PROJECT GOVERNANCE AND PERFORMANCE OF ROAD CONSTRUCTION PROJECTS IN KENYA

PETER PATU GICHOHI

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Project Governance and Performance of Road Construction Projects in Kenya

Peter Patu Gichohi

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University

Signature……Date……

Peter Patu Gichohi

This thesis has been submitted for examination with our approval as the University Supervisors

Signature……Date……

Prof. Mike Iravo, PhD

JKUAT, Kenya

Signature……Date……

Dr. Yusuf Muchelule, PhD

JKUAT, Kenya

DEDICATION

I dedicate this thesis to my family with much love and appreciation, for their perseverance and understanding during the period of my study. Thank you for encouraging and supporting me at all times. Be blessed abundantly.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS AND ABBREVIATIONS

ADF	African Development Fund
ANOVA	Analysis of Variance
APM	Association for Project Management
COSO	Committee of Sponsoring Organisations of the Treadway Commission
COSO ERM	Committee of Sponsoring Organisations of the Treadway Commission – Enterprise Risk Management
CPI	Cost Performance Index
CSF	Critical Success Factors
CVF	Competing Values Framework
DV	Dependent Variable
e-ProMIS	Electronic Project Management Information System
ERM	Enterprise Risk Management
GoK	Government of Kenya
GoPM	Governance of Project Management
ICT	Information and Communication Technology
IPA	Infrastructure and Projects Authority
IT	Information Technology
IV	Independent Variable
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KeNHA	Kenya National Highways Authority
KeRRA	Kenya Rural Roads Authority
KPI	Key Performance Indicators
KRB	Kenya Roads Board
KURA	Kenya Urban Roads Authority
MDA	Ministries, Departments and Agencies
NACOSTI	National Commission for Science, Technology, and Innovation
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organization

OAG	Office of the Auditor General
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PMO	Project Management Office
PPDA	Public Procurement and Asset Disposal Act
PPM	Project Portfolio Management
PPP	Public Private Partnership
PSO	Project Support Office
RBV	Resource Based View
R^2	Coefficient of Determination
SD	Standard Deviation
SEM	Structural Equation Modeling
SIS	Synergy International Systems
SMCR	Source–Message–Channel–Receiver
SOPs	Standard Operating Procedures
SPSS	Statistical Package for the Social Sciences
UK	United Kingdom
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
VIF	Variance Inflation Factor
VRIN	Valuable, Rare, Inimitable and Non-Substitutable
B	Beta Coefficient
P	Probability Value

DEFINITION OF OPERATIONAL TERMS

Organizational Culture:	It is the values, policies and guidelines that an organization follows and is what differentiate it from others. The principles and beliefs of any organization form its culture. The organizational culture decides the way employees interact amongst themselves as well as external parties (Ackon *et al*., 2022).
Project:	A temporary endeavor undertaken to create a unique product or service. Temporary means that every project has a definite end. Unique means that the product or service is different in some distinguishing way from all similar products or services (Provincial Government Western Cape, 2019).
Project Communication:	It is a collection of processes that help make sure the right messages are sent, received, and understood by the right people. It provides the baseline for the appropriate checkpoints or tasks to be added to the project plan (Akintelu & Oyebola, 2023).
Project Governance:	It is a set of management systems, rules, protocols, relationships, and structures that provide the framework within which project development and implementation decisions are made to achieve the desired business or strategic motivation (Asadullah et al., 2019b).
Project Performance:	Refers to how well a project met the goals of the various stakeholders in its final form, and can be defined through a variety of criteria (such as impact, relevance, and sustainability of the project) (Delise, Lee, & Choi, 2023).
Top Management Support:	Refers to the active involvement, commitment, and endorsement of an organization's senior leadership such as CEOs, directors, and executive managers in the

	planning, implementation, and success of organizational initiatives, projects, or strategies (Zureehan & Lee, 2022).
Strategic Alignment:	Refers to the process of ensuring that an organization's strategy and goals are effectively and cohesively integrated with its various components, including its mission, vision, values, resources, capabilities, and activities (Haniff & Galloway, 2022).
Project Risk Management	Is the process of identifying, assessing, prioritizing, and mitigating risks that may affect the successful completion of a project. It involves proactive planning, monitoring, and controlling of risks throughout the project lifecycle to minimize their impact and increase the likelihood of project success (Ali, Sakinah, Ghani, & Haron, 2019).

ABSTRACT

Effective project governance is vital for enhancing project success and organisational strategy. This study examined the impact of project governance on the performance of road construction projects in Kenya. Kenyan road projects are often marked by low budget absorption, cost overruns, and poor quality of work, which affect their sustainability. This issue has been linked to deficiencies in the construction project management system. Therefore, this study aimed to investigate how project governance influences the performance of road construction projects in Kenya. The specific objectives included assessing the effect of strategic alignment, top management support, project risk management, and project communication on project performance, as well as evaluating the moderating role of organisational culture in this relationship. The study was grounded in Contingency Theory, Resource-Based View Theory, Enterprise Risk Management Theory, Communication Theory, and Schein's Organizational Culture Theory, which collectively explain the relationships between project governance practices, organizational culture, and the performance of road construction projects. It employed both descriptive and explanatory research designs within a pragmatism paradigm. The units of analysis were 252 road construction projects carried out by Kenya's national road agencies (KURA, KeRRA, and KeNHA). The projects included 61 by KURA, 155 by KeRRA, and 36 by KeNHA. The units of observation involved resident engineers, assistant resident engineers, project surveyors involved in these projects, and the Director- Generals and Directors of the agencies. The overall sample size, determined using the Krejcie and Morgan formula, was 255 respondents. A multistage sampling method, combining purposive and stratified random sampling, was used. Data were collected from primary sources- via semi- structured questionnaires and interview guides- and secondary sources, such as quality assurance, monitoring and evaluation, and internal audit reports from the road agencies. The questionnaire was pilot- tested with 25 respondents to assess reliability and validity. Data analysis was conducted using SPSS version 25. Qualitative data were analysed thematically and presented narratively, while quantitative data were summarised with descriptive statistics and shown in tables and figures. Correlation and regression analyses examined the relationships among variables. The findings revealed that strategic alignment ($\beta = 0.508$, $p < 0.05$), top management support ($\beta = 0.812$, $p < 0.05$), project risk management ($\beta = 0.725$, $p < 0.05$), and project communication ($\beta = 0.738$, $p < 0.05$) each had a positive and statistically significant effect on the performance of road construction projects in Kenya, with the model explaining 74.7% of the variance in project performance ($R^2 = 0.747$). Further, organizational culture positively and significantly moderated the relationship between project governance and project performance, resulting in an increase in explanatory power ($\Delta R^2 = 0.018$). Based on these results, the study recommended that organisations involved in road construction projects in Kenya focus on strategic alignment, top management support, risk management, communication, and fostering a strong organisational culture.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Road infrastructure is a key driver of socio-economic development. It facilitates the movement of people, supports trade, promotes regional integration, and improves access to vital services such as education, healthcare, and markets (Samo, Shale, & Wairiuko, 2024). Efficient road networks boost economic productivity by reducing transport costs, enhancing market access, and increasing regional and national competitiveness, thereby acting as catalysts for economic growth and social inclusion (Samo et al., 2024). As a result, road construction projects are widely regarded as a fundamental element of national development strategies in both developed and developing economies (Samo et al., 2024).

In Kenya, over 90% of passenger and freight traffic depends on the road network, highlighting its importance to national development (Kenya Roads Board [KRB], 2024). The road sector thus plays a key role in supporting economic mobility, trade facilitation, service delivery, and regional integration. Road construction projects make up a significant part of public capital investment and are mainly implemented through national government road agencies established under the Kenya Roads Act (2007), such as the Kenya National Highways Authority (KeNHA), the Kenya Urban Roads Authority (KURA), and the Kenya Rural Roads Authority (KeRRA) (Government of Kenya, 2007).

Despite substantial annual investments in road infrastructure, persistent challenges continue to undermine the outcomes of road construction projects. These challenges include cost overruns, schedule delays, quality defects, governance failures, and limited asset sustainability (Samo, Shale, & Wairiuko, 2024). Such deficiencies diminish value for money, delay socio-economic benefits, and compromise the durability and serviceability of completed road assets. Consequently, road construction projects in Kenya have attracted ongoing scrutiny from policymakers, oversight bodies, development partners, and the public.

The Kenya Roads Act (2007) established KeNHA, KURA, and KeRRA with the aim of promoting specialisation, efficiency, and accountability in road development and maintenance. KeNHA is responsible for national trunk roads, KURA manages urban roads, and KeRRA oversees rural and feeder roads. This institutional arrangement was intended to enhance focus, improve performance, and strengthen governance within the road sector. However, performance audits and empirical studies indicate that inefficiencies persist despite this structural reform.

The KeNHA Annual Report (2020/2021) indicates that 42% of road projects had a Cost Performance Index (CPI) below 1, signalling systemic cost overruns. Audits by the Office of the Auditor-General (OAG, 2021; 2022a; 2022b) also expose widespread delays, cost escalations, scope variations, and quality non-conformities across projects carried out by KeNHA, KURA, and KeRRA. The Kenya Roads Board (KRB, 2022) Accountability Index similarly underscores inconsistencies in performance and governance among national road agencies.

Empirical studies carried out in Kenya attribute these performance challenges to delayed decision-making, bureaucratic procedures, late payments to contractors, insufficient project planning, weak stakeholder engagement, and ineffective communication (Ouma, Sang, & Kinoti, 2022). Wamuyu and Agusioma (2023) highlight that motivated and well-coordinated stakeholders are vital for achieving governance objectives. Similarly, Maina (2019) found that recognising stakeholder needs, managing conflicts, and ensuring effective communication significantly impact project performance.

To address these challenges, Kenya has established several formal governance and oversight frameworks. The Public Procurement and Assets Disposal Act (2015) mandates the formation of project implementation teams for government-funded projects. The Ministry of Finance and Planning has issued guidelines promoting standardised project cycle management, structured resource allocation panels, project committees, and robust monitoring, evaluation, and reporting mechanisms (GoK, 2020). The electronic Project Management Information System (e-ProMIS) automates performance tracking, reporting, and analysis for over 2,000 development projects

across ministries, counties, and donor-funded programmes (Synergy International Systems, 2020). Executive Order No. 1 of 2019 further strengthened coordination by establishing national, regional, and county-level development implementation committees (GoK, 2019).

1.1.1 Performance of Road Construction Projects in Kenya

The performance of road construction projects in Kenya has drawn increasing scholarly and policy attention, mainly because of ongoing delivery challenges despite continuous public investment in the sector. Project performance is usually understood through the iron triangle of time, cost, and quality, with recent studies expanding this framework to include value for money, accountability, and service delivery outcomes in publicly funded infrastructure (Obuo, 2024; Samo, Shale, & Wairiuko, 2024). Empirical evidence from national and rural road agencies shows that schedule delays, cost overruns, and quality deviations are still common, indicating systemic performance issues rather than isolated project-level inefficiencies (KeRRA, 2023).

Recent Kenyan studies consistently identify inadequate front-end planning and weak project preparation as major contributors to poor road project performance. Research on rural road construction projects demonstrates that insufficient scope definition, incomplete designs, and limited integration of technical data during planning lead to frequent variations during implementation, adversely affecting both cost and time performance (Kitungo & Musembi, 2024). Similarly, Obuo (2024) notes that weak planning undermines cost predictability and reduces the effectiveness of cost control mechanisms, resulting in cumulative overruns across the project lifecycle. These findings reinforce the growing consensus that performance outcomes are largely determined during the early stages of project development.

Institutional and governance factors have also been widely recognised as key determinants of road project performance in Kenya. Recent findings highlight the impact of bureaucratic procurement processes, delayed approvals, fragmented decision-making structures, and weak contract management on project implementation (World Bank, 2021c; KeRRA, 2023). Implementation completion and results reports for major road projects stress that, even when financing is secured, weak institutional

coordination and limited managerial autonomy lead to delays in implementation and lower efficiency (World Bank, 2021c). This indicates that project performance is heavily influenced by the governance environment within implementing agencies rather than contractor performance alone.

Cost management and monitoring practices remain central in recent literature. Obuo (2024) establishes that effective cost management processes, particularly continuous monitoring, variance analysis, and timely reporting, have a statistically significant influence on the performance of road construction projects in Kenya. However, several studies observe that cost control is often reactive rather than proactive, limiting the ability of project teams to address emerging risks before they escalate into major overruns (Samo et al., 2024). This underscores the importance of integrating cost management within broader project governance and decision-making systems.

Contractor capacity and resource management have become even more important as key performance factors in recent research. Evidence shows that insufficient technical skills, limited equipment availability, and poor resource scheduling decrease productivity and lead to more rework, especially in remote and logistically challenging project sites (Karuga, 2024; KeRRA, 2023). These operational issues are often worsened by late payments and contractual disputes, which restrict contractors' cash flows and slow down project progress.

Recent governance-focused studies highlight the significance of risk management and organisational culture in influencing project performance. Although risks related to inflation, land acquisition, utility relocation, and political interference are well acknowledged, their management remains inconsistent across road agencies (Bundeh & Wagude, 2024). Studies examining KeRRA projects indicate that while risk identification is undertaken, it is frequently not supported by systematic mitigation and monitoring mechanisms, thereby increasing adverse impacts on cost and schedule performance (Bundeh & Wagude, 2024; Ngigi & Kwasira, 2024). Overall, the literature indicates that enhancing the performance of road construction projects in Kenya requires a comprehensive approach that strengthens project planning,

governance frameworks, cost and risk management systems, and contractor capacity throughout the project lifecycle.

1.1.2 Project Governance

The term governance originates from the Greek verb kubernao, meaning “to steer” (Hjelmbrekke, Klakegg, & Lohne, 2017). In organisational contexts, governance refers to the act of regulating or guiding an organisation’s policies, management, and activities at the highest level, with the authority, credibility, and obligation to do so (Brunet, 2019). Muller, Pemsel, and Shao (2015) further explain that governance includes accountability, disclosure and transparency, clearly defined roles and responsibilities, risk management, decision-making, ethics, and performance effectiveness. Therefore, governance offers a structure for ethical decision-making and managerial actions based on transparency, accountability, and clearly articulated authority frameworks (Müller & Turner, 2017).

Historically, in the late twentieth century, project management practice focused mainly on developing methodologies, tools, and techniques aimed at improving project success and increasing the competence of project teams (Sirisomboonsuk et al., 2018). Despite these methodological advancements, project success rates remained consistently low (Sirisomboonsuk et al., 2018). Esposito (2023) argues that many performance issues stem from misalignment and underdeveloped governance systems, which limit the ability of project actors to respond flexibly and resiliently to the inherent volatility of organisational and institutional environments. Similarly, Khan, Turner, and Maqsood (2019) link the poor performance and failure of large public-sector projects to weak governance oversight, unclear project objectives, ineffective governance frameworks, and inefficient management controls.

Since the late 1990s, the governance of public-sector infrastructure projects has increasingly attracted attention within the project, programme, and portfolio management literature (Asadullah et al., 2019b; Sirisomboonsuk et al., 2018). Policymakers and scholars are recognising that technical and operational project management alone is not enough to ensure value creation and accountability in large capital investments. Instead, these must be complemented by strategic and institutional

governance mechanisms that steer project selection, oversight, and alignment with organisational objectives.

Project-related activities within corporate governance form a key aspect of project governance (APM, 2011). Muller et al. (2015) identify three connected levels of project governance. The first level is the corporate or board level, where strategic oversight is carried out and the degree of senior leadership involvement in projects is established. This level aims to ensure that project sponsorship creates an effective link between the organisation's senior executive body and project management (APM, 2018). Figure 1.1 below shows the levels of project governance

Figure 1. 1: Link between Corporate Governance, Governance of Project Management and Project Management

Source: PMI (2016)

The second level of project governance is the programme and portfolio level, often called the governance of project management (GoPM). This level involves establishing governance frameworks for projects, programmes, and portfolios; defining prioritisation rules for allocating limited organisational resources among competing projects; developing organisational project management capabilities, including Project Support Offices (PSOs) and Project Management Offices (PMOs); and aligning the project portfolio with organisational strategy (Joslin & Muller, 2015).

The third level pertains to individual projects, which must be managed as temporary organisations with clear authority structures, controls, and accountability mechanisms (Muller, Pemsel & Shao, 2015). The relationship among these three levels is shown in Figure 1.1.

Despite its increasing importance, project governance remains a fragmented field, lacking a universally accepted framework due to differences in project context, sectoral complexity, and institutional structures (Ahola et al., 2014; Levie, Burke, & Lannon, 2017). Dinsmore and Rocha (2012), cited in Musawir, Abd-Karim, & Mohd-Danuri, (2017), introduced the Enterprise Project Governance framework, which highlights strategic alignment, risk management, portfolio management, stakeholder management, performance evaluation, and business transformation as essential governance elements. Similarly, the Association for Project Management (APM, 2018) recognises portfolio direction, project sponsorship, project management capability, and disclosure and reporting as key pillars of effective project governance.

This study emphasises the programme and portfolio level of project governance within national government road agencies in Kenya. At this level, governance mechanisms shape strategic prioritisation, resource allocation, risk management, and cross-project coordination. Accordingly, the study conceptualises strategic alignment, top management support, project risk management, and project communication as the key dimensions of project governance that influence road construction project performance (Musawir, Abd-Karim, & Mohd-Danuri, 2020; Haq et al., 2019).

Globally, since the 1990s, project governance has shifted from a compliance-focused role to a strategic framework aimed at boosting value delivery in public infrastructure. The UK Infrastructure and Projects Authority (IPA) Routemap offers structured governance and assurance arrangements for projects valued at over £300 billion (IPA, 2021). Empirical evidence from the United States, Europe, and Australasia shows that well-defined decision rights, strong sponsorship structures, accountability mechanisms, and effective escalation pathways significantly enhance project performance (Joslin & Müller, 2015; Wilden & Biesenthal, 2020).

Research from the Netherlands, Denmark, Germany, and China further shows that formal governance structures enhance predictability, reduce transaction costs, and strengthen collaboration in complex infrastructure projects (Lou, Afshari, Johansen, Nygaard Rasmussen, and Bohne, 2025; Zhang, Deng, & Li, 2022). A global assessment of 333 projects by Latiff, Jaapar, and Isa (2020) confirmed that strong governance enhances both project performance and strategic alignment. Similar findings were reported by Khan, Waris, and Panigrahi (2021), while Wilden and Biesenthal's (2019) review of 96 studies reaffirmed governance as central to successful project delivery.

Despite these global advancements, governance and performance gaps continue to be widespread across Africa. United Nations Conference on Trade and Development [UNCTAD], 2020) reports ongoing delays and low-quality outcomes in the construction sector, undermining NEPAD's development objectives. The African Development Fund (2021) stresses the need to reinforce project management capacity across ministries and agencies. Dick-Sagoe, Odoom, and Boateng (2023) identify corruption, delayed payments, procurement bottlenecks, weak planning, and poor supervision as key factors contributing to project failure, leading to revenue losses, unemployment, and substandard infrastructure.

Across Nigeria, Ethiopia, South Africa, and Uganda, governance weaknesses persistently hinder project delivery. Nnadi and Oyama (2023) emphasise hidden agendas, self-serving behaviour, and high monitoring costs in Nigeria. In Ethiopia, public investment projects are limited by top-down planning and weak control checkpoints (Usanase & Nkechi, 2022). South Africa faces challenges in upholding governance principles (Khathutshelo & Phatlhane, 2021), while Uganda continues to contend with weak accountability mechanisms despite governance reforms (Nuwagaba & Lukamba, 2020).

In Kenya, governance reforms have similarly not fully resulted in better road project performance. Performance audits repeatedly report delays, cost increases, scope changes, and quality problems across national road agencies (OAG, 2021; 2022a; KRB, 2022). Empirical studies connect these issues to delayed approvals, bureaucratic

decision-making, late payments, weak stakeholder engagement, and poor communication (Ouma et al., 2022). Although governance aspects such as strategic alignment, top management backing, risk management, and communication are recognised in the literature, they are often studied in isolation and mainly at the project level. As a result, little empirical research has looked at programme and portfolio-level governance in Kenya's road sector, where strategic prioritisation, resource distribution, and risk management are most critical.

1.1.3 Organisational Culture

Organisational culture refers to a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems (Irfan & Malik, 2020). It represents the shared values, norms, beliefs, and practices that shape how employees interact, make decisions, and respond to challenges within an organisation (Umemezia & Osifo, 2021). It provides a sense of identity, guides behaviour, influences communication patterns, and affects overall organisational performance. As observed by Akpa, Asikhia and Nneji (2021), culture affects innovation, employee motivation, and organisational adaptability to change, serving as the underlying framework that sustains long-term organisational success.

Over the years, scholars have used various models to understand organisational culture, highlighting different aspects that influence organisational behaviour and performance. Handy's model of organisational culture has been frequently referenced, focusing on the categories of power culture, role culture, task culture, and person culture. For example, Nikčević and Pavićević (2024) specifically viewed organisational culture in terms of role, power, and task cultures. Similarly, Umemezia and Osifo (2021) studied organisational culture by including power culture, role culture, task-oriented culture, person culture, and innovative culture, offering a broader viewpoint. Additionally, Balli and Balli (2020) described organisational culture through the lens of role, power, and task cultures, highlighting the ongoing importance of Handy's typology in organisational research.

Globally, organizational culture is recognised as a key factor in enhancing knowledge sharing, coordination, and overall performance in road construction projects (Irfan & Malik, 2020). Umemezia and Osifo (2021) observed that by establishing shared values, communication practices, and collaborative behaviours, culture influences decision-making, risk management, and the efficiency of project delivery. In India, Sivaraj and Shafi (2024) investigated organisational structures aimed at improving highway road project performance, demonstrating that culture and structure together significantly affect project efficiency. Their study highlights that fostering a culture of transparency, accountability, and teamwork can directly enhance the planning, execution, and monitoring of infrastructure projects, ensuring timely completion and better quality outcomes across different phases of construction.

In Indonesia, Setiadi, Waskito, and Barusman (2024) noted that organisational culture within the Directorate General of Highways (Bina Marga) and the Construction Development Agency (Bina Konstruksi) in Lampung Province strongly influences project management and stakeholder coordination. In Ethiopia, Dereja (2025) observed that road construction projects in Butajira Town Administration depend on shared cultural practices to guide teamwork and decision-making, fostering project efficiency. Similarly, in Kenya, Kirimi and Koech (2023) found that the organisational culture within the Kenya National Highway Authority shapes project performance and governance by promoting collaboration, clear communication, and adherence to established protocols. Collectively, these studies emphasise the importance of culture as a driver of successful road infrastructure development worldwide.

1.2 Statement of the Problem

Road infrastructure is essential for Kenya's economic development, competitiveness, and service delivery, with the road network transporting over 90% of the country's passenger and freight traffic (Kenya Roads Board [KRB], 2022; Kenya National Highways Authority [KeNHA], 2023). Despite ongoing annual investments, road construction projects carried out by national road agencies—Kenya National Highways Authority (KeNHA)**,** Kenya Urban Roads Authority (KURA**)**, and Kenya Rural Roads Authority (KeRRA)—continue to face persistent performance issues.

These challenges are most prominent in four key areas: cost overruns, time overruns, quality defects, and scope changes (Samo et al., 2024).

Cost overruns remain widespread, with studies showing an average cost escalation of 30–45% on road construction contracts (Samo et al., 2024; OAG, 2022b). KeNHA reported that 42% of ongoing projects recorded a Cost Performance Index (CPI) below 1, indicating resource inefficiency (KeNHA, 2022). Similar scope variations are documented across KURA and KeRRA, reflecting systemic shortcomings in planning, cost control, and contract administration (OAG, 2022b).

Time overruns are equally common, with national research showing delays of 6 to 21 months, especially in major trunk and urban road projects (Samo et al., 2024). Audit reports from 2021 to 2023 reveal stalled or slow projects caused by delayed approvals, variations, weak contractor mobilisation, and insufficient oversight (OAG, 2022a; KRB, 2022). Such delays weaken the expected economic and social benefits from completed road infrastructure. Quality defects are another concern. Recent assessments indicate that up to 75% of road projects face quality problems such as inadequate compaction, poor drainage, premature cracking, and substandard workmanship (Karuga et al., 2024). These issues affect durability, increase maintenance costs, and decrease the long-term value of infrastructure (OAG, 2022b). Many audit reports also point out payments for incomplete or defective works, exposing gaps in supervision and quality assurance.

Scope changes and scope creep further destabilise budgets and timelines. Studies identify frequent variations stemming from inadequate feasibility studies, design weaknesses, right-of-way issues, and unforeseen geotechnical conditions (Gatitu et al., 2020). Such scope changes lead to cost escalation, extended timelines, claims, and reworks (Karuga et al., 2024).

Collectively, the persistence of cost overruns, time delays, quality defects, and scope changes, despite significant investments and formal governance frameworks, points to deeper governance weaknesses within Kenya's national road agencies. Research suggests that governance mechanisms are either insufficiently embedded or poorly implemented during project planning and execution. This emphasises the need to

examine how governance elements such as strategic alignment, top management support, risk management, communication, and organisational culture influence the performance of road construction projects in Kenya at programme and portfolio level.

1.3 Objectives of the Study

The following general and specific objectives guided this study.

1.3.1 General Objective

The main focus of this study was to examine the relationship between project governance and performance of road construction projects in Kenya.

1.3.2 Specific Objectives

The study was guided by the following specific objectives;

1. To determine the relationship between strategic alignment and the performance of road construction projects in Kenya.
2. To examine the relationship between top management support and the performance of road construction projects in Kenya.
3. To assess the relationship between project risk management and the performance of road construction projects in Kenya.
4. To explore the relationship between project communication and the performance of road construction projects in Kenya.
5. To analyze the moderating effect of organizational culture on the relationship between project governance and performance of road construction projects in Kenya.

1.4 Research Hypothesis

The study sought to test the following research hypothesis;

$H_0$1: There is no significant relationship between strategic alignment and the performance of road construction projects in Kenya.

$H_0$2: There is no significant relationship between top management support and performance of road construction projects in Kenya.

$H_0$3: There is no significant relationship between project risk management and performance of road construction projects in Kenya.

$H_0$4: There is no significant relationship between project communication and performance of road construction projects in Kenya.

$H_0$5: There is no significant moderating effect of organizational culture on the relationship between project governance and performance of road construction projects in Kenya.

1.5 Significance of the Study

This study is valuable to the national government road agencies, such as the Kenya Urban Roads Authority (KURA), the Kenya Rural Roads Authority (KeRRA), and the Kenya National Highways Authority (KeNHA), by offering insights to enhance project governance and performance. It is also beneficial to County Governments, Contractors, Consultants, Development Partners, and Scholars seeking evidence-based guidance for improving the delivery and management of road construction projects.

1.5.1 National and County Government Road Agencies

The study highlights that executive sponsorship and leadership support are the most vital drivers of road project success, while strategic alignment is comparatively weak and needs strengthening through improved staffing, IT, and operational coordination. The findings support integrating governance checkpoints into policy frameworks to enhance accountability, timeliness, and quality of delivery.

1.5.2 Contractors, Consultants, and Development Partners

The results emphasise that structured risk management and effective communication systems are vital for successful project execution. Contractors and consultants should implement systematic risk registers and feedback loops, while development partners

can require ICT-based reporting for transparency. The study further indicates that role culture and task culture complement each other, with role culture providing clarity of responsibilities and task culture fostering teamwork and problem-solving.

1.5.3 Scholars and Researchers

Academically, the study confirms that governance practices significantly influence project performance and that organisational culture positively moderates this relationship. The contribution is both empirical—providing evidence from Kenya's road sector—and theoretical, demonstrating that role and task cultures can coexist complementarily, improving governance effectiveness. This offers a nuanced African perspective to global project governance literature and paves the way for comparative research.

1.6 Scope of the Study

The study examines how project governance influences the performance of national government road construction projects in Kenya. The conceptual scope includes four specific project governance variables: strategic alignment, top management support, project risk management, and project communication. Organisational culture acts as a moderating variable, while project performance is the response variable. The theories utilised to discuss project governance are Contingency Theory, Resource-Based View Theory, Enterprise Risk Management Theory, Communication Theory, and Schein's Theory of Organisational Culture. This study adopted both descriptive and explanatory research designs and employed a pragmatism research paradigm. The unit of analysis consisted of the road construction projects implemented by national government road agencies (KURA, KeRRA, and KeNHA) in Kenya.

The unit of observation included resident engineers, assistant resident engineers, and project surveyors involved in all 252 road construction projects, as well as Director-Generals and Directors from KURA, KeRRA, and KeNHA. Consequently, the target population comprised 772 employees from these categories. The overall sample size of 255 respondents was determined using the Krejcie and Morgan formula. The study

utilised a mixed-methods research design and employed a multistage sampling technique to select the sample. Data collection took place in May 2023.

1.7 Limitations of the Study

Information from top management was collected through interviews, while data from other staff categories were obtained through questionnaires. The top management were not always available for interviews due to time constraints. Additionally, there was some communication gap caused by differences in terminology, perspectives, and levels of detail. These issues were addressed by being flexible with interview schedules to fit busy calendars and by using clear, concise language and avoiding jargon.

