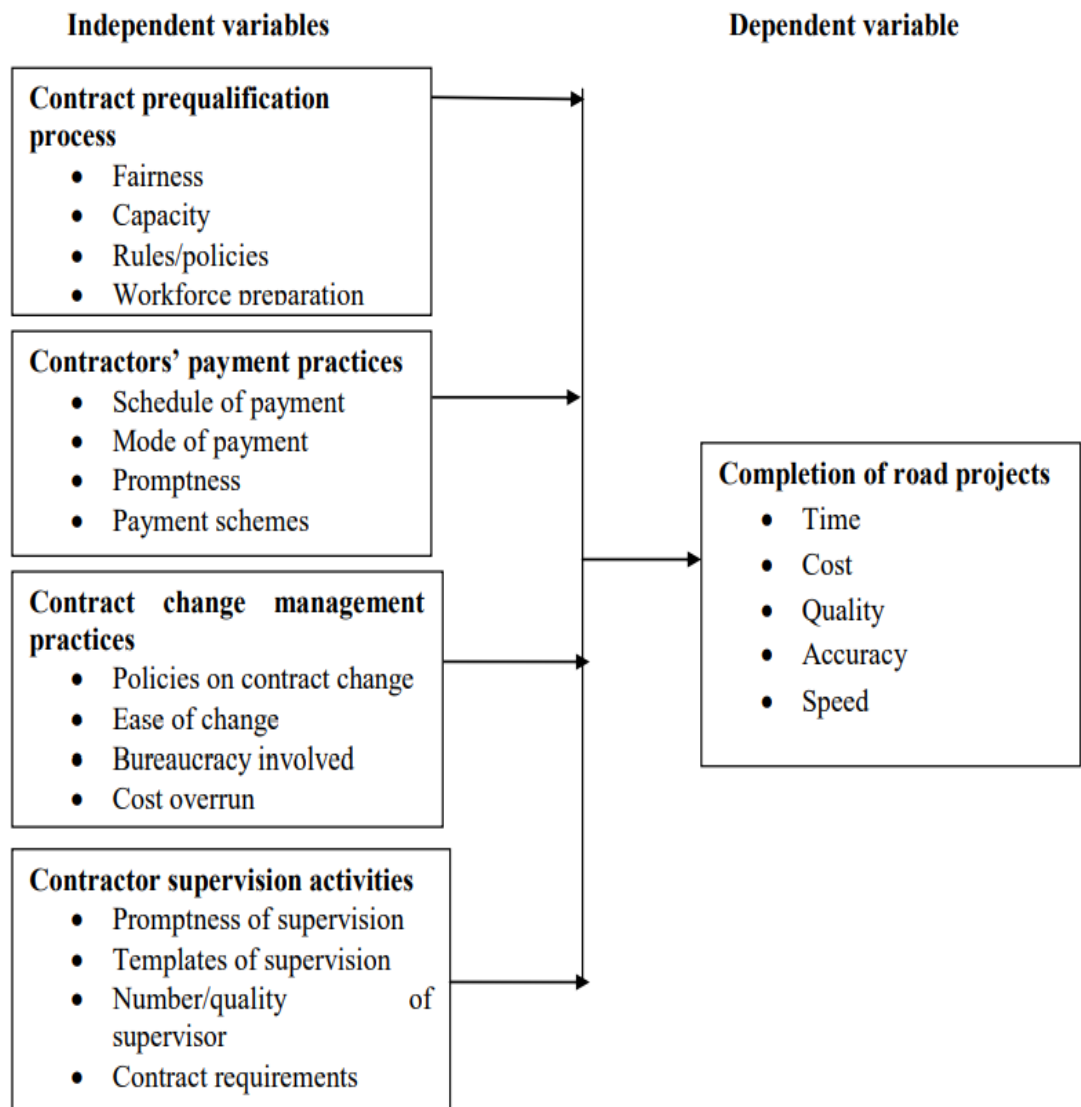


**Figure 3.1: Conceptual Framework for Examining the Influence of Contract Management Practices on the Completion of Road Projects**

**Source: (Banyenzaki, 2015)**

The presented Figure 3.1 offers a conceptual framework designed to guide a study centered on 'Contract Management Practices and Performance of the Road Construction Projects in Wakiso District - Uganda.' The main aim of this study was to investigate how the implementation of contract management practices influences the performance of road construction projects in Wakiso district. These contract management practices; specifically monitoring intensity, risk management, and evaluation, each represent independent variables. Conversely, the study designates the project's performance dimensions, encompassing timely deliverables, efficiency, effectiveness, quality of work, and client contentment, as the dependent variables. The framework intricately illustrates the relationship between the performance of road construction projects and contract management practices in Wakiso district, Uganda.

Inspired by Bong's (2008) contract management principles model, the framework integrates the peculiarities of public-private partnerships involving government agencies and independent contractors. It explores the anticipated outcomes following contract awards, examining efficiency, effectiveness, quality of work, and client satisfaction as performance indicators. Notably, Banyenzaki (2015) found that the monitoring intensity level in road construction projects has a positive correlation with project performance. Furthermore, the research identified that the presence of resource abundance tends to lower risks, while resource scarcity is associated with higher risks, often resulting in project delays, overruns in cost, and the construction of roads with poor standards. Failure to conduct thorough evaluations in road construction projects hampers the ability to respond promptly to issues, thereby negatively affecting the quality of work within these projects.



**Figure 3.2: Conceptual Framework for Examining the Relationship between Contract Management Practices and Completion of Road Construction Projects**

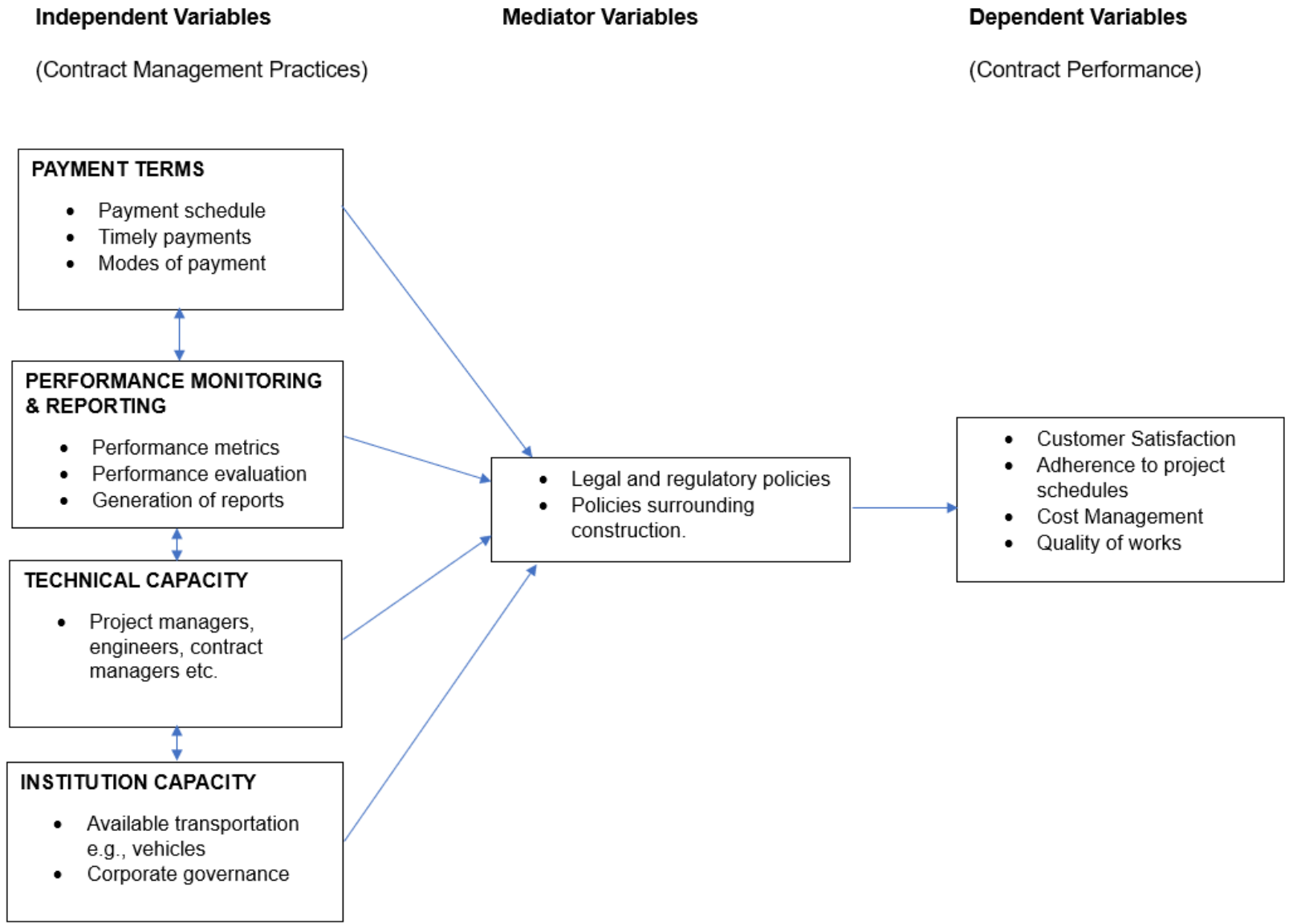
**Source: (Mulinge, 2017)**

The presented Figure 3.2 offers a conceptual framework, designed to guide a study centered on 'Contract Management Practices and the Completion of Road Construction Projects by the County Government of Machakos, Kenya.' The primary objective of this research was to explore and understand how contract management practices affects the successful completion of road projects undertaken by the County Government.

These contract management practices, contract prequalification process, contractors' payment practices, contract change management, and contractor supervision activities each represent independent variables. Conversely, the project's completion dimensions, including time, cost, quality, accuracy, and speed, are the dependent variables within the study. As outlined by Mulinge (2017), the success of road construction projects heavily hinges on the timely completion, spanning from project initiation to the delivery of outcomes. Additionally, the research underscores that through the implementation of efficient contract management; there can be a reduction in the prevention of delays in road construction projects.

### **3.3.1 Framework of Concepts for the Study**

Figure 3.3 below shows a conceptualized relationship between contract management practices and the performance of road construction contracts.



## **Figure 3.3 Study Conceptual Framework**

**Source: Author (2023)**

### **3.3.2 Explanation of the Variables**

The proposed study's conceptual framework illustrates the way in which contract management practices are independent variables. These practices encompass key indicators such as payment terms, performance monitoring and reporting, technical and institution capacity. These independent variables influence the dependent variables, which encompass aspects such as customer satisfaction, adherence to project schedules, cost management, and the quality of project work. The relationship between these variables, shaped by factors like legal and regulatory policies, as well as policies surrounding construction, both of which are mediator variables. The primary objective of this framework was to assess the extent to which contract management practices affect the performance of construction contracts, with the goal of enhancing overall performance. A detailed analysis of the framework's variables is as follows:

#### **3.3.2.1 Independent Variables**

##### **Payment Terms**

The terms of payment for contractors play a pivotal role in shaping the outcomes of road construction projects. Equitable, transparent, and punctual payments are key to facilitating contractors' ability to deliver projects within set timelines, budget constraints, and uphold high-quality standards. Conversely, unfavorable payment conditions can result in project delays, financial overruns, and strained relationships, all of which can detrimentally affect the project's overall success.

##### **Performance Monitoring and Reporting**

Performance monitoring and reporting serve as indispensable components for the achievement of success in road construction projects. They underpin accountability, transparency, and the early identification of issues, which collectively empower stakeholders to make well-informed decisions. As a result, these practices are instrumental in optimizing project outcomes, encompassing cost control, adherence

to schedules, maintenance of quality standards, and the enhancement of stakeholder satisfaction.

### **Technical Capacity**

The technical capacity of contractors encompasses their expertise, skills, and resources in executing the construction tasks specified in the contract. A high level of technical capacity enables contractors to effectively implement performance requirements, adhere to project schedules, and deliver quality work. Conversely, a lack of technical capacity may lead to delays, compromised quality, and challenges in meeting contractual obligations. Therefore, technical capacity serves as a key determinant influencing how well contract management practices translate into successful outcomes in road construction projects, emphasizing the importance of ensuring contractors possess the necessary technical expertise to execute the tasks outlined in the contract.

### **Institution Capacity**

Institutional capacity refers to the organizational capabilities, resources, and structures within both contracting authorities and overseeing bodies involved in the construction projects. A strong institutional capacity ensures efficient contract administration, effective oversight, and the ability to enforce contractual terms. It contributes to the successful implementation of contract management practices, such as performance monitoring, reporting, and adherence to legal and regulatory policies. In contrast, a lack of institutional capacity may lead to challenges in overseeing and enforcing contracts, potentially resulting in delays, cost overruns, and lower project quality. Therefore, institutional capacity significantly influences how contract management practices contribute to the overall performance of road construction contracts, emphasizing the need for robust organizational capabilities within both contracting authorities and oversight entities.

#### **3.3.2.2 Mediating Variables**

Legal and regulatory policies, along with policies surrounding construction, serve as mediating variables influencing the outcomes of road construction projects. Adherence to legal and regulatory policies is imperative to maintain project timelines, budgets, and quality standards, while mitigating legal repercussions and unfavorable

public relations. Stakeholders, including owners and contractors, need a thorough understanding of relevant legal requirements to ensure project success. Similarly, construction policies play a pivotal role, establishing benchmarks for safety, quality, and environmental impact. These policies also define professional standards for individuals involved in road projects, ensuring that competent individuals with the necessary expertise oversee the project. Together, these mediating variables shape the landscape within which road construction projects operate, influencing their overall success and adherence to established standards.

### **3.3.2.3 Dependent Variables**

This study primarily focused on evaluating the performance of construction contracts, which using four dependent variables: adherence to project schedules, cost management, quality of work, and customer satisfaction. Adherence to project schedules examined the timely execution and delivery of work within the specified contract timeframe. Cost management assessed how well performing contracts enhanced cost efficiency by staying within the estimated budget. Quality of work measured how closely the final construction adhered to client specifications and ensured safety for end-users. Customer satisfaction gauged how well the completed works met quality standards and aligned with customer needs, preferences, and expectations.

## **3.4 Chapter Summary**

In this chapter, diverse theories related to contract management such as agency theory, stakeholder theory, and the theory of constraints, helped to establish a theoretical framework for understanding the relationship between contract management practices and the performance of road construction projects. Drawing from these theories, the conceptual framework outlines the independent, mediating, and dependent variables, and their corresponding relationships, as relevant to this research. The forthcoming chapter will delve into the methodology applied in this study.

## **CHAPTER FOUR**

### **RESEARCH METHODOLOGY**

#### **4.1 Introduction**

This chapter outlines the research methodology employed in the study.

#### **4.2 Research Approach**

Mohajan (2017) defines the research approach as a systematic and efficient blueprint of action that guides the undertaking of research. Creswell (2014) categorizes research approaches into three types: (i) Qualitative, (ii) Quantitative, and (iii) Mixed Methods Approach. Moreover, Creswell (2014) describes a research approach as including plans and procedures that extend from broad assumptions to detailed methods of data collection, analysis, and interpretation. A quantitative approach involves working with statistics or numbers, enabling the researcher to quantify the world and numerically describe phenomena, and determine relationships between variables (Stockemer, 2018). Rahman (2016) emphasizes that a quantitative approach seeks to quantify phenomena statistically and is objective in nature.

On the other hand, a qualitative approach is interpretative, allowing for the use of multiple subjective perspectives and the construction of understanding rather than seeking tangible quantification (Rahi, 2017). The mixed-methods approach involves collecting, analyzing, and integrating both qualitative and quantitative research approaches within a single study to comprehend a research problem (Rahman, 2016). This approach allows researchers to leverage the strengths of both methods and compensate for their weaknesses, addressing method biases (Almalki, 2016). Dawadi et al. (2021) highlight that blending qualitative and quantitative methods provides a more comprehensive understanding of research problems and complex phenomena than either approach alone.

The study employed a mixed methods approach, incorporating both qualitative and quantitative methods. This approach facilitated the collection and analysis of information requiring both statistical data and in-depth narrative explanations. The

findings helped to draw conclusions regarding the relationship between contract management practices and the performance of road construction projects in Lusaka.

### **4.3 Research Design**

The research design serves as the overarching plan connecting conceptual research problems with attainable empirical research objectives, functioning as an inquiry that provides specific procedural direction (Creswell, 2014). It determines the types of analyses required to achieve desired results and outlines the necessary data and methods for collection, analysis, and addressing research questions (Asenahabi, 2019). Greener (2018) characterizes the research design as an integral component that binds together all research activities, including data source identification, collection, measurement, and analysis, all guided by research questions. (Jongbo, 2014) emphasizes that collecting data before considering research design matters may lead to weak and unconvincing conclusions, ultimately impeding the achievement of research objectives.

The study utilized a sequential explanatory research design, a type of mixed methods research approach. In the explanatory sequential mixed methods design, the researcher initially conducts quantitative research, analyzes the results, and subsequently builds upon these results by providing a more detailed explanation through qualitative research (Asenahabi, 2019). Creswell, (2014) describes this as a mixed methods strategy involving a two-phase project: the first phase entails collecting quantitative data, analyzing the results, and then using these findings to inform the planning or development of the second, qualitative phase.

This design employed, helped to investigate the relationship between contract management practices (independent variables) and road construction performance (dependent variable). Initially, the study gathered quantitative data through structured questionnaires with closed-ended questions, enhancing objectivity. Subsequently, the study then collected qualitative data from key informants through semi-structured interviews featuring open-ended questions. The questionnaires were distributed to sampled contract managers, project managers, contractors, and government officials.

#### **4.4 Philosophy of the Research**

Research philosophy, defined as a set of beliefs about the nature of the investigated reality is based on the type of knowledge explored in a research study (Scotland, 2012). It entails an examination of the nature and transmission of knowledge through language (Hurlimann, 2019). Additionally, philosophy, as described by Saunders et al. (2015), encompasses assumptions about human knowledge (epistemological assumptions), the realities encountered in research (ontological assumptions), and the influence of the researcher's values on the research process (axiological assumptions).

This study embraced the positivism philosophy to test a priori hypotheses, which utilized the hypothetic deductive method, often quantitatively formulated, creating functional connections between factors that cause an effect (independent variables) and the resulting effects (dependent variables). (Park et al., 2020). Consequently, the positivist approach shaped the understanding of the research, including the research problem, research objectives, questions, methodology, and identified variables, was. In other words, positivist thinking asserts that participants and researchers can be separated (dualism). Moreover, by following strict protocols, there is a separation of the two entities to reduce bias in the study (objectivity).

often quantitatively formulated, establishing functional relationships between causal factors (independent variables) and outcomes (dependent variables) (Park et al., 2020). Consequently, the positivist approach shaped the understanding of the research, including the research problem, research objectives, questions, methodology, and identified variables, was. In other words, positivist thinking asserts that participants and researchers can be separated (dualism). Moreover, by following strict protocols, there is a separation of the two entities to reduce bias in the study (objectivity).

##### **4.4.1 Epistemology**

Epistemology pertains to assumptions about knowledge, encompassing acceptable, valid, and legitimate knowledge, as well as methods of communicating knowledge to others (Saunders & Bristow, 2015). Additionally, it is an intra-researcher factor,

involving how researchers perceive the world and distinguish between right and wrong in research matters (Ryan, 2018). Positivism in epistemology asserts a foundational reliance on observable and measurable facts, with an emphasis on the crucial role of measuring cause-effect relations in developing credible and meaningful data (Junjie&Yingxin, 2022a). Positivists advocate for a clear separation between the researcher and the research participant, operating in dualism and objectivity (Park et al., 2020a). This study adopted a positive epistemological stance, enabling an objective examination of the relationship between contract management practices and the performance of road construction projects in Lusaka.

#### **4.4.2 Ontology**

Ontology represents a belief system reflecting an individual's interpretation of what constitutes a fact, specifically addressing whether social entities are objective or subjective (Don-Solomon, 2018). As Heidegger (2013) defines it, ontology delves into the essence of reality, determining the nature of the existence of a particular phenomenon. Positivist ontology adheres to a naïve realism perspective, asserting an external world with a singular objective reality for any studied situation or phenomenon, independent of the researcher's views (Junjie&Yingxin, 2022b). In broader terms, ontological positions can be categorized as realism and relativism (Moon and Blackman, 2017), with realism being the belief in the existence of a world independent of the researcher's beliefs and constructions, as described by Maxwell (2012). This study embraced a realist ontological stance.

#### **4.5 Study Population**

Population refers to the complete set or collection of all units to which the research findings are applied (Shukla, 2020). The population of interest, as indicated by Majid (2018), represents the specific group that a study aims to examine or address. A. S. Acharya et al. (2013) further define it as a subset of the target population from which the sample is drawn.

In the context of this research, the study population encompassed contract managers, construction project managers, contractors, and government officials. The

research focused on eighty respondents, all actively involved in public construction contracts within Lusaka District.

**Table 4.1: Study Population**

<b>S/n</b>	<b>Study Population</b>	<b>Respondents</b>
1	Contract managers	20
2	Project managers	20
3	Contractors	35
4	Government officials	25
<b>Total</b>		<b>100</b>

#### **4.6 Sampling Techniques**

The study employed a purposive sampling approach to identify the study population. Subsequently, the use of the stratified random sampling method was to establish the study sample size and select respondents, ensuring a representative cross-section of the entire target population. Purposive sampling involves the researcher selecting cases or participants for inclusion based on their perceived relevance (Taherdoost, 2016). The study adopted purposive sampling to enlist participants with expertise in contract management practices related to road construction projects. Stratification, defined as dividing the population into subgroups or strata, with separate sampling in each stratum, was utilized (Singh & Masuku, 2014). The use of stratified random sampling aimed to guarantee diverse representation from different segments within the target population.

#### **4.7 Sample Size**

Determining the sample size involves selecting the number of observations to include in a sample, and it is a crucial aspect of any study or investigation aiming to draw inferences about the population from the sample (Singh & Masuku, 2014).

The study sample size was calculated utilizing Slovin's formula, as depicted here:

$$n=N/[1 + N (e) ^2]$$

Where n = Sample size, N= Population size and e = Margin of error

The population size (N) for this study was 100; the margin of error (e) was 5% with a confidence level of 95%. Hence, the sample size of the study using Slovin's formula was as shown below:

$$n = 100 \div [1+100 \times (0.05^2)]$$

$$n = 100 \div [1+100 \times (0.0025)]$$

$$n = 80$$

On this basis, the study targeted 80 respondents to participate in this study, with the allocation as shown in the table below:

**Table 4.2: Sample Size**

S/n	Study Population	Sample Proportion	Sample Size
1	Contract managers	0.1875	15
2	Project managers	0.1875	15
3	Contractors	0.375	30
4	Government officials	0.25	20
	<b>Total</b>	<b>1.0</b>	<b>80</b>

#### 4.8 Data Collection Tools

The data collection for the study encompassed two aspects: secondary and primary data. Secondary data was acquired through research, utilizing sources such as journals, books, survey reports, project reports, government publications, academic research papers, implementation and monitoring reports related to road construction projects. Primary data, consisting of quantitative information, were gathered through research questionnaires featuring closed-ended questions administered to the selected respondents. The study further obtained qualitative data through semi-structured interview guides with open-ended questions directed at key informants.

#### **4.9 Validity and Reliability**

Validity refers to the degree to which scores obtained from a measure accurately represent the targeted variable (Price et al., 2015). The evaluation of a research instrument's validity involves assessing how well the instrument measures its intended construct (Mohajan, 2017b). This research employed a mixed methodology approach, and the methodological triangulation method to establish validity.

Consequently, data sources encompassed responses from questionnaires, insights from interviews, and findings from documentary analysis to mitigate bias and bolster credibility. Additionally, the supervisor's involvement in updating and reviewing the research instruments ensured the accurate capture of intended data, contributing to the overall validation process.

One can determine instrument reliability by the extent it consistently measures the intended attribute (Abu Oda et al., 2022). Reliability, in this context, signifies the internal consistency of an instrument when measuring specific concepts (Ghazali, 2016). To assess the reliability of the research instrument, this study utilized the Cronbach's coefficient alpha test, where a reliability coefficient of 0.7 or higher is acceptable (Seninde et al., 2021).

#### **4.10 Ethical Considerations**

In ensuring the protection of participants' rights and privacy, the researcher exercised appropriate care when administering the data collection instrument. Prior to the distribution of instruments, there was an introduction outlining the research's objectives and purpose. Additionally, the researcher sought consent from each respondent, affirming their willingness to participate, and all participant names kept confidential. The research adhered rigorously to the ethical code of practice in research set forth by the University of Lusaka.

#### **4.11 Chapter Summary**

In summary, this chapter outlines the selected research approach and design employed for the study. Additionally, it discusses the research philosophy, encompassing the epistemological and ontological assumptions guiding the research. The study details the population under study, along with the chosen

sampling techniques. The chapter further specifies the research's sample size, calculated using Slovin's formula. Lastly, it delves into the assessment of data instrument validity and reliability, alongside an exploration of the ethical considerations undertaken throughout the research process.

## CHAPTER FIVE

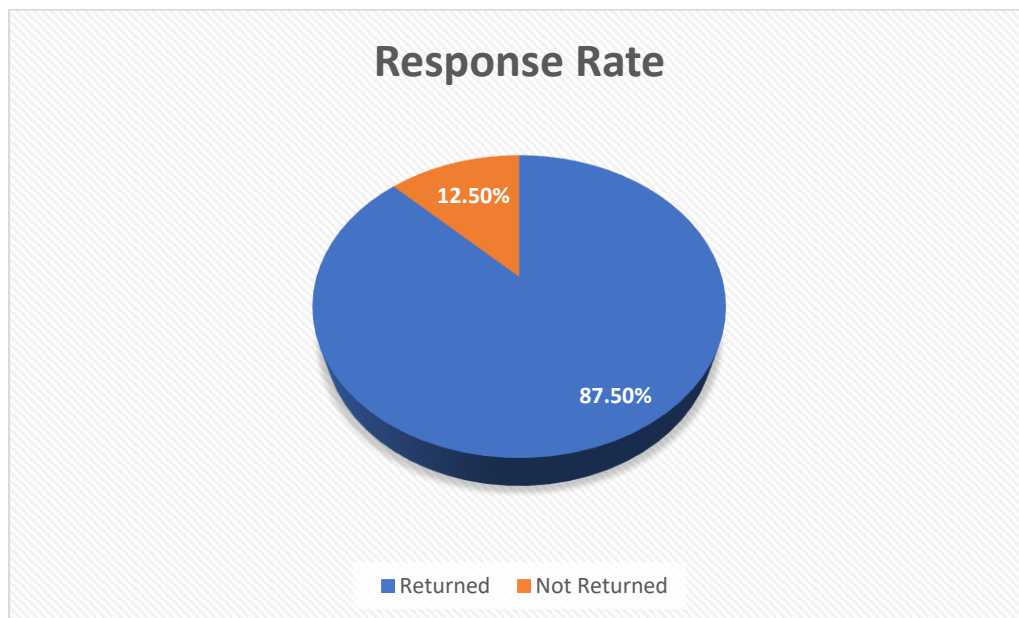
### DATA FINDINGS AND PRESENTATION

#### 5.1 Introduction

This chapter gives an overview of the study's results with a focus on the investigation of the correlation between road construction performance in Lusaka district and contract management practices. The participants in the study included project managers, contract managers, government officials, civil engineers, and contractors.

#### 5.2 Response Rate Analysis

A set of 80 questionnaires were distributed in the study, directed at project managers, contractors, contract managers, civil engineers, and government officials with expertise or involvement in public road construction contracts in the Lusaka District. Out of the total distributed questionnaires, the study results only consisted of seventy respondents, resulting in a less than hundred percent response rate. Figure 5.1 provides a concise overview of the responses from the questionnaire.



**Figure 5.1 Questionnaire Response Rate**

**Source: (Author, 2023)**

Moreover, the study collected qualitative data through the utilization of an interview guide. The researcher engaged in interviews with ten (10) participants,

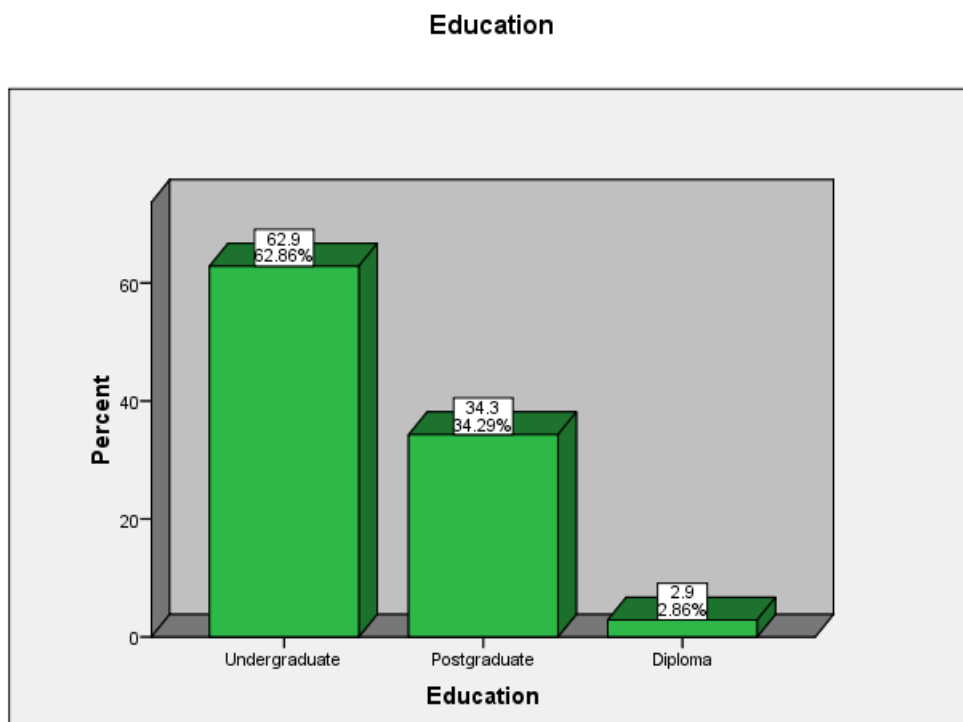
predominantly project managers and civil engineers possessing experience in the road construction industry. The study incorporated the insights obtained from the interviews into the narrative, complementing, and strengthening the information gathered through the administered questionnaires.

### 5.3 Respondent's Personal Information

The research aimed to ascertain the background characteristics of the respondents, focusing on factors such as educational level, professional position, and experience within the road construction industry.

#### 5.3.1 Respondent's Level of Education

The researcher aimed to evaluate the distribution of respondents based on their highest level of education achieved, as illustrated in Figure 5.2.



**Figure 5.2: Distribution of Respondents by Level of Education**

**Source: (Author, 2023)**

The data findings disclose that a significant majority of participants, specifically 62.86%, had attained an undergraduate degree as their highest level of education.

Additionally, 34.29% held post-graduate degrees, and a smaller percentage, 2.86%, had obtained diplomas. These results imply that the participants in the study exhibited a high level of educational attainment, suggesting they possessed the literacy and proficiency necessary to comprehend the research questions presented to them.

### 5.3.2 Respondent’s Occupational Position

The research asked participants to specify their occupational roles within their respective organizations, and the results shown in table 5.1.

**Table 5.1: Professional Roles of Participants**

S/n	Occupation	Frequency	Percent	Valid Percent
1	Contract manager	11	15.7	15.7
2	Project manager	15	21.4	21.4
3	Contractor	19	27.1	27.1
4	Government Official	15	21.4	21.4
5	Civil Engineer	10	14.3	14.3
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

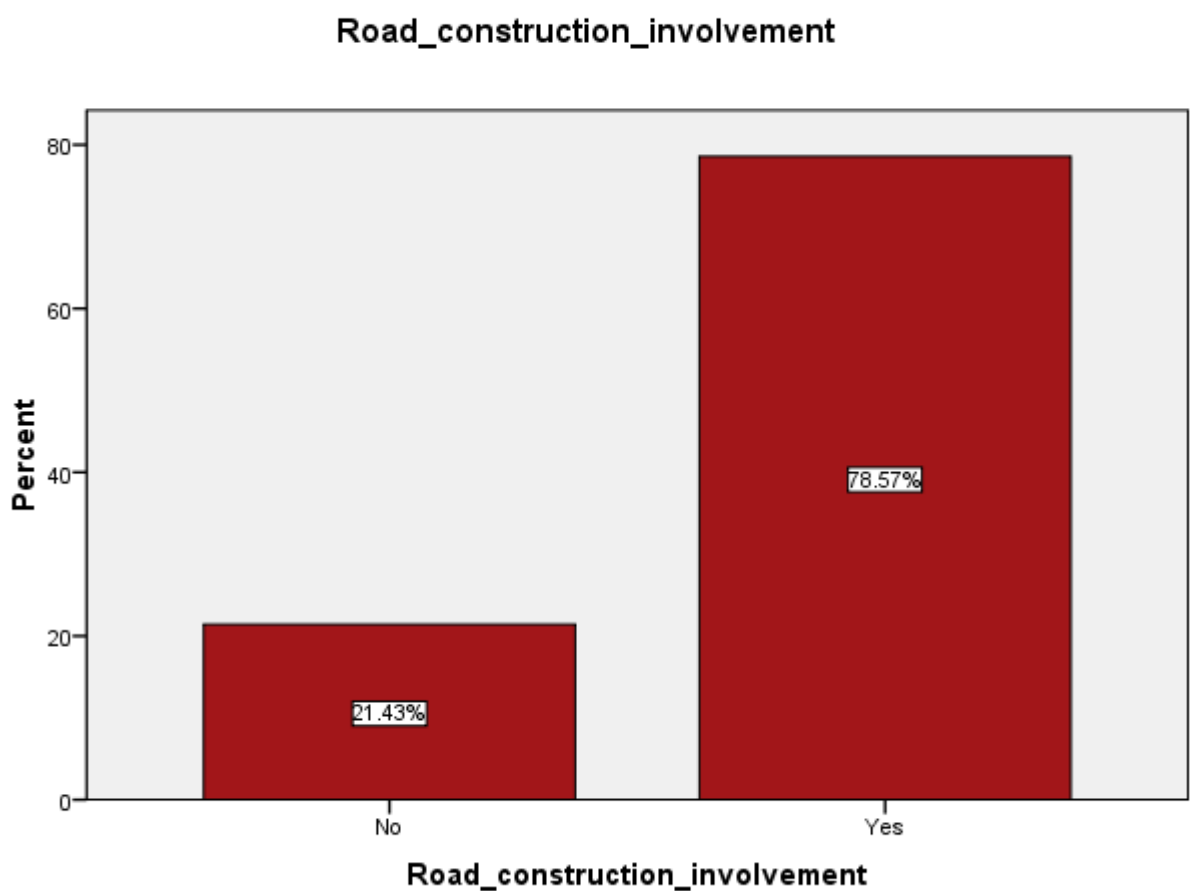
**Source: (Author, 2023)**

The data findings indicate that the predominant respondent roles were as contractors, constituting 27.1% of the sample. Following closely were project managers and government officials, each representing 21.4% of the respondents. Contract managers accounted for 15.7%, and civil engineers comprised the smallest segment at 14.3%.