The secrecy and fear of victimisation, especially on issues deemed detrimental to the organisation by the employees, ultimately limited the study. The researcher wrote a letter requesting permission to collect data on the subject matter under study, in order to gain access to the data. This effort greatly helped in overcoming the limitation.

Some respondents were unwilling to cooperate because they were busy at the time when the researcher expected them to complete the questionnaire. To address this issue, the researcher made regular follow-ups by phone calls and emails to remind and encourage the respondents to fill in the questionnaires.

The study used Google Forms, a cloud-based data management tool for designing and developing web-based questionnaires. The main limitation of this method was respondents not understanding the questionnaire, as there was limited opportunity to clarify questions. This issue was addressed by making the questions as simple as possible, ensuring they could be easily understood.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter offers a thorough review of the literature related to project governance and project performance. It starts with a theoretical overview, exploring foundational theories and models that explain how governance practices impact project outcomes. The chapter then develops a conceptual framework to guide the research, illustrating the relationships between key variables. This is followed by an empirical review, which assesses previous studies, their methodologies, and key findings. Additionally, the chapter provides a critical analysis of the literature, highlights research gaps, and concludes with a summary.

2.2 Theoretical Review

Project governance has been analysed from a broad range of theoretical perspectives depending on the chosen project governance model (Fareed, & Su, 2022). In this study, the following theories were utilised to discuss project governance: Contingency Theory, Resource-Based View Theory, Enterprise Risk Management Theory, Communication Theory, and Schein's Theory of Organisational Culture.

2.2.1 Contingency Theory

Contingency Theory was first introduced by Fiedler (1964) through his contingency model of leadership effectiveness and later expanded by Lawrence and Lorsch (1967), who examined how organisational structures must adapt to varying environmental conditions. These foundational works challenged universalistic management theories that assumed the existence of a single best way to organise or manage. Instead, they advanced the view that organisational effectiveness depends on contextual alignment. Subsequent contributions by Donaldson (2001, 2015) broadened the theory beyond leadership to encompass organisational structure, governance systems, and strategic management, firmly positioning contingency thinking within mainstream organisational theory.

At its core, Contingency Theory asserts that organisational performance is determined by the degree of "fit" between internal arrangements and external environmental conditions. The theory rejects universal prescriptions and emphasises that effectiveness depends on situational variables such as environmental uncertainty, task complexity, organisational size, technology, institutional pressures, and stakeholder expectations (Donaldson, 2001). Organisations achieve superior outcomes when governance structures, coordination mechanisms, leadership styles, control systems, and decision-making processes are aligned with these contextual factors. Conversely, misalignment between organisational systems and environmental demands leads to inefficiencies, delays, conflict, and suboptimal performance (Galbraith, 2014; Tushman & Nadler, 1986).

Within project-based settings, contingency thinking has been extended to explain the adaptation of governance mechanisms to project characteristics and institutional environments (Donaldson, 2001; Müller, Pemsel, & Shao, 2015). Projects differ significantly in terms of size, complexity, risk exposure, funding arrangements, regulatory oversight, and stakeholder salience (Joslin & Müller, 2015; Sirisomboonsuk et al., 2018). Governance structures that perform effectively in one context may be ineffective or even detrimental in another (Khan, Turner, & Maqsood, 2019; Müller & Lecoeuvre, 2014). This perspective is particularly relevant in public-sector infrastructure projects, which operate within politically sensitive and highly regulated environments characterised by lengthy implementation horizons, multiple approval layers, public scrutiny, and competing stakeholder interests (Esposito, 2023; Flyvbjerg, 2014; OECD, 2017). Contingency Theory therefore emphasises the importance of adaptive governance mechanisms that respond to contextual complexity rather than relying on rigid, standardised structures (Donaldson, 2015; Müller & Turner, 2017).

Despite its explanatory power, Contingency Theory has attracted criticism. Scholars argue that the theory offers limited predictive precision because contingency relationships are often broadly defined and context-specific (Galunic & Eisenhardt, 1994). While the theory explains that "fit" enhances performance, it provides limited guidance on how organisations can practically achieve or sustain alignment. Early

formulations also conceptualised fit as relatively static, focusing on structural matching at a particular moment. However, dynamic and uncertain environments require continuous realignment rather than one-time structural adjustment. Later refinements addressed these limitations by incorporating dynamic perspectives that emphasise ongoing adaptation, organisational learning, and managerial judgement (Donaldson, 2015). These developments enhance the applicability of Contingency Theory in modern governance research, particularly within complex public-sector settings.

In the context of this study, Contingency Theory provides the foundational lens for explaining the relationship between strategic alignment and project performance in Kenya's road construction sector. Strategic alignment, as conceptualised in this study, refers to the extent to which project objectives, selection processes, resource allocation, and implementation priorities are consistent with organisational mandates, funding cycles, and sectoral policies. Contingency Theory asserts that organisational strategies and governance systems must align with both internal capabilities and external environmental conditions to optimise effectiveness (Donaldson, 2015; Tushman & Nadler, 1986).

Kenya's national road agencies—Kenya National Highways Authority (KeNHA), Kenya Urban Roads Authority (KURA), and Kenya Rural Roads Authority (KeRRA)—operate within environments characterised by budget volatility, regulatory rigidity, multi-layered approval processes, political influence, and diverse stakeholder expectations. Contingency Theory suggests that governance mechanisms such as strategic prioritisation, escalation pathways, coordination structures, and delegated decision-making authority must be tailored to these contextual realities to enhance performance (Donaldson, 2001; Müller, Pemsel, & Shao, 2015). Where strategic alignment is weak, projects may experience approval delays, resource mismatches, conflicting priorities, and coordination breakdowns (Joslin & Müller, 2015; Sirisomboonsuk et al., 2018). Conversely, when project objectives are coherently aligned with institutional mandates and resource frameworks, improved outcomes in cost, schedule, quality, and scope are more likely (APM, 2018; Musawir, Abd-Karim, & Mohd-Danuri, 2020).

Furthermore, the theory underscores that strategic alignment must remain adaptive. As road construction projects evolve through scope adjustments, funding delays, regulatory changes, or emerging risks, governance systems must allow flexibility in decision-making and resource allocation (Flyvbjerg, 2014; Sirisomboonsuk et al., 2018). Adaptive strategic alignment therefore becomes a dynamic governance capability rather than a static planning exercise (Joslin & Müller, 2015; Müller & Turner, 2017).

Accordingly, Contingency Theory supports the study's proposition that strategic alignment significantly influences the performance of road construction projects, and that its effectiveness depends on contextual conditions within national road agencies. By emphasising contextual fit and adaptive governance, the theory provides a coherent and robust theoretical foundation for examining governance–performance relationships in Kenya's public road infrastructure sector.

2.2.2 Resource Based View Theory

The Resource-Based View (RBV) of the firm originated from the seminal work of Penrose (1959), who conceptualised organisations as bundles of productive resources whose deployment determines organisational growth and performance. Penrose argued that firm performance is influenced not only by external market conditions but also by how internal resources are accumulated, combined, and utilised over time. This internal perspective shifted attention from industry structure to firm-specific assets as the primary source of performance differences. Building on this foundation, Wernerfelt (1984) formalised the resource-based logic, while Barney (1991) articulated the conditions under which resources generate sustained competitive advantage. Barney proposed that organisations achieve superior and sustained performance when they possess resources that are valuable, rare, inimitable, and non-substitutable (VRIN). The theory assumes that resources are heterogeneously distributed across organisations and that this heterogeneity can persist over time, thereby explaining performance variations among entities operating within similar environments.

RBV distinguishes between tangible and intangible resources. Tangible resources include financial capital, physical infrastructure, equipment, and technological assets, while intangible resources encompass managerial competence, organisational routines, institutional knowledge, leadership commitment, reputation, and relational capital (Grant, 1996). The theory emphasises that intangible resources are often more critical for sustained performance because they are socially complex, path-dependent, and difficult to replicate. In project-based organisations, resources are embedded not only in physical assets but also within governance systems, managerial authority structures, escalation mechanisms, and organisational routines. RBV therefore extends beyond mere resource possession to highlight the strategic importance of how resources are mobilised, integrated, and deployed towards project objectives.

Subsequent developments refined RBV by introducing the concept of organisational capabilities, defined as the ability to deploy and integrate resources effectively (Grant, 1996). Teece, Pisano, and Shuen (1997) further advanced the theory through the dynamic capabilities perspective, arguing that sustained performance depends not only on resource ownership but also on the ability to sense opportunities and threats, seize resources strategically, and reconfigure organisational capabilities over time. This extension enhances RBV's relevance in complex and uncertain environments, including public infrastructure sectors characterised by long project cycles, regulatory changes, fiscal constraints, and political influence.

Despite its explanatory strength, RBV has been criticised for its relatively static orientation and limited explanatory power in highly dynamic contexts (Iyiola & Rjoub, 2020). Critics argue that early RBV formulations underemphasised the processes through which resources are developed, renewed, and reconfigured. Additionally, the theory offers limited operational guidance on how organisations should build or sustain VRIN resources in rapidly changing environments. These limitations are particularly evident in public-sector infrastructure projects where political volatility, evolving regulatory frameworks, and fiscal uncertainty frequently alter resource availability. The development of the dynamic capabilities perspective addressed some of these weaknesses by emphasising learning, adaptation, and continuous capability renewal as drivers of sustained performance (Teece et al., 1997).

Within the context of project governance, RBV provides a strong theoretical basis for explaining the importance of top management support in influencing project performance. Senior leadership plays a central role in acquiring, allocating, and safeguarding critical organisational resources, as well as resolving inter-departmental conflicts, approving scope changes, mobilising technical expertise, and ensuring continued funding and oversight (Wernerfelt, 1984; Teece et al., 1997). From an RBV perspective, top management support is not merely a discretionary managerial action but a strategic organisational capability that enables effective resource mobilisation and coordination (Barney, 1991; Grant, 1996; Iyiola & Rjoub, 2020). It ensures that projects gain timely access to financial capital, skilled personnel, institutional legitimacy, and decision-making authority (Muema & Ngugi, 2021; Zureehan & Lee, 2022).

Projects lacking executive sponsorship may experience delays in approvals, inadequate funding, limited authority to resolve conflicts, and weak inter-organisational coordination despite possessing technical competence at operational levels (Khan, Turner, & Maqsood, 2019; Muema & Ngugi, 2021). RBV further emphasises that resources yield performance benefits only when embedded within supportive governance frameworks (Barney, 1991; Grant, 1996). In public road agencies, the effectiveness of financial, technical, and human resources depends on governance mechanisms that facilitate accountability, timely decision-making, and coordination across programme and portfolio levels (Joslin & Müller, 2015; Müller, Pemsel, & Shao, 2015). Organisations may possess adequate resources but fail to convert them into improved project outcomes due to bureaucratic fragmentation, delayed approvals, and misaligned priorities (Esposito, 2023; Flyvbjerg, 2014).

This theoretical reasoning is particularly relevant to Kenya's national road agencies—Kenya National Highways Authority (KeNHA), Kenya Urban Roads Authority (KURA), and Kenya Rural Roads Authority (KeRRA)—where project performance is significantly influenced by centralised approval systems, budgetary controls, and executive intervention (KRB, 2022; OAG, 2021). In such environments, top management support functions as a critical organisational capability that determines

whether financial allocations, technical expertise, and institutional authority are effectively channelled towards project delivery.

Accordingly, this study adopts RBV theory to explain the relationship between top management support and the performance of road construction projects in Kenya. By conceptualising top management support as a strategic organisational capability that enables the mobilisation and deployment of scarce financial, human, and technical resources, RBV provides a robust theoretical foundation for examining governance–performance relationships. The theory supports the proposition that projects with strong executive backing are more likely to achieve improved outcomes in cost, schedule, quality, and scope, even within constrained and institutionally complex public-sector environments.

2.2.3 Enterprise Risk Management Theory

Enterprise Risk Management (ERM) theory emerged from the growing recognition that traditional risk management approaches were fragmented and inadequate for managing complex organisational risks. The theoretical foundation of ERM is commonly attributed to Nocco and Stulz (2006), who conceptualised ERM as an integrated approach that enables organisations to identify, measure, and manage all significant risks collectively in order to protect and enhance organisational value. Their work marked a departure from silo-based risk management practices by advocating for coordinated, organisation-wide risk oversight aligned with strategic objectives. Earlier governance-oriented studies by Beasley, Clune, and Hermanson (2005) reinforced this perspective by linking ERM implementation to board oversight and senior management involvement. Subsequent empirical work by Hoyt and Liebenberg (2011) further strengthened ERM theory by demonstrating that mature ERM systems are associated with enhanced firm value, thereby repositioning ERM from a loss-avoidance mechanism to a value-creation capability.

ERM theory asserts that organisational risks are interconnected rather than isolated events and therefore must be managed holistically. It assumes that fragmented or compartmentalised risk management reduces organisational resilience and limits strategic responsiveness. ERM emphasises alignment between risk appetite, strategic

objectives, and operational decision-making, thereby positioning risk management as a governance and strategic function rather than merely a compliance requirement (Nocco & Stulz, 2006). Unlike traditional approaches that focus on discrete financial or operational risks, ERM promotes organisation-wide coordination where top management and operational units jointly identify, assess, monitor, and respond to risks (Alsadi & Norhayatizakuan, 2021).

The formalisation of ERM was significantly advanced by the Committee of Sponsoring Organisations of the Treadway Commission (COSO), whose revised ERM Framework (2017) explicitly integrated risk management with strategy formulation, performance management, and oversight. This revision represented a major theoretical shift by embedding ERM within strategy execution rather than treating it as a standalone control function. ERM theory therefore promotes the establishment of clear risk governance structures, defined risk appetite statements, structured reporting and escalation mechanisms, and integration of risk considerations into planning, budgeting, procurement, and implementation processes (Rahmana & Adnan, 2020).

Within project and construction contexts, ERM theory has evolved to emphasise integration between project-level risk management and broader organisational governance structures. Studies indicate that isolated project risk registers are insufficient unless risks are escalated, aggregated, and addressed at programme and enterprise levels (Hillson, 2009; Ward & Chapman, 2003). More recent extensions incorporate behavioural and cultural dimensions, arguing that ERM effectiveness depends not only on formal systems but also on shared risk awareness, accountability, and ownership embedded in organisational routines (Bromiley et al., 2015; Power, 2009). This expansion highlights that risk management must be integrated into everyday managerial decision-making rather than treated as a periodic reporting exercise.

In public-sector and infrastructure settings, ERM theory has been further expanded to support resilience, service delivery, and value-for-money objectives. International frameworks emphasise early risk identification, cross-agency coordination, fiscal risk oversight, and adaptive responses to institutional and political uncertainty (OECD,

2014; OECD, 2017). These principles are particularly relevant to infrastructure projects characterised by long implementation periods, regulatory complexity, funding volatility, land acquisition challenges, and political sensitivity.

Despite its comprehensive scope, ERM theory has attracted criticism. Scholars argue that ERM systems may become overly formalised and bureaucratic, prioritising procedural compliance over managerial judgement (Power, 2009). There is a risk that ERM degenerates into a "box-ticking" exercise if not supported by strong leadership commitment and embedded organisational culture. Additionally, evaluating ERM effectiveness remains challenging because organisations adopt ERM at different levels of maturity and integration. These critiques underscore the importance of embedding ERM within governance frameworks and organisational culture rather than treating it as a purely technical or administrative mechanism.

In the context of this study, ERM theory provides the theoretical foundation for explaining the relationship between project risk management and the performance of road construction projects in Kenya. Road construction projects are inherently exposed to strategic, financial, technical, environmental, political, contractual, and regulatory risks that evolve throughout the project lifecycle. Within national road agencies—Kenya National Highways Authority (KeNHA), Kenya Urban Roads Authority (KURA), and Kenya Rural Roads Authority (KeRRA)—common risks include procurement delays, scope modifications, contractor capacity constraints, environmental compliance issues, funding uncertainty, and multi-layered approval processes. ERM theory demonstrates that systematic risk identification, assessment, monitoring, reporting, and escalation are essential governance mechanisms for mitigating such risks and enhancing project performance.

By conceptualising project risk management as a governance-embedded, strategic, and behavioural capability operating across project, programme, and organisational levels, ERM theory supports the proposition that effective risk management improves cost control, schedule adherence, quality delivery, and overall project outcomes. Accordingly, the theory underpins the study's hypothesis that effective project risk

management significantly influences the performance of road construction projects undertaken by national government road agencies in Kenya.

2.2.4 Communication Theory

Communication theory originates from Shannon's (1948) mathematical theory of communication, which conceptualised communication as a linear process involving an information source, encoding, transmission through a channel, decoding, and reception, with the possibility of distortion caused by noise. Although originally developed for engineering systems, this foundational model provided a systematic explanation of how information flows and where breakdowns occur. Shannon's work was later extended by Weaver, who incorporated semantic accuracy and effectiveness into the model, emphasising that successful communication requires not only message transmission but also shared understanding and appropriate response (Shannon & Weaver, 1949). This early theoretical foundation established communication as a structured and analysable process relevant beyond technical systems and applicable to organisational and project environments.

Communication theory subsequently evolved to incorporate behavioural and interactive dimensions. Berlo's Source–Message–Channel–Receiver (SMCR) model expanded the framework by highlighting the importance of communication skills, attitudes, knowledge, and socio-cultural context in shaping how messages are encoded and interpreted (Berlo, 1960). Schramm (1971) further reconceptualised communication as a cyclical and interactive process in which meaning is co-created through feedback rather than transmitted unilaterally. More recent organisational theory advanced the concept of communication as a sensemaking process. Weick (1995) argued that communication enables organisational actors to interpret ambiguity and construct shared meaning, particularly in complex and uncertain environments. Complementing this perspective, Media Richness Theory posits that communication effectiveness depends on matching the communication medium to the complexity and uncertainty of the task (Daft & Lengel, 1986).

Communication theory therefore states that effective coordination depends on accurate encoding, appropriate channel selection, timely transmission, clear decoding, and

feedback mechanisms that confirm shared understanding. Operationally, communication is viewed as a multi-stage process comprising message formulation, encoding, transmission, reception, decoding, interpretation, and feedback. Organisational and project management literature reinforces the centrality of feedback in confirming meaning, enabling corrective action, and ensuring coordination during project implementation (Atieno & Kamaara, 2024; Otieno & Mutiso, 2021). The quality of communication is influenced by the appropriateness of the channel, clarity of message design, timeliness, and contextual understanding (Ouma et al., 2022).

Within project governance contexts, communication theory emphasises that information flow connects strategic decisions with operational execution. In complex infrastructure projects, communication systems must support reporting structures, escalation pathways, transparency, and stakeholder coordination. Professional and policy frameworks institutionalise these principles. The Project Management Institute (2021) recognises communication as a core project governance process responsible for stakeholder alignment, reporting, and escalation throughout the project lifecycle. Similarly, the OECD (2017) highlights communication transparency and information-sharing mechanisms as essential components of accountable and effective infrastructure governance.

Despite its broad application, communication theory has faced criticism. Early transmission models were criticised for oversimplifying communication as a linear process and underestimating the complexity of human interpretation, power dynamics, and organisational culture (Weick, 1995). Critics argue that communication effectiveness cannot be fully understood without considering institutional context, authority structures, and cultural influences (Müller & Turner, 2017; Schein, 2010). Additionally, procedural communication systems risk becoming formalistic if they focus solely on message transmission without fostering shared understanding or behavioural commitment (Power, 2009). Later developments incorporating feedback loops, sensemaking, and media richness addressed these limitations by recognising interpretation, interaction, and contextual relevance as central to communication effectiveness (Daft & Lengel, 1986; Schramm, 1971). These refinements enhance the

applicability of communication theory in complex governance and project environments (OECD, 2017; Wilden & Biesenthal, 2020).

In the context of this study, communication theory provides the theoretical foundation for explaining the relationship between project communication and the performance of road construction projects in Kenya. Road construction projects undertaken by national government road agencies—Kenya National Highways Authority (KeNHA), Kenya Urban Roads Authority (KURA), and Kenya Rural Roads Authority (KeRRA)—involve multiple stakeholders, including engineers, contractors, consultants, regulators, financiers, and political actors (Ouma, Sang, & Kinoti, 2022). These projects are characterised by technical complexity, regulatory oversight, long implementation periods, and layered accountability structures (OECD, 2017; Project Management Institute, 2021).

Communication theory explains why ineffective communication—manifested through unclear reporting lines, delayed feedback, poor information quality, inappropriate media selection, or weak escalation mechanisms—can result in misaligned expectations, delayed approvals, unresolved risks, and project underperformance (Berlo, 1960; Shannon & Weaver, 1949; Ouma et al., 2022). Conversely, structured communication systems that facilitate transparency, timely reporting, interactive feedback, and appropriate channel selection enhance coordination, enable risk escalation, support informed decision-making, and improve governance effectiveness (Ding et al., 2023; Project Management Institute, 2021).

Accordingly, this study conceptualises project communication as a governance mechanism encompassing communication channels, quality of information, reporting structures, and feedback processes. Communication theory supports the proposition that effective project communication strengthens coordination, enhances managerial responsiveness, and contributes positively to cost control, schedule adherence, quality delivery, and scope management in road construction projects. It therefore provides a robust theoretical foundation for examining the relationship between project communication and performance outcomes within Kenya's national road agencies.

2.2.5 Schein's Theory of Organizational Culture

Schein's Organisational Culture Theory originated from Edgar Schein's seminal work on organisational behaviour and group dynamics in the 1980s. In his foundational text, Schein (1985) conceptualised organisational culture as a pattern of shared basic assumptions developed by a group as it learns to cope with problems of external adaptation and internal integration. These assumptions are taught to new members as the correct way to perceive, think, and behave in relation to those problems. The theory was later refined and expanded (Schein, 2010) to provide a deeper explanation of how culture shapes organisational decision-making, governance practices, and performance outcomes. Unlike structural or purely economic explanations of organisational behaviour, Schein's framework emphasises the interpretive and normative dimensions of organisations, arguing that behaviour is shaped not only by formal rules but also by shared meanings, beliefs, and norms (Akpa et al., 2021; Umemezia & Osifo, 2021).

Schein's theory states that organisational culture operates at three interconnected levels: artefacts, espoused values, and basic underlying assumptions (Schein, 2010). Artefacts are the visible and tangible manifestations of culture, including organisational structures, policies, reporting systems, risk registers, communication protocols, and observable managerial behaviours. In public-sector infrastructure organisations, these artefacts are reflected in documented governance frameworks, project charters, standard operating procedures, and formal oversight mechanisms (KeRRA, 2023; OAG, 2022a). However, Schein emphasises that artefacts alone do not determine behaviour; their practical implementation is shaped by deeper cultural values and assumptions (OECD, 2017; Flyvbjerg, 2014).

Espoused values represent the formally articulated strategies, goals, and philosophies that organisations claim to uphold, such as accountability, transparency, efficiency, and value for money (Cameron & Quinn, 2011; OECD, 2017). These are typically expressed in strategic plans, performance contracts, and policy documents within national road agencies (KeNHA, 2023; KeRRA, 2023). Schein (2010) argues that organisational effectiveness depends on the alignment between espoused values and enacted practices. Where misalignment exists—often due to political pressures,

bureaucratic rigidity, or competing institutional priorities—governance mechanisms may exist formally but be inconsistently applied in practice (Esposito, 2023; Müller et al., 2016).

At the deepest level are basic underlying assumptions, which consist of taken-for-granted beliefs about authority, risk, communication, accountability, and responsibility (Schein, 2010). These assumptions operate largely unconsciously yet exert strong influence over how governance mechanisms are interpreted and implemented. For example, assumptions that prioritise procedural compliance over performance outcomes, or that confine risk ownership strictly to project managers, can undermine proactive governance even where formal risk systems are established (Flyvbjerg, 2014; Power, 2009). Thus, culture shapes how governance systems are enacted rather than merely how they are designed.

Schein's theory further explains why organisations with similar structures and resources may experience different performance outcomes (Schein, 2010; Müller & Turner, 2017). Governance mechanisms such as strategic alignment processes, leadership oversight, risk management systems, and communication protocols are filtered through organisational culture, influencing how they are interpreted, applied, and enforced (Joslin & Müller, 2015; Sirisomboonsuk et al., 2018). In public infrastructure settings, culture influences risk tolerance, communication openness, accountability norms, and responsiveness to performance deviations (Ahmeda et al., 2021; OECD, 2017). Organisational culture therefore interacts with governance mechanisms rather than operating independently, shaping the extent to which governance practices translate into improved project performance (Indinya et al., 2021; Müller et al., 2016).

Despite its explanatory strength, Schein's theory has been criticised for its qualitative orientation and challenges in empirically measuring basic underlying assumptions (Cameron & Quinn, 2011; Galunic & Eisenhardt, 1994). Because underlying assumptions are deeply embedded and often unconscious, they are difficult to quantify using conventional survey instruments. However, these limitations do not diminish the theory's relevance in governance research. Instead, they reinforce the importance of

treating organisational culture as a contextual and moderating factor rather than a direct and isolated predictor of performance, particularly in complex public-sector environments (Müller & Turner, 2017; OECD, 2017).

In the context of this study, Schein's Organisational Culture Theory provides the theoretical basis for conceptualising organisational culture as a moderating variable in the relationship between project governance mechanisms and project performance. At the artefact level, culture influences the consistency and seriousness with which strategic alignment tools and governance procedures are applied, thereby moderating the strategic alignment–performance relationship (Joslin & Müller, 2015; OECD, 2017). At the level of espoused values, culture shapes leadership expectations and accountability norms, moderating the impact of top management support on project performance (Indinya et al., 2021; Zureehan & Lee, 2022). At the level of basic underlying assumptions, culture affects attitudes toward uncertainty, risk ownership, escalation practices, and information sharing, thereby moderating the effectiveness of project risk management and project communication (Müller et al., 2015; Nocco & Stulz, 2006).

Schein's theory is particularly suitable for explaining performance variations within Kenya's national road agencies—Kenya National Highways Authority (KeNHA), Kenya Urban Roads Authority (KURA), and Kenya Rural Roads Authority (KeRRA)—which operate under similar legal and institutional frameworks yet may exhibit differing project outcomes. The theory demonstrates that governance reforms alone are insufficient unless supported by congruent cultural values and assumptions. By conceptualising organisational culture as a moderating variable, the study recognises that governance mechanisms such as strategic alignment, top management support, risk management, and communication do not operate in isolation. Their effectiveness depends on the cultural context within which they are embedded. Accordingly, Schein's Organisational Culture Theory provides a robust foundation for explaining how cultural dynamics influence governance–performance relationships in Kenya's public road construction sector.

2.3 Conceptual Framework

In a conceptual framework, descriptive categories are systematically placed in a broad structure of explicit propositions, statements of relationships between two or more empirical properties to be accepted or rejected (Sekaran & Bougie, 2019). It comprises independent variables and dependent variables. An independent variable (IV) or the explanatory variable is the presumed cause of changes in the dependent variable (DV). It is also referred to as a criterion or predictor variable (Bedford, Malmi, & Sandelin, 2020). The dependent variable(s) are the variable the researcher wishes to explain.

The conceptual model in Figure 2.1 illustrates the relationship between six variables in this study. The literature review highlights the independent variables: strategic alignment, top management support, project risk management, and project communication. Additionally, the literature recognises organisational culture as a key factor in performance (Kothari & Garg, 2019). Ahmed (2023) states that project performance is evaluated based on timely completion and meeting deadlines. According to (Aga, et al, 2023), the successful delivery of a project is indicated by completing it on time, within budget, and meeting the quality standards specified by the client. Previous research supports a significant relationship between project governance and project performance (Asadullah et al., 2019b).

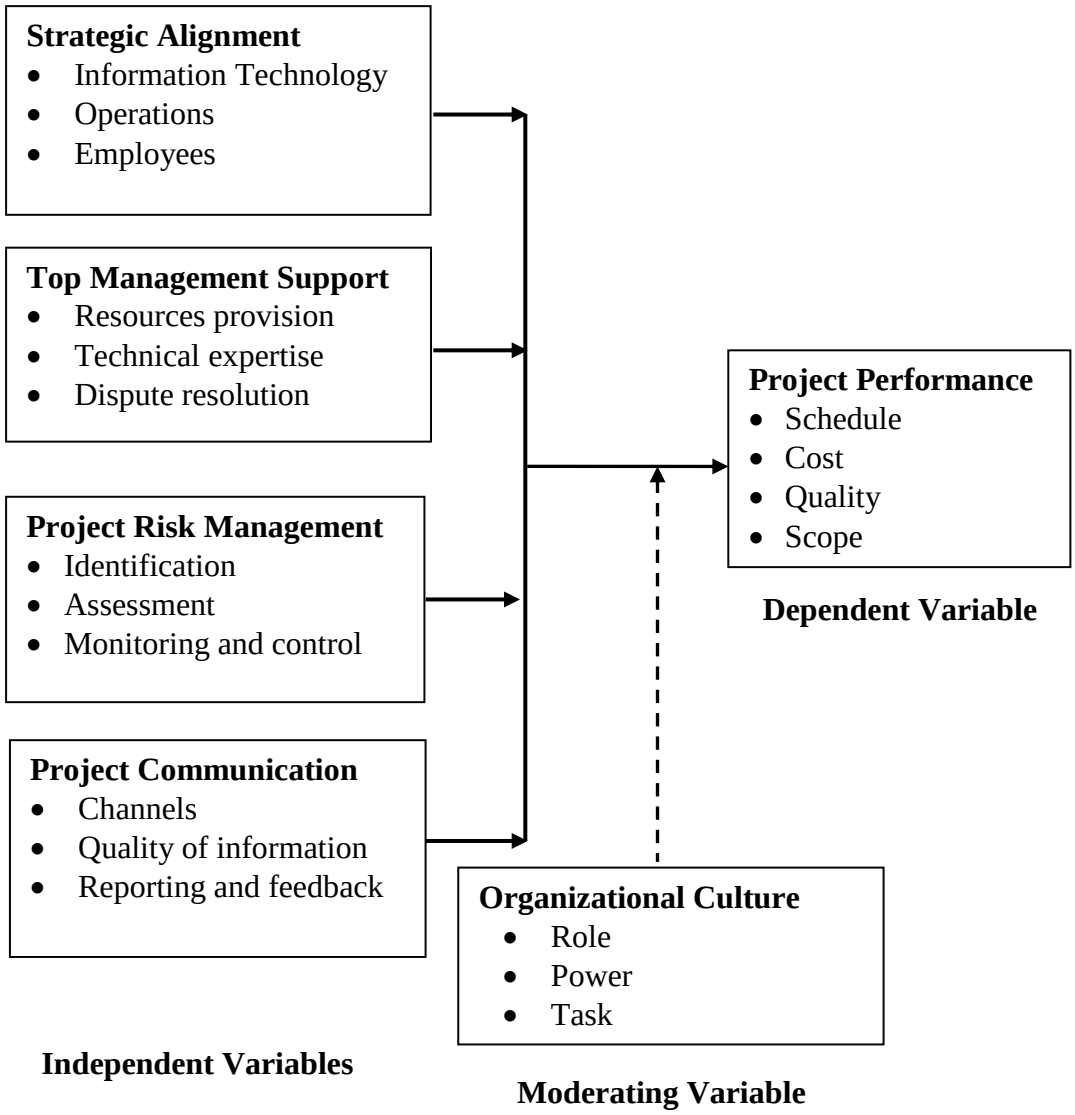

Figure 2.1: Conceptual Framework

Source: (Author)

2.3.1 Strategic Alignment

Strategic alignment refers to ensuring that the projects and programs within a portfolio are directly linked to the organization's overall strategic direction and objectives (Haniff & Galloway, 2022). According to Nnadi and Oyama (2023) strategic alignment is one of the most intangible and complex governance mechanisms that organizations must adopt. Zaman, Nadeem, and Shahid (2020) state that strategic alignment is fundamental to transform strategies into actions. Additionaly, Ghonim et al. (2020) indicate that strategic alignment is a fundamental concept in Project Portfolio Management (PPM) that focuses on ensuring that projects and programs within the portfolio are closely aligned with the strategic goals and objectives of the organization.

Strategic alignment involves assessing the strategic fit of projects, evaluating their contribution to organizational goals, and aligning resources and efforts accordingly (McCardle *et al*., 2019). Projects are evaluated based on specific criteria that align with the organization's strategic goals to ensure strategic alignment. These criteria may include factors such as market demand, competitive advantage, financial viability, strategic fit, resource requirements, and risk assessment (Haniff & Galloway, 2022). Using these criteria, organizations can prioritize and select projects with the highest potential to advance the strategic objectives (Smith & Thomas, 2024). Strategic alignment thus acts as a fundamental governance mechanism, aligned with Contingency Theory, which suggests that organisational effectiveness is maximised when internal systems are adapted to current environmental conditions (Fiedler, 1964; Galbraith, 1977). Strategic alignment entails; information technology, operations, and employees' alignment (Haniff and Galloway, 2022).

Information technology (IT) alignment is a critical component of strategic alignment within organizations (Haniff & Galloway, 2022). According to Vundi (2020) strategic alignment refers to the harmonization of an organization's business objectives and activities with its IT capabilities and initiatives. It ensures that IT investments and initiatives are aligned with the organization's overall strategic goals, enabling it to effectively leverage technology to achieve its desired outcomes. This means the IT

strategy should be developed in close collaboration with business leaders to ensure it supports and enables the organization's strategic objectives (Vundi, 2020). The IT strategy should align with the organization's mission, vision, and long-term goals, guiding the selection, deployment, and management of technology resources (McCardle, Rousseau, & Krumwiede, 2019).

Additionally, IT alignment includes aligning IT operations and processes with business processes. IT systems and applications should be designed and implemented to support and streamline business operations, enhance efficiency, and enable adequate information flow across different functions and departments. This alignment helps to eliminate redundancies, improve collaboration, and enhance overall organizational performance (Yung-Chang & Wu, 2019). Effective IT alignment requires ongoing communication, collaboration, and coordination between business leaders, IT leaders, and other stakeholders. It involves regular strategic planning sessions, cross-functional teams, and governance structures that facilitate collaboration and decision-making (Vundi, 2020).

Operational alignment involves aligning the operational activities and processes of an organization with its strategic objectives and goals (Vundi, 2020). McCardle et al. (2019) argue that operational alignment ensures that day-to-day operations are carried out in a manner that supports the organization's overall strategic direction, enabling it to effectively execute its strategy and achieve desired outcomes. Operational alignment includes several vital aspects for aligning operational activities with strategic objectives. Among these key aspects is process alignment, which involves aligning business processes with strategic goals (Yung-Chang & Wu, 2019). According to Smith and Thomas (2024), organizations need to identify and streamline key processes to ensure they are efficient and effective and support the achievement of strategic objectives. By mapping out and optimizing processes, organizations can improve operational efficiency, reduce costs, and enhance overall performance (Vundi, 2020).

Employees' alignment focuses on aligning the attitudes, behaviors, and actions of employees with the strategic objectives and goals of the organization (Smith &

Thomas, 2024). According to Yung-Chang and Wu (2019) employees' alignment ensures that individuals at all levels of the organization understand and are actively working towards achieving the organization's strategic vision. McCardle et al. (2019) argue that employees' alignment focuses on ensuring that employees understand and actively contribute to the organization's strategic objectives. By effectively ensuring clarity in the strategic vision, setting aligned goals, providing necessary training and development, recognizing and rewarding aligned behaviors, and fostering employee engagement, organizations can enhance employees' alignment and drive the successful execution of their strategic initiatives (Zaman, Nadeem, & Shahid, 2020).

2.3.2 Top Management Support

Top management and sponsors have played a significant role in all kinds of governance, ensuring the necessary support and the governance requirements for project governance (Zureehan & Lee, 2022). Cahyana, Tanjung, and Syahwani (2023) argue that organizational success in realizing good governance requires good management support and commitment from all levels of management. Top management generally consists of individuals functioning as Chief Executive Officer, President, Chairman/Chairperson, Director, or other official positions at the senior management level (Mughal, Bahaudin, & Salleh, 2019). According to Ahmeda, Hussain, and Philbin (2021), top management support is one of the most vital success factors, and its lack can negatively affect project implementation. Following exploratory research, Zureehan and Lee (2022) identified the dimensions of top management support as providing resources, structural arrangements, dispute resolution, experts, and power. Iyiola and Rjoub (2020) argue that dispute resolution as an aspect of top management support is crucial in maintaining a harmonious and productive organizational environment.

The top management plays a critical role in establishing and providing the resources needed to accomplish the project (Ahmeda, Hussain, & Philbin, 2021). Resource allocation refers to distributing and assigning resources, such as financial, human, technological, and physical resources, within an organization to achieve its strategic goals and objectives. It involves making decisions on how resources should be

allocated across various projects, departments, and activities based on their importance, priority, and expected outcomes. Effective resource allocation is crucial for optimizing productivity, maximizing efficiency, and ensuring the successful implementation of organizational initiatives. Resource allocation is a critical management process that involves distributing and assigning resources to achieve organizational goals (Iyiola & Rjoub, 2020). Iyiola and Rjoub (2020) holds that effective resource allocation ensures that the right resources are allocated to the right projects or activities, resulting in improved efficiency, productivity, and overall performance. Regular monitoring and optimization of resource allocation help organizations adapt to changing conditions and maximize the utilization of available resources (Wana et al., 2019).

In the context of top management support, technical expertise refers to the knowledge, skills, and experience of top-level executives or managers in a particular field or domain (Iyiola & Rjoub, 2020). According to Ahmeda, Hussain, and Philbin (2021) top-level executives often make critical decisions that shape the direction and strategy of an organization. Their technical expertise allows them to analyze complex situations, assess risks, and make informed decisions based on their deep understanding of the industry or domain. Technical expertise enables top managers to develop strategic plans that align with the organization's goals and capitalize on market opportunities. Their domain-specific knowledge helps them identify trends, predict future developments, and devise effective strategies for growth and competitiveness (Zureehan & Lee, 2022). Moreover, technical expertise plays a vital role in allocating resources effectively. Top managers with technical expertise can assess the needs of different departments or projects, determine resource requirements, and allocate resources to optimize productivity, efficiency, and outcomes.

Dispute resolution refers to the methods and processes used to resolve conflicts, disagreements, or disputes between individuals, organizations, or parties (Wana et al., 2019). In the context of top management support, dispute resolution refers to the processes and techniques used to address and resolve conflicts or disagreements among top-level executives or between top management and other stakeholders within an organization (Zureehan & Lee, 2022). In agreement with this, Gitagia, (2015), there

are various approaches to dispute resolution, and the choice of method often depends on the nature of the dispute, the parties involved, and their preferences.

When conflicts arise at the highest levels of an organization, it can significantly impact the overall functioning and success of the company (Ahmeda, Hussain, & Philbin, 2021)). Resolving these disputes effectively and efficiently is crucial for maintaining a healthy work environment and ensuring smooth operations (Muema & Ngugi, 2021). Wana et al. (2019) holds that effective dispute resolution requires open and transparent communication channels between top management and other stakeholders. Creating an environment where concerns can be raised and addressed openly helps prevent disputes from escalating. Establishing clear conflict resolution policies and procedures is essential to provide guidelines for addressing disputes. These policies should outline the steps to be followed, the individuals or teams responsible for managing disputes, and the available methods of resolution (Iyiola & Rjoub, 2020).

Dispute resolution processes often require time, money, and other resources (Muema & Ngugi, 2021). Wana *et al*. (2019) argues that when top management is supportive, they can allocate the necessary resources to ensure that disputes are addressed promptly and fairly. Top management support can empower dispute resolution teams by giving them the authority and autonomy to make decisions without undue interference (Wana et al., 2019). This ensures that the team can act impartially and with credibility, leading to more effective resolutions (Ahmeda, Hussain, & Philbin, 2021). Recognizing and rewarding successful dispute resolution outcomes can further incentivize employees to engage in the process and resolve conflicts productively (Iyiola & Rjoub, 2020).

2.3.3 Project Risk Management

Project risk management involves identifying, assessing, prioritizing, and mitigating risks that might impact the successful completion of a project (Haniff & Galloway, 2022). As described by Alsadi and Norhayatizakuan (2021), project risk management encompasses proactive planning, monitoring, and controlling risks throughout the project lifecycle to minimize their impact and increase the likelihood of project success. Effective project risk management helps project managers and teams

proactively address potential challenges and uncertainties. It increases the project's chances of success by minimizing the impact of risks, improving decision-making, and enabling better resource allocation and contingency planning (Alsadi & Norhayatizakuan, 2021). Project risk management entails risk identification, assessment, monitoring, and control.

Risk identification is critical to project risk management (Yung-Chang & Wu, 2019). McCardle et al. (2019) indicate that risk identification involves systematically identifying and documenting potential risks that could impact a project's success. By proactively identifying risks, project managers and teams can develop appropriate strategies to mitigate, avoid, or manage those risks effectively. McCardle et al. (2019) argue that conducting brainstorming sessions or workshops is a common technique for identifying risks.

In addition, Vundi (2020) indicates that risk identification is a foundational step in project risk management. By systematically identifying potential risks through stakeholder involvement, brainstorming sessions, documentation review, external factors analysis, expert judgment, and various analytical techniques, project teams can proactively address risks and increase the chances of project success. Algremazy *et al*., (2023) indicate that involving relevant stakeholders, including project team members, subject matter experts, and key stakeholders, in the risk identification process is essential. According to McCardle et al. (2019), different perspectives and technical expertise can help identify a comprehensive range of risks. This involves gathering project team members and stakeholders to generate ideas and identify potential risks associated with various project elements such as scope, schedule, resources, technology, and external factors.

Risk assessment involves analyzing and evaluating identified risks to understand their potential impacts and likelihood of occurrence and prioritize them based on their significance to the project (Algremazy *et al*., 2023). According to McCardle et al. (2019), the goal of risk assessment is to provide a quantitative or qualitative understanding of the risks, enabling project teams to make informed decisions regarding risk response strategies and resource allocation. In addition, Vundi (2020)

holds that risk assessment involves evaluating the potential impact of each identified risk on project objectives such as scope, schedule, cost, quality, and stakeholder satisfaction. The impact analysis helps in understanding the magnitude of the consequences if a risk event occurs (Algremazy *et al*., 2023). According to Haniff and Galloway (2022) assessing the likelihood or probability of each risk occurrence is essential. This involves considering factors such as historical data, expert judgment, project characteristics, and external influences. The likelihood assessment helps in determining the chances of risks materializing during the project's lifecycle (Rahmana & Adnan, 2020).

Risk monitoring and control is concerned with the ongoing tracking, reviewing, and controlling of identified risks throughout the project lifecycle (Haniff & Galloway, 2022). Risk monitoring and control aim to ensure that risks are effectively managed, responses are implemented, and new risks are identified and addressed promptly (Alsadi & Norhayatizakuan, 2021). According to Rahmana and Adnan (2020) risk monitoring involves tracking identified risks, including their current status, potential impacts, likelihoods, and response strategies. This includes maintaining a risk register or risk log that serves as a central repository for all project risks. Regularly updating the risk register ensures that project teams have an accurate and up-to-date view of the project's risk profile (Alsadi & Norhayatizakuan, 2021). According to McCardle *et al*. (2019), risk control involves implementing the planned risk response strategies that were identified during the risk assessment phase. This includes executing risk mitigation actions, contingency plans, or fallback plans as necessary. Effective risk response implementation ensures that the project team takes appropriate actions to minimize the impact of identified risks (Vundi, 2020).

2.3.4 Project Communication

Project communication is the formal and structured management of communication processes within an organization (Ding, *et al*, 2023). Project communication involves establishing policies, procedures, guidelines, and controls to align with the organization's objectives, values, and legal requirements (Yakubu, Adjei-Kumi, & Acheamfour, 2024). Effective project communication is characterized by clear

communication channels, quality information, and effective reporting and feedback (Akintelu & Oyebola, 2023). Project communication must be done in such a way that information can be simply received and processed by both the recipient and the sender, allowing them to make decisions and act accordingly (Usanase & Nkechi, 2022). According to Ezeajughu (2021), effective communication can promote good governance. Project communication entails communication channels, quality of information, reporting, and feedback (Usanase & Nkechi, 2022).

Communication channels play a crucial role in project communication as they determine how information is shared, exchanged, and disseminated among project team members and stakeholder. Effective communication channels ensure that everyone involved in the project stays informed, aligned, and engaged (Usanase & Nkechi, 2022). According to Setiawan, Hansen, and Fujiono (2021) direct, in-person communication allows for immediate feedback, clarification, and building rapport. It can occur in team meetings, one-on-one discussions, or informal gatherings. Usanase and Nkechi (2022) holds that email is a widely used channel for written communication. It allows for detailed explanations, documentation, and record-keeping. It is suitable for formal communication, sharing attachments, and reaching out to multiple recipients simultaneously.

Presentations help share project plans and progress updates or deliver training sessions (Usanase & Nkechi, 2022). Presentation slides or supporting documents are often shared before or after the session. When choosing communication channels, it's essential to consider factors such as the nature of the project, team composition, stakeholders' preferences, geographical distribution, and the urgency or sensitivity of the information being shared. A combination of channels is often employed to cater to various communication needs throughout the project lifecycle (Yakubu, Adjei-Kumi, & Acheamfour, 2024).

The quality of information encompasses its accuracy, relevance, clarity, and completeness (Usanase & Nkechi, 2022). Inaccuracies can result in misunderstandings, incorrect decisions, and wasted efforts (Usanase & Nkechi, 2022). Project team members and stakeholders depend on precise information to make well-

informed decisions and take appropriate actions (Akintelu & Oyebola, 2023). Yakubu, Adjei-Kumi, and Acheamfour (2024) emphasize that clear and concise communication is essential for effective project management. Ambiguous or vague information can cause confusion and misunderstandings among team members and stakeholders. The timeliness of information is crucial in project communication. It should be shared in a timely manner to ensure that stakeholders have access to the information when they need it. Delayed or outdated information can hinder progress, result in missed opportunities, and impact decision-making (Ding, *et al*, 2023).

Reporting involves systematically collecting, analyzing, and disseminating project information to relevant stakeholders (Usanase & Nkechi, 2022). It provides a structured mechanism for sharing project progress, status, risks, and other relevant information (Usanase & Nkechi, 2022). Regular reporting is essential for keeping stakeholders apprised of the project's progress, accomplishments, and challenges. It enables project managers to effectively communicate milestones achieved, tasks completed, and any deviations from the planned course (Akintelu & Oyebola, 2023). Such reports provide detailed insights into resource allocation and utilization, including budget, human resources, equipment, and materials. This allows stakeholders to monitor resource efficiency and make well-informed decisions regarding resource distribution.

Yakubu, Adjei-Kumi, and Acheamfour (2024) argue that feedback is the exchange of information, opinions, and suggestions among project team members, stakeholders, and other relevant parties. Feedback enables continuous improvement by identifying areas of improvement, process bottlenecks, and lessons learned. It allows team members to share insights, suggestions, and best practices to enhance project performance. Feedback ensures that the recipients correctly understand the information shared during project communication. It allows stakeholders to ask questions, seek clarification, and verify their understanding of project requirements, objectives, and expectations (Ding, *et al*, 2023).

2.3.5 Strategic Alignment and Project Performance

In the United Kingdom (UK), Haniff and Galloway (2022) conducted a study on modelling strategic alignment in construction projects. The study explored the challenges that arise when collaborating organisations aim to align multiple strategic objectives through a single construction project and examined the factors that influence the strategy of a project network. Unlike intra-organisational projects operating within a single organisation's boundaries, a project network functions in an environment of overlapping boundaries where multiple organisations simultaneously seek to realise their strategic objectives through a single strategic project. A model illustrating a hierarchy of inter-organisational strategic objectives was developed. Based on the empirical findings from a study of four construction projects, internal and external tensions affecting the project strategy of the network were identified. The study found that effective project governance, leadership, and consideration of client complexity are essential for the strategic alignment of inter-organisational projects.

Nnadi and Oyama (2023) conducted a study on evaluating the influence of strategic alignment on the performance of road construction project in Nigeria. The collected data was analyzed using percentages, regression tools in Eview8 which were validated by experts in the field of study. The results from the findings show that 40% of the respondents strongly agreed to the fact that performance of road construction is greatly influenced by proper alignment of strategic, 39.6% agreed, 10% disagreed and 10.4% strongly disagreed. The findings of the study have generated the following conclusions: strategic alignment, have significant contribution towards effective and improve the performance of road construction project in South East, Nigeria

In Korea, Zaman, Nadeem, and Shahid (2020) researched the effects of strategic alignment on project portfolio success in the Asia-Pacific region. Based on samples drawn from the information and communications technology (ICT) industry in the Republic of Korea (an advanced economy) and Pakistan (an emerging economy), the hypothesized relationships were empirically tested using partial least squares structural equation modeling (PLS-SEM). The study used the contingency theory to explain the mediation effect of information systems investment on strategic alignment and project

success. The results from 273 business executives in Korea indicated that strategy integration with IT is positively related to IT investment, and IT investment is a critical antecedent of project success. Thus, the implications of the findings are that right-directional IT investment has played an essential role in the success of IT companies in Korea.

Yung-Chang and Wu (2019) studied strategic alignment and project success in China. Regression analysis was used to test the hypotheses in a sample of 80 cases drawn from a population of the top 5,000 Taiwanese firms in the yearbook published by the China Credit Information Service Incorporation. The empirical results indicate that formalization is positively related to new product performance while decentralization has an inverse U-shaped curvilinear effect on new product performance. Furthermore, the regression findings also indicated that a market-oriented strategy negatively moderates the relationship between formalization and new product performance, while a technology-oriented strategy positively moderates the curvilinear relationship between decentralization and new product performance.

In the United States, McCardle *et al*. (2019) investigated the impact of strategic alignment and competitive priorities on operational performance. The study compared the influence of strategic alignment and competitive priorities on operational exploitation and exploration across three cultural clusters. The results indicated that cultural characteristics of low power distance and high individualism enhance the effectiveness of competitive priorities in achieving explorative performance outcomes. Conversely, cultures characterized by high power distance and low individualism strengthen the relationship between strategic alignment and exploitative performance.

In Canada, Smith and Thomas (2024) conducted a study examining the impact of strategic alignment and clarity on multidimensional task performance. The study examined the effects of performance measure alignment with organizational strategy, and the clarity with which the strategy is communicated, on performance in a multidimensional task setting. The study findings revealed that strategy-consistent performance improves with alignment when accompanied by vague strategic

communication, as workers rely on the performance measure to guide their attention and effort.

Vundi (2020) focused on the influence of strategic alignment on the performance of CDF-sponsored projects in Kitui County, Kenya. This study was a census as the targeted population was small, and thus, it was reasonable to engage the whole population. Data collection was done using semi-structured questionnaires administered using a "drop and pick later" method. The data collected was analyzed using both qualitative and quantitative techniques. Qualitative data was analyzed by arranging responses according to the research questions and objectives. According to the data analysis findings, strategic alignment ranked lowest in terms of the influence it has on the performance of CDF-sponsored projects in Kitui County. According to the study, a unit increase in strategic alignment would lead to 0.073-unit increase in CDF projects performance all other factors held constant.

2.3.6 Organizational Culture

The influence of different organizational cultures are usually reflected in numerous factors including style, structure, competence, shared values, norms and beliefs, policies and procedures, the view of relationships with authority, and work ethics, to mention but a few (Mutua, 2023). In addition, organizational culture influences organizational performance by shaping the behavior of organization members (Ingosi & Juma, 2020). Ackon, Kheni, and Mensah, (2022) points out that an organization's culture is an important factor affecting organizational success or failure. Tam *et al*. (2020) argue that organizational culture is strongly associated with the organization's sense of uniqueness, values, mission, aims, goals and ways of building shared values. Therefore, ignoring organizational culture in plans for any changes within the organization would yield unforeseen and negative consequences (Ackon *et al*., 2022). This study adopts Charles Handy's Organizational Culture typology, which classifies organizational culture into four main types: role culture, power culture, task culture, and person culture. For the purposes of this research, the focus is on role culture, power culture, and task culture, as these are most relevant to understanding how organizational culture moderates the relationship between project governance and

project performance in road construction projects. Handy's typology provides a structured framework to assess how different cultural orientations influence decision-making, authority, and performance outcomes within organizations (Mutua, 2023).

Role culture, also known as a bureaucratic or functional culture, is an organizational culture that places a strong emphasis on hierarchical structures, clearly defined roles and responsibilities, and adherence to established rules and procedures (Ismayana & Adeleke, 2022). In a role culture, individuals are assigned specific roles based on their technical expertise, and decision-making authority is typically concentrated at the top levels of the organization. Role culture emphasizes specialization and a clear division of labor. Employees are assigned specific roles and responsibilities based on their skills and technical expertise. Each role has well-defined tasks and functions, which helps create a sense of order and clarity within the organization (Ackon *et al*., 2022). Role culture is characterized by a hierarchical structure, where authority and decision-making power are concentrated at the top levels of the organization. In the role culture, the reporting relationships are clearly defined, and individuals are expected to follow the chain of command (Ackon, Kheni, & Mensah, 2022).

Power culture, or a centralization culture, is where power and decision-making authority are concentrated among a few individuals or a central figure within the organization (Ismayana & Adeleke, 2022). In a power culture, key decisions and control are held by a select few who wield significant influence and have the ability to shape the organization's direction (Ackon *et al*., 2022). Power culture is characterized by a centralized decision-making process. A small group or an individual at the top of the hierarchy holds the authority to make key decisions without significant input or consultation from others (Ismayana & Adeleke, 2022). Power culture often revolves around a dominant leader or a small group of influential individuals who significantly influence the organization. The leader's personality, vision, and preferences play a crucial role in shaping the organization's culture and direction (Ingosi & Juma, 2020).

Task culture, also known as project culture or team culture, is an organizational culture that prioritizes the completion of specific tasks or projects (Ingosi & Juma, 2020). A task culture focuses on forming dynamic and flexible teams that come together to

achieve specific objectives. It emphasizes collaboration, innovation, and expertise to accomplish project goals. Task culture emphasizes the formation of teams or project groups based on specific tasks or projects (Ackon *et al*., 2022). These teams are formed with individuals who possess the necessary skills and technical expertise to complete the assigned tasks successfully. Task culture is project-oriented, with teams created to accomplish specific objectives within a defined timeframe. The organization's structure is often dynamic and adaptable, allowing teams to be formed and dissolved as projects begin and end (Ismayana & Adeleke, 2022).

2.3.7 Project Performance

Project management is both an art and a science: an art because it requires the application of theoretical principles, professional judgment, and interpersonal skills to achieve desired outcomes, and a science because it constitutes an organized body of knowledge with established methods, tools, and principles (Bwalya, 2023). Within this dual framing, project performance has emerged as a central construct for evaluating the success or failure of construction projects, particularly in complex and resource-intensive sectors such as road infrastructure.

Project performance broadly refers to the degree to which a project achieves its predefined objectives in terms of efficiency, effectiveness, and value creation (Yaseen, Ali, & Al-Ansari, 2020). Beyond short-term outputs, performance encompasses the realization of intended benefits and alignment with operational, financial, and strategic goals over the project lifecycle (Htoo, Dodanwala, & Santoso, 2023). Effective performance measurement enhances accountability, supports evidence-based decision-making, and informs future planning and resource allocation (Heravi & Mohammadian, 2021).

A dominant framework for evaluating project performance is the iron triangle, which conceptualizes performance as the balance among time, cost, and scope or quality. According to Yaseen et al. (2020), these dimensions operate as a constrained system in which a change in one element inevitably affects the others. For instance, accelerating project schedules may increase costs or compromise quality standards (Rivera, Baguec, & Yeom, 2020). The iron triangle therefore provides a practical and

enduring basis for planning, monitoring, and controlling project delivery, particularly in construction environments characterized by uncertainty and multiple stakeholders (Heravi & Mohammadian, 2021).

Timely completion is widely recognized as a critical indicator of project performance, reflecting the extent to which a project is delivered within the planned or contractually agreed timeframe (Mohindra & Srivastava, 2019). Meeting schedule targets enhances organizational credibility, strengthens stakeholder confidence, and demonstrates effective project coordination and control. Conversely, delays often result in additional costs, contractual penalties, extended overheads, and reputational damage (Le & Chong, 2020). As such, schedule adherence remains a central concern for project managers seeking to optimize overall project outcomes.

Cost performance focuses on whether a project is completed within the approved budget and how effectively financial resources are managed throughout the project lifecycle (Mohindra & Srivastava, 2019). Effective cost management ensures optimal allocation of funds, labor, materials, and equipment, thereby enhancing efficiency and minimizing waste (Rahmana & Adnan, 2020). It also mitigates financial risks by identifying potential budget overruns early and implementing corrective measures. Robust cost estimation, continuous monitoring, transparent reporting systems, and collaboration between project teams and financial stakeholders are therefore essential for achieving cost discipline in construction projects (Usanase & Nkechi, 2022).

Project quality refers to the degree to which project outputs meet specified requirements, technical standards, and stakeholder expectations (Nnadi & Oyama, 2023). Quality performance emphasizes both conformance to specifications and fitness for purpose. Contemporary quality management approaches prioritize prevention over correction by embedding quality planning, assurance, and risk management processes throughout the project lifecycle (Fareed & Su, 2022). Proactive quality management reduces rework, enhances durability and functionality of infrastructure assets, and contributes to long-term project value (Mohindra & Srivastava, 2019).

Baseline scope adherence reflects the extent to which a project delivers the agreed scope of work without unnecessary additions, omissions, or unauthorized changes (Fareed & Su, 2022). Maintaining scope discipline is critical for managing stakeholder expectations and preventing scope creep, which is a common source of cost overruns, schedule delays, and resource inefficiencies (Mwangi & Mutuku, 2023). Effective scope management ensures that project objectives remain clear and stable, thereby reinforcing control over time and cost dimensions (Waiguru, 2021).

Empirical studies across different contexts underscore the multidimensional nature of project performance. Santoso and Gallage (2020), in a Sri Lankan context, conceptualized project performance in terms of time, cost, quality, and scope. Similarly, Mongina and Moronge (2021) assessed road project performance using indicators of schedule adherence, budget compliance, and quality standards. More recent studies have expanded the construct to include safety, sustainability, and long-term asset performance, reflecting the growing complexity of infrastructure projects (Dereja, 2025).

Building on these theoretical and empirical perspectives, this study conceptualizes the performance of road construction projects in Kenya in terms of timely completion, adherence to approved costs, achievement of specified quality standards, and conformity to baseline scope. Persistent deviations in these dimensions are viewed not merely as technical failures but as manifestations of deeper governance, institutional, and managerial weaknesses within the road sector. This conceptualization provides a robust foundation for examining how project governance mechanisms influence the performance of road construction projects in Kenya.