### 5.3.3 Respondent's Involvement in a Public Road Construction

The study inquired whether participants had participated in a public road construction project to ensure that a substantial number of respondents possessed firsthand experience from significant projects, which typically involve extensive work. This aimed to verify their substantial knowledge of road construction projects. The results are in Figure 5.3.

**Figure 5.3: Involvement in a public road construction project**



**Source: (Author, 2023)**

The research data reveals that 78.57% of participants had previous involvement in a public road construction project, whereas 21.43% had not participated in such projects.

### 5.3.4 Years of Work Experience

The study also requested participants to indicate their years of experience in the road construction sector, as illustrated in table 5.2.

**Table 5.2 Respondent's Years of Experience in the Road Construction Industry**

S/n	Experience	Frequency	Percent	Valid Percent
1	Less than 5 years	49	70.0	70.0
2	5 to 10 years	14	20.0	20.0
3	10-15 years	4	5.7	5.7
4	More than 15 years	3	4.3	4.3
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

**Source: (Author, 2023)**

The data presented in Table 5.2 reveals that 70% of the participants had tenure of less than 5 years in the construction industry, while 20.0% had accumulated work experience spanning not more than 10 years. This suggests that a significant portion of the respondents possessed relatively limited experience in the construction sector. Nevertheless, it is noteworthy that despite their shorter tenures, these individuals demonstrated a considerable level of knowledge and practical experience regarding the impact of contract management practices on the performance of construction contracts.

### 5.4 Descriptive Statistics Data Analysis for Quantitative Variables

Descriptive analysis is more effective for gathering information that portrays relationships and reflects the real-world scenario, as suggested by Baha (2016). In this section of the study, the focus is on conducting a descriptive analysis of the research variables. The task was to evaluate the respondent's level of agreement or disagreement by selecting the appropriate option on a five-point Likert scale

provided in the questionnaire. The scale included options such as (1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) strongly Agree.

In specific instances, respondents had to express the degree to which they believed one variable could influence another, using a 1 to 5 Likert scale with 1 being no extent, 2-Low extent, 3-Moderate extent, 4-Great extent, and 5-Very great extent. This meant that if the mean response was above three, respondents acknowledged a substantial influence of one variable on another. Conversely, a mean response below three indicated agreement that one variable had little to no influence on another.

#### **5.4.1 To Explore the Key Performance Indicators (KPIs) for Successful Road Construction Projects**

##### **5.4.1.1 Crucial Role of Identifying and Understanding Key Performance Indicators for Achieving Successful Outcomes**

The researcher aimed to explore the role of recognizing and understanding Key Performance Indicators (KPIs) in achieving successful outcomes in road construction contracts. Out of 70 participants, 39(55.7%) strongly agreed, 24(34.3%) agreed, 3(4.3%) were neutral and only 4(5.7%) strongly disagreed. Further details are in Table 5.3.

**Table 5.3: Role of KPI's in Road Construction Success**

<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	Strongly Disagree	4	5.7	5.7
2	Neutral	3	4.3	4.3
3	Agree	24	34.3	34.3
4	Strongly Agree	39	55.7	55.7

<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	Strongly Disagree	4	5.7	5.7
2	Neutral	3	4.3	4.3
3	Agree	24	34.3	34.3
4	Strongly Agree	39	55.7	55.7
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

#### **5.4.1.2 Integration of Key Performance Indicators and improvement of contract performance**

Data findings from the research suggest that the integration of key performance indicators (KPIs) significantly influences contract performance. Many respondents, with 31 (44.3%) in agreement and 30 (42.9%) strongly agreeing, support this notion, as reflected in table 5.4. Conversely, five (7.1%) participants strongly disagreed, and 4 (5.7%) were neutral. Cumulatively, 7.1% of participants expressed disagreement, while approximately 87.2% acknowledged that the incorporation of key performance indicators has a substantial positive impact on contract performance.

**Table 5.4: KPI Integration and Contract Performance Enhancement**

<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	Strongly Disagree	5	7.1	7.1
2	Neutral	4	5.7	5.7
3	Agree	31	44.3	44.3

4	Strongly Agree	30	42.9	42.9
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

**Source: (Author, 2023)**

#### **5.4.1.3 Effectiveness of Key Performance Indicators in Achieving Performance Success**

The researcher aimed to evaluate the effectiveness of various key performance indicators (KPIs) in achieving desired performance outcomes.

Findings indicate that 3 (4.3%) participants strongly disagreed, 5 (7.1%) were neutral, and 43 (61.4%) and 19 (27.1%) agreed and strongly disagreed, respectively. In total, 4.3% of participants disagreed, while 88.5% agreed that certain key performance indicators are more effective in attaining the desired project performance.

**Table 5.5: Effectiveness of Key Performance Indicators in Achieving Performance Success**

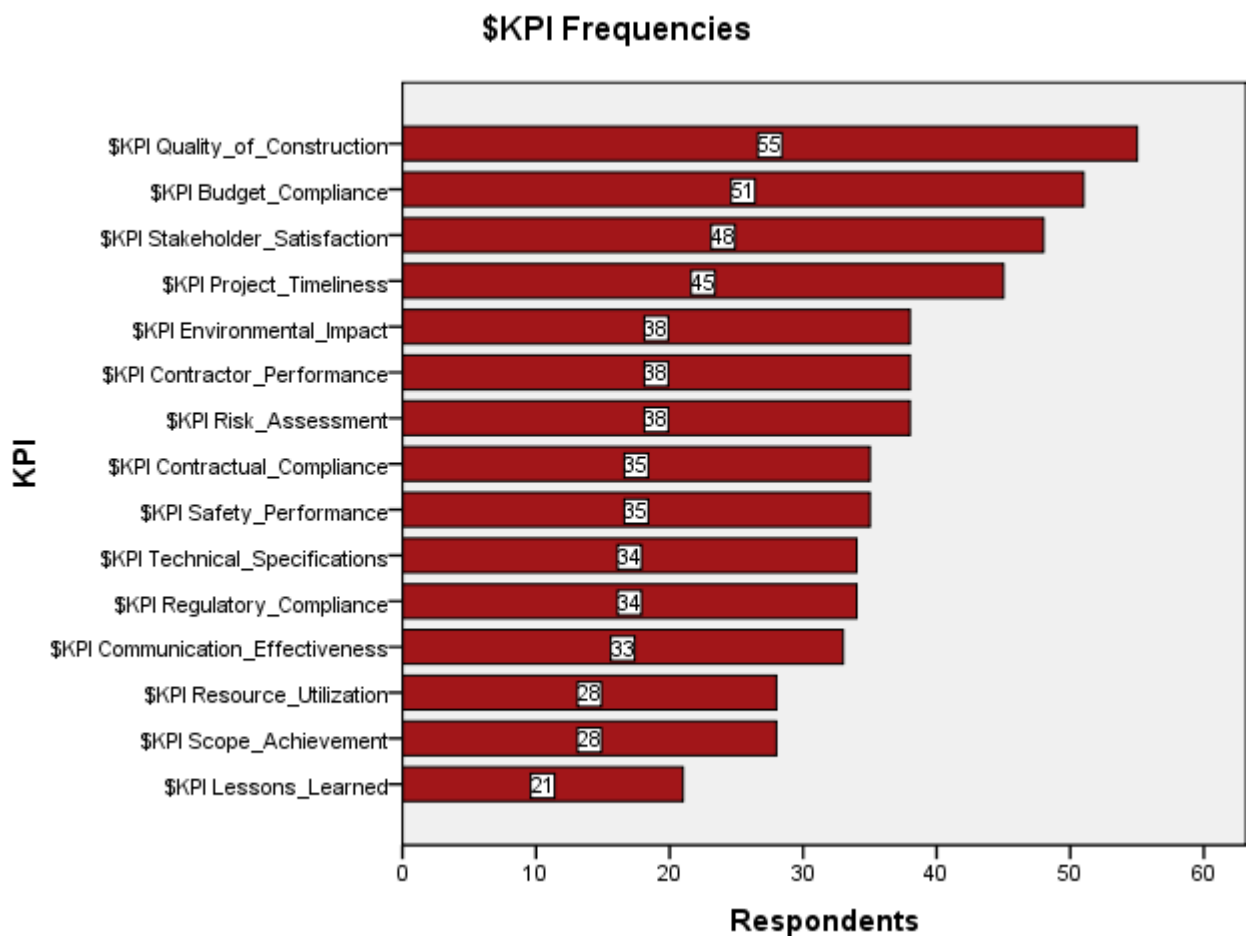
<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	Strongly Disagree	3	4.3	4.3
2	Neutral	5	7.1	7.1
3	Agree	43	61.4	61.4
4	Strongly Agree	19	27.1	27.1

<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	Strongly Disagree	3	4.3	4.3
2	Neutral	5	7.1	7.1
3	Agree	43	61.4	61.4
4	Strongly Agree	19	27.1	27.1
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

**Source: (Author, 2023)**

#### **5.4.1.4 Optimal Key Performance Indicators for Attaining Desired Road Construction Contract Outcomes**

The participants had the responsibility of selecting the most effective key performance indicators from a list of fifteen that are most effective in achieving successful outcomes in road construction projects.



**Figure 5.4: Most effective key performance indicators**

**Source: (Author, 2023)**

As illustrated in Figure 5.4, the data findings reveal key performance indicators deemed most effective by at least fifty percent of the respondents in achieving desired construction contract outcomes. These include Quality of Construction (55), Budget Compliance (51), Stakeholder Satisfaction (48), Project Timeliness (45), Environmental Impact (38), Contractor Performance (38), Risk Assessment (38), Contractual Compliance (35), and Safety Performance (35). Conversely, key performance indicators with a representation of less than 50% are less effective for this purpose.

## 5.4.2 To Explore the Contract Management Metrics for Road Construction Projects

### 5.4.2.1 Exploring Essential Contract Management Metrics for Success in Road Construction Projects

The study aimed to investigate the crucial role of comprehending and analyzing contract management metrics in realizing successful outcomes in road construction contracts. Among the 70 participants, 16 (22.9%) strongly agreed, 43 (61.4%) agreed, 8(11.4%) were neutral, and only 3 (4.3%) strongly disagreed. Further details in Table 5.6.

**Table 5.6: Role of contract management metrics in Road Construction Success**

<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	Strongly Disagree	3	4.3	4.3
2	Neutral	8	11.4	11.4
3	Agree	43	61.4	61.4
4	Strongly Agree	16	22.9	22.9
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

### 5.4.2.2 Enhancing Contract Performance through the Integration of Metrics in Road Construction Projects

The researcher sought to explore how the integration of contract management metrics enhances contract performance within road construction contracts. Out of 70 participants, 17(24.3%) strongly agreed, 47(67.1%) agreed, 5(7.1%) were neutral and only 1(1.4%) strongly disagreed. Details are in Table 5.7.

**Table 5.7: Integration of Metrics for Improved Contract Performance in Road Construction Projects**

<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	Strongly Disagree	1	1.4	1.4
2	Neutral	5	7.1	7.1
3	Agree	47	67.1	67.1
4	Strongly Agree	17	24.3	24.3
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

**5.4.2.3 Comparative Effectiveness of Contract Management Metrics in Achieving Success in Road Construction Projects**

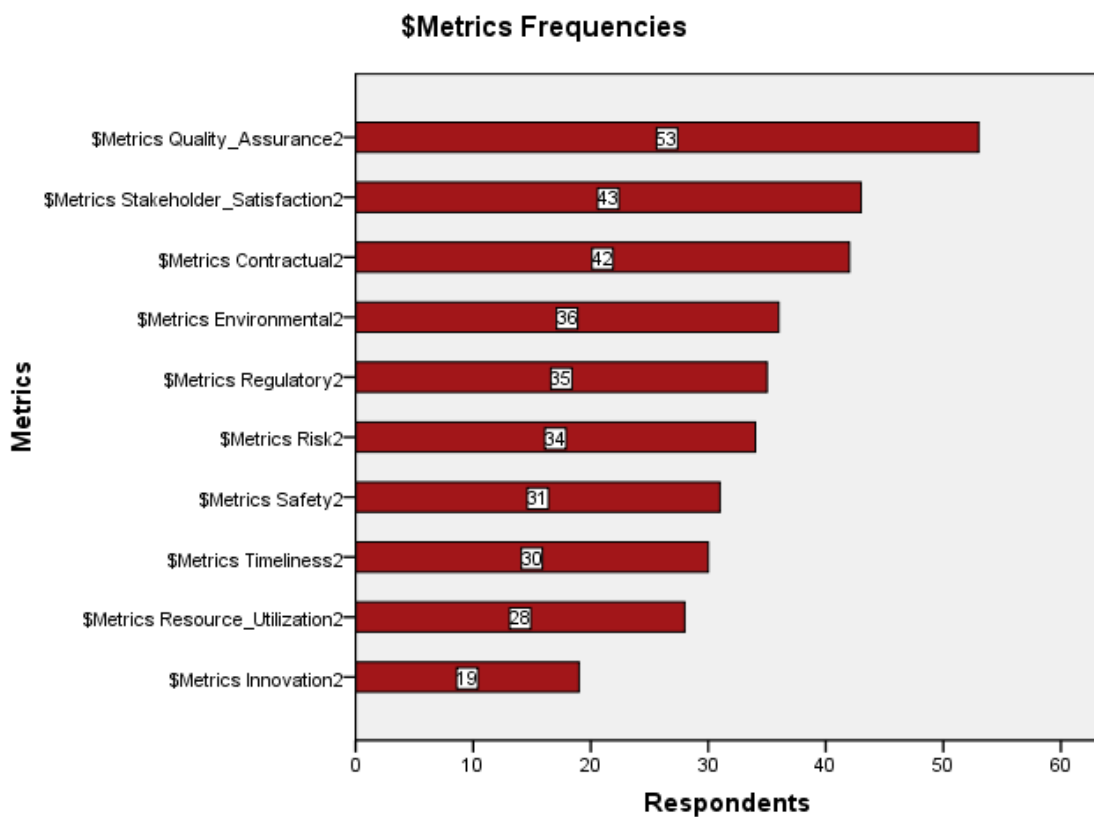
**Table 5.8: Comparative Effectiveness of Contract Metrics for Road Construction Project Success**

<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	Strongly Disagree	2	2.9	2.9
2	Neutral	1	1.4	1.4
3	Agree	11	15.7	15.7
4	Strongly Agree	49	70.0	70.0
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

Study findings indicate that the research aimed to evaluate the effectiveness of specific contract management metrics in realizing desired performance outcomes. Out of the 70 respondents, 49 (70.0%) strongly agreed, 11 (15.7%) agreed, 1 (1.4%) was neutral, and 2 (2.9%) strongly disagreed. In summary, 2.9% of participants disagreed, while 85.7% agreed that certain contract management metrics are more effective in achieving successful outcomes in road construction projects.

#### 5.4.2.4 Optimal Contract Management Metrics for Attaining Desired Road Construction Contract Outcomes

Participants had the responsibility of selecting the most effective contract management metrics from a list of ten for achieving successful outcomes in road construction projects. As illustrated in Figure 5.5, the data findings reveal that five contract management metrics were the most effective as selected by at least fifty percent of the respondents in achieving desired construction contract outcomes. These include Quality Assurance (53), Stakeholder Satisfaction (43), Contractual



al (42), Envi ron mental (36) and Reg ulato ry (35). F igure 5.5: Mos t

effective contract management metric

### 5.4.3 Relationship between Contract Performance Measurement Metrics and Road Contract Performance

The research aimed to assess the impact of contract performance metrics on the performance of road construction contracts.