2.4 Empirical Review

This section provides a recap of existing literature on the relationship between strategic alignment, top management support, project risk management, and project communication with the performance of road construction projects. It also reviews studies on the moderating role of organizational culture on the relationship between project governance and project performance. Previous studies support the existence of

a significant relationship between project governance and project performance (Asadullah et al., 2019a; Asadullah et al., 2019b).

2.4.1 Top Management Support and Project Performance

Zureehan and Lee (2022) studied the moderating effect of trust on the relationship between top management support and collaborative teams on project performance in the Malaysian construction industry. A population of 2,342 companies was obtained from the Malaysian Construction Industry Development Board (CIDB). The sample size was 107 companies, as suggested by statistical software. One hundred fifty online survey questionnaires were distributed using a simple random sampling technique while 123 responses were received. The data was analyzed using partial least square structural equation modeling (PLS-SEM) with the support of SmartPLS software. The findings did not support the influence of top management support and the moderating effects of trust on project performance.

Mughal, Bahaudin, and Salleh (2019) conducted a study on importance of top management support on project success in Pakistani context. The study focused on the influence of top management support on project success for export-oriented IT companies in Pakistan. The population of the study was members of the Pakistan software board, and the sample size was 223. The study adopted quantitative, explorative, and deductive research methodologies. The questionnaire was closed-ended and on the Likert scale of 5. Drawing upon RBV theory, the study found a significant and positive relationship between top management support and IT project success.

Ahmeda, Hussain, and Philbin (2021) conducted a study on the effect of Senior Management on Project Performance in Pakistan. A questionnaire survey was used to collect data from project directors, project managers, civil and construction engineers, project supervisors, and experts from small, medium, and large construction companies from major cities in Pakistan. A response rate of 84% was obtained based on 310 valid responses from a sample of 368 participants who received the survey. Cross-sectional data were used to test direct relationships and moderating effects through regression analysis and "process" method, respectively. The findings indicate

that schedule delays in construction projects occur due to lack of commitment, insufficient site management, poor site coordination, clarity in project scope, lack of communication and substandard contracts, and significant delays due to improper planning.

Iyiola and Rjoub (2020) studied the relationship between conflict management climate and relationship quality as perceived by the owners and contractors in Nigeria. The study also assessed trust as a mediator between conflict management climate and relationship quality. Data was obtained from 426 owners and contractors' employees and was analyzed using structural equation modeling. The results indicated that conflict management climate significantly predicted trust and relationship quality. Trust significantly predicts relationship quality and partially mediates the relationship between conflict management climate and relationship quality.

Muema and Ngugi (2021) examined the influence of top management support on the performance of water projects in Machakos County, Kenya. The study used a descriptive survey research design whereby 434 solar-powered new boreholes, 240 dams and pans, 216 river weirs, and two huge dams were assessed. This formed the unit of analysis for the study. The unit of observation consisted of 184 project managers, project coordinators, independent contractors, technical staff, and community leaders, and a sample of 126 was picked using the Yamane Formulae. Primary data was collected using a questionnaire. The study findings established that top management support influences the performance of water projects in Machakos County, Kenya.

Wana *et al*. (2019) conducted a study to determine the influence of project management practices on the performance of projects at the Port of Mombasa. The study employed descriptive and inferential research design. The target population for the study was 203, and a sample size of 135 respondents from the Kenya Ports Authority and stakeholders from the Mombasa Port Development Authority Project (MPDP). The results revealed a positive correlation between management support, project funding, monitoring, budget planning, and project performance.

2.4.2 Project Risk Management and Project Performance

In Malaysia, Ali *et al*. (2019) investigated the effect of risk management on the performance of construction projects. They aimed to determine the influence of risk management on Malaysian construction companies' performance using three key measures. The study also examined the extent to which risk management practices are adopted in selected construction projects in the country. The research employed a case study approach, analyzing documents and conducting face-to-face interviews with key stakeholders, including a director, project managers, finance managers, contract managers, and quantity surveyor managers. The findings revealed that effective risk management practices enhance project performance and contribute to overall success. Conversely, a lack of knowledge and poor communication about risk management practices lead to weak implementation and inconsistent risk management in Malaysia.

Alsadi and Norhayatizakuan (2021) explored the impact of risk management practices on the performance of construction projects. They used quantitative methods to examine this relationship, surveying construction companies in Oman from excellent grade to second grade. Their findings showed that practicing risk management can greatly enhance the performance of these projects. In light of these results, the study recommends hiring skilled project managers who are well-versed in risk management practices.

Rahmana and Adnan (2020) examined project risk management and risk management performance measurement in the construction projects of Finland. The research was carried out by performing an extensive literature review on risk management and measurement of risk management performance, followed by real case analysis through a semi-structured interview and questionnaire. The literature review shows that project failure has been increasing for the last few decades as general risk management standards are not always sufficient due to complexity. This study revealed the different methods in organizing risk management and evaluates the risk management performance measurement on construction projects and their importance on the projects. The findings from this study point out the alliance contracting impacts on risk management, effective use of risk management tools and the importance of risk

management performance measurement. The study concluded project managers must make sure a well-balanced risk management plan and risk management performance measurement in order to get the desired project success.

Algremazy *et al.,* (2023) researched on the effect of risk management practices on project performance: a case study of the Libyan construction industry. Questionnaires which were designed based on cluster sampling were sent to respondents i.e., basically the company managers and 250 replies were obtained. Structured equation modeling was used to analysis the information by Smart-PLS program. The risk management processes defined by identification, assessment and monitoring which contributed to the project success was also related to the financial risk. The study found that risk management practices had substantial and favorable effects on the success of the project's execution. Further the awareness of quality management in terms of risks was most encouraging. The study concluded that project risk management practices had substantial and favorable effects on the success of the project's execution.

In a case study of the Libyan Construction Industry, Algremazy *et al.* (2023) researched on the effect of risk management practices on project performance. Questionnaires were designed and distributed to company managers based on cluster sampling, in which 250 responses were obtained. Structured equation modeling was used to analyze the information by the Smart-PLS program. The study found that risk management practices had substantial and favorable effects on the success of the project's execution. Further, the awareness of quality management in terms of risks was most encouraging.

Mazher et al. (2022) empirically examined effective risk management (ERM) practices in public–private partnership (PPP) infrastructure projects within developing-country contexts, addressing persistent evidence that weak risk governance leads to infrastructure project distress and failure. The study employed a multi-stage empirical approach involving a systematic literature review, expert interviews, and a questionnaire survey to validate ERM measures throughout the PPP project lifecycle. Using mean score ranking and factor analysis, the authors found that effective risk

management in infrastructure projects must be comprehensive, lifecycle-based, and involve multiple organisations, rather than being limited to isolated project-team tools.

The findings revealed that the most vital ERM measures are integrated within governance and procurement processes, including thorough feasibility analysis, structured procurement frameworks, contract design, and post-award risk governance mechanisms. Factor analysis identified six underlying dimensions of ERM effectiveness, reflecting institutional maturity, stakeholder capability, standardised business processes, and accumulated project experience. Importantly, the study demonstrated that project-level risk tools are inadequate without supportive institutional frameworks, concluding that comprehensive PPP policies and strong legal and regulatory environments are essential enablers of effective risk management.

Atieno and Kamaara (2024) conducted a case study on project risk management practices and performance of affordable housing projects in Nairobi City County, Kenya. The research used a cross-sectional survey design. The study targeted a total of 176 respondents comprising of projects managers and site engineers in charge of the seven ongoing affordable housing projects in Nairobi City County. Since the target population is small, the study used census method. The regression analysis revealed statistically significant associations between risk analysis, risk control, and the performance of affordable housing projects in Nairobi City County, Kenya. Risk analysis and risk control all exhibited positive and statistically significant effects on project performance, indicating their substantial influence. The findings indicate that effective risk control measures significantly contribute to project success, resource prioritization, adaptive management, continuous evaluation, tailored mitigation strategies, and resilience enhancement. Based on the findings, the study concludes that risk control affects performance of affordable housing projects in Nairobi city county, Kenya.

Otieno and Mutiso (2021) conducted a study investigating the influence of project risk management on the performance of agricultural projects in Nakuru County, Kenya. Descriptive research design was utilised to guide the study. The sample size consisted of 116 agricultural projects drawn from the 11 sub-counties in Nakuru County.

Respondents from each stratum were selected randomly using the simple random method to eliminate bias, as this method provides each member with a fair chance of selection. Both descriptive and inferential statistics were employed. Data analysis was presented using tables and pie charts. The study also adopted regression analysis to determine the relationship between the variables at a 5 per cent confidence level of significance. The study's findings indicated that project risk management significantly influenced the performance of agricultural projects.

Ouma et al. (2022) conducted a study on the influence of risk analysis as a risk management practice on project performance in Kenyan commercial banks. Based on a survey, the research employed both descriptive and explanatory analysis designs. The relationship between risk analysis and the performance of information technology projects in Kenyan commercial banks was investigated using multiple regression. Quantitative data was analysed using the multiple regression analysis model in SPSS Version 25. The study adopted the empirical model of the least squares method while testing the hypotheses. The findings were presented through statistical parameter estimates. Data was displayed using tables and figures, supported by explanatory annotations. The findings revealed that risk analysis significantly influenced the performance of information technology projects within the banking sector.

2.4.3 Project Communication and Project Performance

Ding, et al (2023) examined the impact of project communication skills on the effectiveness of construction project teams in Sarawak, Malaysia. The study adopted a quantitative research approach. Structured questionnaires were sent to approximately 350 companies, including construction firms, developers, and consulting firms in Sarawak, to collect primary data. The study found that the top three communication-related skills are persuasion, the ability to ask effective questions during conversations, and explaining. The top three characteristics of effective project teams are free-flowing communication, team flexibility to change, and seamless operation without organisational boundaries. The study concluded that communication skills can influence the effectiveness of a project team.

Yakubu, Adjei-Kumi, and Acheamfour (2024) conducted an assessment of project communication management in construction projects in Ghana. The research found that within the Ghanaian construction industry, there is a strong recognition of the importance of project communication. Specifically, the study identified that the obstacles to effective communication on construction projects in Ghana include poor listening skills, weak leadership, unclear communication objectives, ambiguous channels of communication, an inefficient reporting system, inadequate communication between project parties, stereotyping, and language barriers. Finally, the study revealed that poor project communication leads to delays, cost overruns, and project abandonment. Project communication was also shown to significantly influence the performance of professionals within the construction industry.

In Nigeria, Akintelu and Oyebola (2023) conducted a case study investigating the influence of project communication management on the successful delivery of construction projects. The study used a survey research design, and data were collected from one hundred and thirty-three (133) respondents working at different sites along the Mile Two-Badagry expressway in Lagos State. Simple linear regression was employed to test the study's hypotheses. The findings revealed that communication plans and communication mediums have a significant effect on successful project delivery. The study further indicated that the level of this effect ranges from low to moderate. It was therefore recommended that the communication plan should be managed and carefully controlled.

Usanase and Nkechi (2022) conducted a study on project communication management and the performance of selected non-governmental organisation projects in Kigali, Rwanda. The study used a descriptive research design with a correlation regression effect, employing both qualitative and quantitative approaches. The population of this study consisted of 1,238 smallholders and 10 project team members; the researcher selected a sample size of 302 respondents using both purposive and simple random sampling techniques. The study found a significant correlation between the frequency of information needed and its timely delivery to beneficiaries, that written communication is significantly correlated with the quality of services, and that there is a significant effect of corrective measures on the timely delivery of projects to

beneficiaries. The study concluded that effective communication practices greatly impacted the performance of the PROFIFA project in Nyamagabe District, Rwanda.

2.4.4 Organizational Culture on Project Performance

Ismayana and Adeleke (2022) assessed the influence of organisational culture on construction risk management among Kuantan Malaysian construction industry: a partial least squares structural equation modelling approach. The study used a cross-sectional research design and collected data from 89 respondents from construction companies in Kuantan. The study found that there is a significant positive relationship between market culture and management risk in the construction industry in Pahang, Malaysia, while the relationship between hierarchy culture and management risk was not statistically significant. The study concluded that only one variable has a significant relationship with construction risk management in Pahang, Malaysian construction industries.

Ackon et al. (2022) examined the influence of organizational culture on project planning from a competing values perspective in the Ghanaian context. A descriptive cross-sectional survey was employed to gather quantitative data from 375 large and medium-scale construction firms in Ghana. The data were analysed using descriptive and inferential statistics, including mean and standard deviation, confirmatory factor analysis, Pearson correlation, and multiple regression analysis. The results indicated that the market type of organisational culture had the most significant positive impact on project planning, followed by clan, hierarchy, and adhocracy cultures. Additionally, the findings showed that a high level of project planning is positively associated with the combined cultural clusters characterised by the dimensions of "stability and control clusters".

Ingosi and Juma (2020) explored how organisational culture affects project performance. A study of non-governmental organisations in Nairobi County, Kenya. The research's sample comprised 328 NGOs located in Nairobi County. Stratified sampling was used to select participants. The study adopted a quantitative approach with a cross-sectional research design. Data collection was conducted through a questionnaire and analysed using the Statistical Package for the Social Sciences

(SPSS). The reliability of the instruments was assessed with Cronbach's Alpha, with organisational culture α = .859 and project performance α = .882, signifying excellent internal consistency. Pearson r correlation analysis was employed to examine the relationship between variables. Results showed a significant positive correlation between decision-making culture and project performance, as well as between leadership culture and project performance. Conversely, a negative correlation was found between shared values and project performance, and between power distance culture and project performance.

Mutua (2023) investigated organisational culture and its impact on the performance of nongovernmental organisation projects in Kenya: a case of the voluntary repatriation project at the Norwegian Refugee Council, Kakuma. Descriptive research design was used to collect data. 110 NRC employees in Kakuma formed the target population. Census sampling was employed to select all 110 staff members by the researcher. The study found a correlation between organisational values and project performance; organisational rituals also had a close relationship. Furthermore, organisational communication and organisational values also showed a positive correlation with project performance. The study concluded that the achievement of success for NGO projects increases with improvements in organisational values, organisational rituals, organisational communication, and organisational norms.

2.5 Critique of Existing Literature Relevant to the Study

This section reviews the empirical literature. Several studies are examined to build a case for the current research. These studies focus on how the aspects of project governance influence project performance. Existing literature suggests a link between project governance and project performance. The studies are compared and contrasted based on scope, objectives, variables, methodology, theoretical perspectives, research gaps, and conclusions.

Asadullah et al. (2019a) examined the deficiencies in project governance for an infrastructure development programme in the Gilgit-Baltistan region of Northern Pakistan. The study identified major weaknesses in decision-making, stakeholder management, and role ambiguity. It was exploratory and employed a case study

approach, which differs from the cross-sectional survey methodology used in the current study. Since the research was conducted in Pakistan, the findings cannot be generalised.

Asadullah et al. (2019b) conducted another study on the current project governance practices for guiding Pakistan's public sector infrastructure programme. The study used a cross-sectional, quantitative research approach with a structured questionnaire. However, the study is conceptually and contextually different from the current one because it was carried out in a different geographical location and also employed semi-structured questionnaires and theoretical frameworks such as Agency Theory, Stewardship Theory, Stakeholder Theory, and Transaction Cost Economics Theory. The findings of this study therefore cannot be generalised.

Haniff and Galloway (2022) studied modelling strategic alignment in construction projects in the UK. A model presenting a hierarchy of inter-organisational strategic objectives was developed from the empirical findings of a study of four construction projects. The study found that effective project governance, leadership, and considering client complexity are essential for the strategic alignment of inter-organisational projects. However, the study did not demonstrate how information technology, operations, and employee alignment influence project performance; therefore, the findings cannot be generalised to the current study. Additionally, the study was conducted in the UK, a developed country; thus, the findings cannot be generalised to a developing country like Kenya. Theoretically, the study was guided by models of strategic alignment, while the current study is grounded in Contingency Theory; therefore, the findings cannot be directly applied to the current context.

A study by Ali et al. (2019) highlighted that implementing effective risk management practices significantly improves project performance, ultimately leading to project success. However, the lack of knowledge and poor communication regarding these practices in construction projects have resulted in inadequate application of systematic risk management in Malaysia. This study was limited to Malaysia, which hinders the generalisation of the findings to contexts like Kenya. Alsadi and Norhayatizakuan (2021) in Malaysia found that implementing risk management practices substantially

enhances construction project performance. This emphasises the importance of hiring qualified project managers with a comprehensive understanding of risk management and its main activities. Nonetheless, the study did not sufficiently demonstrate how risk identification, risk assessment, and risk monitoring and control influence project performance, thereby restricting the applicability of these findings to the current study.

Zureehan and Lee (2022) examined the effect of top management support and collaborative teams on project performance within the Malaysian construction sector, considering trust as a moderating factor. Data analysis was performed using partial least squares structural equation modelling (PLS-SEM) with SmartPLS software. The results indicated that neither the impact of top management support on project performance nor the moderating role of trust was supported. Furthermore, the study does not demonstrate the influence of resource provision, technical expertise, and dispute resolution on project performance; therefore, the findings cannot be applied to the current study. Additionally, the research was carried out in Malaysia; thus, the results are not generalisable to Kenya due to differences in geographical boundaries and levels of economic development between the two countries.

Iyiola and Rjoub (2020) examined the relationship between conflict management climate and relationship quality as perceived by owners and contractors in Nigeria. The study also evaluated trust as a mediator between conflict management climate and relationship quality. The results showed that conflict management climate significantly predicted trust and relationship quality. Trust, in turn, significantly predicts relationship quality and partially mediates the link between conflict management climate and relationship quality. However, the study only addressed one aspect of top management support, namely conflict management, and did not consider the influence of resource provision and technical expertise on project performance; therefore, the findings cannot be generalised to the current context. Additionally, since the study was conducted in Nigeria, its findings cannot be applied to Kenya due to differences in institutional frameworks and economic development between the two countries.

In Rwanda, Singirankabo and Wanjiku (2023) examined the impact of project communication practices on the performance of International Non-Governmental Organisations (INGOs) projects in the country. The study employed a descriptive design with a correlational regression approach, using both qualitative and quantitative methods. However, the focus was on INGOs projects in Rwanda, whereas the current study concentrates on road projects in Kenya; therefore, the findings cannot be generalised to the current context owing to differences in institutional frameworks between government projects and INGO projects. Additionally, the previous study was guided by Participatory Communication Theory and Gratifications Theory, while the current research is informed by Communication Theory. Consequently, the findings from the previous study cannot be directly adopted, as each theory possesses its own strengths and limitations.

Vundi (2020) examined the influence of strategic alignment on the performance of Constituency Development Fund (CDF) sponsored projects in Kitui County, Kenya. The findings indicated that strategic alignment had the least influence on the performance of CDF-sponsored projects in Kitui County. However, the study was limited to CDF-sponsored projects in Kitui County, whereas the present study focuses on road construction projects in Kenya; therefore, the findings cannot be generalised to the current study. Additionally, the study failed to demonstrate how information technology alignment, operations alignment, and employees' alignment influence project performance.

Using a descriptive research design, Mwangi and Mutuku (2023) examined the impact of project governance on the performance of affordable housing projects in Kenya. The study found that stakeholder management, project control, and project monitoring had a significant and positive relationship with project success. The research employed a descriptive design and theoretical frameworks (Agency Theory and Stakeholder Theory) within the context of housing projects. This differs from the current study, which used clustered random sampling and a cross-sectional research approach. Additionally, the constructs for the two studies are different.

2.6 Research Gaps

Most previous empirical studies on project governance and project performance, such as Asadullah et al. (2019a; 2019b), Latiff, Jaapar, & Isa (2020), Haniff and Galloway (2022), Ali et al. (2019), Alsadi and Norhayatizakuan (2021), Zaman et al. (2020), Zureehan and Lee (2022), Yung-Chang and Wu (2019), Fareed and Su (2022), and Lou et al. (2025), have been carried out in developed countries (United States, Britain, Finland, and Norway) or in developing countries across Asia (China, Malaysia, and Pakistan).

There has been a relatively small body of work and attempts to systematically examine the evidence on the impact of project governance on project performance in Sub-Saharan Africa: Iyiola and Rjoub (2020), Odusami, Iyagba, and Omirin (2018), Njogu et al. (2018) and Ekung et al. (2017), Iyiola and Rjoub (2020), Singirankabo and Wanjiku (2023) and Mwangi and Mutuku (2023). Consequently, the link between project governance and project performance in the context of Sub-Saharan Africa is scarcely explored. The near absence of research in Africa in this area raise a question as to whether project governance influences project performance in Africa. Due to different political and cultural contexts, empirical findings in developed countries may not be generalized in developing countries. Further, there is also a need to test if project governance theories, models, or frameworks developed in western countries are applicable to African countries. Moreover, it has been argued that people's beliefs, values and attitudes, vary across countries, cultures and continents (Eliwa et al. (2018)).

Most studies in Kenya containing constructs similar to this study are not on road construction projects and are limited either one variable or sub variable; Vundi (2020) considered management support and project funding while Njogu et al. (2018) study was on top management support. Mugo and Moronge (2018) studied the influence of organizational communication. From the reviewed studies, there is a relatively small body of work and attempts to systematically examine the evidence on the impact of project governance on the performance of road construction projects in Kenya, using frameworks such as 'Enterprise Project Governance' recommended by Dinsmore and

Rocha (2012) cited in Ata ul Musawir et al. (2017) or that developed by the Association for Project Management (APM, 2018).

Most studies have been conducted in developed countries, so their findings cannot be easily applied to developing countries like Kenya. Additionally, the studies carried out in Kenya on various aspects of project governance have primarily focused on different sectors and limited themselves to road construction projects. Furthermore, the moderating influence of organisational culture on project governance and the performance of road construction projects needs to be evaluated. Therefore, this study aims to fill the knowledge gap by examining the impact of project governance on project performance in a developing, non-Western context such as Kenya. By doing so, it explores how project governance affects road construction projects in Kenya, addressing existing knowledge and contextual gaps within the process.

2.7 Summary of Literature Reviewed

This chapter examined various theories that explain the independent, moderating, and dependent variables. Specifically, it covered Contingency Theory, Resource-Based View Theory, Enterprise Risk Management Theory, Communication Theory, and Schein's Theory of Organisational Culture. The chapter also presented a conceptualisation of these variables by analysing the relationships between them. Additionally, it discussed project governance constructs such as strategic alignment, top management support, project risk management, and project communication. Organisational culture was identified as a moderating variable. Furthermore, an empirical review was conducted, including a critique of existing studies and identification of research gaps.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The term "methodology" refers to the process of conducting research and the sequence in which it is carried out (Kothari & Garg, 2019). Grant (2019) defines methodology as the design, setting, sample, methodological restrictions, and data collection and analysis tools used in a study. It represents an understanding of the scientific processes and techniques employed to gather reliable information. The methodology followed in this investigation is presented in this chapter. It includes the research design and target population, sample size and sampling methods, research tools, data collection procedures, pilot testing, and data processing and analysis.

3.2 Research Philosophy

Research philosophy forms the basis for understanding how knowledge is developed and the assumptions researchers hold about reality (Moungbakou & Billa, 2023). Philosophical orientations, especially epistemology, influence the choice of methodology because epistemology concerns what counts as valid knowledge and how it can be obtained. Epistemology aims to differentiate between adequate and inadequate knowledge and to explore the nature and boundaries of human understanding (Taylor & Francis, 2023). In social science research, three main epistemological perspectives are commonly recognised: realism, interpretivism, and positivism (Madondo, 2021), each offering a different perspective through which researchers examine and interpret phenomena.

The current study adopted the pragmatism research philosophy. Pragmatism emphasises the practical application of research and concentrates on solving real-world problems through the integration of both quantitative and qualitative approaches (Creswell & Plano Clark, 2018). It prioritises the research question over any single method, allowing flexibility in selecting techniques that best address the study's objectives (Saunders, Lewis, & Thornhill, 2020). According to Biesta and Burbules

(2023), pragmatism values actionable knowledge, relevance, and practical outcomes, enabling researchers to explore multiple perspectives and adopt methods that generate meaningful and context-specific insights. Under this philosophy, the researcher interprets data with a focus on what works in practice while recognising both objective measures and subjective experiences.

The choice of pragmatism in this study is justified because the research aimed to examine the relationship between project governance variables and project performance while capturing practical realities in road construction projects. Pragmatism supports using mixed methods, combining structured quantitative measures with contextual qualitative insights to produce comprehensive and applicable results (Lütfi, 2020). The study was problem-driven, guided by a conceptual framework derived from existing literature, with hypotheses informed by practical gaps in governance and performance. Data collected from national government road projects were analysed statistically, whilst qualitative insights provided context for understanding underlying processes, consistent with the pragmatist approach. This philosophy thus aligned with the study's objective of generating actionable, evidence-based, and contextually relevant conclusions.

3.3 Research Design

A research design outlines the strategy for collecting, measuring, and analysing data to answer research questions (Kothari & Garg, 2019). Kothari and Garg (2019) describe a study design as arranging conditions for data collection and analysis that balance relevance to the research purpose with procedural efficiency. Consistent with this, Madondo (2021) indicates research design as the technique of arranging data collection and analysis in a way that tries to combine relevance to the study purpose with efficiency. It is a set of decisions about what, where, when, how much, and by what means to conduct an enquiry or research study. Additionally, Kothari and Garg (2019) indicate that study design describes what the researcher will perform, from hypothesis drafting to operational implications to data analysis. According to Taylor and Francis (2023), research design allows the researcher to allocate limited resources by posing critical approach choices.

This study used both descriptive and explanatory research designs. A descriptive research design was employed to systematically present an accurate profile of the phenomena under investigation (Pawar, et al, 2023). Descriptive designs are valuable for detailing the characteristics, patterns, and conditions within a population or situation as they exist at a specific point in time (Rossi, 2022). According to Sekaran and Bougie (2019), this design allows the researcher to observe, document, and interpret existing practices without manipulating variables. It was suitable for this study because it enabled the researcher to clearly outline the current state of project governance, organisational culture, and project performance outcomes in the road construction sector (Asadullah et al., 2019a; Lou et al., 2025; Le, and Chong, 2020; Dick-Sagoe, Odoom, & Boateng, 2023).

The study also employed an explanatory research design to investigate and clarify the causal relationships among the study variables. Explanatory designs aim to determine how and why certain factors influence outcomes by identifying linkages, direction, and strength of associations (Sekaran & Bougie, 2019). As Rossi (2022) noted, explanatory research assists in testing theoretical assumptions and establishing whether relationships between variables occur in real-world settings. This design was appropriate because the study aimed to assess the extent to which project governance dimensions impact the performance of road construction projects, thus requiring an approach capable of explaining underlying causal mechanisms.

3.4 Target Population

Population refers to the entire group of individuals or objects about which the study data are used to make inferences; it is the researcher's 'universe' (Kothari & Garg, 2019). Consistent with this, according to Moungbakou and Billa (2023), the population consists of all elements that meet the study's inclusion criteria. Similarly, Sekaran and Bougie (2019) indicate that a population is the complete collection of elements from which inferences are to be drawn. It is the entire group of individuals (or objects) that share common traits as outlined by the study's sampling criteria (Rossi, 2022).

The unit of analysis for the study was 252 road construction projects carried out by National Government road agencies (KURA with 61 projects, KeRRA with 155

projects, and KeNHA with 36 projects) in Kenya. The unit of observation included resident engineers, assistant resident engineers, and project surveyors involved in all 252 road construction projects, as well as Director-Generals and Directors from KURA, KeRRA, and KeNHA.

These individuals were selected because they possess extensive experience and insight into the governance of road construction projects within Kenya's national government road agencies. Table 3.1 lists the agencies and the target population.

Table 3. 1: Target Population

Category	Target Population
Resident Engineer	252
Assistant Resident Engineer	252
Project Surveyor	252
Director General	3
Director	13
Total	**772**

Source: Kenya Urban Roads Authority (2023), Kenya Rural Roads Authority (2023), Kenya National Highways Authority (2023).

Therefore, the target population consisted of 772 employees, including resident engineers, assistant resident engineers, project surveyors, and top management (Directors-Generals and Directors) from KURA, KeRRA, and KeNHA, all of whom are responsible for executing road construction projects in Kenya.

3.5 Sample and Sampling Technique

A sample is a representative of a certain known percentage, reflecting the frequency distributions of elements' characteristics similar to those within the entire population (Hilton, et al, 2024).

3.5.1 Sample Size

In this study, sampling was conducted only on resident engineers, assistant resident engineers, and project surveyors, as top management employees (Director Generals

and Directors) participated in interviews. Kothari and Garg (2019) define sample size as the number of items to be selected from the universe to form a sample, while sampling procedures refer to the techniques used in selecting the items of the sample.

The overall sample size for this study was calculated using a formula by Krejcie and Morgan (1970). The sample size was determined as follows;

The formula used for arriving at the sample size is;

$$n = \frac{x^2 NP(1-P)}{\left(ME^2(N-1)\right) + (x^2 P(1-P))}$$

Where:

n=sample size

x^2=Chi-square for the specified confidence level at 1 degree of freedom at the desired confidence level (1.96 x 1.96) =3.8416 for 0.05 confidence level.

N = the population size.