#### 5.4.3.1: Influence of Performance Measurement Metrics on Contract Performance

According to the outcomes presented in Table 5.8, a significant majority of respondents, 37 (52.9%), expressed a considerable impact of contract performance measurement metrics on the overall contract performance. This was followed by 15 (21.4%) respondents indicating a very great extent, while 14 (20.0%) reported a moderate extent. Only two (2.9%) respondents suggested a low extent, and another 2 (2.9%) indicated no extent. With 74.3% collectively indicating a great extent, the researcher inferred that performance measurement metrics play a substantial role in influencing the performance of construction contracts.

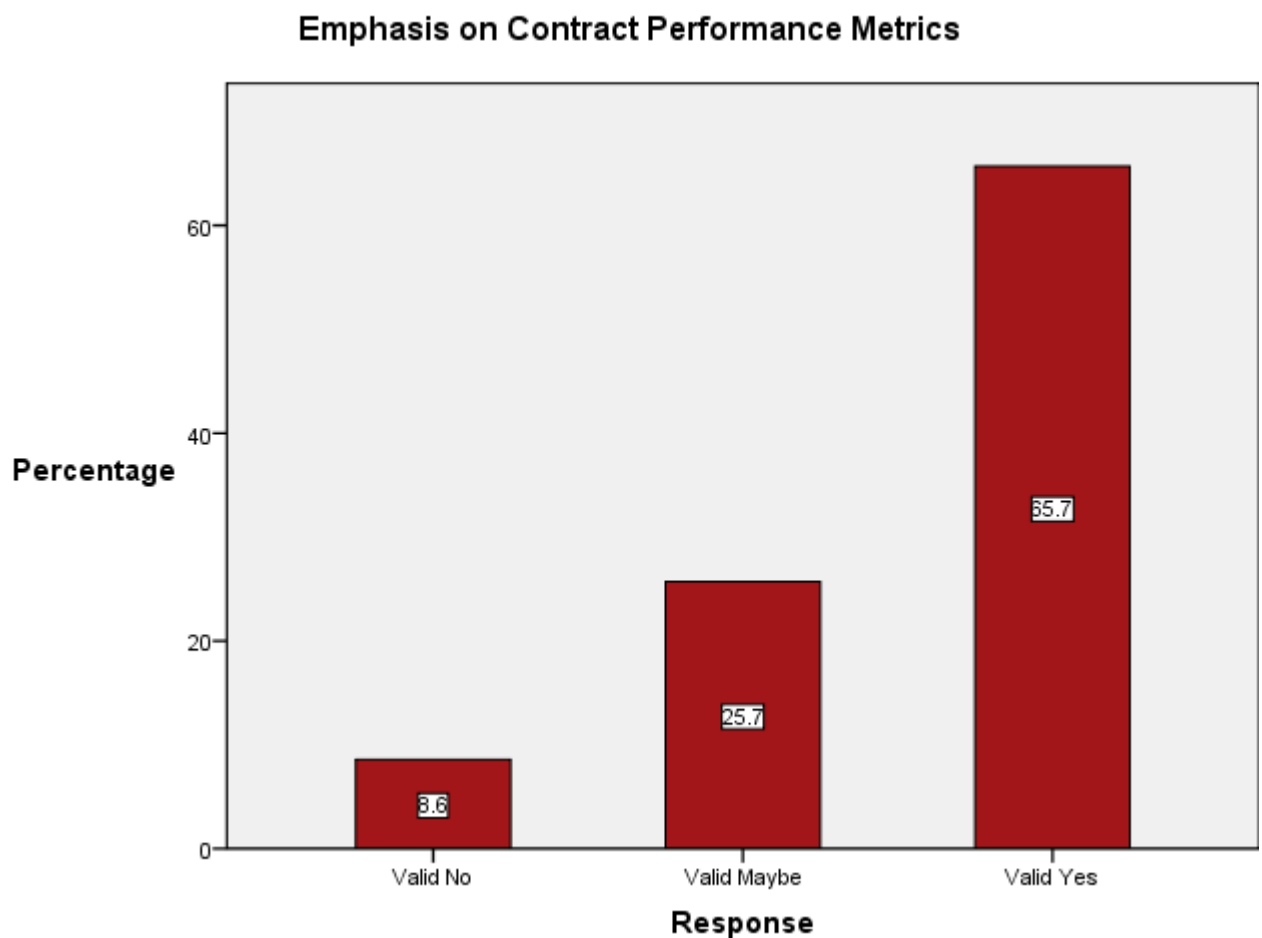
**Table 5.8: Extent to which performance measurement metrics influence contract performance**

S/n	Details	Frequency	Percent	Valid Percent
1	No extent	2	2.9	2.9
2	Low extent	2	2.9	2.9
3	Moderate extent	14	20.0	20.0
4	Great extent	37	52.9	52.9
5	Very great extent	15	21.4	21.4
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

**Source: Author (2023)**

### 5.4.3.2: Emphasis on Contract Performance Measurement Metrics in Road Construction

The study aimed to determine whether participants in road construction projects or management placed emphasis on contract performance metrics. As depicted in Figure 5.5, 46(65.7%) of the respondents agreed that there was an emphasis on contract performance metrics, while only 6 (8.6%) disagreed, and 18 (25.7%) were unsure.



**Figure 5.5: Emphasis on Contract Performance Measurement Metrics**  
Source (Author, 2023)

### 5.4.3.3 Effective Utilization of Contract Performance Measurement Metrics

The study also aimed to investigate the effective utilization of contract performance metrics in road construction contracts. The analysis focused on five key areas: incorporation of contract performance metrics, utilization of performance metrics, approach to contract performance measurement, use of contract performance metrics, and correlation between contract performance metrics and the success of road construction projects. Respondents provided their feedback on a 5-point Likert scale (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, and 5-strongly agree), and the summarized results, including means and standard deviations, are presented in table 5.9.

**Table 5.9: Contract Performance Measurement Metrics**

<b>S/n</b>	<b>Statement</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Standard Deviation</b>
1	Contract metrics enhance road project success significantly	1	5	3.87	1.020
2	Metrics are crucial for assessing construction project performance effectively	1	5	4.06	.946
3	Metrics improve public construction contract outcomes significantly	1	5	3.83	.916
4	Your projects prioritize and emphasize contract performance measurement metrics actively	1	5	4.04	.892
5	Metrics correlate with road project success significantly.	1	5	4.06	.796
<b>Average for Contract Performance Measure Metrics</b>				<b>3.97</b>	<b>0.91</b>

**Source: (Author, 2023)**

From Table 5.9, the findings for contract performance metrics enhancing road project success significantly indicated a mean of ( $m=3.87$ ) and standard deviation (Std. dev. = 1.02). Metrics being crucial for construction performance assessment indicated a mean of ( $m=4.06$ ) and standard deviation (Std. dev. = 0.946); significant improvement of contract outcomes due to metrics indicated a mean of ( $m=3.83$ ) and standard deviation (Std. dev. = 0.916). Prioritization and emphasis of contract performance metrics indicated a mean of ( $m=4.04$ ) and standard deviation (Std. dev. = 0.892) and correlation between metrics and project success indicated a mean of ( $m=4.06$ ) and a standard deviation (Std. dev. = 0.796). The average findings for contract performance metrics revealed a mean ( $m=3.97$ ) and standard deviation (Std. dev. = 0.91). The findings imply that there is a great practice of using contract performance metrics to enhance road project success, metrics for construction performance assessment, significant improvement of contract outcomes due to metrics, prioritization and emphasis of contract performance metrics and correlation between metrics and project success during the execution of road construction contracts.

#### **5.4.3.4 Extent of Influence on Contract Performance Measures Examined through Contract Performance Metrics**

The study aimed to examine the impact of contract performance metrics on various aspects of contract performance, including contract schedule, budget adherence, quality, and customer satisfaction. The findings, as presented in Table 5.10 reveals insights into the perceptions of participants regarding the extent to which performance metrics influence these key areas. In terms of contract schedule, a notable 71.4% of respondents (26) agreed that performance metrics exert a significant influence, with 37.1% indicating a very great extent and 34.3% noting a great extent. Conversely, a minority of participants (4.3%) suggested no influence.

**Table 5.10: Influence on contract completed within schedule.**

<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	No extent	3	4.3	4.3
2	Low extent	7	10.0	10.0
3	Moderate extent	10	14.3	14.3
4	Great extent	24	34.3	34.3
5	Very great extent	26	37.1	37.1
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

The findings in table 5.10 suggest that contract measurement metrics play a significant role in influencing the completion of a contract within the established schedule.

Examining the impact on contract budget in Table 5.1, a substantial 68.5% of participants acknowledged the influence of performance metrics, with 17.1% indicating a very great extent and 51.4% expressing a great extent.

**Table 5.11: Influence on contract completed within stipulated budget.**

<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	No extent	2	2.9	2.9
2	Low extent	2	2.9	2.9
3	Moderate extent	18	25.7	25.7
4	Great extent	36	51.4	51.4
5	Very great extent	12	17.1	17.1
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

From the findings presented in Table 5.11, a significant majority of participants, accounting for 68.5%, recognize the substantial influence of performance metrics on the contract budget.

The results on contract quality in Table 5.12 demonstrated a similar trend, with 64.3% of participants recognizing the influence of performance metrics, where 25.7% reported a very great extent and 38.6% a great extent.

**Table 5.12 Influence on contract completed according to quality standards.**

<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	No extent	4	5.7	5.7
2	Low extent	4	5.7	5.7
3	Moderate extent	17	24.3	24.3
4	Great extent	27	38.6	38.6
5	Very great extent	18	25.7	25.7
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

The results in table 5.12 suggest a strong correlation between the recognition of the impact of performance metrics and their perceived influence on ensuring and maintaining contract quality.

Furthermore, for customer satisfaction in Table 5.13, 71.4% of respondents perceived an impact from performance metrics, with 32.9% indicating a very great extent and 38.6% attributing a great extent to these metrics. These findings collectively emphasize the perceived significance of performance metrics in shaping and influencing various dimensions of contract performance.

**Table 5.13 Influence on contract completed according to client satisfaction.**

<b>S/n</b>	<b>Details</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>
1	No extent	2	2.9	2.9
2	Low extent	3	4.3	4.3
3	Moderate extent	15	21.4	21.4
4	Great extent	27	38.6	38.6
5	Very great extent	23	32.9	32.9
	<b>Total</b>	<b>70</b>	<b>100.0</b>	<b>100.0</b>

The results in table 5.13 affirm that many respondents recognize the significance of performance metrics in contributing to and shaping the levels of customer satisfaction.

#### **5.4.3.5 Correlation Analysis of Relationship between Contract Performance Metrics and Road Construction Performance**

Furthermore, the study aimed to assess the extent to which contract performance metrics influence contract performance. This evaluation focused on the successful fulfillment of contracts within designated timelines, adherence to allocated budgets, compliance with specified requirements, and deliverables that align with client specifications. The findings of this investigation are as presented in Table 5.14.

**Table 5.14: Correlation between Contract Performance Measurement Metrics and Contract Performance**

		Correlations							
		Incorporation of contract performance measurement metrics	Utilization of performance metrics	A comprehensive approach to contract performance measurement metrics	Emphasis and Prioritization of contract performance metrics by management	contract_schedule	contract_budget	contract_quality	contract_satisfaction
Incorporation of contract performance measurement metrics	Pearson Correlation	1	.728**	.488**	.420**	.063	-.050	.125	.150
	Sig. (2-tailed)		.000	.000	.000	.603	.682	.302	.214
	N	70	70	70	70	70	70	70	70
Utilization of performance metrics	Pearson Correlation	.728**	1	.647**	.530**	.072	-.089	-.027	.143
	Sig. (2-tailed)	.000		.000	.000	.552	.462	.821	.239
	N	70	70	70	70	70	70	70	70
A comprehensive approach to contract performance measurement metrics	Pearson Correlation	.488**	.647**	1	.683**	.135	.041	.028	.260*
	Sig. (2-tailed)	.000	.000		.000	.263	.736	.821	.030
	N	70	70	70	70	70	70	70	70
Emphasis and Prioritization of contract performance metrics by managementS10	Pearson Correlation	.420**	.530**	.683**	1	.260*	.031	.085	.265*
	Sig. (2-tailed)	.000	.000	.000		.030	.796	.482	.027
	N	70	70	70	70	70	70	70	70
contract_schedule	Pearson Correlation	.063	.072	.135	.260*	1	.340**	.152	.366**
	Sig. (2-tailed)	.603	.552	.263	.030		.004	.209	.002
	N	70	70	70	70	70	70	70	70
contract_budget	Pearson Correlation	-.050	-.089	.041	.031	.340**	1	.044	.102
	Sig. (2-tailed)	.682	.462	.736	.796	.004		.720	.400
	N	70	70	70	70	70	70	70	70
contract_quality	Pearson Correlation	.125	-.027	.028	.085	.152	.044	1	.399**
	Sig. (2-tailed)	.302	.821	.821	.482	.209	.720		.001
	N	70	70	70	70	70	70	70	70
contract_satisfaction	Pearson Correlation	.150	.143	.260*	.265*	.366**	.102	.399**	1
	Sig. (2-tailed)	.214	.239	.030	.027	.002	.400	.001	
	N	70	70	70	70	70	70	70	70

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

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

The study sought to establish the relationship between contract performance metrics and contract performance. From table 5.14, it was indicated that there is incorporation of contract performance metrics has a very weak positive correlation with completion of a contract according to schedule ( $r=.063$ ,  $p=.603$ ) and budget ( $r=.050$ ,  $p=.682$ ). There was also a weak positive correlation with the quality standards ( $r=.125$ ,  $p=.302$ ) and meeting the client's satisfaction ( $r=.150$ ,  $p=.214$ ). This implies that there is an overall weak positive correlation between the incorporation of performance metrics and the performance of the contract. On the other hand, utilization of contract performance metrics has a very weak positive correlation with completing a construction contract within schedule ( $r=.072$ ,  $p=.552$ ), weak negative correlations with stipulated budget ( $r=-0.89$ ,  $p=.462$ ) and specified quality requirements ( $r=-.027$ ,  $p=.821$ ) and a weak positive correlation with meeting the client's satisfaction ( $r=.143$ ,  $p=.239$ ).

Furthermore, table 5.14 indicates that a comprehensive approach to contract performance metrics has a weak positive correlation with completing a construction contract within schedule ( $r=.135$ ,  $p=.263$ ). It also indicates a very weak positive correlations with stipulated budget ( $r=.041$ ,  $p=.736$ ) and specified quality requirements ( $r=.028$ ,  $p=.821$ ) and a moderate positive correlation with meeting the client's satisfaction ( $r=.260$ ,  $p=.030$ ). Finally, emphasis and prioritization of contract performance metrics has a moderate positive correlation with completing a construction contract within schedule ( $r=.260$ ,  $p=.030$ ), weak positive correlations with stipulated budget ( $r=.031$ ,  $p=.796$ ) and specified quality requirements ( $r=.085$ ,  $p=.482$ ) and a weak positive correlation with meeting the client's satisfaction ( $r=.265$ ,  $p=.027$ ).

In summary, the findings presented in Table 5.15 suggest a weak positive correlation between contract performance metrics and the selected contract performance measurements, encompassing aspects such as contract schedule, budget adherence, quality, and client satisfaction.

#### **5.4.4 Enhancing Contract Performance through a Framework Connecting Contract Measurement Metrics and Key Performance Indicators**

The study aimed to determine the extent of agreement among respondents concerning the establishment of a contract management framework that aligns contract measurement metrics and key performance indicators. The analysis focused on five key areas: the effectiveness of the suggested framework, the importance of a contract management framework, the necessity of the proposed framework, the contribution of the framework to better project outcomes, and training and implementation considerations. Respondents provided their feedback using a 5-point Likert scale (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, and 5-strongly agree). Summarized results, including means and standard deviations, shown in table 5.15.

The findings presented reveal key insights into the development of a framework linking contract performance metrics and key performance indicators for road construction projects. Participants expressed a substantial need for an essential framework aligning metrics and indicators (mean = 3.74, Std. dev. = 0.928) and recognized the frameworks' potential in improving road project performance through robust contract management (mean = 4.11, Std. dev. = 0.910). Additionally, the study highlighted the perceived crucial role of the framework in the success of road construction projects (mean = 3.80, Std. dev. = 0.910), the potential benefits of merging metrics for enhanced outcomes (mean = 4.01, Std. dev. = 0.825), and the demand for the implementation of a metrics-KPI framework (mean = 4.01, Std. dev. = 0.843).

These results underscore the significance of a well-structured framework in optimizing road construction outcomes. The average findings for contract performance metrics revealed a mean (m=3.93) and standard deviation (Std. dev. = 0.88). The findings imply that there is a need for a contract management framework that integrates contract performance metrics and key performance indicators.

**Table 5.15: Integrating Contract Measurement Metrics and Key Performance Indicators**

S/n	Statement	Min	Max	Mean	Standard Deviation
1	Essential framework that aligns metrics and indicators for effective road construction contract management	1	5	3.74	.928
2	Effective framework improves road project performance through robust contract management	1	5	4.11	.910
3	Crucial framework links contract metrics and indicators for successful road construction projects.	1	5	3.80	.910
4	Merge metrics and indicators for improved road construction contract project outcomes.	1	5	4.01	.825
5	Road construction professionals need training for a metrics- KPI framework implementation.	1	5	4.01	.843
<b>Average for Framework linking contract metrics and indicators</b>				<b>3.93</b>	<b>0.88</b>

## 5.5 Qualitative Data Analysis

To acquire in-depth insights into how contract management practices affect contract performance, the researcher engaged in interviews with key informants, utilizing a semi-structured interview guide.

### 5.5.1 Thoughts on the performance of road construction contracts within the Lusaka district

The researcher aimed to evaluate the opinions of the respondents regarding the performance of public construction contracts in the Lusaka region. Many

respondents indicated mixed results in performance, emphasizing the necessity for improvement in the execution of road construction projects in the Lusaka area. Some representative responses included:

*“The performance of road construction contracts in the Lusaka district is a topic that warrants careful consideration. On the one hand, there have been instances of efficient project delivery and improved connectivity. On the other hand, certain contracts have faced setbacks, highlighting the need for enhanced oversight and accountability in the construction process.”* Informant K.K mentioned.

Another respondent A.N added, *“The road construction contracts in the Lusaka district seem to be progressing well overall, with noticeable improvements in infrastructure. However, there are still some concerns about the timeline adherence and quality of work in certain areas that need to be addressed for better outcomes.”*

*“I’ve observed a mixed performance in road construction contracts in the Lusaka district. While some projects have shown commendable progress, there are instances where delays and issues with project management have been apparent. It’s crucial to evaluate each contract individually to understand the specific challenges and successes.”* Informant T.C affirmed.

### **5.5.2 Effective contract management practices**

Additionally, the research aimed to determine whether specific contract management practices play a more significant role (are more effective) in attaining favorable performance outcomes compared to others. The majority of participants confirmed that certain contract management practices exhibit greater effectiveness in achieving the desired performance outcomes than others.

*“In my opinion, specific contract management practices play a crucial role in determining performance outcomes. Practices such as effective stakeholder engagement, regular performance monitoring, and the establishment of measurable key performance indicators (KPIs) contribute significantly to achieving desirable results in various contracts.”* Participant C.B stated.

*“Based on my experience, the choice of contract management practices greatly influences the achievement of desirable performance outcomes. Practices such as robust vendor management, clear contractual terms, and a well-defined dispute resolution process contribute to fostering a collaborative environment and ensuring successful contract execution.”* Informant K.K mentioned.

### **5.5.3 Contributions of four contract management practices to favourable performance in road construction contracts**

The researcher further queried the participants about their perspectives on how the four contract management practices contribute to achieving favourable performance in road construction contracts.

*“I see payment terms as the foundation for contractor motivation, performance monitoring and reporting as the eyes and ears of project oversight, technical capacity as the engine driving construction excellence, and institutional capacity as the backbone providing the necessary support and coordination. The integration of these practices works together to foster favourable performance in road construction contracts.”* Participant K.K mentioned.

Another participant M.S added *“From my perspective, the significance of each contract management practice in road construction contracts can be outlined as follows: payment terms establish a fair and sustainable financial framework, performance monitoring and reporting ensure accountability, technical capacity safeguards construction quality, and institution capacity provides the necessary administrative support. A balanced focus on these practices is essential for achieving favourable performance.”*

### **5.5.4 Impact of contract management practices on the performance of road construction contracts**

The respondents had to elaborate on the impact contract management practices have on the performance of road construction contracts. Majority of the participants

acknowledged that contract management practices have a significant impact on the performance of road construction contracts.

*“The implementation of contract management practices is paramount in influencing the performance of road construction contracts. Strategic practices, including comprehensive planning, adherence to timelines, and robust communication, are instrumental in addressing challenges, ensuring accountability, and ultimately achieving successful project outcomes.”* Participant R.C stated.

Participant C.B added, *“I firmly believe that the implementation of contract management practices has a profound impact on the performance of road construction contracts. Effective contract management practices, such as clear communication, rigorous oversight, and strategic risk mitigation, can significantly enhance the efficiency and success of construction projects.”*

#### **5.5.5 Utilization of contract management practices**

The research inquired with the participants about their perspective on actions necessary for the effective utilization of contract management practices to enhance the performance of construction contracts. A significant number of respondents highlighted various beneficial strategies and approaches on the subject.

*“To improve the performance of construction contracts in Lusaka, it is essential to implement a systematic approach to contract management. This includes refining payment structures, establishing clear performance metrics, and investing in technology for real-time project monitoring. Regular training sessions for project managers and contractors can also contribute to better adherence to contract terms.”*

As mentioned by informant R.K

Another respondent K.K added, *“In my view, comprehensive training programs for project stakeholders should be implemented to ensure a better understanding and effective application of contract management practices in Lusaka.”*

*“Encouraging collaborative efforts between contractors and project owners through regular communication channels to address concerns promptly, fostering a*

*more efficient utilization of contract management practices in Lusaka.”* Participant T.C stated.

## **5.6 Chapter Summary**

This chapter presents and analyzes the findings derived from questionnaires and interviews conducted to address the four research objectives. The initial section provides a quantitative analysis of the results, primarily obtained through a five-point Likert scale to assess the respondents' agreement or disagreement. The utilization of correlation analysis and employing Pearson's coefficient helped to ascertain the relationship strength between contract performance metrics and construction performance. Additionally, the conducted qualitative analysis presented findings from semi-structured interviews. The knowledge gained from this chapter laid the groundwork for constructing the contract management framework, which integrates contract measurement metrics and key performance indicators to improve the performance of road construction contracts in the Lusaka district.

## **CHAPTER SIX**

### **DISCUSSION AND ANALYSIS OF RESULTS**

#### **6.1 Introduction**

This chapter centers on examining the key outcomes of the research, directed at assessing the correlation between contract management practices and contract performance within the road construction industry. The discourse is in accordance with the predetermined study goals.

#### **6.2 Discussion of Findings**

This section delivers an extensive analysis of the research findings, drawing comparisons between the acquired results and the literature scrutinized in chapter two. The discussions of the central findings align with the sequence of the research objectives.

##### **6.2.1 Key Performance Indicators (KPI) for successful road construction projects**

The study gathered data that focused on four distinct facets of key performance indicators, revealing insights into the crucial role of KPIs in achieving successful outcomes in road construction contracts. Among the 70 participants, a substantial majority, with 55.7% strongly agreeing and 34.3% agreeing, acknowledged the importance of recognizing and understanding KPIs. Only a minimal 5.7% strongly disagreed and 4.3% were neutral, reflecting a high level of agreement among participants. Furthermore, data findings suggest that the integration of KPIs significantly influences contract performance, with 44.3% in agreement and 42.9% strongly agreeing. Only 7.1% expressed disagreement, emphasizing the substantial positive impact of incorporating KPIs in road construction contracts. In evaluating the effectiveness of various KPIs in achieving desired performance outcomes, 88.5% agreed, with only 4.3% expressing disagreement and 7.1% were neutral.

Additionally, according to at least fifty percent of the respondents, Quality of Construction, Budget Compliance, Stakeholder Satisfaction, Project Timeliness, Environmental Impact, Contractor Performance, Risk Assessment, Contractual Compliance and Safety Performance are the most effective key performance indicators for road construction.

The study findings reveal a resounding consensus among the 70 participants on the perceived importance and effectiveness of Key Performance Indicators (KPIs) in the context of road construction contracts. The substantial majority in agreement underscores the widespread acknowledgment of the importance of recognizing and understanding KPIs. Furthermore, the data compellingly suggests that the incorporation of Key Performance Indicators (KPIs) exerts a substantial impact on contract performance, as substantiated by the percentage of participants expressing agreement. The results on the effectiveness of various KPIs, with 88.5% agreement reinforces the perceived efficiency of these indicators in achieving desired performance outcomes. Notably, the identification of the most effective KPIs by at least fifty percent of respondents provides valuable guidance for prioritizing key indicators in the road construction context. Overall, these findings demonstrate the strong and affirmative impact of Key Performance Indicators (KPIs) in propelling success within the road construction sector.

These findings align with existing literature, emphasizing the transformative impact of Key Performance Indicators (KPIs) on the operational effectiveness of the construction industry, as highlighted by studies including those by Hussain et al. (2022), Kunkcu et al. (2022), and Ittner et al. (2003). The industry's pursuit of enhanced efficiency and effectiveness, as underscored by the KPI Working Group (2000) and Kunkcu et al. (2022), further supports the study's results. Acknowledging KPIs as valuable tools for performance evaluation, as emphasized by Humaidi and Said (2011), Takim and Akintoye (2002), resonates with the study's outcomes. Some of the identified key performance indicators also align with a study by M. Elshaikh et al. (2021), which identified top ten KPIs such as projects team experience, customer satisfaction, safety, time and cost deviations, budget adherence etc.

The study findings confirm the pivotal role of KPIs in achieving successful outcomes in road construction contracts. The high level of agreement among participants regarding the importance and effectiveness of KPIs emphasizes their universal significance in the construction industry. Furthermore, the findings provide valuable insights for practitioners and policymakers, supporting the continued integration and refinement of KPIs as essential tools for enhancing the overall performance of construction projects.

### **6.2.2 Contract Management Metrics for Road Construction**

The study delved into exploring the significance of contract management metrics in achieving success within road construction projects. Among the 70 participants, a substantial majority, with 22.9% strongly agreeing and 61.4% agreeing, recognized that comprehending and analyzing contract management metrics is crucial for achieving successful outcomes in road construction contracts. Additionally, the integration of contract management metrics and its impact on contract performance had 24.3% respondents strongly agreeing and 67.1% agreeing. The comparative effectiveness of specific contract management metrics revealed a high level of agreement, with 70.0% strongly agreeing and 15.7% agreeing. Notably, the study identified five optimal contract management metrics, Quality Assurance, Stakeholder Satisfaction, Contractual, Environmental, and Regulatory, as the most effective.

The study findings hold significant implications for road construction projects in Zambia and their impact on the national economy. The strong consensus among participants on the crucial role of comprehending and analyzing contract management metrics indicates a shared understanding of the importance of these metrics for successful outcomes in road construction contracts. Additionally, the widespread agreement on the integration of contract management metrics and their positive impact on contract performance suggests that adopting these practices can lead to improved project outcomes. In the context of Zambia, where infrastructure development is vital for economic growth, the study's identification of five optimal contract management metrics—Quality Assurance, Stakeholder Satisfaction, Contractual, Environmental, and Regulatory—as the most effective underscores the strategic importance of focusing on these metrics.

Implementing effective contract management practices based on these findings has the potential to enhance the efficiency and success of road construction projects, contributing positively to Zambia's economic development. The study's emphasis on stakeholder satisfaction correlates with Njogu's (2016) findings, emphasizing stakeholder involvement for improved project performance. Additionally, emphasizing stakeholder management by engaging key stakeholders helps identify their needs and interests, contributing to overall stakeholder satisfaction—a crucial element for successful project delivery, as noted by Botwe et al. (2016). Quality assurance's prominence aligns with Abas et al. (2015) and Zulu and Chileshe's (2010) focus on quality as critical in infrastructure development. Further highlighting the significance of continuous improvement and quality management, Obare et al. (2016) and Kerzner (2017) identify these elements as pivotal factors influencing project success. These results contribute valuable insights for road construction projects in Zambia, emphasizing the strategic importance of effective contract management practices for economic development.

The study's exploration of contract management metrics in road construction projects has uncovered valuable insights into their pivotal role in achieving success. The agreement among participants highlights a shared understanding of the critical nature of comprehending and analyzing these metrics for successful outcomes. Furthermore, implementing effective contract management practices based on these findings stands as a promising avenue for enhancing the efficiency and success of road construction projects, thereby contributing significantly to Zambia's economic development. The alignment of these results with existing literature further strengthens their credibility and underscores the enduring significance of these metrics in the realm of construction project management.

### **6.2.3 Relationship between Contract Performance Measurement Metrics and Road Construction Contract Performance**

A substantial majority of respondents (74.3%) expressed a significant impact of contract performance metrics on overall contract performance, with 52.9% indicating a considerable and 21.4% a very great extent.

This emphasizes the pivotal role these metrics play in influencing the performance of construction contracts. Furthermore, the findings demonstrate that 65.7% of participants agree that there is an emphasis on contract performance metrics in road construction projects, indicating a widespread recognition of their importance. Notably, 71.4% of respondents agreed that performance metrics exert a significant influence on completing a construction contract within the established schedule, while 68.5% recognized their substantial influence on the contract budget. The strong correlation between the recognition of the impact of performance metrics and their perceived influence on ensuring and maintaining contract quality had 64.3% in agreement, while customer satisfaction had 71.4%, which further underscores their significance in shaping various dimensions of contract performance.

The respondents' feedback on a 5-point Likert scale, as presented in Table 5.9, indicates a strong practice of utilizing these metrics to enhance road project success, assess construction project performance, improve public construction contract outcomes, and actively prioritize and emphasize contract performance metrics. The mean score of 3.97 and standard deviation of 0.91 underscore the robustness and consistency of these practices. Moreover, the examination of the influence of performance metrics on contract aspects, including schedule, budget, quality, and customer satisfaction, signifies a widespread recognition (ranging from 64.3% to 71.4%) of the substantial impact of these metrics across different dimensions of contract performance. The correlation analysis further corroborates these findings, revealing a weak positive correlation between contract performance metrics and selected performance measurements. Collectively, these results emphasize the integral role of contract performance metrics in shaping and improving the outcomes of road construction projects.

These findings align with Joseph et al.'s (2016) study, which identified Performance Measure as a metric for quantifying project efficiency and effectiveness. Consequently, it has a significant impact on the overall performance of road contracts. Furthermore, Ayele (2019) emphasized that performance measurement requires stakeholders to articulate their objectives, establishing the basis upon which the assessment of performance can be.

Overall, the correlation analysis results suggest a weak positive correlation between contract performance metrics and various performance measurements in road construction projects. The term "weak positive correlation" suggests that as one variable (contract performance metrics) increases, the other variable (contract performance) tends to increase as well, but the relationship is not particularly strong. Further, this implies that the implementation of contract performance metrics is associated with, but to a limited extent, improvements, or changes in the performance outcomes of road construction projects.

#### **6.2.4 Contract Management Framework linking Contract Measurement Metrics and Key Performance Indicators**

The research study's final objective aimed to create a framework guiding key stakeholders in the construction sector for the effective utilization of contract measurement metrics and Key Performance Indicators (KPIs) to improve the performance of road construction projects in the Lusaka District. The investigation revealed that the performance of road construction contracts in the Lusaka district is multifaceted, showcasing instances of successful project delivery and enhanced connectivity alongside challenges that underscore the need for increased oversight and accountability in the construction process. Respondents acknowledged overall progress in road construction contracts, highlighting substantial infrastructure improvements. However, interviews raised concerns about compliance with timelines and work quality in specific areas, emphasizing the necessity of addressing these issues for more favorable outcomes. Interviewees offered a diverse perspective on road construction performance, recognizing commendable progress in some projects while pointing out delays and project management issues in others.

These findings align with Al-otaibi et al. (2013), who emphasized the growing importance of enhancing performance for the success of construction projects. They also resonate with Kaliba's (2010) study, which identified challenges in meeting quality, cost, and timing benchmarks in several construction projects in Lusaka. Furthermore, Bello (2017) highlighted the complexity of construction projects, prompting researchers in the construction industry to develop frameworks and mechanisms for improvement.

The assumption for the development of the current study's proposed framework was that by integrating both contract measurement metrics and key performance indicators, the framework facilitates effective communication and understanding among project stakeholders. This contributes to a shared understanding of project goals and expectations, fostering a collaborative environment. The framework also enables a more holistic view of project performance.

#### **6.2.4.1 Rationale for Framework Development**

The rationale behind developing the proposed contract management framework in this study stemmed from the assumption that a detailed adoption of contract management practices in road construction projects was not to its fullest potential, and improving this adoption could positively affect contract success outcomes. The core objective of the framework was to enhance transparency and communication among project stakeholders. By employing standardized metrics and key performance indicators, the framework establishes a common language for all involved parties, fostering clearer communication, facilitating collaborative decision-making, and ultimately contributing to improved project coordination, stakeholder alignment, and the achievement of contract objectives.

The development of the framework integrated findings from the literature review, theoretical and conceptual analysis, as well as quantitative and qualitative data analyses. It specifically addressed the fourth research question, investigating the linkage between contract measurement metrics and key performance indicators in road construction. The development of this framework serves as a valuable tool for decision-makers in the construction sector, urging them to consider additional aspects of performance measurement that can positively influence project outcomes.