P = the Population proportion (assumed to be 0.50 since this would provide maximum sample size).

$$n = \frac{1.96^2 \times 756 \times 0.25}{\left(0.05^2 \times (756-1)\right) + (1.96^2 \times 0.25)}$$

$$n = 255$$

Therefore, using the Krejcie and Morgan formula, the sample size for the study was 255 respondents. The distribution of the sample size is as shown in Table 3.2

The study employed proportionate stratified sampling, dividing the target population into three distinct strata based on the national government road agencies responsible for overseeing road construction projects: KURA, KeRRA, and KeNHA. Each agency formed a separate stratum due to differences in mandate, organisational structure, and

staffing levels. After establishing the three strata, the number of respondents within each agency was determined.

Proportionate stratification required that the sample drawn from each agency reflect its share of the total population. Therefore, the sample size for each stratum was calculated using the formula:

$$n_h = \frac{N_h}{N} * n$$

Where: nh is the sample size for stratum h,

Nh is the population size for stratum h,

N is total population size =679

n is total sample size =246

Table 3.2: Sample Size

	Sample Size			
	KURA	**KeRRA**	**KeNHA**	**Total**
Resident Engineer	21	52	12	85
Assistant Resident Engineer	21	52	12	85
Project Surveyor	21	52	12	85
Director General	1	1	1	3
Director	4	4	5	13
Total	**67**	**162**	**42**	**271**

3.5.2 Sampling Procedure

According to Kothari and Garg (2019), sampling describes the systematic process of selecting a subset of elements from a defined population for making inferences about the whole. Sampling becomes essential when it is impractical, costly, or time-consuming to examine the entire population. In this study, a multistage sampling technique was employed to ensure methodological rigour, representativeness, and analytical depth.

Multistage sampling is a probability-based approach where sampling occurs in successive stages, combining techniques to gradually narrow down the study units from a large and diverse population (Aga et al., 2023). This method is especially

suitable for large public-sector studies involving multiple institutions and professional groups. By integrating various sampling methods at different stages, multistage sampling improves both coverage and accuracy while reducing sampling error (Babbie, 2021). Additionally, it provides flexibility and aligns with institutional structures, thereby enhancing the quality and reliability of the data collected (Gari, 2019).

In the initial phase, purposive sampling was used to select respondents occupying key positions directly involved in the governance and implementation of road construction projects. These included resident engineers, assistant resident engineers, project surveyors, director-generals, and directors from the Kenya Urban Roads Authority (KURA), the Kenya Rural Roads Authority (KeRRA), and the Kenya National Highways Authority (KeNHA). Purposive sampling was deemed suitable at this stage because it allows for the deliberate selection of individuals with relevant technical expertise, managerial responsibilities, and decision-making authority relating to project governance and performance (Kothari & Garg, 2019). This approach ensured the study gathered informed perspectives from both operational (project-level) and strategic (institutional-level) actors, thereby enhancing the validity and depth of the findings.

In the second stage, the three road agencies—KURA, KeRRA, and KeNHA—were regarded as institutional clusters, reflecting naturally occurring organisational groupings within the Kenyan road sector. Within each cluster, stratified random sampling was applied to the purposively selected technical staff categories—namely resident engineers, assistant resident engineers, and project surveyors—which formed the strata. Stratification was based on professional role and agency affiliation to ensure proportional representation across the three agencies. This approach reduced sampling bias and enhanced the accuracy of estimates by ensuring that each stratum was adequately represented in the final sample (Islam, Khan, & Baikady, 2022). As noted by Babbie (2021), the integration of purposive sampling at the initial stage with cluster-based stratified random sampling at the subsequent stage allows a balance between contextual relevance and statistical representativeness, thereby increasing the

reliability and generalisability of the study findings. The distribution of the sample across the three agencies is shown in Table 3.3.

3.6 Data Collection Instruments

There are various methods of collecting data, each with its own costs, time constraints, and other resources available to researchers (Islam, Khan, & Baikady, 2022). The choice of data gathering instrument is usually crucial to the outcome of a study, so when selecting an appropriate data collection method, one must consider the topic's complexity, response rate, time, and target population (Sekaran & Bougie, 2019). To obtain different types of data, multiple tools are used. This study gathered both primary and secondary data. According to Sekaran and Bougie (2019), secondary data refers to information that has already been collected, processed, and published by other researchers, organisations, or institutions. It contrasts with primary data, which is collected firsthand for a specific research purpose (Kothari & Garg, 2019).

Secondary data can be obtained from various sources, including books, articles, reports, statistical data, and historical records. Researchers utilise secondary data to analyse trends, compare findings, or investigate topics without needing to collect original data (Grant, 2019). When gathering secondary data, several tools and resources can be employed to collect relevant information (Kothari & Garg, 2019). These include: Academic Databases, Government Reports and Publications, Industry Reports, Libraries and Archives, Company Reports and Financial Statements (Mushato et al, 2020). The secondary data collected was based on Quality Assurance reports, Monitoring and Evaluation reports, and Internal Audit reports from the three road agencies (KURA, KeRRA, and KeNHA) for completed and ongoing road projects over a five-year period from Financial Year 2019-2020 to Financial Year 2023-2024.

Primary data refers to original data collected directly from the source for a specific research purpose or study. It is firsthand data gathered by researchers through various means such as surveys, interviews, focus groups, observations, or experiments (Sekaran & Bougie, 2019). This type of data is typically fresh, specific to the research objectives, and collected in real-time, providing accurate insights into a particular issue

or phenomenon (Islam, Khan, & Baikady, 2022). In this study, primary data was gathered through the use of questionnaires and interview guides. Interview guides are valuable tools in research and data collection, offering several benefits (Sekaran & Bougie, 2019). They help ensure consistency and focus throughout the interview process by providing a clear structure of questions that guide the conversation. This consistency aids in comparing responses across different participants, making data analysis more efficient (Lütfi, 2020). Furthermore, interview guides allow for flexibility, enabling interviewers to probe deeper into specific areas of interest while remaining focused. They also assist in managing time effectively, ensuring that all important questions are addressed within the interview duration (Islam, Khan, & Baikady, 2022).

According to Kothari and Garg (2019), a questionnaire is a cost-effective way of gathering information, especially from a large group of respondents, and allows for anonymity. Questionnaires consist of a series of specific, concise questions that the interviewer asks verbally or that respondents answer independently (Sekaran & Bougie, 2019). This study utilised web-based questionnaires to collect data. Islam, Khan, and Baikady (2022) indicate that developments in technology have created many opportunities for designing and developing user-friendly web-based questionnaires. This study used Google Forms, a cloud-based data management tool provided by Google Inc., used for designing and developing web-based questionnaires. This data collection method is both flexible for respondents and reliable. Several researchers, including Thohir and Muslimah (2020); Islam, Khan, and Baikady (2022); and Sari et al. (2020), have employed web-based questionnaires for data collection.

Additional qualitative data for this study was gathered through both closed-ended and open-ended questions in the questionnaire. Closed-ended, open-ended, or a combination of both types of questions are the most common. Quantitative research employs closed-ended questions to collect statistics, while qualitative research uses open-ended questionnaires. However, some researchers quantify responses during analysis (Grant, 2019). Staff from road agencies directly involved in the projects were asked the questions. Respondents were limited to providing replies without additional explanation in closed-ended questions, whereas open-ended questions invited

respondents to share their opinions on the factors being examined. Martinsuo and Anttila (2022) and Mushato et al. (2020) used semi-structured questionnaires in their studies.

Each responder was asked to rate each statement describing a specific variable on a scale from 1 to 5. The questionnaire included Likert scale psychometric constructs, also using a scale from 1 to 5. The scale ranged from 1 to 5: strongly disagree, disagree, neutral, agree, and strongly agree. Open-ended questions were provided at the end of each Likert scale item to allow respondents to offer additional information not captured by the scale. This section enabled the study to gather vital insights directly from respondents based on their perceptions of their environment and daily issues.

3.7 Ethical Considerations

This study adhered to established ethical standards in conducting research involving human participants. Approval to undertake the study was obtained from Jomo Kenyatta University of Agriculture and Technology (JKUAT), and a research permit was issued by the National Commission for Science, Technology, and Innovation (NACOSTI) prior to data collection. Additionally, the researcher sought permission from the appropriate chief executives to collect data from the Roads Authorities. The road authorities provided the researcher with an introductory letter to the respondents, a list of ongoing projects, and a list containing the staff, their job groups, telephone numbers, and email addresses. The data collection process lasted approximately four weeks.

Participation in the study was entirely voluntary. All respondents were informed of the purpose of the study, the nature of their participation, and their right to withdraw at any stage without any penalty. Informed consent was obtained before administering questionnaires and conducting interviews. Confidentiality and anonymity of respondents were strictly maintained. No personal identifiers were collected, and all responses were treated with utmost confidentiality. Data were reported in aggregated form to ensure that individual respondents and institutions could not be identified.

To ensure data protection, both hard-copy and electronic data were securely stored and accessed only by the researcher. The study did not expose respondents to any physical, psychological, or professional harm, and care was taken to ensure that the information provided was used solely for academic purposes.

3.8 Data Collection Procedures

According to Grant (2019), data collection involves gathering information to support or verify certain facts. Sekaran and Bougie (2019) describe data collection as the careful, systematic process of gathering information relevant to the research sub-problems, using methods such as interviews, participant observations, focus group discussions, narratives, and case histories. A mixed-method design was selected for this study, with primary data collected in May 2023 through questionnaires and interview guides. The questionnaire approach was chosen because of its unobtrusiveness and cost-effectiveness (Islam, Khan, & Baikady, 2022). For this study, data collection was carried out using web-based questionnaires (Google Forms).

Based on the nature of the survey interaction, a web-based questionnaire can be distributed to respondents using several modes: mail, telephone, or internet (Dillman, Smyth, & Christian, 2020). The researcher sent a weblink for the questionnaire to all respondents and provided them with adequate time to complete it. Follow-ups were made through phone calls and emails regularly. The study also employed interview guides, which are valuable tools in research and data collection, offering several benefits (Sekaran & Bougie, 2019). They help ensure consistency and focus throughout the interview process by providing a clear structure of questions that guide the conversation. Secondary data was collected through a secondary data collection tool.

3.9 Sampling Frame

A sampling frame is a list of all elements from which a representative sample is drawn for research purposes (Pawar, Verma, Daniel, & Sayyad, 2023) and represents the individuals in the study population from whom a sample can be selected (Kothari & Garg, 2019). For this study, the sampling frame was developed from a comprehensive

list of employees involved in road construction projects across KURA, KeRRA, and KeNHA, including resident engineers, assistant resident engineers, project surveyors, Director-Generals, and Directors. The total sampling frame comprised 772 employees, distributed across the three agencies with 188 in KURA, 470 in KeRRA, and 114 in KeNHA. Table 3.3 below shows the sampling frame

Table 3.3: Sampling Frame

Category	KURA	KeRRA	KeNHA	Total
Resident Engineer	61	155	36	252
Assistant Resident Engineer	61	155	36	252
Project Surveyor	61	155	36	252
Director General	1	1	1	3
Director	4	4	5	13
Total	**188**	**470**	**114**	**772**

3.10 Pilot Testing

To ensure the questionnaire's validity and reliability, a pre-test and pilot survey were conducted. According to Lütfi (2020), a pilot study is necessary to test the dependability of data collection instruments. Sekaran and Bougie (2019) assert that the pilot test is the initial step in the data collection phase of the research process. A pilot test is carried out to identify flaws in design and instrumentation and to provide proxy data for selecting a probability sample (Cooper & Schindler, 2018). The questionnaire is refined during pilot testing to ensure respondents can answer the questions without difficulty (Madondo, 2021).

According to Sekaran and Bougie (2019), a pilot test should include participants from the target group and replicate the data collection techniques and protocols. The sample size for high-precision pilot studies should be between 1% and 10% (Lütfi, 2020). The study population consisted of 695 respondents, while the sample size was 246 respondents. In this study, 10% (25 respondents) of the sample size was used for the pilot test. Twenty-five respondents from the three road authorities were pilot tested. Respondents were encouraged to provide recommendations and comments about the instructions, the clarity of the questions, and their relevance (Islam, Khan, & Baikady, 2022). This study employed a Multistage Sampling Technique to select a sample for

the pilot, whereby the target population was divided into three clusters: KURA, KeRRA, and KeNHA, stratified into two staff categories; Senior Officers and Officers. Simple random sampling was then used to select individuals from each stratum. The individuals chosen for the pilot study were excluded from the final analysis.

3.10.1 Validity of Research Instrument

Validity refers to the accuracy and meaningfulness of inferences based on research results. In other words, validity is the extent to which data analysis results accurately represent the phenomenon being studied (Islam, Khan, & Baikady, 2022). There are three main types of validity for tests and measures: content validity, face validity, and construct validity (Lütfi, 2020). Content validity assesses how well the developed items to operationalise a construct offer an adequate and representative sample of all items that could measure the construct of interest. Since no statistical test exists to determine whether a measure sufficiently covers a content area or adequately represents a construct, content validity generally relies on the judgement of subject matter experts (Lütfi, 2020).

Face validity, also known as logical validity, is the extent to which a test is subjectively seen as covering the concept it claims to measure. Construct validity is a judgment based on accumulating evidence from multiple studies using a specific measurement tool. Evaluation of construct validity involves examining the relationship between the measure being assessed and variables that are known or theoretically connected to the construct measured by the instrument (Kothari & Garg, 2019). This study included both face and content validity. Validity was determined through assessments by subject matter experts and research supervisors. The experts and supervisors indicated whether the items were relevant. Their responses were analysed to calculate the percentage representation using the content validity index. The content validity formula by Amin (2005) was applied: Content Validity Index = (Number of experts declaring the item valid) / (Total number of experts).

3.10.2 Reliability of Research Instrument

Reliability refers to the ability of a measurement instrument to produce the same answer under consistent conditions, time after time (Lütfi, 2020). According to Grant (2019), a measuring instrument is reliable when the research results produced by these instruments can be replicated. Kothari and Garg (2019) further argued that reliability is the consistency of measurement; the more reliable an instrument is, the more consistent the results. The rationale for internal consistency is that all individual items should measure the same constructs and therefore correlate positively with one another (Sekaran & Bougie, 2019). Lütfi (2020) states that the ability of a measuring instrument to determine the proportion of systematic variation in the scores it generates reflects its reliability. This is assessed by examining the correlation between scores obtained from different administrations of the instrument. If the correlation is high, the instrument provides consistent results and is therefore reliable.

Internal consistency reliability was assessed using Cronbach's Alpha (α) coefficient. Cronbach's Alpha indicates the degree to which a set of test items measures a single latent variable (Lütfi, 2020). It is a coefficient, ranging from 0 to 1, used to evaluate internal consistency (Grant, 2019). Higher alpha values suggest more reliable scales. Cronbach's Alpha (α) is calculated as follows: $\alpha = K / (K - 1) [1- (\Sigma\sigma k2 / \sigma total2)]$ where K represents the number of items, $\Sigma\sigma k2$ is the sum of variances of the individual item scores, and $\sigma total2$ is the variance of the total scores (Cronbach & Shavelson 2004).

Cronbach's Alpha coefficient is a more precise and careful method for establishing internal consistency compared to the Spearman-Brown and Kuder-Richardson reliability measures (Creswell, 2019). Additionally, Cronbach's Alpha offers the advantage of providing a reliability estimate with only one administration. Sekaran and Bougie (2019) noted that the accepted range for Cronbach's Alpha is between 0.7 and 0.9. However, Lütfi (2020) argued that an alpha coefficient of 0.5 or higher is sufficient to consider internal consistency present.

3.11 Data Analysis and Presentation

The process of data analysis involves applying various statistical processes and tests to the data (Taylor & Francis, 2023). This study employed a mixed methods research design, which included analysing primary data (both quantitative and qualitative) and secondary data. According to Sekaran and Bougie (2019), data analysis has three objectives: gaining an understanding of the data, assessing its quality, and addressing the research question. The Statistical Package for Social Sciences (SPSS) version 25 software was utilised to analyse the data.

Thematic analysis was employed to examine qualitative data from open-ended questions and the interview guide. It is one of the most common approaches in qualitative research. The aim of thematic analysis is to identify significant or interesting themes and patterns in the data and use these to address the research questions or explore an issue (Kothari & Garg, 2019). This approach goes beyond simply summarising the data; a good thematic analysis interprets and makes sense of it. It involves pinpointing, examining, and recording patterns or "themes" within the data. Themes are recurring patterns across data sets that are important for describing a phenomenon and relate to a specific research question. These themes serve as categories for analysis. The results from analysing the qualitative data were presented as a narrative. Additionally, the qualitative findings were used to enhance the credibility of the quantitative results and provide explanations for the quantitative outcomes.

Descriptive statistics enable a researcher to explain the distribution of measures and summarise data effectively (Kothari & Garg, 2019). Quantitative data was analysed using descriptive statistics such as frequency, percentages, and means, along with summary graphs, pie charts, and frequency distribution tables to illustrate the data's categories. Responses from the open-ended part of the questionnaire and interviews were coded, and themes in the qualitative data were identified (Dillman et al., 2020).

3.11.1 Correlation Analysis

This study conducted inferential statistics through correlation analysis. According to Moungbakou and Billa (2023), correlation is a statistical tool that helps determine the relationships between two or more variables. Madondo (2021) indicates that correlation, as measured by a correlation coefficient, is the degree to which a linear predictive relationship exists between random variables. The Pearson correlation coefficient was used to test associations between the independent and dependent variables. Correlation coefficients between independent variables (strategic alignment, top management support, project risk management, and project communication) and the dependent variable (performance of road construction projects in Kenya) were computed to explore possible strengths and directions of relationships.

According to Sekaran and Bougie (2019), a correlation coefficient (r) has two characteristics: strength and direction. The strength of the relationship is indicated by how close r is to 1, the maximum value possible. r is interpreted as follows: when r = +1, it indicates a perfect positive correlation between the variables; when r = 0, it signifies no correlation, meaning the variables are uncorrelated; and when r = -1, it indicates a perfect inverse correlation between the variables.

3.11.2 Regression Analysis

A multiple regression model was utilised to assess the significance of the influence of the independent variables on the dependent variable. Multiple regression analysis was employed to determine how project performance is affected by the four variables of project governance. Regression analysis aims to establish whether a set of variables collectively predict a specific dependent variable, thereby improving the accuracy of the estimate (Moungbakou, & Billa, 2023). The use of a regression model is ideal due to its ability to demonstrate whether a positive or negative relationship exists between independent and dependent variables (Madondo, 2021). Previous studies that have employed multiple regression models with satisfactory results in examining the influence of project governance on project performance include; (Khan, Waris, & Panigrahi, 2021), Lou et al. (2025), and Le & Chong (2020).

Statistical Model

The multiple regression equation model was as illustrated below: -

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y is the dependent variable (project performance),
β_0 is the constant (Co-efficient of intercept)
β_1, β_2, β_3, and β_4 are the slopes of the regression equation,
X_1 is the strategic alignment independent variable,
X_2 is the top management support independent variable,
X_3 is project risk management independent variable,
X_4 is project communication independent variable while
e is an error term

The equation was solved using statistical model where SPSS was applied to generate the t- value.

The study used stepwise regression analysis to establish the moderating effect of Organization Culture (z) on the relationship between the independent variables and the dependent variable.

The statistical model used for analysis was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_z X + \beta_{1z} X_1 Z + \varepsilon$$

Where:

Y = performance of road construction projects in Kenya
β_0 = Constant
β_i = is the coefficient of X_i for i=1,2,3
X_1 = Project Governance
Z = Hypothesized moderator (organizational culture)

β_z = Coefficient of X_i *Z the interaction term between organizational culture and of the dependent variable

ε = Error term

3.12 Diagnostic Tests

When the assumptions of the linear regression model are met, ordinary least squares (OLS) provide efficient and unbiased estimates of the parameters (Islam, Khan, & Baikady, 2022). Independent variables were subjected to the following tests: linearity, multicollinearity, normality, and homoscedasticity before regression analysis was conducted.

3.12.1 Linearity Test

Linear regression is a mathematical method used to investigate the existence of a relationship between a metric response and several independent variables (Kothari & Garg, 2019). Therefore, the linearity test aims to determine whether the relationship between the independent variables and the dependent variable is linear or not. The linearity test is a preliminary step in correlation and linear regression analysis (Britzger, 2022). If the value of the significance deviation from linearity > 0.05, then the relationships between the predictor variables are considered linearly dependent. However, if the significance deviation from linearity < 0.05, then the relationship between the predictor and the response variable is considered nonlinear. Regression modelling was used to assess whether there is a linear or curvilinear relationship between the two variables (independent and dependent).

3.12.2 Multicollinearity Test

Multicollinearity was addressed using the Variance Inflation Factor (VIF), which is based on the variance of the estimators. This is expressed as VIF = 1/(1-R2). The general guideline is that values exceeding ten indicate the presence of multicollinearity (Taylor & Francis, 2023). When multicollinearity is identified, the solution is to gather more data or omit some of the correlated variables. The main drawback of multicollinearity is that it can produce unstable regression coefficients, characterised

by large standard errors and high variances, potentially leading to inaccurate statistical inferences (Kothari & Garg, 2019).

3.12.3 Normality of the Dependent Variable

To test for normality assumptions, the study used an improved Shapiro-Wilk test. The improved Shapiro-Wilk test is a normality test in regression studies that is usually preferred because of its excellent power properties (Kalnins, Praitis, & Kendall, 2023). The test essentially produces a W value that ranges between zero and one. A value of one indicates normality, while lower values suggest a departure from normality (Kalnins et al., 2023). In principle, this study adhered to this convention for interpreting normality.

3.12.4 Homoscedasticity

Heteroscedasticity in a study usually occurs when the variance of the errors varies across observations (Lindner, Puck, & Verbeke, 2020). The Breusch-Pagan test was used to assess the null hypothesis that the error variances are all equal, against the alternative that the error variances are a multiplicative function of one or more variables. Both the Breusch-Pagan and Koenker tests evaluate the null hypothesis that heteroskedasticity is not present (homoskedasticity); if the significance value is less than 0.05, the null hypothesis is rejected. A large chi-square value greater than 9.22 indicates the presence of heteroscedasticity (Kalnins et al., 2023).

3.13 Test of Hypotheses

The validity of multiple regression models was tested in this study using ANOVA and the F distribution, as stated by (Taylor & Francis, 2023). ANOVA is a data analysis method for identifying whether significant differences exist between two or more groups or samples at a specific probability level (Rossi, 2022). T-tests were employed to determine the significance of the regression coefficients (Britzger, 2022). Individual tests of all independent variables were carried out to establish which regression coefficients are likely to be zero and which are not. The conclusions relied on the p-value, with the entire model considered significant if the null hypothesis of the beta is

rejected and insignificant if it is not. In other words, if the p-value is less than 0.05, the researcher concluded that the whole model is significant and contains strong predictors of the dependent variable, indicating that the results are not due to chance. The model was deemed not significant if the p-value exceeded 0.05, and thus could not be used to explain variations in the dependent variable. Table 3.4 summarises the decision rule.

Table 3.4: Hypotheses Test

Hypotheses statement	Hypothesis test	Decision rule
$H_0$1: Strategic alignment does not significantly affect the performance of road construction projects in Kenya	Karl-Pearson's coefficient of correlation -F-test (ANOVA) -T-test **$H_0$1**: $\beta 1 = 0$	Reject $H0_1$ if P-value $\leq$ 0.05 otherwise fail to reject $H0_1$ if P is > 0.05
$H_0$2: Top management support does not significantly affect the performance of road construction projects in Kenya.	Karl-Pearson's coefficient of correlation -F-test (ANOVA) -T-test **$H_0$2**: $\beta 2 = 0$	Reject $H0_2$ if P-value $\leq$ 0.05 otherwise fail to reject $H0_2$ if P is > 0.05
$H_0$3: Project risk management does not significantly affect the performance of road construction projects in Kenya	Karl-Pearson's coefficient of correlation -F-test (ANOVA) -T-test **$H_0$3**: $\beta 3 = 0$	Reject $H0_3$ if P-value $\leq$ 0.05 otherwise fail to reject $H0_3$ if P is > 0.05
$H_0$4: Project communication does not significantly affect the performance of road construction projects in Kenya.	Karl-Pearson's coefficient of correlation -F-test (ANOVA) -T-test **$H_0$4**: $\beta 4 = 0$	Reject $H0_4$ if P-value $\leq$ 0.05 otherwise fail to reject $H0_4$ if P is > 0.05
$H_0$5: There is no significant moderating effect of organizational culture on the relationship between project governance and performance of road construction projects in Kenya	Karl-Pearson's coefficient of correlation -F-test (ANOVA) -T-test **$H_0$5**: $\beta 5 = 0$	Reject $H0_5$ if P-value $\leq$ 0.05 otherwise fail to reject $H0_5$ if P is > 0.05

3.14 Operationalization of Study Variables

In social science research, operationalization involves developing specific methods for measuring variables (Islam, Khan, & Baikady, 2022). This process focuses on defining variables in a way that they can represent concepts (Rossi, 2022). Researchers influence how constructs are measured in a study by operationalising variables (Tsao, 2022). The variables in this study were operationalised and quantified using customised scales based on standardised measures previously utilised in research. Likert scale items assessed the four independent variables (strategic alignment, top management support, project risk management, and project communication). Likert scale items were also employed to measure the dependent variable (project performance). The Likert scale was ranked as follows: 1 indicates strong disagreement; 2 indicates disagreement; 3 indicates neutrality; 4 indicates agreement; and 5 indicates strong agreement. These scales were selected because they had been previously used to operationalise the study variables in recognised research projects. The operationalisation of variables is detailed in Table 3.5.

Table 3. 5: Summary of Operationalization of Variables

Variable Set	Variable	Indicators	Measurement
Independent	Strategic alignment	• IT alignment • Operations alignment • Employees alignment	Ordinal scale: Questionnaire was used based on five-point likert scale
	Top management support	• Resource provision • Technical expertise • Dispute resolution	Ordinal scale: Questionnaire was used based on five-point likert scale
	Project risk Management	• Risk Identification • Risk Assessment • Risk Monitoring and Control	Ordinal scale: Questionnaire was used based on five-point likert scale
	Project Communication	• Communication channels • Quality of information • Feedback and reporting	Ordinal scale: Questionnaire was used based on five-point likert scale
Moderating	Organizational Culture	• Role culture • Power culture • Task culture	Ordinal scale: Questionnaire was used based on five-point likert scale
Dependent	Project Performance	• Timely completion • Completion within specified cost • Completion within specified quality • Baseline scope adherence	Ordinal scale: Questionnaire was used based on five-point likert scale

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter discusses the analysis, presentation, and interpretation of the study's findings, aligned with its objectives. The purpose was to examine the influence of project governance on the performance of road construction projects in Kenya. Data were collected from both primary and secondary sources. Primary data included both qualitative and quantitative aspects, while secondary data were obtained from document analysis. Thematic analysis was used to evaluate qualitative data, which were presented in prose, whereas quantitative data were analysed using descriptive and inferential statistics, with results shown in tables and figures.

The chapter presents detailed information on the response rate, demographics, descriptive statistics, inferential statistics, including diagnostic tests, correlation analysis, univariate regression analysis and moderating effect analysis through a hierarchical regression model. The results are systematically organised in tables and figures for comprehensive understanding.

4.2 Response Rate

Primary data for this study were collected through both interviews and semi-structured questionnaires.The response rate was as shown in Table 4.1. For the semi-structured questionnaires, a total of 255 resident engineers, assistant resident engineers, and project surveyors involved in road construction projects were selected. The questionnaires were verified for accuracy and completeness, and 222 were deemed valid, reliable, and suitable for further analysis and reporting. The response rate for the study was 87.06%, which is regarded as excellent according to Kothari and Garg (2019) criteria. They suggest that a response rate of 50% or above is adequate, 60% or above is good, and 70% or above is excellent for analysis. Therefore, the response rate of 87.06% is considered excellent and provides a strong basis for further analysis and reporting. Requests for interviews were sent to 16 top management employees,

including 3 Director Generals and 13 Directors from the three road agencies (KURA, KeRRA, and KeNHA). Of these, 10 interviews were successful, while 6 did not occur due to busy schedules among top management staff. The response rate for the interviews was 62.5%.

Table 4. 1: Response Rate

Questionnaires	Frequency	Percent
Responsive	222	87.06
Unresponsive	33	12.94
Total	**255**	**100.00**
Interviews		
Successful	10	62.5
Not successful	6	37.5
Total	**16**	**100**

4.3 Pilot Test Results

According to Lütfi (2020), a pilot research is needed to test the dependability of data collection instruments. Sekaran and Bougie (2019) assert that the pilot test is the first step in the data collection phase of the research process. A pilot test is conducted to identify flaws in design and instrumentation and to provide proxy data for selecting a probability sample (Cooper & Schindler, 2018). The questionnaire is refined during pilot testing so that respondents find it easy answering the questions (Madondo, 2021). According to Sekaran and Bougie (2019), a pilot test should include people from the target group and replicate the data gathering techniques and protocols. The sample size for high-precision pilot studies should be between 1% and 10% (Lütfi, 2020). The study population consisted of 756 respondents, while the sample size was 255 respondents. This study conducted a pilot test using 10% of the sample size, comprising twenty-five (25) respondents drawn from the three road authorities, and these individuals were excluded from the final study.