The framework's foundation lies in stakeholder and general systems theory. As highlighted by Tantalo and Priem (2014), stakeholder theory emphasizes treating all stakeholders well to foster a synergistic dynamic. Recognizing key stakeholders and their interests is critical for developing contract measurement metrics and key performance indicators aligned with their expectations.

Additionally, the framework incorporates insights from Francis (2015) on systems theory, focusing on the interactions and relationships between components to understand the organization, functioning, and outcomes of a system. By viewing road construction projects as systems with interconnected components, the framework ensures that there is a linkage between each contract measurement metric and the specific KPIs, reflecting the overall success of road construction projects.

The core of the developed framework focuses on identifying crucial measurement metrics, understanding the interests and expectations of involved parties, and recognizing how these interactions contribute to project objectives, ultimately improving the overall performance of construction contracts.

#### **6.2.4.2 Framework Validation**

Validation of the developed framework was imperative to assess its applicability and acceptability in the context of road construction projects. As Taylor (2013) asserts, confirming the validation of any projected parameter is crucial for establishing its reliability, ensuring comprehension by users, and establishing a meaningful connection between the parameter and the envisioned characteristics. Furthermore, Banda (2019) posits that framework validation aims to determine its adequacy for the intended measure, enhancing credibility and confidence in its applicability.

To ensure a comprehensive validation process, the researcher approached five experts with a minimum of three years of experience in both executing construction projects and contributing to research articles in the construction domain. The employed purposive sampling technique allowed for the deliberate selection of participants based on their expertise to provide essential insights related to construction. This strategic approach ensured that the selected experts possessed the necessary qualifications and experience to evaluate the framework effectively.

### 6.2.4.3 Expert Level of Education, years of experience and Position

**Table 6.1: Expert Comments on Framework**

Expert	Level of Education	Years of experience of informant (Expert)	Current Position
Expert 1	Masters	4 years	Civil Engineer
Expert 2	Degree	5 years	Civil Engineer
Expert 3	Masters	8 years	Contractor
Expert 4	Degree	3 years	Civil Engineer
Expert 5	Degree	5 years	Contract Manager

**Source: (Author, 2023)**

### 6.2.4.7 Responses from Experts

The researcher asked the experts to validate and evaluate the proposed framework for utilizing KPIs and contract metrics to improve performance in road construction projects in the district. Below are their responses, which we have also coded.

Expert KC01 stated, *“The framework offers a solid foundation by systematically outlining the critical phases of project management. The emphasis on defining project objectives and identifying stakeholders early on aligns with the principles of effective project planning. The inclusion of real-time monitoring and continuous performance evaluation is particularly commendable, ensuring adaptability and proactive issue resolution throughout the project lifecycle.”*

Expert KC02 mentioned, *“As a Civil Engineer with substantial experience, I appreciate the clarity and sequence of the outlined framework. The phased approach, from tender advertisement to contract closeout, reflects a thorough understanding of project management dynamics. The consideration of relevant contract metrics for each project phase is especially crucial in maintaining project alignment with overarching goals.”*

Furthermore, Expert KC03 stated, *“While the framework is well-structured, there could be more explicit guidance on addressing unforeseen challenges during project execution. Incorporating contingency planning within the risk management phase would enhance the framework's resilience to unexpected events.”*

Expert KC04 highlighted, *“The framework should encompass policymakers, considering their involvement in decision-making for construction projects in the district.”* Nonetheless, the expert acknowledged that complete inclusion of all aspects may not be feasible, allowing for ongoing improvement of the framework.”

Finally, Expert KC05 stated,

*“I find the framework to be a comprehensive guide, providing clear steps for effective project management. The incorporation of a feedback loop, with continuous performance monitoring and generation of performance reports, is essential for promoting accountability and facilitating learning.”*

#### **6.2.4.8 Analysis of the Feedback**

The researcher analyzed the comments from the validators per thematic area as follows:

1. Expert KC01's positive evaluation emphasizes the systematic outline of project management phases. The researcher sees this as a validation of the framework's effectiveness in incorporating stakeholder considerations early on, aligning with the researcher's intention of prioritizing stakeholder engagement in project planning.
2. The acknowledgment by Expert KC02 regarding the clarity and sequence of the framework aligns with the researcher's emphasis on operational effectiveness.
3. The researcher notes Expert KC03's suggestion for more explicit guidance on addressing unforeseen challenges during project execution. While acknowledging the merit of this suggestion, the researcher did not embrace

the commendation regarding the level of detail required or the practicality of explicitly addressing potential challenges.

4. The researcher acknowledges the emphasis from Expert KC04 on the inclusion of policymakers, recognizing their substantial role in decision-making for construction projects. Incorporating various detailed aspects related to policymakers can enhance project performance significantly, given their influential impact on the speed and efficiency of project delivery.
  
5. Expert KC05's positive perception aligns with the researcher's intention to create a comprehensive guide. The researcher finds common ground with the expert in valuing the highlighted components.

In essence, the researcher sees the comments as providing valuable insights into stakeholder considerations, operational alignment, opportunities for enhancement, the delicate balance of policymaker inclusion, and reinforcement of the importance of a feedback-driven approach for continuous improvement. The next chapter introduces the formulated framework.

### **6.3 Chapter Summary**

The chapter highlights the discussions and analysis of the findings, focusing on the four specified objectives outlined in the study and aligning with the outcomes presented in Chapter 5. The subsequent chapter offers conclusions regarding the research findings and provides recommendations, along with the suggested contract management framework crafted to elevate the performance of road construction projects.

## **CHAPTER SEVEN**

### **CONCLUSION AND RECOMMENDATIONS**

#### **7.1**

#### **Introduction**

This chapter highlights the conclusion and recommendations drawn from the research study.

#### **7.2 A recap of the study objectives and findings**

The study centered on investigating how contract management practices affect the outcomes of road construction projects within the Lusaka district. The objective was to delve into various measures of contract management, key performance indicators (KPIs), and metrics associated with contract management. The objective was to develop a framework that could improve road construction performance by integrating contract metrics and KPIs. Additionally, the study aimed to investigate the correlation between contract measurement metrics and contract performance in terms of budget, quality, client satisfaction, and schedule. The chapter outlines the addressed research questions:

##### **7.2.1 The key performance indicators for successful road construction projects**

The research findings indicate that the effective application and integration of key performance indicators (KPIs) play a vital role in attaining desired outcomes in construction performance. The study also noted that specific individual KPIs demonstrated varying degrees of effectiveness in achieving the desired performance outcomes. Additionally, a significant majority of respondents perceived KPIs as both important and effective in the context of road construction contracts. The study further identified certain KPIs, including Quality of Construction, Budget Compliance, Stakeholder Satisfaction, Project Timeliness, Environmental Impact, Contractor Performance, Risk Assessment, Contractual Compliance, and Safety Performance, as particularly effective in achieving desired construction performance outcomes—

such as completing construction contracts within specified cost, time, and quality parameters while meeting client satisfaction.

### **7.2.2 Contract management metrics for road construction**

The research findings suggest that the integration of contract management metrics plays a crucial role in achieving success in road construction projects. The study gauged the importance of integrating contract management metrics and their impact on contract performance by assessing the level of agreement among participants. Additionally, the research concluded that the implementation of effective contract management metrics has the potential to enhance the efficiency and success of road contracts. The study specifically identified Quality Assurance, Stakeholder Satisfaction, Contractual Compliance, Environmental Impact, and Regulatory Compliance as the most effective metrics essential for the success of a road construction contract. These findings align with the study's objective of exploring the necessary contract management metrics for road construction.

### **7.2.3 Relationship between contract performance metrics and the performance of road construction projects**

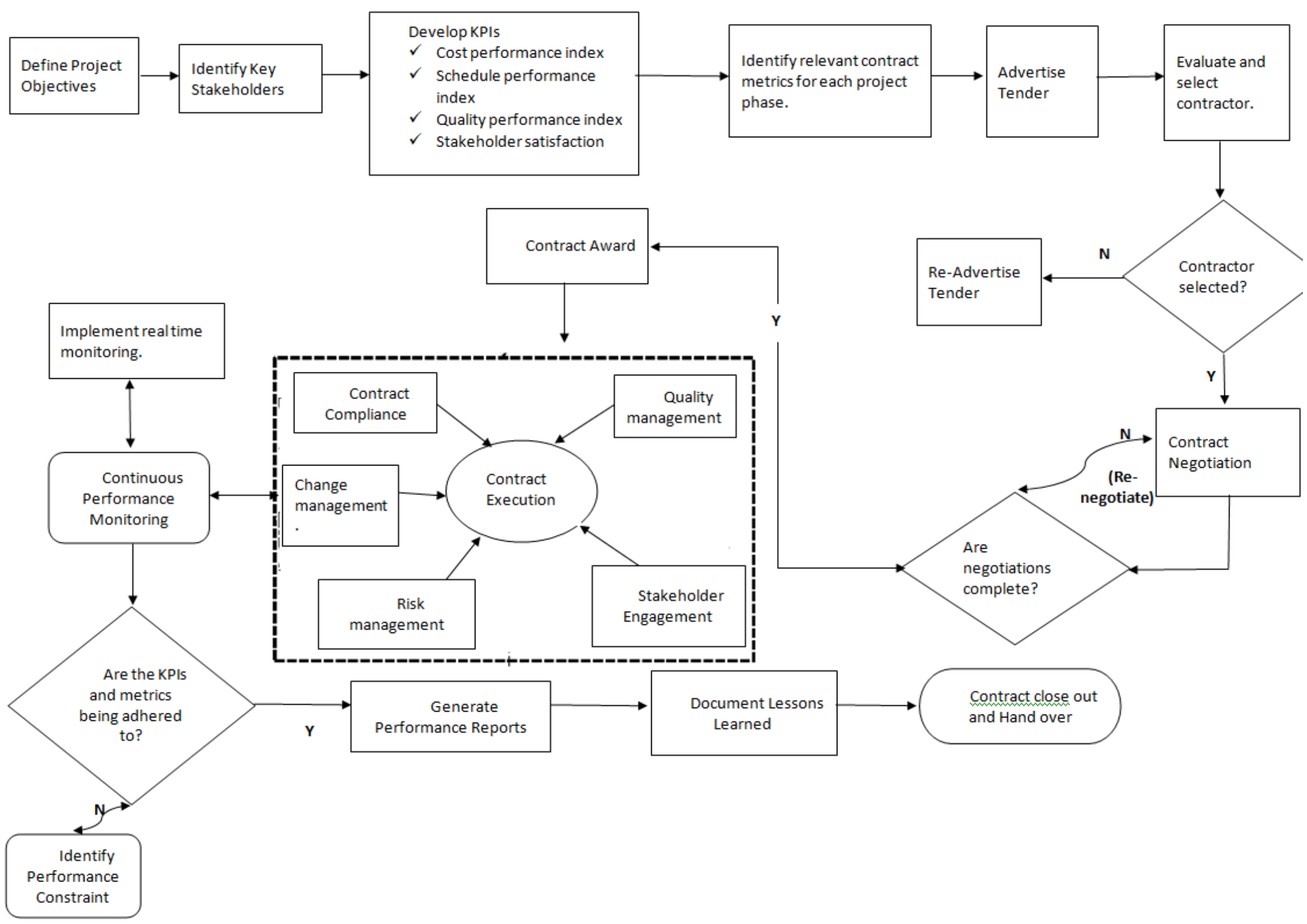
The research aimed to establish the relationship between contract performance metrics and the overall performance of road construction projects. The investigation focused on four specific aspects of contract metrics and their correlation with project schedule, budget, quality, and client satisfaction. These areas included the incorporation of contract performance metrics, the utilization of performance metrics, the approach to contract performance, and the emphasis and prioritization of contract performance metrics by management. The study drew to the conclusion that there exists a correlation between the incorporation of contract performance metrics and completion of the contract as per the agreed budget, schedule, specified quality and client's satisfaction. It discovered that this correlation was weak positive and similar for the correlation between utilization of contract performance metrics and completing a contract within schedule and meeting the client's satisfaction.

The study concluded that, overall, there was a weak positive correlation between contract performance metrics and the selected indicators of contract performance in the context of road construction projects. This indicates that an increase in one aspect is associated with an increase in the other; however, despite the weak correlation results and the fact that the impact may not be highly significant, the study cannot rule out the positive aspect.

#### **7.2.4 Linkage between contract management metrics and key performance indicators in road construction.**

The research thoroughly examined contract metrics and key performance indicators (KPIs) independently and found that both play significant roles in the performance of road construction contracts. Consequently, the researcher formulated a comprehensive contract management framework to integrate these metrics and KPIs, and improve contract performance through their effective application. The study identified a need for the framework through the collected responses. The author developed this framework by synthesizing information from the reviewed literature, research findings, and expert validation. Figure 7.1 visually represents the performance enhancement framework that integrates contract management metrics and KPIs for road construction. The detailed instructions for implementing the proposed framework are in Appendix (I).

#### **Figure 7.1: Integrated Framework for Optimizing Road Construction Performance: Linking Contract Management Metrics and Key Performance Indicators**



### 7.3 Recommendations

The research study led to the formulation of the following recommendations.

i. **Integration of Key Performance Indicators (KPIs)**

Considering the widespread consensus among participants regarding the significance and efficacy of Key Performance Indicators (KPIs), the study recommends that project and contract managers in Lusaka prioritize the integration of KPIs. The researcher recommends that there should be an emphasis on the identification and inclusion of effective KPIs during both the planning and execution phases to enhance the success of contract performance. This should include the KPIs identified as the most effective, namely Quality of Construction, Budget Compliance, Stakeholder Satisfaction, Project Timeliness, Environmental Impact, Contractor Performance, Risk Assessment, Contractual Compliance, and Safety Performance.

ii. **Emphasis on Contract Management Metrics**

The study underscores the significance of comprehending and analyzing contract management metrics for successful outcomes in road construction contracts. The study recommends that project managers should prioritize the understanding and utilization of contract management metrics such as Quality Assurance, Stakeholder Satisfaction, Contractual Compliance, Environmental Impact, and Regulatory Compliance. Stakeholder involvement and satisfaction, as well as quality assurance, should be focal points in the project management strategy. They should take keen interest in involving stakeholders, as this will ensure that their perspectives and needs are considered, fostering a sense of ownership and support for the project. This can lead to smoother project execution, reduced conflicts, and increased cooperation. Prioritizing quality assurance ensures that the project delivers the intended outcomes and meets predefined standards. This, in turn, minimizes the likelihood of defects, rework, and unexpected issues, enhancing the overall efficiency and effectiveness of the project.

### **iii. Continuous Improvement and Oversight**

The research underscores both successful project deliveries and challenges that emphasize the necessity for heightened oversight and accountability in the construction process. The study recommends that policy makers, government officials and investors of road construction projects in Lusaka are to prioritize continuous improvement, addressing challenges related to compliance with timelines and work quality. Further, project managers should ensure that stakeholders actively engage in ongoing assessments and improvements to ensure the consistent success of construction projects. This will help encourage a collaborative environment among project stakeholders for continuous improvement. The study also recommends that all parties are actively involved in decision-making processes related to performance metrics, ensuring a shared understanding of project goals and expectations.

### **iv. Implementation and Refinement of the Contract Management Framework**

The researcher suggests that contract managers, project managers and construction companies may consider adopting the newly devised contract management framework, which incorporates contract measurement metrics and Key Performance Indicators (KPIs), to enhance the effectiveness of road construction projects. Future projects in Lusaka, Zambia, could benefit from adopting and customizing this framework to enhance transparency, communication and cooperation among stakeholders involved in the project. The framework provides a systematic approach to aligning measurement metrics with key performance indicators for overall project success. Furthermore, the newly proposed contract management framework, integrating contract measurement metrics and KPIs, provides a comprehensive approach to project oversight and accountability.

## **7.4 Future Research Areas**

- I. The study identified the key performance indicators for successful road construction projects. However, future researchers could investigate further with other specific aspects. This might include investigating specific KPIs' impact on different project phases, uncovering potential trade-offs, or assessing their adaptability across diverse road construction contexts.
- II. The study was exclusive to Lusaka District with a limited sample size and the researcher experienced financial constraints and time limitations. Therefore, the recommendation is that other researchers must conduct a comparable research in other districts to scrutinize and generalize the findings, employing a larger sample size.
- III. The study presented a road construction-specific framework. Contract managers could explore the flexibility and adaptability of the framework in various construction sectors. This comparative analysis has the potential to reveal challenges and opportunities specific to each sector.
- IV. While the study identified effective KPIs for road construction, it acknowledges that their applicability may vary across regions. Future research endeavors could undertake comparative analyses, investigating the cultural influence, regulatory, or environmental differences on the effectiveness of KPIs in diverse geographical contexts.
- V. The study examined how contract measurement metrics correlate with contract performance, revealing a weak positive relationship. Subsequent research endeavors could delve into different dimensions of contract performance to deepen the understanding of this relationship and its potential impact on different construction segments.

## **7.5 Contributions to the Body of Knowledge**

The findings of the study have significantly contributed to the understanding of how contract management practices influence the outcomes of road construction projects in the Lusaka district. Specifically, the research successfully identified and emphasized the critical role of KPIs in the success of road construction projects. This finding also

provides a comprehensive understanding of those KPIs that are essential for success in construction project outcomes.

Moreover, the study introduced an innovative contract management framework that integrates both contract management metrics and KPIs. This framework serves as a practical and valuable tool for improving transparency, communication, and collaboration among project stakeholders. Addressing specific dimensions of performance measurement, the framework contributes to the overall enhancement of project coordination, stakeholder alignment, and the successful attainment of contract objectives.

Furthermore, this research significantly contributes to the adoption of necessary performance measures for ensuring the successful implementation of road construction contracts. Through a thorough assessment of various aspects, including the incorporation and utilization of performance metrics, the study uncovered a weak positive correlation. This understanding of the relationship between contract performance metrics and key indicators of project success enriches the existing body of knowledge and provides insights for decision-makers and practitioners in the field of construction project management.

## **7.6 Study Limitations**

- I. The scope of the study was limited to the perspectives and experience of the participants, which could mean that the findings may not be universally applicable.
- II. The collection of qualitative data from participants posed challenges, with some individuals rescheduling interviews due to conflicting commitments. Additionally, the geographical distance of certain participants imposed financial constraints on the researcher. These obstacles hindered the acquisition of more comprehensive and timely information.

## **7.7 Chapter Summary**

This chapter presents a comprehensive exploration of research findings, recommendations, contributions to knowledge, and study limitations. The research focused on how contract management practices relate to the performance of road construction projects and the development of a framework integrating KPIs and contract management metrics. The study further identified specific effective KPIs for the significant part they play in delivering the desired outcomes concerning construction performance. These KPIs are Quality of Construction and Stakeholder Satisfaction. The research established a weak positive correlation between contract performance metrics and project indicators, leading to the formulation of a detailed contract management framework.

Furthermore, recommendations include prioritizing KPI integration, understanding contract management metrics, continuous improvement, and implementing the developed framework. The proposed future research avenues delve into finer details, conduct broader geographical studies, explore framework adaptability, assess cultural influences, and deepen the understanding of contract performance dimensions. Overall, the study significantly contributes to the understanding and improvement of road construction outcomes, despite acknowledging limitations related to scope, response rate, and data collection challenges.

## REFERENCES

Abdellatif, H., &Alshibani, A. (2019) 'Major Factors Causing Delay in the Delivery of Manufacturing and Building Projects in Saudi Arabia'. *Buildings*, 9(4), 93. [DOI: 10.3390/buildings9040093]

Alinaitwe, H., Apolot R., &Tindiwensi, D. (2013) 'Investigation into the Causes of Delays and Cost Overruns in Uganda's Public Sector Construction Projects'. *Journal of Construction in Developing Countries*, 18(2), 33–47.

Alsabban, M. A. (2017) 'The Role of Governance in Successful Project Management'. *International Journal of Project Management*, 35(6), 1148-1162.

Al-Tmeemy, S., Abdul-Rahman, H., & Harun, Z. (2011) 'Future Criteria for Success of Building Projects in Malaysia'. *International Journal of Project Management*, 29, 337-348. [DOI: 10.1016/j.ijproman.2010.03.003]

Aluonzi, G., N. Oluka, P., &Nduhura, A. (2016) 'Contract Management and Performance of Road Maintenance Projects: The Case of Arua Municipality'. *Universal Journal of Management*, 4(10), 550–558. [DOI: 10.13189/ujm.2016.041004]

Anastasopoulos, P. C., McCullouch, B. G., Gkritza, K., Mannering, F. L., & Sinha, K. C. (2009) 'Cost Savings Analysis of Performance-Based Contracts for Highway Maintenance Operations'. *Journal of Infrastructure Systems*, 16(4), 251-263.

Asenahabi, B. (2019) 'Basics of Research Design: A Guide to Selecting Appropriate Research Design'. In *International Journal of Contemporary Applied Research* (Vol. 6, Issue 5). [Website: [www.ijcar.net](http://www.ijcar.net)]

Atkinson, R. (1999) 'Project Management: Cost, Time, and Quality, Two Best Guesses and a Phenomenon, It's Time to Accept Other Success Criteria'. *International Journal of Project Management*, 17(6), 337-342.

Baker, B. N., Murphy, D. C., & Fisher, D. (1988) 'Factors Affecting Success'. In: Cleland, D. L. & King, W. R. (Eds), *Project Management Handbook* (pp.902-909). New York: Van Nostrand Reinhold.

Banda, J. (2019) 'Developing Strategies for Improving Implementation of Public Sector Construction Projects in Zambia'.

Banyenzaki, M. (2015) 'Contract Management Practices and Performance of Road Construction Projects in Wakiso District, Uganda'.

Bayane, B. M., & Yanjun, Q. (2017) 'Transport Infrastructure Development in China'. *Journal of Sustainable Development of Transport and Logistics*, 2(1), 29–39. [DOI: 10.14254/jsdtl.2017.2-1.3]

Bello, W. A. (2017) 'Project Performance Diagnostics: A Model for Assessing Construction Project Performance in Nigeria'.

Bobo, E. B. (2021) 'Assessing the Effect of Construction Delivery and Lead-time on the Performance of Local Road Contractors in Lusaka District, Zambia'.

Bryde, D., Unterhitzberger, C., & Joby, R. (2017) 'Conditions of Success for Earned Value Analysis in Projects'. *International Journal of Project Management*, 36, 474-484.

Chan, A. P., & Chan, A. P. (2004) 'Key Performance Indicators for Measuring Construction Success'. *Benchmarking: An International Journal*.

Chawla,& Kant. (2017) 'Application of Theory of Constraints in Service Type Organization' (Vol. 5). [Website: [www.ijari.org](http://www.ijari.org)]

Cheelo, C., & Liebenthal, R. (2020) 'The Construction Sector in Zambia'. In *Mining for Change* (pp. 397–421). Oxford University Press Oxford. [DOI: 10.1093/oso/9780198851172.003.0018]

Cherono Vivian, & Chepwony, J. K. (2021) 'Effect of Contract Management Practices on the Performance of Road'. In *Journal of Procurement* (Vol. 8, Issue 1).

Cooke-Davies, T. (2002) 'The 'Real' Success Factor on Projects'. *International Journal of Project Management*, 17(3), 139-145. [DOI: 10.1016/S0263-7863(01)00067-9]

Creswell, J. W. (2014) 'A Concise Introduction to Mixed Methods Research'. SAGE Publications.

Cullen, S. (2015) 'The 12 Best Practices of Contract Management: The Future of Procurement-Driving Downstream Benefit Realization'. *The Effect of Psychological Contracts on Outsourcing Relationships*. [Link: ResearchGate]

Das, D. K. (2022) 'Exploring the Factors and Measures to Improve Safety in Road Construction in India'. *Journal of Construction in Developing Countries*, 27(1), 139–152. [DOI: 10.21315/jcdc2022.27.1.8]

Dawadi, S., Shrestha, S., &Giri, R. A. (2021) 'Mixed-Methods Research: A Discussion on Its Types, Challenges, and Criticisms'. *Journal of Practical Studies in Education*, 2(2), 25–36. [DOI: 10.46809/jpse. v2i2.20]

Deloitte. (2017) 'GPoC 2017 Global Powers of Construction'.

Dereje. (2021) 'Assessment of the Contract Management Practices in Ethiopian Federal Road Construction Projects'.

Dixit, S. (2020) 'Study of Factors Affecting the Performance of Construction Projects in AEC Industry'. *Organization, Technology and Management in Construction*, 12(1), 2275–2282. [DOI: 10.2478/otmcj-2020-0022]

Don-Solomon, A. (2018) 'Ontological & Epistemological Philosophies Underlying Theory Building: A Scholarly Dilemma or Axiomatic Illumination-The Business Research Perspective'.

Enshassi, A., Mohamed, S., &Abushaban, S. (2009) 'Factors Affecting the Performance of Construction Projects in the Gaza Strip'. *Journal of Civil Engineering and Management*, 15(3), 269-280.

Erik Eriksson, P., & Lind, H. (2016) 'Strategies for Reducing Moral Hazard in Construction Procurement: A Conceptual Framework'. *Journal of Self-Governance and Management Economics*, 4(1).

Giannopoulos, G., Holt, A., Khansalar, E., &Cleanthous, S. (2013) 'The Use of the Balanced Scorecard in Small Companies'. *International Journal of Business and Management*, 8(14), 1-22.

Glas, A. H., &Kleemann, F. C. (2017) 'Performance-Based Contracting: Contextual Factors and the Degree of Buyer-Supplier Integration'. *Journal of Business & Industrial Marketing*, 32(5), 677-692.

Gorelov, B. A., & Gyazova, M. M. (2018) 'Performance-Based Incentive Mechanisms in Life-Cycle Contracts'. *Russian Engineering Research*, 38(4), 309-312.

Gyadu-Asiedu. (2009) 'Assessing Construction Project Performance in Ghana: Modelling Practitioners' and Client's Perspectives'. [DOI: 10.6100/IR658375]

Gyadu-Asiedu, W. (2014) 'Construction Project Performance Measurement: A Review of the Philosophies, Concepts and Paradigms'. In *Africa Development and Resources Research Institute (ADRRRI) Journal* ([www.adrri.org](http://www.adrri.org)), 5(5).

Hampson, K. D., & Sanchez, A. (2014) 'The Global Construction Industry and R&D Investment in the Australian Construction Industry'. [Link: ResearchGate]

Harerimana, C. (2021) 'Contract Management Practices and Performance of Roads Construction Projects in Rwanda: Case of Rwanda Transport Development Agency'. *The International Journal of Business Management and Technology*, 5, 1–6. [Website: [www.theijbmt.com](http://www.theijbmt.com)]

Harrison, J. S., Freeman, R. E., & de Abreu, M. C. S. (2015) 'Stakeholder Theory as an Ethical Approach to Effective Management: Applying the Theory to Multiple Contexts'.

Hughes, W., Champion, R., & Murdoch, J. (2015) *Construction Contracts: Law and Management*'. Routledge.

Hupare, M. S., Gupta, A. K., & Desai, D. B. (2016) 'Measuring the Performance of Infrastructure Projects through Stakeholder's Perspective – A Case Study of ITDC'. *Imperial Journal of Interdisciplinary Research*, 2 (9).

Jongbo, O. C. (2014) 'The Role of Research Design in a Purpose-Driven Enquiry'. *Review of Public Administration and Management*, 3(6). [Website: [www.arabianjbm.com/RPAM\\_index.php](http://www.arabianjbm.com/RPAM_index.php)]

Junjie, M., & Yingxin, M. (2022a) 'The Discussions of Positivism and Interpretivism'. *Global Academic Journal of Humanities and Social Sciences*, 4(1), 10–14. [DOI: 10.36348/gajhss.2022.v04i01.002]

Junjie, M., & Yingxin, M. (2022b) 'The Discussions of Positivism and Interpretivism'. *Global Academic Journal of Humanities and Social Sciences*, 4(1), 10–14. [DOI: 10.36348/gajhss.2022.v04i01.002]

KaareKorbeKati, & Koppel Ott. (2012) 'Improving the Road Construction Supply Chain by Developing a National Level Performance Measurement System: The Case of Estonia'.

Kaliba, C. (2010) 'Cost Escalation, Schedule Overruns and Quality Shortfalls on Construction Projects'.

Kibuuka Ssempebwa, R., Ssempebwa Kibuuka Ronald Supervisor, E., Hilda Lora, R. M., & Eng Ssempebwa Kibuuka Ronald, B. (2014) 'Project Contract Management'.

Kim, S., & Moon, H. (2020) 'Relationship between Contract Management and Performance in Public Road Construction Projects'. *Journal of Management in Engineering*, 36(5), 43-55.

Kumaraswamy, M., Mahesh, G., Mahalingam, A., Loganathan, S., & Kalidindi, S. N. (2017) 'Developing a Client's Charter and Construction Project KPIs to Direct and Drive Industry Improvements'. *Built Environment Project and Asset Management*, 7(3), 253-270.

Kivunja, C. (2018) 'Distinguishing between Theory, Theoretical Framework, and Conceptual Framework: A Systematic Review of Lessons from the Field'. *International Journal of Higher Education*, 7(6), 44–53. [DOI: 10.5430/ijhe.v7n6p44]

Lechner, J., Rodewijk, F., Joep, J. M. H., & Hotterbeekx (2013) 'Determining Contract Management Professionalism within Rijkswaterstaat'.

Leong, T. K., Zakuan, N., Mat Saman, M. Z., Ariff, M. S. M., & Tan, C. S. (2014) 'Using Project Performance to Measure Effectiveness of Quality Management System Maintenance and Practices in Construction Industry'. *The Scientific World Journal*.

Lyimo, B. J., & Ndyalusa, E. K. (2022) 'Road Construction Projects and Economic Performance of Ngorongoro Conservation Area Authority'. In *Olva Academy-School of Researchers (Vol. 4, Issue 1)*. [Link: ResearchGate]

Mahajan, R., Lim, W. M., Sareen, M., Kumar, S., & Panwar, R. (2023) 'Stakeholder Theory'. *Journal of Business Research*, 166. [DOI: 10.1016/j.jbusres.2023.114104]

Mahamid, I. (2013) 'Frequency of Time Overrun Causes in Road Construction in Palestine: Contractors' View'. *Organization*.

Majid, U. (2018) 'Research Fundamentals: Study Design, Population, and Sample Size'. *Undergraduate Research in Natural and Clinical Science and Technology (URN CST) Journal*, 2(1), 1–7. [DOI: 10.26685/urncst.16]

Maxwell, J. A. (2012) '*Qualitative Research Design: An Interactive Approach*'. Sage publications.

Melese, Y., Lumbreras, S., Stikkelman, R., Herder, P., & Ramos, A. (2016) 'Cooperation Under Uncertainty: Assessing the Value of Risk Sharing and Determining the Optimal Risk-Sharing Rule for Agents with Pre-existing Business and Diverging Risk Attitudes'. *International Journal of Project Management*. [DOI: 10.1016/j.ijproman.2016.11.007]

Meshram, M., Gitty, R., Vinay & Topkar, M. (2020) 'Project Performance Indicators for Measuring Construction Performance in Mumbai'. [Website: [www.ijert.org](http://www.ijert.org)]

Mulinge (2017) 'Contract Management Practices and Completion of Road Construction Projects by the County Government of Machakos, Kenya'.

Ngoma, S. (2015) 'Public Sector Infrastructure Delivery through Public Private Partnerships in Zambia'.

Nsanzimana, J., & Mulyungi, P. (2016) 'Effect of Contract Management Practices on Performance of Road Construction Projects in Kigali, A Case of Rwandex-Remera Road Construction Project 1 2'. *International Journal of Science and Research (IJSR) Index Copernicus Value*, 7. [DOI: 10.21275/ART20192385]

Onyango, H. O., & Juma (2020) 'The Role of Contract Monitoring on Performance of Construction Contracts in County Government of Busia'. [Website: [www.strategicjournals.com](http://www.strategicjournals.com)]

Park, Y. S., Konge, L., & Artino, A. R. (2020a) 'The Positivism Paradigm of Research'. In *Academic Medicine (Vol. 95, Issue 5, pp. 690–694)*. Wolters Kluwer Health. [DOI: 10.1097/ACM.0000000000003093]

Park, Y. S., Konge, L., & Artino, A. R. J. (2020b) 'The Positivism Paradigm of Research'. *Academic Medicine*, 95(5). [Link: Journals LWW]

Price, P. C., Jhangiani, R. S., & Chiang, I.-C. A. (2015) 'Reliability and Validity of Measurement'. *Research Methods in Psychology*.

Project Management Institute. (2013) *The Standard for Project Management and a Guide to the Project Management Body of Knowledge (PMBOK Guide)*'.

Rahi, S. (2017) 'Research Design and Methods: A Systematic Review of Research Paradigms, Sampling Issues, and Instruments Development'. *International Journal of Economics & Management Sciences*, 06(02). [DOI: 10.4172/2162-6359.1000403]

Rahman, M. S. (2016) 'The Advantages and Disadvantages of Using Qualitative and Quantitative Approaches and Methods in Language Testing and Assessment Research: A Literature Review'. *Journal of Education and Learning*, 6(1), 102. [DOI: 10.5539/jel.v6n1p102]

Rai, U. (2021). 'Identification of Constraints in Construction Projects to Improve Performance'. *International Journal for Research in Applied Science and Engineering Technology*, 9(1), 710–713. [DOI: 10.22214/ijraset.2021.32912]

Rendon, R. G. (2016). 'Assessment of Organizational Contract Management Process Maturity'. [Link: ResearchGate]

Rivera, A., Le, N., Kashiwagi, J., &Kashiwagi, D. (2016). 'Identifying the Global Performance of the Construction Industry'. *Journal for the Advancement of Performance Information and Value*, 8(2), 7. [DOI: 10.37265/japiv.v8i2.61]

Ruddock, S. (2009). 'The Scope of the Construction Sector: Determining its Value'. [DOI: 10.4324/9780203938577.ch4]

Sackey, L. N. A., Quartey, J., Nortey, A. N. N., Obeng, A. T., Okyere, A. A., &Kayoung, P. Y. (2023). 'Road construction and its socio-economic and health impact: a case study of Atonsu lake road'. *Discover Environment*, 1(1), 6. [DOI: 10.1007/s44274-023-00009-x]

Sakala, E. (2018). 'AN ASSESSMENT OF THE QUALITY OF RURAL ROADS IN LUSAKA PROVINCE OF ZAMBIA'.