4.3.1 Reliability Test Results

Reliability refers to a measurement instrument's ability to produce consistent results under the same conditions repeatedly (Lütfi, 2020). According to Grant (2019), an instrument is reliable when the research results it generates can be replicated. Kothari

and Garg (2019) further argued that reliability is about the consistency of measurement; the more reliable an instrument, the more consistent its results. The rationale for internal consistency is that all individual items should measure the same constructs and therefore correlate positively with one another (Sekaran & Bougie, 2019). Lütfi (2020) states that the ability of a measurement instrument to identify the proportion of systematic variation in scores indicates its reliability. This is assessed by examining the relationship between scores obtained from different administrations of the instrument. If this relationship is strong, the instrument provides consistent results and is considered reliable.

Internal consistency reliability was assessed using Cronbach's Alpha (α) coefficient. Cronbach's Alpha measures how well a set of test items functions as indicators of a single latent variable (Lütfi, 2020). It is a coefficient, ranging from 0 to 1, used to evaluate internal consistency (Grant, 2019). Higher alpha values indicate more reliable scales. Sekaran and Bougie (2019) noted that the accepted range for Cronbach's Alpha is between 0.7 and 0.9. However, Lütfi (2020) argued that an alpha coefficient of 0.7 or above sufficiently indicates internal consistency.

The findings as shown in Table 4.2 indicate that strategic alignment had an average Cronbach's alpha of 0.858, top management support had a Cronbach's alpha of 0.855, project risk management had an average Cronbach's alpha of 0.896, project communication recorded a Cronbach's alpha of 0.898, organisational culture had a Cronbach's alpha of 0.717, and the performance of road construction projects had an average Cronbach's alpha of 0.883. This demonstrates that the study questionnaire met the reliability criteria ($\alpha > 0.7$).

Table 4. 2: Reliability Test Results

Variable	Cronbach's Alpha	Number of Items	Interpretation
Strategic alignment	0.858	12	Reliable
Top management support	0.855	12	Reliable
Project risk management	0.896	9	Reliable
Project communication	0.898	9	Reliable
Organizational culture	0.717	10	Reliable
Performance of road construction projects	0.883	8	Reliable

4.3.2 Validity Test Results

Validity refers to the accuracy and significance of inferences drawn from research results. In other words, validity indicates the extent to which data analysis results accurately represent the phenomenon under investigation (Islam, Khan, & Baikady, 2022). There are three main approaches to evaluating the validity of tests and measures: content validity, face validity, and construct validity (Lütfi, 2020).

Face validity refers to how well a measurement tool appears at a glance to assess what it is intended to measure. It relies on subjective judgment and focuses on whether the items seem appropriate, clear, and relevant to the construct. While it is not a rigorous or statistical form of validation, face validity is important because it influences how respondents and other stakeholders perceive the credibility and clarity of the instrument (Mugenda & Mugenda, 2018). In this study, face validity was enhanced by designing questionnaire items directly based on the study objectives and the conceptual framework, ensuring that each item clearly aligned with the intended constructs.

Content validity pertains to how well a measurement tool covers all key aspects of the construct it aims to assess. It guarantees that the instrument is thorough and truly represents the concept under study (DeVellis, 2016). To establish content validity, the researcher sought review and feedback from subject-matter experts, including the project supervisors, who examined the questionnaire for completeness, clarity, and relevance. Their input helped identify unclear items and guided necessary revisions to

enhance the overall quality and comprehensiveness of the instrument. Table 4.3 presents the Content Validity Index for the Variables.

The Content Validity Index (CVI) values for all study variables ranged from 0.812 to 0.904, indicating strong agreement among the experts regarding the relevance of each item. According to Amin (2005), a CVI of 0.78 or higher is considered acceptable, meaning that the items are valid for inclusion in the study. In this case, all variables—strategic alignment (0.812), top management support (0.879), project risk management (0.904), project communication (0.896), organisational culture (0.832), and performance of road construction projects (0.848)—exceeded the threshold, demonstrating that the items are adequately representative of the constructs they intend to measure. This confirms that the study instruments possess satisfactory content validity.

Table 4.3: Content Validity Index for the Variables

Variable	Content Validity Index (CVI)	Comment
Strategic alignment	0.812	All items were accepted
Top management support	0.879	All items were accepted
Project risk management	0.904	All items were accepted
Project communication	0.896	All items were accepted
Organizational culture	0.832	All items were accepted
Performance of road construction projects	0.848	All items were accepted

Construct validity refers to the extent to which a research instrument accurately measures the theoretical construct it is intended to measure (Orodho, 2019). It ensures that the items or questions on a scale genuinely represent the underlying concept being studied, rather than measuring unrelated factors (Cooper & Schindler, 2019). In this study, construct validity was established through Factor Analysis, which examined how items grouped together based on their correlations. Orodho (2019) supports this by arguing that EFA is used when a researcher aims to discover the number of factors influencing variables and to analyse which variables go together. This study considered loadings of 0.40 and above as the threshold for interpretation. A low value for communality, less than 0.40, indicated that the variable does not fit well with the

other variables in its component and is undesirable according to Saunders et al. (2019). The results are presented in Table 4.4.

The results show that strategic alignment had an average variance extracted (AVE) value of 0.674, top management support had an AVE of 0.794, project risk management had an AVE of 0.819, project communication had an AVE of 0.846, organisational culture had an AVE of 0.830, and the performance of road construction projects had an AVE of 0.706. These findings showed that factor loadings were above the threshold of 0.40 adopted by the study, which therefore implied that all the constructs were suitable for further analysis.

Table 4. 4: Factor Analysis for all Variables

Variables	Average Factor Loading	Comment
Strategic alignment	.674	All items were accepted
Top management support	.794	All items were accepted
Project risk management	.819	All items were accepted
Project communication	.846	All items were accepted
Organizational culture	.830	All items were accepted
Performance of road construction projects	.706	All items were accepted

4.4 Demographic Information

This section of the study presents the biographical information/general information of selected respondents. The study specifically sought to establish the respondents' organisation, age bracket, years of experience in road construction projects, and level of education. Overall, it was established that the study respondents were experienced, well-educated, and appropriately distributed across the three national road agencies, providing a strong demographic foundation for the subsequent descriptive, inferential, and regression analyses.

The findings obtained were presented and discussed in the following subsections:

4.4.1 Respondents Work Organization

Respondents were asked to indicate the organization they worked in. Figure 4.1 presents summary of the findings obtained. The majority of respondents (67.5%) were drawn from the Kenya Rural Roads Authority (KeRRA), followed by the Kenya Urban Roads Authority (KURA) at 24.8% and the Kenya National Highways Authority (KeNHA) at 7.7%, indicating that the sample was broadly representative of the target population across the three principal road agencies in Kenya. This distribution ensured the adequacy of data for generalizing findings on the influence of project governance on road construction project performance. The results are consistent with prior studies which demonstrate that organizational context—particularly variations in culture, structure, and leadership styles—significantly shapes employee behavior, performance, and attitudes (Ismayana & Adeleke, 2022; Nnadi & Oyama, 2023).

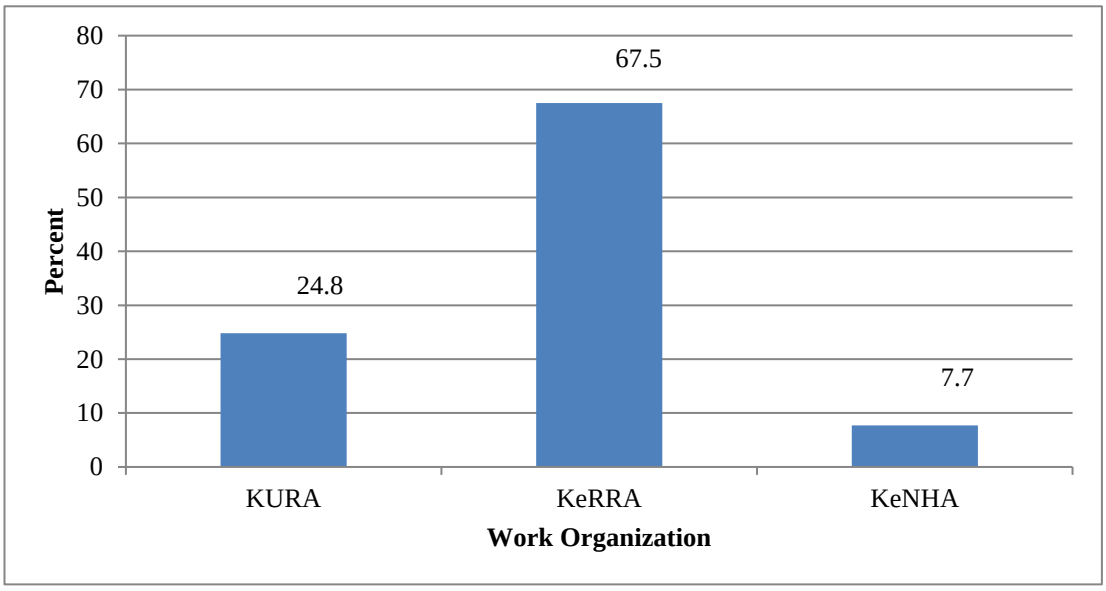

Figure 4.1: Respondents Work Organization

4.4.2 Respondents Age Bracket

Respondents were asked to indicate their age bracket. Based on the findings presented in Figure 4.2 majority of respondents (72.4%) were aged between 30 and 49 years, comprising 42.9% in the 30–39 age bracket and 29.5% in the 40–49 bracket. A further

21.2% were aged above 50 years, while only 6.4% were between 20 and 29 years. This distribution suggests that most respondents were within the prime working-age group, which may have enhanced their engagement and responsiveness to the study. While prior literature notes potential declines in job performance among older workers due to cognitive and physical factors (Eliwa et al., 2018), the predominance of relatively youthful respondents, particularly those aged 30–39, may reflect higher enthusiasm and active participation in the research process.

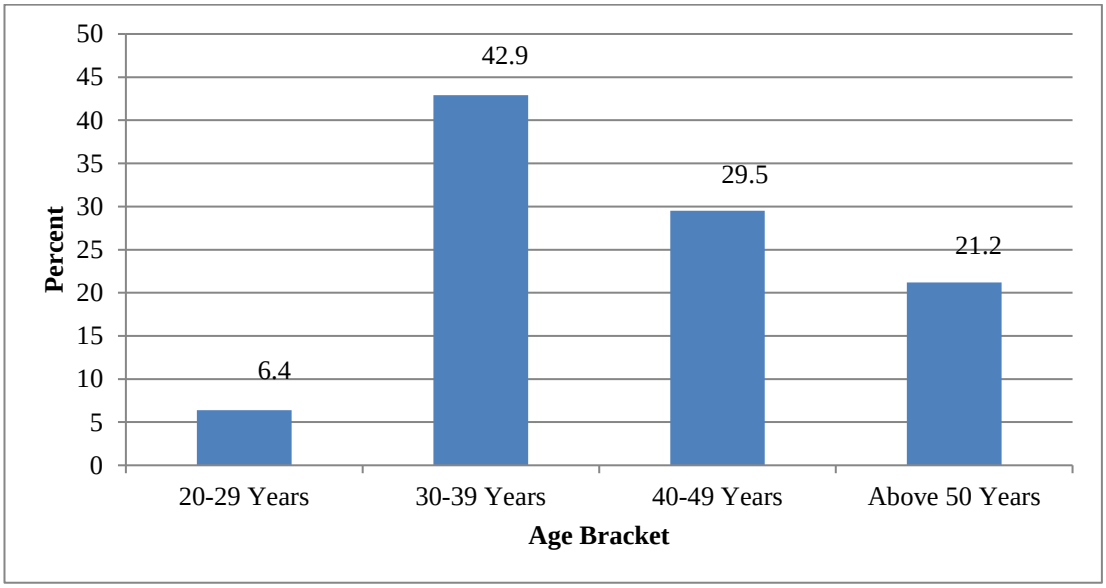

Figure 4.2: Respondents Age Bracket

4.4.3 Respondents Work Experience in Roads Construction Projects

The study aimed to determine the period of time the selected respondents had been engaged in road construction projects. Figure 4.3 presents a summary of the findings. The results indicate that the majority of respondents (64.1%) had over ten years of experience in road construction projects, while 28.2% reported between four and ten years of experience, and only 7.7% had less than four years' experience. This distribution demonstrates that most respondents possessed substantial industry experience, enhancing the credibility and reliability of the data collected. Consistent with prior research showing a positive relationship between work experience and job performance due to enhanced skills and knowledge (Pinto & Winch, 2016), the findings suggest that respondents' extensive experience likely informed their

assessment of how project governance influences the performance of road construction projects.

Figure 4.3: Respondents Work Experience

4.4.4 Respondents Level of Education

Respondents were requested to indicate their highest level of education. Figure 4.4 presents summary of the findings obtained. The findings reveal that the majority of respondents (68.3%) possessed a bachelor's degree, followed by 27.5% with a master's degree and 4.2% holding a PhD. This indicates a generally high level of educational attainment among the respondents. Such academic qualifications are likely to enhance respondents' capacity to critically evaluate project governance practices and their influence on project performance within the road construction sector in Kenya, thereby strengthening the quality and validity of the study's findings.

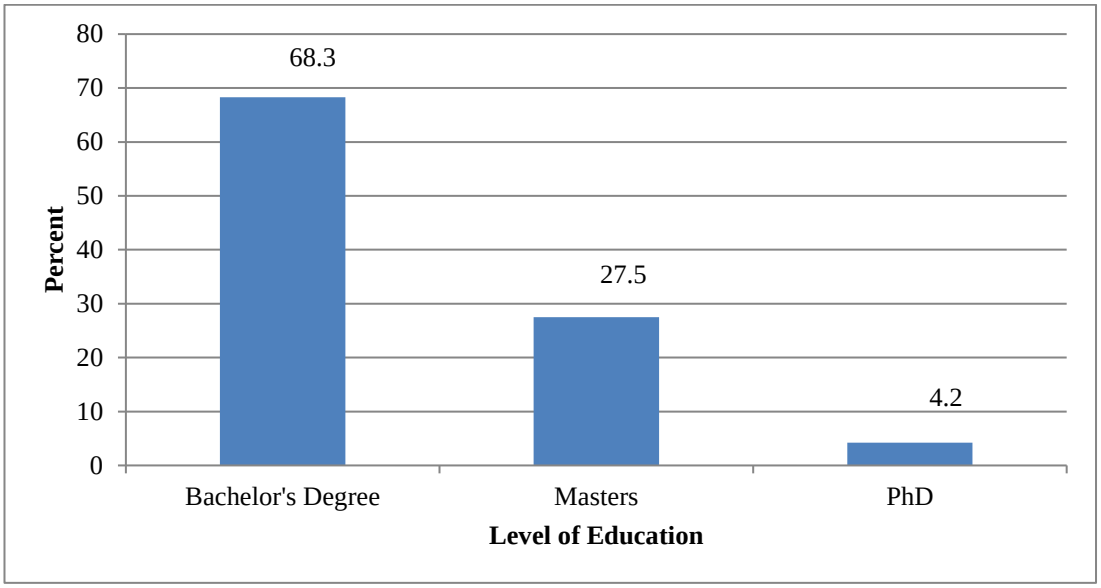

Figure 4.4: Respondents Level of Education

4.5 Descriptive Analysis

This section presents the findings from Likert scale questions. Respondents indicated their level of agreement with various statements regarding the influence of project governance on the performance of road construction projects in Kenya, as well as the moderating effect of organizational culture. A 5-point Likert scale was used where 1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree. The means and standard deviations were used to interpret the findings where a mean value of 1-1.4 was strongly disagree, 1.5-2.4 disagree, 2.5-3.4 neutral, 3.5-4.4 agree and 4.5-5 strongly agree. Standard deviation greater than 2 was considered large meaning responses were widely spread out and not tightly clustered around the mean. In other words, there was a lot of variability in the responses, which may suggest that participants had different interpretations or perceptions of the questions being asked.

4.5.1 Strategic Alignment and Performance of Road Construction Projects

The first objective of the study was to determine the influence of strategic alignment on the performance of road construction projects in Kenya. Respondents were therefore requested to indicate their level of agreement with statements on strategic alignment and the performance of road construction projects. Table 4.5 presents

summary of the findings obtained. On information technology alignment, the respondents agreed that use of information technology supports the overall strategic objectives of road projects (M= 4.218, SD= 0.703). In addition, the respondents agreed that the Authority ensures adoption of the right IT infrastructure to enhance performance of road projects (M= 3.981, SD= 0.905). It was also agreed that the IT architecture of road projects accommodates future scalability and adaptability requirements (M= 3.788, SD= 0.957). The respondents agreed that they are satisfied with the level of IT alignment with the set goals in road projects (M= 3.654, SD= 1.013).

Descriptive results showed that respondents generally agreed that IT systems support strategic objectives and that agencies have adopted appropriate digital tools such as the Electronic Document Management System (EDMS), the Road Management System (RMS), Intelligent Transport Systems (ITS), and emerging Enterprise Resource Planning (ERP) modules. These tools are intended to enhance reporting, streamline workflows, strengthen contract administration, and improve data-driven decision-making. However, interview evidence revealed that IT alignment remains structurally present but functionally shallow. One senior informant highlighted a persistent misalignment between IT system design and engineering needs, stating:

> *"The adoption of new technologies is very slow compared to the pace the world is moving at… there is some lethargy… and a disconnect between the software needs and the software provided. The person in charge of IT should preferably have a background in engineering so that they may understand the needs better." (KI 001)*

This observation is consistent with recent findings which noted that digital transformation in African public infrastructure agencies often lags because system procurement is not informed by engineering use requirements (African Development Bank [AfDB], 2022; World Bank, 2021a). Yung-Chang and Wu (2021) similarly argued that IT–strategy fit is only effective when systems are fully integrated into operational routines and supported by adequate training, a condition that remains unevenly achieved within Kenyan road agencies.

The ERP system, intended to unify procurement, finance, HR, inventory, geographic data, and contract management was frequently described as "not yet fully operational" in some agencies. As a result, many project management processes continue to rely on parallel manual systems, contributing to delays, inconsistencies in documentation, and weak data integration. International evidence reinforces this challenge, indicating that incomplete ERP implementation in public infrastructure agencies often results in continued reliance on parallel manual systems, fragmented data environments, documentation inconsistencies, and delays in project execution due to poor system integration and misalignment with operational requirements (World Bank, 2021a; OECD, 2020). Overall, IT alignment is hindered by under investment in user training, insufficient change management, incomplete system roll-out, and limited field-level uptake. These constraints mean that IT contributes to performance improvements only marginally, despite its strategic presence.

Regarding operations alignment, the study found that the respondents agreed that operations alignment facilitates performance of road projects (M= 4.237, SD= 0.771); that their organization ensures all operations are in line with the set goals in the road projects (M= 4.135, SD= 0.843). In addition, the respondents agreed that their organization ensures flexibility in operations to accommodate any changes during implementation of road projects (M= 4.103, SD= 0.903). The respondents also agreed that the operational plans and strategies are adaptable to address unforeseen challenges and changes in road construction (M= 3.897, SD= 0.836).

Descriptive results indicated agreement that operational activities reflect agency strategies that operational plans are adaptable, and that agencies maintain flexibility in handling implementation challenges. However, qualitative evidence exposed major strategic and institutional misalignment at the conceptualization and planning stages, particularly for rural roads. A key informant stated:

> *The planning phase of the project cycle is absent due to the political nature of these projects, which prevents adequate time for conceptualisation. Planning is usually a desk-based activity with limited technical input, leading to cost overruns during*

project implementation. Planning should be integrated with data to support decision-making.

Evidence from Samo, Shale, and Wairiuko (2024) confirms that political interference and rushed conceptualisation undermine strategic coherence in Kenyan road investments. From a governance perspective, Contingency Theory emphasises that alignment must reflect contextual demands; however, in Kenya, top-down political directives often supersede technical planning, leading to misaligned scopes, unclear deliverables, and repeated variations. These variations, in turn, escalate costs and disrupt schedules, echoing findings from Samo, Shale, and Wairiuko (2024) in Kenya, who established that, in line with broader African infrastructure studies, weak front-end planning is linked to cost overruns and schedule slippages in publicly funded projects in Ghana (Hackman et al., 2021).

Additionally, operations alignment is constrained by fragmented coordination among utilities, delayed land acquisition and service relocations, and inconsistent oversight and approval processes. Respondents reported that engagements with oversight institutions (including Parliament, the EACC and the OAG) can introduce additional procedural requirements that delay approvals and, in some cases, interrupt ongoing works, contributing to contractor idle time and associated claims. Thus, operations alignment exists in policy but is weakened in practice by political, institutional, and procedural constraints that hinder the translation of strategic plans into coherent, well-sequenced implementation actions.

The study further established on employee's alignment that the respondents agreed that project team members are aware of their specific roles, responsibilities, and deliverables in the road construction projects (M= 4.417, SD= 0.718). In addition, the respondents agreed that project team members understand the overall goals and objectives of the road projects they are involved in (M= 4.346, SD= 0.669). Further, they agreed that the authority ensures project teams are operating in their area of specialization to improve their productivity hence project success (M= 4.244, SD= 0.838). The respondents also agreed that project team members feel empowered and

encouraged to contribute their ideas and suggestions for process improvement in road projects (M= 4.045, SD= 0.814).

Employee alignment reflects how well staff understand strategic goals, are empowered to act, and have the capability and motivation required to contribute to project outcomes. Descriptive results indicated strong awareness of institutional objectives, supported by cascaded performance contracts and annual planning frameworks. However, interview evidence revealed that employee alignment is strong in awareness but weak in empowerment, resourcing, and motivation. A respondent explained:

> *"Performance contract system is used as a carrot and stick… It is used to punish the under-performers with no motivation for staff to perform beyond expectations." (KI 003)*

This aligns with McCord et al. (2023), who found that African public-sector performance systems often emphasize punishment rather than developmental support, reinforcing a compliance mindset rather than fostering innovation or discretionary effort. Additional constraints affecting employee alignment, as identified through qualitative insights, included persistent under staffing that generates excessive workloads, limited training in critical areas such as contract administration, risk management, stakeholder engagement, and claims handling, hierarchical systems that require multilayered approvals, low decision-making autonomy for field officers, and limited incentives for high performance. These institutional behaviors parallel findings, who demonstrated that role cultures in government agencies produce narrow job descriptions, slow decision cycles, and limited employee empowerment, factors that dilute strategic alignment and undermine project performance.

Furthermore, the reliance on informal networks and perceived "favoured" staff within some units (the "blue-eyed-boy system") reduces transparency and affects morale, weakening alignment between individual motivation and organizational objectives. This pattern is consistent with Iyiola and Rjoub (2020), who noted that informal privilege structures in public organizations distort alignment and create uneven commitment levels.

Table 4.5: Descriptive Statistics on Strategic Alignment

Statements.	Mean	Std. Dev.
Information Technology alignment		
Use of information technology support the overall strategic objectives of road projects	4.218	0.703
The Authority ensures adoption of the right IT infrastructure to enhance performance of road projects	3.981	0.905
Am satisfied with the level of IT alignment with the set goals in road projects	3.654	1.013
The IT architecture of road projects accommodates future scalability and adaptability requirements	3.788	0.957
Operations alignment		
Our organization ensures all operations are in line with the set goals in the road projects	4.135	0.843
Operations alignment facilitates performance of road projects	4.237	0.771
The operational plans and strategies are adaptable to address unforeseen challenges and changes in road construction projects	3.897	0.836
Our organization ensures flexibility in operations to accommodate any changes during implementation of road projects	4.103	0.903
Employees alignment		
Project team members understand the overall goals and objectives of the road projects they are involved in	4.346	0.669
Project team members are aware of their specific roles, responsibilities, and deliverables in the road construction projects	4.417	0.718
Project team members feel empowered and encouraged to contribute their ideas and suggestions for process improvement in road projects	4.045	0.814
The authority ensures project teams are operating in their area of specialization to improve their productivity hence project success	4.244	0.838
Aggregate Score	**4.088**	**0.831**

4.5.2 Top Management Support and Performance of Road Construction Projects

The descriptive findings shown in Table 4.6 indicated strong agreement that top management ensures availability of necessary resources to support project teams during crises (M = 3.923, SD = 0.845) and provides adequate resources to facilitate system adaptations within the organization (M = 3.654, SD = 0.797). These results reinforce the centrality of executive stewardship in enabling project teams to function effectively under complex and dynamic conditions. Qualitative data deepened this

insight, showing that top management support is often the decisive factor that unlocks bureaucratic blockages, accelerates approvals, and mobilizes resources. As one interview participant noted:

> *"Once senior management intervenes, approvals move, disputes reduce, and payments are expedited. Without them, matters can drag on for months even when technically straightforward." (KI 004)*

This experience mirrors global evidence that senior leadership enhances project performance by signaling priorities, allocating resources, coordinating cross-functional processes, and providing the clarity required for effective implementation (Musawir, Abd-Karim, & Mohd-Danuri, 2020; Müller, Zhai, Wang, & Shao, 2016; OECD, 2020). Respondents further explained that clear communication and guidance from top management help ensure alignment with project objectives and shared understanding of requirements among project teams. Such clarity reduces confusion, minimizes rework, and prevents avoidable delays and increased costs. The respondents also emphasized that top management plays a significant role in project monitoring, and their active engagement helps sustain project momentum.

Despite this strong enabling function, respondents were neutral on whether top management provided adequate resources to encourage a supportive stakeholder environment (M = 3.385, SD = 0.983) or to ensure successful project implementation (M = 3.308, SD = 1.258). This neutrality indicates perceived gaps in financial and logistical support, which contribute to delays, cost overruns, and compromised quality outcomes. Interviewees highlighted the chronic mismatch between sector needs and budget allocations; for example, although the 2023/24 financial year required approximately KSh 399 billion to meet road sector commitments, only KSh 125 billion was allocated. Conversely, respondents frequently cited the Mombasa Port Area Development (Dongo Kundu) project as a case where sustained financing enabled smoother implementation and comparatively stronger performance outcomes, underscoring the role of resource sufficiency in project delivery.These findings align with the Resource-Based View (Penrose, 1959; Iyiola & Rjoub, 2020), which posits

that access to valuable, well-coordinated resources—including leadership capability—confers strategic advantage and enhances performance.

Respondents also emphasized that top management plays a critical role in ensuring that project teams have access to appropriate resources beyond finances, including technical and non-technical human resources and technological tools. Training and capacity-building efforts were noted, although limited budgets constrain their extent. Where capacity gaps remain, consultants are engaged to support technical functions. Interviewees stressed the need for stronger technical exposure, competency-based recruitment, and structured training programs to strengthen institutional capability. These insights support Ahmeda, Hussain, and Philbin (2021), who argue that senior management expertise and proactive involvement are central to anticipating environmental changes, managing stakeholders, and motivating teams.

Furthermore, respondents indicated that leadership capability serves as the "gravitational centre of governance effectiveness," ensuring that policies and strategies are translated into practical action, oversight, and coordinated implementation. This was evident in the Dongo Kundu MPARD project, where senior management's involvement facilitated dispute resolution, land acquisition, utility coordination, and compliance with donor requirements. Respondents also emphasized that strong top management engagement fosters a positive stakeholder environment by involving stakeholders in decision-making, addressing their concerns, providing timely feedback, and protecting project teams from external pressures. This type of relational stewardship minimizes stakeholder conflicts and reduces project delays.

Regarding conflict management, respondents strongly agreed that top management exercises its authority to resolve disputes (M = 4.077, SD = 0.688), investigates root causes (M = 3.808, SD = 0.895), protects project teams in conflict situations (M = 3.577, SD = 0.902), and uses joint problem-solving approaches (M = 3.539, SD = 1.104).

Interview insights confirmed that disputes between contractors and implementing agencies are typically managed through contractual provisions such as Dispute Resolution Boards (DRBs). Participants recommended continuous staff training in

dispute management, adequate budgeting, and improved project conceptualization to reduce technical and contractual disputes. However, they also noted the absence of mechanisms for resolving internal disputes, leaving intra-organizational tensions largely unaddressed. These findings align with Ahmeda et al. (2021) and Kanwal, Zafar, and Bashir (2017), who highlight that effective conflict resolution enhances collaboration, reduces delays, and mitigates the risk of project failure

Despite these strengths, the qualitative evidence highlighted structural risks associated with over-centralization. Staff frequently reported that even minor technical decisions must be escalated to senior managers, resulting in extended approval times. This concentration of authority is exacerbated by bureaucratic risk aversion triggered by potential scrutiny from oversight bodies such as the Ethics and Anti-Corruption Commission (EACC), OAG, and Parliamentary committees. Institutional Theory explains that such environments cultivate risk-averse bureaucratic cultures, where officers avoid exercising discretion due to fear of blame or audit queries (Scott, 2020; Greenwood et al., 2017). Odero and Mutiso (2023) similarly found that public-sector agencies in Kenya often experience procedural paralysis under heightened oversight pressure. As a result, top management inadvertently becomes a bottleneck of last resort when excessive centralization inhibits operational autonomy.

Respondents further noted that leadership involvement in cross-agency coordination often depends on individual leaders' personal networks and discretionary judgment rather than institutionalized processes, which leads to inconsistent performance outcomes. This contradicts strategic and enterprise risk management principles that emphasize structured, repeatable decision pathways and distributed leadership (Musawir et al., 2020).

Table 4.6: Descriptive Statistics on Top Management Support

	Mean	Std. Dev.
Resources Provision		
Top management provide adequate resources for successful implementation of the projects	3.308	1.258
Top management provided adequate resources to encourage a supportive stakeholder environment for successful projects completion.	3.385	0.983
Top management ensure availability of necessary resources to support project teams during crises	3.923	0.845
Top management provide adequate resources to facilitate system adaptations in the organization.	3.654	0.797
Technical Expertise		
Top management possesses relevant technical expertise and experience in project management	4.000	0.938
Top management often recognized the changes and implications related to project implementation	4.077	0.560
Top management recognized the power and interest of stakeholders around the project	3.962	1.038
Top management motivated the project team to achieve project objectives and enhance organizational performance.	3.577	1.172
Dispute Resolution		
Top management protect the project team members fallout by solving arising disputes	3.577	0.902
Top management investigates the source of disputes in order to find an acceptable solution	3.808	0.895
Top management use joint problem solving as dispute resolution strategy	3.539	1.104
Top management exercise its authority to resolve arising disputes.	4.077	0.688
Aggregate Score	**3.740**	**0.932**

4.5.3 Project Risk Management and Performance of Road Construction Projects

The third objective of the study was to assess the influence of project risk management on the performance of road construction projects in Kenya. Respondents were asked to express their level of agreement with statements relating to risk identification, risk assessment, and risk monitoring and control. Table 4.7 presents a summary of the findings.

Descriptive findings showed high agreement among respondents that the authorities consider external factors such as weather patterns, regulatory shifts, and political

stability during risk identification (M = 4.006, SD = 0.758). Respondents also agreed that project team members actively participate in identifying risks related to road projects (M = 3.891, SD = 0.816) and that potential risks and uncertainties are identified and documented (M = 3.853, SD = 0.921).

Qualitative insights confirmed that risk identification across KURA, KeRRA and KeNHA primarily occurs through contract documents, stakeholder engagement, technical reports, and consultations with project staff. Participants emphasized that common risks include compliance risks, contractual disputes, land acquisition issues, stakeholder pressures, and operational risks such as adverse weather, community interference, and scope variations. However, respondents revealed a deeper structural challenge: risk identification is often procedural rather than dynamic, with risks captured at project initiation but not revisited consistently thereafter. One respondent noted:

> *"Risk registers are prepared, yes, but the follow-up is not always consistent. Some risks remain unmitigated for long, mostly due to delays in budget releases or approvals." (KI 005)*

This reflects a broader pattern documented across African public infrastructure agencies, where risk registers become static compliance documents rather than operational risk management tools (African Development Bank [AfDB], 2021; OECD, 2020). Furthermore, strategic risks especially those arising from politically initiated roads without feasibility studies or assured budgets, are seldom identified early enough. Empirical studies and audit evidence from Kenya demonstrate that politically driven projects experience the highest cost escalations, delays, and litigation due to skipped or superficial risk identification during the conceptualization and appraisal stages (OAG, 2022b; Samo et al., 2024).

These findings align with Ali et al. (2019) and Alsadi & Norhayatizakuan (2021), who argue that rigorous and systematic risk identification enhances project predictability, supports early mitigation, and improves the likelihood of successful outcomes.

Respondents agreed that risks are assessed based on their likelihood of occurrence in road projects (M = 3.923, SD = 0.732) and according to their potential impact on successful project completion (M = 3.885, SD = 0.794). Further, they indicated that project teams employ quantitative and/or qualitative methods to assess the magnitude of risks (M = 3.731, SD = 0.790).

Interview findings revealed that the three road authorities are at different maturity levels in their risk assessment practices. KeNHA was reported to have the most advanced framework, with structured risk analysis guiding board-level decisions and organizational risk appetite. KURA demonstrated moderate maturity, while KeRRA remained in initial stages, with risk registers that are poorly understood or inconsistently used. A KeNHA senior manager illustrated the advantage of early early risk assessment:

> *"Risk management is the heart of project management. When risks are identified early, one is able to mitigate uncertainty and complete the project on time and at cost." (KI 006)*

Participants cited the James Gichuru–Rironi Road project, where inadequate assessment of land acquisition risks led to significant delays.

Qualitative insights highlight a structural challenge of fragmented risk ownership, where risk registers prepared at project level are not integrated into executive dashboards, procurement planning, cost control systems, or site-level reporting. As a result, critical risks—such as delayed Treasury disbursements, contractor non-performance, design deficiencies, seasonal flooding, and community disagreements—are not escalated in a timely manner. This fragmentation mirrors findings in public-sector infrastructure governance literature, which observe that dispersed risk responsibility without clear accountability mechanisms leads to delayed, inconsistent, or ineffective responses to emerging risks (OECD, 2020; AfDB, 2021; World Bank, 2021c). McCardle et al. (2019) similarly note that robust risk assessment must combine qualitative and quantitative evaluation of risk magnitude to support effective prioritization and resource allocation.

Respondents agreed that risk mitigation measures are implemented and monitored for effectiveness (M = 3.769, SD = 0.818). They further agreed that response strategies are reviewed and updated (M = 3.615, SD = 0.974) and that project teams regularly review and update risk registers (M = 3.558, SD = 0.952).

Interview findings supported these results, noting that the three agencies have risk monitoring mechanisms such as performance guarantees, contingency reserves in contracts, outsourcing of key services, adherence to contractors' performance security requirements, and prioritization of fully budgeted projects. KeNHA indicated consistent updating of risk registers and the use of issue logs. A KeRRA manager emphasized the need for improved risk awareness and the institutionalization of a risk management framework. KURA interviewees, however, reported that although frameworks exist, project-level risk registers are rarely updated, highlighting weak monitoring practices.

Respondents reiforced these concerns, showing that monitoring remains largely compliance-oriented focusing on documentation rather than continuous risk intelligence, timely escalation, or adaptive mitigation planning. Additionally, respondents indicated that oversight engagements can introduce procedural delays that sometimes disrupt project execution, leading to contractor idle time and related claims. These risks are seldom incorporated into project risk plans despite their high likelihood. This aligns with Rahmana & Adnan (2020), who noted that regulatory risks are major contributors to road project under performance when excluded from early planning.

Environmental risks especially in rural areas under KeRRA were also found to be under monitored. Seasonal flooding, erosive soils, and climatic variability often disrupt works but are not embedded in monitoring protocols or contingency budgeting. Community-related risks, such as land disputes, political interference, and resistance from local groups, are rarely tracked through scenario analyses or socio-political monitoring tools. Conversely, donor-funded projects were observed to have superior risk monitoring systems, benefiting from structured risk integration, mandatory safeguards, and regular supervision missions consistent with findings by the World

Bank (2021c) and AfDB (2022). These observations are supported by Haniff & Galloway (2022), who emphasize that continuous monitoring enhances the effectiveness of mitigation strategies and reduces residual risk.

The study found that effective risk management contributes significantly to performance by enabling timely completion, reducing the magnitude of risks, and improving safety outcomes. Respondents indicated that: strong risk systems reduce the frequency and severity of site accidents; robust risk warning systems ensure smoother implementation; well-managed risks enhance asset longevity by ensuring roads are designed and constructed to meet current and future needs; continuous lessons-learned processes contribute to organizational learning and performance improvement.

Respondents also cited examples from development partners-financed road projects where joint risk review boards, strict risk governance protocols, and predictable funding significantly reduced exposure to unmanaged risks. However, emerging risks particularly political and regulatory risks were frequently unmanaged, leading to slow implementation, stalled works, or escalating costs. Respondents emphasized that political risks pose the highest threat to project performance. They indicated that political directives often influence project selection, scope changes, funding flows, and timelines, creating unpredictability across project life cycles. This finding is consistent with Odero & Mutiso (2023), who show that political interference increases delays, cost overruns, and implementation disruptions across East and West Africa.

Table 4.7: Descriptive Statistics on Project Risk Management

Statements	Mean	Std. Dev.
Risk Identification		
The authority ensures potential risks and uncertainties on road projects are identified and documented	3.853	0.921
Project team members are actively involved in the identification of risks related to road projects	3.891	0.816
The authority ensures external factors such as weather conditions, regulatory changes, and political stability are considered in the risk identification process	4.006	0.758
Risk Assessment		
Risks are assessed in terms of their potential impact on the successful completion of road projects	3.885	0.794

Statements	Mean	Std. Dev.
Risks are assessed based on their likelihood of occurrence in road projects	3.923	0.732
Project team members use quantitative and/or qualitative methods to assess the magnitude of risks in road projects	3.731	0.790
Risk Monitoring and Control		
The authority ensures that risk mitigation measures are effective implemented and monitored to ensure their effectiveness in addressing identified risks	3.769	0.818
Project team members regularly review and update risk registers to reflect the current status and progress of risk management activities in road projects	3.558	0.952
The authority ensures response strategies are reviewed and updated to address evolving risks in road projects	3.615	0.974
Aggregate Score	**3.803**	**0.839**

4.5.4 Project Communication and Performance of Road Construction Projects

The fourth objective of the study was to explore the impact of project communication on the performance of road construction projects in Kenya. Respondents were asked to indicate their level of agreement with statements regarding project communication in road projects. Table 4.8 summarizes the findings.

The study found, on communication channels, that respondents agreed there is a top-down (leaders to subordinates) hierarchical structure and chain of command used in communication (M = 4.346, SD = 0.485); that both formal and informal forms of communication are usually used during project implementation (M = 4.077, SD = 0.935); and that communication channels are usually identified early so that the channel and information being passed are consistent (M = 4.039, SD = 0.916).

From the interviews, respondents indicated that the most preferred internal communication channels include telephone, memos, emails, virtual meetings, physical meetings, face-to-face interactions, progress reports and WhatsApp. They reported that WhatsApp and telephone are the most popular modes of internal communication, while memos and formal meetings are viewed as the most effective. For external communication, interview participants highlighted letters, social media, print media, electronic media, site instructions and physical meetings as the main channels used to engage ministries, development partners, communities and other stakeholders. These findings agree with Sekaran and Bougie (2019), who emphasize that effective

communication channels, such as face-to-face interaction, email and project management systems, are essential for project success, and with Yakubu, Adjei-Kumi, and Acheamfour (2024), who found that well-chosen channels enhance collaboration, productivity and project outcomes.

However, qualitative evidence from the study showed that the existence of multiple channels does not automatically translate into effective communication throughout the project life cycle. Interview findings revealed that communication is generally well-structured and adequate during planning and formal reporting stages, but often deteriorates during project execution. One field officer observed:

> *"During execution, some decisions take too long to move from headquarters to the site. That delay alone can stall work for weeks." (KI 007)*

This points to a bureaucratic communication bottleneck in which routine decisions, clarifications and approvals pass through several hierarchical layers before reaching resident engineers and contractors. The resulting "communication drag" leads to delayed site instructions, slow variation approvals, inconsistent interpretation of design changes and interruptions to contractor workflows. These challenges are consistent with Odero and Mutiso (2023), who reported that long approval chains and centralized communication are major governance risks in public infrastructure agencies.

The study further found that although formal channels (letters, minutes, official emails, site instructions) exist, resident engineers and site staff frequently resort to informal tools such as WhatsApp groups for urgent communication and progress updates. While these platforms enable rapid information flow, they create governance risks, including weak traceability, inconsistent record-keeping, and gaps in contractual documentation. As Yung-Chang and Wu (2021) noted, informal communication can enhance agility but undermines governance rigour unless it is embedded within formal systems and properly archived.

Regarding quality of information, respondents agreed that proper communication strategies help enhance effective flow of information throughout the project (M =

4.231, SD = 0.815); that top management possesses relevant technical expertise in managing communication (M = 3.923, SD = 0.796); and that there is effective and regular communication among stakeholders (M = 3.769, SD = 0.863).

Interviewees indicated that the credibility of information is often verified through "before and after" photographs, monthly progress meetings that include inspections, and ad hoc site inspections. These findings align with Akintelu and Oyebola (2023), who observed that regular and structured communication among project team members significantly enhances project success. At the same time, qualitative findings identified systemic weaknesses in the consistency and completeness of project information, particularly during implementation and dispute situations. The study revealed poor documentation of key communications, including dispute correspondence, claims justifications, contractor warnings, safety incident reports and environmental compliance notices. When disputes arise, the absence of structured, chronological records weakens the agency's position, lengthens dispute resolution timelines and increases exposure to claims. This resonates with Muhaemin and Suroso (2025), who found that documentation lapses in public works amplify litigation risks and undermine accountability, a concern similarly echoed in OAG (2022) reports on Kenyan public projects.

The study also found that communication on critical issues such as design changes, contractual clarifications and responses to contractor claims, is sometimes slow, incomplete or reactive. Instead of proactive and anticipatory communication, particularly during crises such as heavy rains, flooding, political unrest or sudden oversight investigations, agencies often respond after disruptions have already occurred. This pattern aligns with Usanase and Nkechi (2022) who describes hierarchical public organizations as risk-averse and slow to communicate emerging concerns, and contrasts with global evidence that proactive communication is a key determinant of resilience in large infrastructure projects (World Bank, 2021c).

On reporting and feedback, respondents agreed that top management effectively communicates with stakeholders to enhance organizational efficiency (M = 3.962, SD = 0.871); that there is frequent reporting on project progress (M = 3.962, SD = 1.113);

and that top management continuously communicates and discusses the implications of projects with different stakeholder groups (M = 3.731, SD = 1.079). These findings indicate that reporting and feedback are viewed as integral components of project management. Interviewees explained that information is typically shared through letters and progress reports to the parent ministry, development partners and other oversight bodies. They also noted that the type of communication, content and frequency of reporting depend on the recipient and the nature of the project.

These results are consistent with Usanase and Nkechi (2022), who argue that regular reporting and feedback enable project managers to identify and address emerging issues in a timely manner, thereby enhancing project outcomes. Similarly, Muhaemin and Suroso (2025) found that systematic reporting and feedback support more effective risk management. However, the qualitative evidence in this study revealed that, despite relatively strong reporting structures on paper, significant delays occur in relaying essential project information such as variation approvals, revised drawings, site instructions, claims responses and key stakeholder decisions. Over-centralized decision-making and risk-averse behaviour among officers reinforce slow communication cycles, as even routine matters are escalated upwards for approval. This makes communication highly procedural rather than functional and slows the project's ability to adapt to technical or contextual changes. Comparative studies by Akinradewo et al. (2021) in Nigeria similarly show that slow communication cycles for technical and contractual clarifications increase contractor idle time, elevate claims and contribute directly to time and cost overruns.

The study also sought to establish other ways in which project communication affects the performance of road construction projects in Kenya. Findings indicated that effective communication promotes collaboration and teamwork among project team members, enabling them to work together more efficiently and make informed decisions that support project objectives. Timely and accurate communication reduces misunderstandings, clarifies expectations and requirements, and thereby lowers the likelihood of errors and rework that could cause delays or additional costs.

In addition, effective communication was found to be critical in engaging stakeholders such as local communities, government agencies, utilities and contractors. By keeping stakeholders informed and addressing concerns proactively, project managers can improve stakeholder support, reduce resistance and mitigate potential conflicts. The qualitative evidence showed that late engagement with utility providers and communities often leads to delayed relocation of services, right-of-way disputes and scope variations issues corroborated by AfDB (2022), who highlight early stakeholder communication as a key predictor of time performance in road projects.

The study further established that robust communication systems enhance risk management. By sharing information on potential risks, their likely impact and proposed mitigation strategies, project teams can jointly develop and refine responses to prevent risks from escalating into major issues. Where communication is fragmented, delayed or poorly documented, risks are often recognized too late, resulting in stoppages, claims, cost escalation and reduced public confidence.

Table 4.8: Descriptive Statistics on Project Communication

	Mean	Std. Dev.
Communication Channels		
Formal and informal forms of communications are usually used during project implementation	4.077	0.935
There is top-down (leaders to subordinates) hierarchical structure and chain of command that is used in communication	4.346	0.485
We usually identify communication channels soon so that the channel and information being passed are consistent	4.039	0.916
Quality of Information		
There is effective and regular communication among the stakeholders	3.769	0.863
Top management possesses relevant technical expertise in managing communication	3.923	0.796
Proper communication strategies helps enhance effective flow of information throughout the project	4.231	0.815
Reporting and Feedback		
Top management effectively communicated with the stakeholders to enhance organizational efficiency	3.962	0.871
Top management continuously communicated and discussed implications of the project with various groups of stakeholders	3.731	1.079
There is frequent reporting on project progress	3.962	1.113
Aggregate Score	**4.004**	**0.875**

4.5.5 Organizational Culture and Performance of Road Construction Projects

The fifth objective of the study was to analyze the moderating effect of organizational culture on the relationship between project governance and the performance of road construction projects in Kenya. Respondents provided their level of agreement with statements related to role culture, power culture, task culture, and broader cultural influences on governance. Table 4.9 presents a summary of the descriptive results.

The findings on role culture indicated that respondents agreed that individuals in their organizations have authority attached to the positions they occupy (M = 3.885, SD = 0.909), that roles are delegated based on individual educational qualifications and specialization (M = 3.846, SD = 1.008), and that educational qualifications and interests are considered when assigning tasks (M = 3.500, SD = 1.030).

Qualitative insights revealed that formal role clarity is entrenched in the Human Resource Manuals of the three road agencies and in the Quality Management Systems (QMS) of KURA and KeNHA, which are ISO 9001:2015 certified. Staff interviewees confirmed that although formal role conflict is uncommon, operational overlaps exist, largely due to resistance to organizational change—suggesting a need for structured change management initiatives. Consultants' roles were also reported to be clearly defined within their Terms of Reference.

Interviewees described a strong role culture characterized by formal procedures, vertical reporting channels, rigid documentation structures, and strict adherence to rules. This aligns with Cameron and Quinn's (2021) Competing Values Framework (CVF), which associates role cultures with bureaucracy, predictability, and control. Through Schein's three levels of culture, these traits appear: Artifacts: multiple approval layers, standardized templates, formal memos; Espoused Values: rule-following, accountability, consistency; Underlying Assumptions: belief that risks are best mitigated through hierarchy and procedural caution. One senior officer summarized this rigidity:

> *"Sometimes decisions stay pending for long because only one person is allowed to sign or approve. That is our culture." (KI 008)*

The findings agree with Ismayana & Adeleke (2022) and Ingosi & Juma (2020), who stressed the importance of matching tasks with expertise, and with Ackon et al. (2022), who emphasized that assigning authority to position-holders supports accountability and performance. However, the dominance of role culture also introduces structural bottlenecks. Interviewee observed that slow approvals, extended escalation chains, and over-dependence on singular authority figures undermine timely project decision-making—mirroring trends in African public sectors.

Despite these constraints, role culture has positive effects: it reinforces formal risk processes, strengthens audit trails, enhances procedural compliance, and supports governance consistency particularly in donor-funded projects where structured documentation and accountability are essential (Whittington et al., 2023).

On power culture, respondents agreed that subordinates must strictly follow their superiors' instructions (M = 3.769, SD = 0.765). This reflects Weber's (1947) classical conception of legitimate authority, where compliance is rooted in the belief that hierarchical rules and leaders' authority are justified. Respondents were neutral, however, on whether power remains in the hands of a few individuals (M = 3.308, SD = 1.258), and whether decisions are made by a small group of powerful actors (M = 3.231, SD = 1.177).

Interview participants clarified this neutrality by noting that while power is formally cascaded throughout the hierarchy, real decision-making seldom extends beyond the third tier, despite the organizations having up to ten management levels. This concentration of authority was described as demotivating, inhibiting collaboration, and suppressing innovation. One respondent highlighted that excessive power centralization does not support "value-based decision-making." These observations resonate with Mutua (2023), who argued that centralized power limits organizational learning and responsiveness. Interviewee further elaborated that hierarchical cultures, rooted in institutional norms emphasizing stability over flexibility, tend to reduce autonomy and front-line problem-solving capacity, consistent with Scott's (2014) Institutional Theory.

On task culture, respondents agreed that teams are formed to achieve set targets (M = 3.923, SD = 0.796), that critical problems are solved collaboratively in teams (M = 3.731, SD = 0.874), and that organizational performance depends heavily on teamwork (M = 3.615, SD = 0.983). These findings align with Ingosi & Juma (2020), who argue that task-oriented cultures enhance responsiveness, creativity, and project performance. However, respondents were neutral on whether team members contribute equally to tasks (M = 2.923, SD = 1.129).

Interviewees explained this neutrality by revealing workload inequities, widely referred to as the *"blue-eyed-boy system"* where favoured individuals receive more responsibilities, opportunities, or visibility before leadership, while others are underutilized. Such informal favoritism discourages collaboration, undermines morale, and creates perceptions of unfairness. This reflects global findings by Ismayana & Adeleke (2022) regarding free-riding and unequal contributions within construction teams. Interviewees expanded this insight by describing these practices as a form of shadow culture, an informal, unwritten set of norms that subtly but powerfully influence task allocation, information access, performance evaluation, and career progression. Iyiola & Rjoub (2020) documented similar effects of informal networks in public institutions, showing that shadow cultures weaken cohesion and reduce the effectiveness of formal governance structures.

Interestingly, the qualitative findings also revealed pockets of strong task culture within donor-funded project units, corridor development teams, and special-purpose task forces. These groups demonstrated higher agility, improved problem-solving, faster escalation of issues, and stronger technological adoption, resulting in better performance than mainstream units. Their effectiveness confirms research by McCord et al. (2023), which highlights the advantages of innovation-oriented, flexible cultural models in complex infrastructure environments.

Beyond role, power, and task culture, the study explored additional cultural attributes shaping governance and performance. The study established that: first, a culture valuing innovation, risk-taking, and learning encourages project teams to explore new approaches, adapt governance mechanisms, and respond to emerging challenges—

thereby improving project outcomes. Conversely, hierarchical, risk-averse cultures discourage innovation, constrain digital transformation, and slow the uptake of modern governance tools such as real-time dashboards and early warning systems. Second, cultures emphasizing transparency, accountability, and stakeholder engagement enhance participatory decision-making, reducing opportunities for corruption and strengthening governance. In contrast, cultures marked by political influence, favoritism, or opaque decision-making undermine governance effectiveness and weaken performance. Finally, open cultures foster information sharing, constructive feedback, and collaboration practices which are critical for managing risks and coordinating stakeholders. Cultures marked by mistrust, secrecy, blame-shifting, or fear of criticism discourage communication and weaken project performance.

Table 4.9: Descriptive Statistics on Organizational Culture

	Mean	**Std. Dev.**
Role culture		
In my organization, roles are delegated according to individual education qualification and specialization	3.846	1.008
When assigning tasks, individual educational qualification and interests are considered	3.500	1.030
Individuals have authority in positions they occupy	3.885	0.909
Power culture		
In my organization, power remains in the hands of few individuals	3.308	1.258
Decision making in my organization is made by few individuals who have power	3.231	1.177
Subordinates in my organization have to strictly follow their superior's instructions	3.769	0.765
Task culture		
In my organization, teams are formed to achieve set targets	3.923	0.796
In my organization, critical problems are solved in teams	3.731	0.874
Team members in my organization have to contribute equally to accomplish tasks	2.923	1.129
My organization depends on teamwork to produce results	3.615	0.983
Aggregate Score	**3.573**	**0.993**

4.5.6 Performance of Road Construction Projects

The main objective of the study was to examine the influence of project governance on the performance of road construction projects in Kenya. Respondents were

therefore asked to indicate their level of agreement with statements relating to four core dimensions of project performance: timely completion, completion within specified cost, completion within specified quality, and baseline scope adherence. An aggregate project performance index was also computed. Table 4.10 presents a summary of the descriptive findings.

Project performance was measured using multi-item Likert-scale indicators on a five-point scale (1 = strongly disagree, 5 = strongly agree), with mean scores of 3.5–4.4 interpreted as agreement and 4.5–5.0 as strong agreement. The findings show the mean values and standard deviations for the four dimensions of performance and the overall index. The aggregate mean project performance score was 2.875 (SD = 0.862), which lies in the lower band of the neutral range on the scale. This indicates that, on average, respondents did not perceive road projects as outright failures, but neither did they regard them as clear successes. Rather, performance was viewed as moderate and uneven, with some aspects functioning reasonably well while others remain significantly constrained. This pattern is consistent with recent literature that portrays many public road projects in developing contexts as achieving only partial success—delivering usable assets but with recurrent time and cost overruns and only moderate adherence to scope (Antoniou & Tsavlidou, 2025; Vimonsatit, Askarinejad, Singh, & Yazdani, 2022).

Overall, the mean values for most performance aspects related to time and cost were below the 3.5 agreement threshold, indicating persistent challenges, whereas quality scored relatively higher, with scope adherence occupying a mixed middle ground. The standard deviations were within acceptable limits, indicating a moderate level of agreement among respondents regarding the performance profile of road construction projects in Kenya.

The first dimension, timely completion, exhibited the weakest performance. Respondents generally disagreed that projects are finished on time ($M \approx 2.350$, SD = 0.689) and that project activities are carried out as scheduled ($M \approx 2.423$, SD = 0.857). These values fall clearly below the neutral range and confirm that schedule slippage is a systemic issue.

Interview findings provided deeper explanatory insights. Participants indicated that there are no clear guidelines for estimating road project durations. Instead, project schedules are typically developed using: historical or analogous estimates based on similar past projects, broad assessments of project size and complexity, and annual budget-cycle considerations and political timelines. Monitoring of time performance is mainly done through Gantt charts and critical path methods, with delays communicated to stakeholders via letters and progress reports. Interviewees reported that only a few projects are completed within the original contract duration, with delayed payments to contractors frequently cited as a critical driver of extended schedules.

These results are consistent with both Kenyan and international evidence showing that time overruns are a chronic challenge in road construction. Le and Chong (2020) as well as Mohindra and Srivastava (2019) identified schedule overruns as major performance problems in road projects. Empirical evidence from Kenya indicates that delays in road construction projects are largely driven by governance and coordination failures rather than technical limitations. Late disbursement of funds, prolonged land acquisition processes, delayed utility relocation, and institutional constraints significantly disrupt project schedules and contribute to cost overruns (Mugweru & Muchelule, 2022).

In addition, weak contract management exacerbates these challenges by increasing disputes and undermining cost control, underscoring the need for integrated, execution-focused governance reforms within public road agencies (Kithinji Makena et al., 2025). Antoniou and Tsavlidou (2025) also report that larger and more complex European motorway projects consistently score lower on time performance than on other success dimensions. The findings from this study therefore reinforce the conclusion that time overruns are a structural rather than incidental performance deficit in Kenya's road construction projects.

The second dimension, completion within specified cost, also performed poorly. Respondents disagreed that projects are finished within budget ($M \approx 2.423$, SD =

0.758) and strongly disagreed with the statement that there are no project cost overruns ($M \approx 1.885$, $SD = 0.766$), clearly pointing to endemic cost escalation.

Qualitative evidence revealed that cost estimation practices are uneven. Some interviewees reported that project costs are occasionally determined using "rule of thumb," while others indicated that costs are based on project scope and prevailing market rates and then translated into Bills of Quantities (BoQs). Cost performance is monitored primarily through the BoQs, with contract variations managed according to the Public Procurement and Asset Disposal Act (PPADA) and related regulations. For some development-partner-funded projects, Earned Value (EV) methods are used to monitor both time and cost, and some respondents recommended wider adoption of Cost Breakdown Structures (CBS) to improve cost planning.

These descriptive and qualitative findings echo previous studies that identify cost management as a critical challenge in road projects. Mohindra and Srivastava (2019) and Le and Chong (2020) highlight cost overruns as a recurring problem in transport infrastructure. In the Kenyan context, Samo et al. (2024) associate cost overruns with weak cost planning, limited monitoring, and frequent scope changes, while Mugweru and Muchelule (2022) and Kithinji et al. (2025) link ineffective contract management to heightened claims and budget escalation. Antoniou and Tsavlidou (2025) further show that cost performance is often the most volatile of the time–cost–quality triad, especially in complex or politically exposed schemes. The current study's findings are therefore consistent with the broader evidence that cost overruns are entrenched in the project environment, and that existing cost governance mechanisms within Kenyan road agencies are insufficient to ensure budget discipline.

In contrast, the third dimension which is completion within specified quality, registered relatively positive perceptions. Respondents agreed that stakeholders are satisfied with completed projects ($M = 3.654$, $SD = 0.797$) and that completion within specified quality is satisfactory ($M = 3.539$, $SD = 1.029$). Both means are above the 3.5 threshold, suggesting that while projects often suffer time and cost overruns, quality outcomes are generally acceptable.

Interviewees explained that quality requirements are explicitly captured in contract documents, drawings and specifications. Quality is monitored using: Monthly progress reports (which include specific sections on quality), Quality Assurance units, Monitoring and Evaluation departments, and Internal Audit functions within each road agency. These structures provide independent assurance on material quality, workmanship, and conformity to standards. Respondents, however, recommended additional investment in quality control laboratories and vehicles to enhance on-site testing and inspection.

These findings echo Rahmana and Adnan (2020) and Ekung et al. (2017), who underscore the centrality of specified quality and stakeholder satisfaction as key measures of project success. More recent work by Antoniou and Tsavlidou (2025), Mugweru and Muchelule (2022) and Kithini et al. (2025)similarly shows that where strong technical oversight and structured quality assurance systems are in place, quality and stakeholder satisfaction scores tend to be higher than time and cost scores, even in projects with notable delays or budget overruns. The present study therefore confirms a pattern of partial success, where quality governance has matured comparatively faster than schedule and cost governance.