Saunders, M., & Bristow, A. (2015). 'Understanding research philosophy and approaches to theory development'.

Scotland, J. (2012). 'Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms'. *English Language Teaching*, 5(9), 9–16. [DOI: 10.5539/elt.v5n9p9]

Seninde, S., Muhwezi, L., & Acai, J. (2021). 'Assessment of the Factors Influencing Performance of Road Construction Projects in Uganda: A Case Study of Ministry of Works and Transport'. *International Journal of Construction Engineering and Management*, 2021(4), 101–115. [DOI: 10.5923/j.ijcem.20211004.02]

Shukla, S. (2020). 'CONCEPT OF POPULATION AND SAMPLE'.

Şimşit, Z. T., Günay, N. S., & Vayvay, Ö. (2014). Theory of Constraints: A Literature Review. *Procedia - Social and Behavioral Sciences*, 150, 930–936. [DOI: 10.1016/j.sbspro.2014.09.104]

Singh, A. S., & Masuku, M. B. (2014). 'SAMPLING TECHNIQUES & DETERMINATION OF SAMPLE SIZE IN APPLIED STATISTICS RESEARCH: AN OVERVIEW'. [Link: IJECM]

Taherdoost, H. (2016). 'Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research'. In *International Journal of Academic Research in Management (IJARM)* (Vol. 5, Issue 2). [Link: SSRN]

Takim, R., & Akintoye, A. (2002). 'Performance indicators for successful construction project performance'. In *University of Northumbria. Association of Researchers in Construction Management* (Vol. 2).

Tembo, C. K. (2018). 'Risk allocation on Building projects in the Zambian Construction Industry (ZCI)'.

Vasudevan, H. (2021). 'Theory of constraint application on quality management and organizational performance in the construction industry' (Vol. 2021). [Link: Inti Journal]

Wells, J. (1984). 'The construction industry in the context of development: A new perspective'. *Habitat International*, 8(3–4), 9–28. [DOI: 10.1016/0197-3975(84)90040-7]

Zakaria, N., Shah Ali, A., & Yen Yi, T. (2020). 'Application of Theory of Constraints in Quantity Surveying Firm'. 11. [Link: SPAJ]

Zulu, S., & Chileshe, N. (2010). 'Service quality of building maintenance contractors in Zambia: A pilot study'. *International Journal of Construction Management*, 10(3), 63–81.

## **APPENDIX I: INSTRUCTION MANUAL FOR DEVELOPED FRAMEWORK**

### **PHASE 1 – PRE - CONTRACT PHASE**

#### **Step 1: Define Project Objectives**

Define the project's goals and requirements to create a comprehensive understanding of the scope and desired outcomes. Clearly articulate the specific objectives that the project aims to achieve, ensuring that all stakeholders share a common understanding. This initial step lays the foundation for a focused and purpose-driven project.

#### **Step 2: Identify Key Stakeholders**

Identify and engage relevant stakeholders who have a keen interest in the project's success. Assess their expectations, interests, and potential impacts on the project to ensure that their perspectives are taken into consideration throughout the entire project lifecycle. Effective stakeholder engagement is crucial for building strong relationships and garnering support for the project.

#### **Step 3: Develop KPIs**

Develop Key Performance Indicators (KPIs) that are measurable, time-bound, and directly aligned with the defined project objectives. These KPIs will serve as benchmarks for evaluating the project's progress and success. Carefully selecting and clearly defining KPIs ensures that project performance is quantifiable and systematically assessed.

#### **Step 4: Identify Relevant Contract Metrics**

Align contract metrics with each phase of the project, tailoring them to monitor specific aspects of performance at different stages. This approach enables a nuanced

evaluation of the project's progress, ensuring that the metrics chosen are directly relevant to the unique challenges and requirements of each phase.

## **PHASE 2 – TENDERING PHASE**

### **Step 1: Advertise Tender**

Publicly announce the project, providing comprehensive guidelines and requirements for the tendering process. Clearly communicate the expectations for potential contractors, fostering transparency and fairness. This step sets the stage for attracting qualified candidates and ensures a robust and competitive tendering process.

### **Step 2: Evaluate and Select Contractor**

Thoroughly assess contractor proposals against predefined criteria, considering factors such as experience, capabilities, and proposed approaches. Select the most suitable candidate based on a comprehensive evaluation, ensuring that the chosen contractor aligns with the project's goals and requirements. If no contractor is suitable, re-advertise the tender to attract a broader pool of candidates. Once a suitable contractor is chosen, ensure that all parties agree to the terms and conditions before moving forward.

## **PHASE 3 – CONTRACT FORMATION PHASE**

### **Step 3: Contract Negotiation**

Engage in negotiations to finalize contractual details, addressing any outstanding concerns or ambiguities. Ensure that both parties are fully aligned on the terms of the contract, including roles, responsibilities, and performance expectations. Effective negotiation lays the groundwork for a successful collaboration.

### **Step 4: Contract Award**

Formally award the contract to the selected contractor, officially initiating the project. Confirm all details and expectations with the contractor to set the stage for a successful partnership.

## **PHASE 4 – CONTRACT EXECUTION PHASE**

### **Step 1: Execute the Contract**

Implement the terms and conditions of the contract, ensuring strict adherence to quality management, stakeholder engagement, risk management, change management, and contract compliance processes. This phase requires meticulous execution to guarantee that the project progresses according to the established plan.

### **Step 2: Perform Continuous Performance Monitoring**

Implement real-time monitoring to track project progress and regularly assess contractor performance against established KPIs and metrics. Ongoing monitoring will ensure that any project plan deviations are identified and addressed.

### **Step 3: Evaluate KPIs and Metrics**

Evaluate whether the project and contractor are adhering to the established KPIs and metrics. If there are discrepancies, take corrective action to address performance constraints. If adherence is satisfactory, continue with the ongoing performance monitoring.

## **PHASE 5 – CONTRACT CLOSE OUT PHASE**

### **Step 1: Generate Performance Reports**

Compile regular reports detailing project and contractor performance, highlighting achievements, challenges, and areas for improvement. These reports serve as valuable tools for communication, transparency, and decision-making throughout the project.

**Step 2: Document Lessons Learned**

Record insights and experiences gained throughout the project, capturing lessons learned for future improvement. Documenting these experiences fosters a culture of continuous learning and refinement in project management practices.

**Step 3: Contract Close Out and Handover**

Complete all project deliverables, formalize the closure of the contract, and hand over necessary documentation. This phase marks the conclusion of the project, after ensuring that they met all the obligations, and transferred necessary paperwork.

## APENDIX II: SURVEY QUESTIONNAIRE



### SCHOOL OF POSTGRADUATE STUDIES

Dear Respondent,

**RE: Research on the Application of contract management practices on the performance of road construction projects in Lusaka District**

I am presently pursuing a master's degree in project management at the University of Lusaka. As part of the academic requirements, I am conducting a research study to fulfill the criteria for the master's degree program.

The aim of this study is to explore the correlation between four specific contract management practices, namely payment terms, performance monitoring and reporting, technical capacity, and institution capacity, on the performance of road construction contracts in the Lusaka district.

Your participation in this academic survey is integral to the study. I kindly request you to complete the enclosed questionnaire, providing honest and comprehensive answers to the questions. It is important to note that this research is solely for academic purposes, and all responses and information shared will be treated with the utmost confidentiality. If you encounter any queries or face difficulties during the process, please feel free to contact me via email at [keziahchakaba@gmail.com](mailto:keziahchakaba@gmail.com) or on my cellphone at 0974-093841.

Thank you in advance for your valuable contribution.

Yours Faithfully,  
Keziah Chakaba.

If you agree to participate in this study, kindly tick the “**Agreed**” box and proceed with the questionnaire. Otherwise, tick the “**Disagreed**” box.

Agreed [ ] Disagreed [ ]

**SECTION A: RESPONDENT’S PERSONAL INFORMATION**

Please give your personal information by marking (x) where applicable.

1. What is your gender?  
Male [ ] Female [ ]
2. What is your level of education? **(state your highest level)**  
Certificate [ ] Diploma [ ] Undergraduate [ ] Postgraduate [ ]  
Other **(Please specify)** .....
3. What is your occupational position?  
Contract Manager [ ] Project Manager [ ] Contractor [ ]  
Government Official **(Please specify)** .....
4. Have you been involved in a public road construction contract before?  
Yes [ ] No [ ]
5. How many years of experience do you have in the road construction industry?  
Less than 5 years [ ] 5 to 10 years [ ] 10-15 years [ ] More than 15 years [ ]

**SECTION B: KEY PERFORMANCE INDICATORS IN ROAD CONSTRUCTION**

Drawing on your expertise and experience in contract management, specifically in the application of key performance indicators in road construction contracts within Lusaka, kindly offer feedback to the statements below by marking (X) where applicable.

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

- ✓ **To explore key performance indicators for successful road construction projects**

		S	D	N	A	SA
		D				
N	Statement	1	2	3	4	5
1	Identifying and understanding the key performance indicators is crucial for achieving successful outcomes in road construction projects.					
2	The incorporation of key performance indicators in road construction projects substantially improves contract performance					

3 B	Certain key performance indicators prove to be more effective than others in achieving successful outcomes in road construction projects					
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4B. If you 'Agree' or 'Strongly Agree' with 3B above, kindly mark (X) against the key performance indicators that you believe are most effective (of critical importance) in attaining the desired outcomes for road construction contracts in the provided table below.

No.	Key Performance Indicators	Mark (X)
4B.1	Stakeholder Satisfaction	
4B.2	Project Timeliness	
4B.3	Budget Compliance	
4B.4	Quality of Construction	
4B.5	Safety Performance	
4B.6	Scope Achievement	
4B.7	Regulatory Compliance	
4B.8	Risk Assessment	
4B.9	Contractual Compliance	
4B.10	Resource Utilization	
4B.11	Communication Effectiveness	
4B.12	Environmental Impact	
4B.13	Technical Specifications	
4B.14	Lessons Learned	
4B.15	Contractor Performance	

✓ **To explore contract management metrics for road construction projects**

		<b>S</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
<b>No</b>	<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
5 B	Understanding and exploring critical contract management metrics is essential for attaining successful outcomes in road construction projects					
6 B	The integration of contract management metrics in road construction projects significantly enhances contract performance					
7 B	Some contract management metrics demonstrate greater effectiveness than others in realizing successful outcomes in road construction projects					

8B. If you 'Agree' or 'Strongly Agree' with 7B above, kindly mark (X) against the contract management metrics that you believe are most effective (of critical importance) in attaining the desired outcomes for road construction contracts in the provided table below.

<b>No.</b>	<b>Contract Management Metrics</b>	<b>Mark (X)</b>
8B.1	Stakeholder Satisfaction	
8B.2	Quality Assurance	
8B.3	Resource Utilization Efficiency	
8B.4	Environmental Impact Metrics	
8B.5	Safety Performance	
8B.6	Innovation Adoption	
8B.7	Regulatory Compliance	

8B.8	Risk Management	
8B.9	Contractual Compliance	
8B.10	Timeliness Metrics	

- **To examine the relationship between contract performance metrics and road contract performance.**

		1	2	3	4	5
No.	STATEMENT	No extent	Low extent	Moderate extent	Great extent	Very great extent
9B	In your opinion, indicate the degree to which contract performancemetrics affect the overall performance of the contract.					

10B In a road construction project, contract performance metrics assess and gauge the effectiveness, adherence, and success of contractual obligations and project outcomes. In your involvement in public construction contracts, is there a focus on emphasizing contract performance metrics by either yourself or management?

Yes[ ] No[ ] Not Sure[ ]

Kindly indicate your level of agreement or disagreement with the statements regarding contract performance metrics in road construction contracts in Lusaka.

		<b>S</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>S</b>
		<b>D</b>			<b>A</b>	<b>A</b>
<b>N</b>	<b>STATEMENT</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>o.</b>						
1 1B	The incorporation of contract performance measurement metrics significantly enhances the success of road construction projects					
1 2B	The utilization of performance metrics is a key factor in assessing the performance of construction projects					
1 3B	A comprehensive approach to contract performance measurement metrics positively influences the overall outcomes of public construction contracts					
1 4B	The management in construction projects you have been involved in, actively prioritizes and emphasizes the use of contract performance measurement metrics					
1 5B	There is a noticeable correlation between contract performance measurement metrics and the overall success of road construction projects					

16B. To what extent do you agree or disagree that contract management metrics influence the following contract performance measures?

		1	2	3	4	5
No.	PERFORMANCE MEASURE	No extent	Low extent	Moderate extent	Great extent	Very great extent
16B.1	Contract completed in time					
16B.2	Contract completed within budget					
16B.3	Contract completed to specified quality requirements					
16B.4	Contract deliverables meet client's satisfaction					

- **To develop a framework for contract management that establishes a connection between contract measurement metrics and key performance indicators.**

16B. Kindly indicate your level of agreement or disagreement with the statements regarding contract management frameworks in road construction contracts in Lusaka.

		<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
<b>No.</b>	<b>STATEMENT</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
17B	A framework linking contract measurement metrics and key performance indicators is necessary for effective contract management in road construction projects					
18B	A well-developed contract management framework can help enhance the overall performance of road construction contracts					
19B	It is essential to have a contract management framework that establishes a clear connection between contract measurement metrics and key performance indicators in your road construction projects					
20B	Integrating contract measurement metrics with key performance indicators will contribute to better project outcomes in road construction contracts					
21B	Professionals in the field of road construction should receive training and guidance on implementing a framework that links contract measurement metrics and key performance indicators					

**Thank You for Sparing Your Time**

## **APPENDIX III: INTERVIEW GUIDE**



### **SCHOOL OF POSTGRADUATE STUDIES**

#### **RESEARCH ON THE APPLICATION OF CONTRACT MANAGEMENT PRACTICES ON THE PERFORMANCE OF ROAD CONSTRUCTION PROJECTS IN LUSAKA DISTRICT**

Dear Respondent,

My name is Keziah Chakaba, a postgraduate student enrolled in the master's degree program in Project Management at the University of Lusaka. As part of the academic curriculum, I am conducting a research study to fulfill the requirements for the master's degree.

The objective of this study is to explore the correlation between four specific contract management practices (Payment terms, Performance monitoring and reporting, technical capacity, and Institution capacity) and the performance of road construction contracts in Lusaka district. The overarching goal is to develop a framework that integrates contract measurement metrics and key performance indicators with contract performance to enhance efficiency in the construction industry.

Recognizing your expertise in this area, I am reaching out to request a brief discussion to gather insights from your knowledge and experience on this subject. Please be assured that this interview is solely for academic purposes, and any information provided will be treated with the utmost confidentiality. Voice recording during the interview will only occur with your permission.

Thank you in advance for your valuable support and contribution to this research.

**Personal Information**

- 1. Name: .....
- 2. Name of Organization: .....
- 3. Position: .....
- 4. Highest academic qualification: .....
- 5. How long have you been involved in construction projects:.....
- 6. Contact No.: .....

**Interview Questions**

Q1. What are your thoughts on the performance of road construction contracts in the Lusaka district?

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Q2. Do you believe that specific contract management practices contribute more effectively to achieving desirable performance outcomes compared to others?

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Q3. How do you perceive the contribution of each of the four contract management practices (Payment terms, Performance monitoring and reporting, Technical capacity, and Institution capacity) to achieving favorable performance in road construction contracts, and what are the underlying reasons for your assessment?

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Q4. How much do you believe the implementation of contract management practices affects the performance of road construction contracts?

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Q5. What, in your opinion, should be undertaken regarding the utilization of contract management practices to improve the performance of construction contracts in Lusaka?

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**Thank you for your time.**

## APPENDIX IV: SIMILARITY REPORT – TURNITIN

MSCPM22113425 - THESIS

### ORIGINALITY REPORT

**15%**

SIMILARITY INDEX

**14%**

INTERNET SOURCES

**3%**

PUBLICATIONS

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### PRIMARY SOURCES

<b>1</b>	<b>research.unilus.ac.zm</b> Internet Source	<b>8%</b>
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<b>7</b>	<b>Submitted to Kwame Nkrumah University of Science and Technology</b> Student Paper	<b>&lt;1%</b>
<b>8</b>	<b>Yoon Soo Park, Lars Konge, Anthony R. Artino. "The Positivism Paradigm of Research", Academic Medicine, 2020</b> Publication	<b>&lt;1%</b>