The fourth dimension, baseline scope adherence, presented a more mixed profile. Respondents' ratings that "projects are completed as per the defined scope" (M = 3.385, SD = 1.023) and that "project execution adheres to all key elements of the project" (M = 3.346, SD = 0.977) lie just below the 3.5 agreement threshold. This suggests that some projects are delivered close to their original scope, while others undergo significant scope adjustments during implementation.

Interviewees indicated that scope is usually determined using analogous and parametric estimating, drawing on historical projects and broad unit benchmarks. Scope is managed through contingency provisions in contracts and by applying procurement laws and regulations to variation orders. Instructions are generally issued only for works within the original scope, with changes captured through formal variations.

However, respondents also highlighted that many rural road projects are conceptualized under compressed timelines, limited engineering input, and strong political pressures, leading to under-scoped or loosely defined interventions. These upstream weaknesses increase the likelihood of scope changes, claims, and disputes once implementation has begun. This is consistent with Samo et al. (2024), who link poor upstream planning and weak integration of technical studies into budgeting to frequent scope variations. International evidence from Antoniou and Tsavlidou (2025) similarly shows that projects with fluid or politically influenced scopes record lower success scores on time and cost due to repeated adjustments. The results of the current study, therefore, suggest that scope management within Kenyan road agencies is only partially effective: formal mechanisms exist but are undermined by early-stage planning gaps and political interference.

Taken together, the descriptive statistics and qualitative insights present a nuanced picture of project performance in Kenya's national road agencies: Timely completion and cost performance are consistently weak, indicating systemic schedule and budget overruns. Quality performance is relatively strong, supported by robust technical standards and quality assurance structures. Scope adherence is mixed, reflecting both functioning mechanisms and significant upstream planning and political challenges. The aggregate mean performance score of 2.875 signals moderate, uneven performance rather than clear success or failure. This profile resonates with contemporary literature that treats project success as multi-dimensional rather than binary (Antoniou & Tsavlidou, 2025; Vimonsatit et al., 2022). In line with these studies, the findings suggest that Kenya's road sector delivers partial success: users receive functional infrastructure assets that generally meet quality requirements, but these are frequently delivered late and at higher cost than originally planned, with varying adherence to scope.

The performance pattern also dovetails with the governance-related findings in earlier subsections of the study: Weak strategic alignment in planning—particularly the "desk-based" conceptualization of rural roads and limited data-driven planning—helps explain poor time and cost performance. Over-centralized top management support, risk registers that are not consistently updated, and bureaucratic communication

channels further slow decision-making and implementation. A hierarchical organizational culture reinforces procedural caution and centralization, moderating the effectiveness of governance mechanisms and limiting agile problem-solving at project level. At the same time, relatively stronger scores in quality and stakeholder satisfaction reflect the presence of mature technical standards, quality assurance systems, and multiple oversight layers, which partially buffer projects from governance weaknesses in other areas.

The descriptive analysis of project performance indicates that improving road project outcomes in Kenya requires governance reforms that extend beyond procedural compliance toward integrated and execution-focused management practices. Empirical evidence from Kenyan road agencies shows that delays and cost overruns are strongly associated with fragmented planning processes, weak coordination of land acquisition and utility relocation, and institutional constraints embedded in public-sector project delivery systems (Mugweru & Muchelule, 2022). In addition, recent findings demonstrate that ineffective contract management undermines cost control, increases disputes, and constrains overall performance, while projects supported by structured contract administration, technical oversight, and formal control systems tend to achieve superior quality and stakeholder satisfaction outcomes even where time and cost pressures persist (Kithinji Makena et al., 2025). Collectively, these findings suggest that sustained improvements in road project performance depend on the coordinated integration of planning, contract management, risk management, and oversight mechanisms rather than reliance on compliance-driven governance alone.

Table 4.10: Descriptive Statistics on Performance of Road Projects

	Mean	Std. Dev.
Timely completion		
Projects are finished on time.	2.350	0.689
Projects activities were carried out as scheduled.	2.423	0.857
Completion within specified cost		
The projects are finished within budget.	2.423	0.758
There are no project cost overrun incurred	1.885	0.766
Completion within specified quality		
The completion within specified quality was satisfactory	3.539	1.029
Stakeholders are satisfied with completed projects	3.654	0.797

	Mean	Std. Dev.
Baseline scope adherence		
The projects was completed as per the defined scope	3.385	1.023
Project execution adheres to all of a project's key elements.	3.346	0.977
Aggregate Score	**2.875**	**0.862**

An analysis of secondary data from 103 ongoing and completed road construction projects, in the three road agencies, during a five-year period (Financial Year 2019/2020 to Financial Year 2023/2024) indicates that 68% of the projects experienced time overruns, 30% had cost overruns, 31% had quality issues, while 32% had scope variations. Time overrun could be ascribed to delayed payments to contractors for work done leading slow proress of work, while cost overruns could be a result of scope variations and inflation. It was noted that scope variations are mainly due to design changes which is ascribable to inadequate planning and poor contract documentation. Table 4.11 below presents the performance for KURA, KeRRA and KeNHA projects.

Table 4.11: Project Performance Outcomes of Road Construction Projects (FY 2019/20–FY 2023/24)

Performance dimension	Performance indicator	Percentage of projects (%)
Time performance	Projects with time overruns	68
Cost performance	Projects with cost overruns	30
Quality performance	Projects with quality deficiencies	31
Scope performance	Projects with scope variations	32

Source: Secondary data analysis (FY 2019/20–FY 2023/24)

Rahmana and Adnan, (2020) argued that a project is considered underperforming when it has not delivered what was required, in line with expectations of cost, scope, quality and time. Consistent with this argument, Mohindra and Srivastava (2019) submits that one of the biggest problems of project managers is to harmonize project cost, time, scope and quality. Therefore, efforts should be made to address these challenges to improve the overall performance of road construction projects in Kenya.

4.6 Diagnostic Tests

This study conducted linearity test, multicollinearity test, normality test and homoscedasticity test before regression analysis was conducted. In case of violation of the regression assumptions, the confidence intervals as well as other scientific insights derived from the regression model may be regarded as misleading, biased or inefficient and therefore the inferences derived incapable of being generalizable on other data.

4.6.1 Linearity Test

When the value of sig. deviation from the linearity > 0.05, then in the multiple regression model it can be said that the predictor variables have significant effect on the response variable. If the value sig. deviation from linearity is < 0.05, then the relationship between the predictors and the response variable is said to be partially significant. In the SPSS output display (Table 4.12), the sig. value of strategic alignment = 0.649; top management support = 0.538; project risk management = 0.554; project communication = 0.681 and organizational culture = 0.566. It can therefore be concluded that there is significant linear relationship between strategic alignment, top management support, project risk management, and project communication with project performance.

Table 4.12: Coefficients of Linearity Test

Model	Sig.	95.0% Confidence Interval for B		Tolerance
		Lower Bound	Upper Bound	
Strategic alignment	.649	-13.608	11.411	.560
Top management support	.538	-19.721	23.732	.189
Project risk management	.554	-21.089	18.518	.172
Project communication	.681	-10.179	11.121	.623
Organizational culture	.566	-39.618	45.182	.281

4.6.2 Multicollinearity Test

Multicollinearity is used to determine the probability that any two or more independent variables in a particular multivariate regression model are highly or significantly

correlated. This would mean that one variable can be predicted from the other. In case the correlations among the independent variables are quite strong, the standard error of the coefficients tends to increase thus leading to reduced precision of the estimate coefficients, thus weakening the statistical power of the regression model. The study adopted the Variance Inflation Factor (VIF) to examine the level of correlation among the variables. The general principle is that a VIF greater than ten (10) indicates multicollinearity.

The Variance Inflation Factors for the different independent variables, as depicted in Table 4.13, indicates that there was no multicollinearity among the independent variables given the VIF values for each of the independent variables was below ten. Strategic alignment had a VIF of 1.660, top management support had a VIF of 3.114, project risk management had a VIF of 2.863, and project communication had a VIF of 1.091. All the variables had a VIF of less than 10. This means that the predictive power of each of the independent variables on the dependent variable would not be affected or reduced by the other independent variables. This is because the presence of multicollinearity reduces the statistical significance of the independent variables.

Table 4.13: Multicollinearity Test

	Tolerance	**VIF**
Strategic alignment	.603	1.660
Top management support	.321	3.114
Project risk management	.349	2.863
Project communication	.916	1.091

4.6.3 Normality Test

Before performing a more in-depth inferential statistical analysis, the data must meet the assumption of normality. Kalnins *et al*. (2023) posit that normality is crucial since it pertains to legitimacy. Shapiro Wilk test was utilized in the study to check for normalcy. P >0.05 implies that the data is normality distributed; hence the assumption is met. The result of the normality test is shown in Table 4.14. The results indicated that the p-value for Shapiro Wilk test were; strategic alignment (p=0.764), top management support (p=0.981), project risk management (p=0.856), project communication (p=0.542), organizational Culture (p=0.779), and performance of road

construction projects (p=0.991). All the variables satisfied the assumption of normality since p>0.05.

Table 4.14: Shapiro Wilks Test of Normality

	Shapiro-Wilk		
	Statistic	**Df**	**Sig**
Strategic alignment	0.974	222	0.340
Top management support	0.981	222	0.571
Project risk management	0.957	222	0.064
Project communication	0.986	222	0.124
Organizational Culture	0.965	222	0.088
Performance of road construction projects	0.991	222	0.060

4.6.4 Homoscedasticity Test

Violation of homoscedasticity tends to inhibit critical evaluation of forecast errors of standard deviation, which often leads to confidence intervals that are extremely narrow or extremely wide. Homoscedasticity in this study was assessed using the Breusch-Pagan test. The null hypothesis for this test was that the error variances were equal and were a multiple function of variables. Homoscedasticity normally occurs when the chi-square value is greater than the significance level (0.05). As indicated in Table 4.15, the chi-square value was 0.3274, which was greater than the significance level of 0.05. This implies that there was homoscedasticity in the regression model.

Table 4.15: Breusch-Pagan test for Homoscedasticity

Ho: Constant variance	
Variables: Fitted with values of project performance	
Chi2 (1)	0.96
Prob>chi2	0.3274

4.7 Correlation Analysis

Correlation analysis measures the strength and direction of the linear relationship between two variables. Pearson correlation coefficient was used for testing associations between the independent and the dependent variables. If the correlation values are r = ±0.1 to ±0.29 then the relationship between the two variables is small,

if it is r = ±0.3 to ±0.49 the relationship is medium, and when r= ±0.5 and above there is a strong relationship between the two variables under consideration (Sekaran & Bougie, 2019). Table 4.16 presents the findings obtained.

The findings show a strong positive correlation between strategic alignment and the performance of road construction projects (r = 0.489, p = 0.011). This implies higher strategic alignment can lead to improved project performance. This finding is supported by the literature, which suggests that effective strategic alignment through IT alignment, operations alignment and employees' alignment can enhance project success. For instance, Nnadi and Oyama (2023) argue that strategic alignment is a critical success factor in construction projects and that its effective implementation can lead to project success.

The study findings also reveal a positive and significant correlation between top management support (TMS) and the performance of road construction projects (r = 0.843, p = 0.000). This implies that higher TMS can lead to improved project performance. This finding is consistent with Iyiola and Rjoub (2020) who argued that TMS can help project teams to obtain necessary resources and create a supportive environment for project success.

The findings further indicate a positive and significant correlation between project risk management and the performance of road construction projects (r = 0.788, p = 0.002). This implies that higher project risk management can lead to improved project performance. This finding is supported by literature, which suggests that effective project risk management practices like risk identification, risk assessment and risk monitoring and control can enhance project success. Alsadi and Norhayatizakuan (2021) argue that project risk management is a critical success factor in projects and that effective project risk management helps project managers and teams proactively address potential challenges and uncertainties.

Finally, the study found a positive and significant correlation between project communication and the performance of road construction projects (r = 0.757, p =0.001). This finding implies that effective project communication can lead to improved project performance. This finding is consistent with those of Yakubu, Adjei-

Kumi, and Acheamfour (2024) who argued that effective project communication can help project teams improve project performance. Therefore, organizations should adopt effective project communication strategies to improve their project performance.

Table 4.16: Correlation Analysis

		Performance	Strategic Alignment	Top management support	Project Risk Management	Project Communication
Performance of road construction projects	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	222				
Strategic alignment	Pearson Correlation	.489**	1			
	Sig. (2-tailed)	.011				
	N	222	222			
Top management support	Pearson Correlation	.843**	.183	1		
	Sig. (2-tailed)	.000	.320			
	N	222	222	222		
Project risk management	Pearson Correlation	.788**	.297**	.193**	1	
	Sig. (2-tailed)	.002	.072	.080		
	N	222	222	222	222	
Project communication	Pearson Correlation	.757**	.412**	.236**	.187**	1
	Sig. (2-tailed)	.001	.061	.070	.072	
	N	222	222	222	222	222

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

4.8 Simple Linear Regression

From the multiple regression analysis, the variables combined were seen to influence performance of road construction projects in Kenya, with varying degrees of impact. What of when they are on their own? The study therefore computed univariate regression analysis. Univariate regression analysis also guided the study in testing the research hypothesis. The predictive power of the model was based on R^2 while F-statistic was used to determine the fitness of the model at $P < 0.05$. The significance of the study variables was also based on P-values at 0.05 significance level. The following null hypotheses tested were:

Hypothesis 1

Ho_1: There is no significant relationship between strategic alignment and performance of road construction projects in Kenya.

Hypothesis 2

Ho_2: There is no significant relationship between top management support and performance of road construction projects in Kenya.

Hypothesis 3

Ho_3: There is no significant relationship between project risk management and performance of road construction projects in Kenya.

Hypothesis 4

Ho_4: There is no significant relationship between project communication and performance of road construction projects in Kenya.

Hypothesis 5

Ho_5: There is no significant moderating effect of organizational culture on the relationship between project governance and performance of road construction projects in Kenya.

4.8.1 Test for Hypothesis One

The first objective of the study was to determine the relationship between strategic alignment and the performance of road construction projects in Kenya. The associated null hypothesis stated that there is no significant influence of strategic alignment on the performance of road construction projects in Kenya. A univariate analysis was conducted to test the null hypothesis.

R, the correlation coefficient, indicates the strength and direction of the relationship between the predictor and outcome variables. As shown in Table 4.17, R = .489

suggests a moderate positive relationship between strategic alignment and the performance of road construction projects in Kenya. The R Square (coefficient of determination) indicates the proportion of variance in the outcome variable that can be explained by the predictor variable. An R Square of .239 suggests that 23.9% of the variation in the performance of road construction projects in Kenya can be explained by strategic alignment.

The low R Square and Adjusted R Square values suggest that there are other important factors that influence the outcome variable, and further research may be needed to identify these factors and improve the predictive accuracy of the model. The finding that strategic alignment has a moderate positive relationship with the outcome variable is consistent with Lappi, Aaltonen, and Kujala (2019) that effective strategic alignment is often cited as a critical factor in achieving successful project outcomes and can lead to improved alignment of projects.

Table 4.17: Model Summary for Strategic Alignment

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.489[a]	.239	.233	.51618

a. Predictors: (Constant), Strategic Alignment

The analysis of variance was used to determine whether the regression model is a good fit for the data. From the analysis of variance (ANOVA) findings in Table 4.18, the study found out that Prob>F (1, 220) = 0.012 was less than the selected 0.05 level of significance. This suggests that the model was well-suited to predict the performance of road construction projects in Kenya. Additionally, the F-calculated value from the table (7.349) was greater than the F-critical value from the F-distribution tables (3.884), supporting the findings that strategic alignment can be used to predict the performance of road construction projects in Kenya.

Table 4.18: Analysis of Variance for Strategic Alignment

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.44	1	2.44	7.349	.012[b]
	Residual	73.04	220	0.332		
	Total	75.48	221			

a. Dependent Variable: Performance of road construction projects
b. Predictors: (Constant), Strategic Alignment

From the results in Table 4.19, the following regression model was fitted.

$$Y = 1.021 + 0.508 X_1$$

(X_1 is Strategic Alignment)

The coefficient results showed that the constant term had a coefficient of 1.021, suggesting that if strategic alignment is held constant at zero, the performance of road construction projects in Kenya would be 1.021 units. Additionally, the results indicated that the strategic alignment coefficient was 0.508, meaning that a unit increase in strategic alignment would result in a 50.8% improvement in the performance of road construction projects in Kenya. The P-value for the strategic alignment coefficient was 0.012, which is below the 0.05 significance level, indicating that strategic alignment is significant

Based on these results, the study rejected the null hypothesis and accepted the alternative hypothesis, concluding that there is a positive significant relationship between strategic alignment and the performance of road construction projects in Kenya. This aligns with Zaman et al. (2020), who found that strategic alignment significantly influences project success in the construction industry. Their study highlighted that effective strategic alignment practices, such as IT alignment, operations alignment, and employee alignment, are positively associated with project success. Similarly, a study by Yung-Chang and Wu (2019) found that strategic alignment practices significantly influence project performance.

Table 4.19: Beta Coefficients for Strategic Alignment

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.021	.693		1.472	.154
	Strategic alignment	.508	.187	.484	2.711	.012

a. Dependent Variable: Performance of road construction projects

4.8.2 Test for Hypothesis Two

The second objective of the study was to examine the relationship between top management support and the performance of road construction projects in Kenya. The associated null hypothesis stated that there is no significant influence of top management support on the performance of road construction projects in Kenya. A univariate analysis was conducted to test the null hypothesis.

R, the correlation coefficient, indicates the strength and direction of the relationship between the predictor and outcome variables. As shown in Table 4.20, R = .843 suggests a strong positive relationship between top management support and the performance of road construction projects in Kenya. R Square (coefficient of determination) indicates the proportion of variance in the outcome variable that can be explained by the predictor variable. An R Square of .711 suggests that 71.1% of the variation in the performance of road construction projects in Kenya can be explained by top management support.

The remaining 28.9% variation in performance of road construction projects suggests that there are other important factors that influence the outcome variable, and further research may be needed to identify these factors and improve the predictive accuracy of the model.

Table 4.20: Model Summary for Top Management Support

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.843[a]	.711	.712	.44086

a. Predictors: (Constant), Top management support

The analysis of variance was used to determine whether the regression model is a good fit for the data. From the analysis of variance (ANOVA) findings in Table 4.21, the study found out that Prob>F (1, 220) = 0.000 was less than the selected 0.05 level of significance. This indicates that the model was well-suited to predict the performance of road construction projects in Kenya. Additionally, the F-calculated value from the table (29.541) exceeded the F-critical value from the F-distribution tables (3.884), supporting the conclusion that top management support can be used to predict the performance of road construction projects in Kenya.

Table 4.21: Analysis of Variance for Top Management Support

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.742	1	5.742	29.541	.000[b]
	Residual	42.68	220	.194		
	Total	48.422	221			

a. Dependent Variable: Performance of road construction projects
b. Predictors: (Constant), Top management support

From the results in Table 4.22, the following regression model was fitted.

$$Y = 1.161 + 0.812 X_2$$

(X_2 is Top management support)

The coefficient results showed that the constant term had a coefficient of 1.161, suggesting that if top management support is held constant at zero, the performance of road construction projects in Kenya would be 1.161 units. Additionally, the results indicated that the top management support coefficient was 0.812, meaning that a unit increase in top management support would result in an 81.2% improvement in the performance of road construction projects in Kenya. It was also noted that the P-value for top management support coefficient was 0.000, which is less than the set 0.05 significance level, indicating that top management support was significant.

Based on these results, the study rejected the null hypothesis and accepted the alternative that there is positive significant relationship between top management support and performance of road construction projects in Kenya. The findings concur with Wana et al. (2019) who found that top management support was a significant

factor in determining project performance, and that effective support from top management was positively associated with project success. Similarly, a study by Ahmeda et al. (2021) found that top management support had a positive significant influence on project success, and that effective support from top management improved project performance

Table 4.22: Beta Coefficients for Top Management Support

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.161	0.165		7.036	.001
	Top management support	.812	.149	.743	5.435	.000

a. Dependent Variable: Performance of road construction projects

4.8.3 Test for Hypothesis Three

The third objective of the study was to assess the relationship between project risk management and the performance of road construction projects in Kenya. The associated null hypothesis stated that there is no significant influence of project risk management on the performance of road construction projects in Kenya. A univariate analysis was conducted to test the null hypothesis.

R, the correlation coefficient, indicates the strength and direction of the relationship between the predictor and outcome variables. As shown in Table 4.23, R = .788 suggests a strong positive relationship between project risk management and the performance of road construction projects in Kenya. R Square (coefficient of determination) indicates the proportion of variance in the outcome variable that can be explained by the predictor variable. An R Square of .621 suggests that 62.1% of the variation in the performance of road construction projects in Kenya can be explained by project risk management.

The remaining 37.9% variation in performance of road construction projects suggests that there are other important factors that influence the outcome variable, and further research may be needed to identify these factors and improve the predictive accuracy of the model.

Table 4.23: Model Summary for Project Risk Management

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.788[a]	.621	.619	.40181

a. Predictors: (Constant), Project risk management

To determine the suitability of the regression model, analysis of variance (ANOVA) was performed. The ANOVA results in Table 4.24 revealed that Prob>F (1, 220) = 0.000, which is below the 0.05 significance level. This implies that the model is appropriate for predicting the performance of road construction projects in Kenya. Additionally, the calculated F-value (38.545) exceeded the critical F-value (3.884), supporting the conclusion that project risk management can predict the performance of road construction projects in Kenya.

Table 4.24: Analysis of Variance for Project Risk Management

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.413	1	6.413	38.545	.000[b]
	Residual	36.52	220	.166		
	Total	42.933	221			

a. Dependent Variable: Performance of road construction projects
b. Predictors: (Constant), Project Risk Management

From the results in Table 4.25, the following regression model was fitted.

$$Y = 1.279 + 0.725\ X_3$$

(X_3 is Project risk management)

The coefficient results showed that the constant term had a coefficient of 1.279, suggesting that if project risk management is held constant at zero, the performance of road construction projects in Kenya would be 1.279 units. Additionally, the results indicated that the project risk management coefficient was 0.725, meaning that a unit increase in project risk management would result in a 72.5% improvement in the performance of road construction projects in Kenya. It was also noted that the P-value for project risk management coefficient was 0.000, which is less than the set 0.05 significance level, indicating that project risk management was significant.

Based on these results, the study rejected the null hypothesis and accepted the alternative that there is positive significant relationship between project risk management and the performance of road construction projects in Kenya. The finding is consistent with that of a study by An et al. (2018) who found that project risk management had a positive significant influence on project success, and that effective project risk management was positively associated with project performance. Similarly, a study by Hermano, Martin-Cruz, and Pajares (2022) investigated the relationship between project risk management and project success in Kuwait's construction industry. Their findings indicated that project risk management has a significantly positive influence on project success.

Table 4.25: Beta Coefficients for Project Risk Management

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.279	0.226		5.659	.000
	Project risk management	.725	.117	.785	6.208	.000

a. Dependent Variable: Performance of road construction projects

4.8.4 Test for Hypothesis Four

The fourth objective of the study was to explore the relationship between project communication and the performance of road construction projects in Kenya. The associated null hypothesis stated that there is no significant influence of project communication on the performance of road construction projects in Kenya. A univariate analysis was conducted to test the null hypothesis.

R, the correlation coefficient, indicates the strength and direction of the relationship between the predictor and outcome variables. As shown in Table 4.26, R = .757 suggests a strong positive relationship between project communication and the performance of road construction projects in Kenya. R Square (coefficient of determination) indicates the proportion of variance in the outcome variable that can be explained by the predictor variable. An R Square of .573 suggests that 57.3% of the variation in the performance of road construction projects in Kenya can be explained by project communication.

The remaining 42.7% variation in performance of road construction projects suggests that there are other important factors that influence the outcome variable, and further research may be needed to identify these factors and improve the predictive accuracy o f the model.

Table 4.26: Model Summary for Project Communication

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.757[a]	.573	.556	.43008

a. Predictors: (Constant), Project Communication

Analysis of variance (ANOVA) was applied to assess the fit of the regression model to the data. According to the findings presented in Table 4.27, the study revealed that Prob>F (1, 220) = 0.000, which is below the selected significance level of 0.05. This suggests that the model was suitable to predict the performance of road construction projects in Kenya. Moreover, the F-calculated value from the table (32.260) was greater than the F-critical value from the F-distribution tables (3.884), supporting the conclusion that project communication can be used to predict the performance of road construction projects in Kenya.

Table 4.27: Analysis of Variance for Project Communication

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.967	1	5.967	32.260	.000[b]
	Residual	40.7	220	.185		
	Total	46.667	221			

a. Dependent Variable: Performance of road construction projects
b. Predictors: (Constant), Project Communication

From the results in Table 4.28, the following regression model was fitted.

$$Y = 1.081 + 0.738\ X_4$$

(X_4 is Project Communication)

The coefficient results showed that the constant term had a coefficient of 1.081, suggesting that if project communication is held constant at zero, the performance of road construction projects in Kenya would be 1.081 units. Additionally, the results indicated that the project communication coefficient was 0.738, meaning that a unit

increase in project communication would result in a 73.8% improvement in the performance of road construction projects in Kenya. It was also noted that the P-value for project communication coefficient was 0.000, which is less than the set 0.05 significance level, indicating that project communication was significant.

Based on these results, the study rejected the null hypothesis and accepted the alternative hypothesis, concluding that there is a positive significant relationship between project communication and the performance of road construction projects in Kenya. The findings align with previous research. For example, a study by Mugo and Moronge (2018) investigated the factors influencing the performance of road construction projects in Kenya. The study found that effective project communication was a significant factor in determining project performance, and that communication between project stakeholders, such as contractors, clients, and government agencies, was positively associated with project success. Similarly, a study by Akintelu and Oyebola (2023) found that effective project communication led to enhanced project performance by facilitating coordination, collaboration, and timely decision-making.

Table 4.28: Beta Coefficients for Project Communication

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.081	0.127		8.512	.000
	Project communication	.738	.130	.757	5.680	.000

a. Dependent Variable: Performance of road construction projects

4.9 Multiple Regression Analysis

The study aimed to investigate the influence of project governance on the performance of road construction projects in Kenya. Using multiple regression analysis, the study examined the combined effects of project governance elements: strategic alignment, top management support, project risk management, and project communication on the performance of these projects. The findings were presented in three tables, discussed in the following sub-sections.

4.9.1 Model Summary

The model summary was used to determine the proportion of variation in the performance of road construction projects in Kenya that can be explained by changes in strategic alignment, top management support, project risk management, and project communication. The coefficient of determination (R-squared) was used to assess the predictive power of the model. The results, presented in Table 4.29, showed an R value of .864, indicating a strong positive relationship between the independent variables and the dependent variable. The R-squared value of .747 suggests that 74.7% of the variance in the dependent variable can be explained by the independent variables included in the model, while the adjusted R-squared value of .748 takes into account the number of predictors, suggesting that 74.8% of the variance in the dependent variable can be explained by the independent variables.

These findings align with previous literature that has established a positive relationship between strategic alignment and project performance (Nnadi & Oyama, 2023). Additionally, top management support and project portfolio management have been identified as crucial factors for successful project outcomes (Zaman, Nadeem, & Shahid, 2020). Further literature review has shown that top management support positively correlates with project performance (Kalnins *et al*., 2023). Moreover, research has highlighted that effective project communication among project team members and stakeholders is essential for successful project outcomes (Smith & Thomas, 2024). Finally, studies have also shown that risk management positively impacts project performance (Ali et al., 2019). Overall, the findings suggest that the independent variables included in the model are important predictors of the performance of road construction projects in Kenya.

Table 4.29: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.864[a]	.747	.748	.38021

a. Predictors: (Constant), strategic alignment, top management support, project risk management and project communication

4.9.2 Analysis of Variance

The ANOVA was used to determine whether the model was a good fit for the data. The results are as shown in Table 4.30. F calculated was 11.855 while the F critical was 2.413. The p value was 0.000. Since the F-calculated was greater than the F-critical and the p value 0.000 was less than 0.05, the model was considered as a good fit for the data. Therefore, the model can be used to predict the influence of strategic alignment, top management support, project risk management, and project communication on performance of road construction projects.

Table 4.30: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.208	4	1.802	11.855	.000[b]
	Residual	32.984	217	.152		
	Total	40.192	221			

a. Dependent Variable: Performance of road construction projects
b. Predictors: (Constant), strategic alignment, top management support, project risk management, and project communication

4.9.3 Beta Coefficients of the Study Variables

From the coefficients in Table 4.31, the following regression model was fitted;

$$Y = 0.255 + 0.289\ X_1 + 0.399\ X_2 + 0.366\ X_3 + 0.250\ X_4$$

Where Y is project performance*;* X_1 is strategic alignment; X_2 is top management support; X_3 is project risk management; and X_4 is project communication.

The constant term is 0.255, which means that when all other predictor variables are held constant, the expected value of the dependent variable is 0.255. The standardized coefficients indicate the strength and direction of the relationship between each predictor variable and the dependent variable, accounting for the effects of the other variables in the model.

The results show that strategic alignment has a positive coefficient of 0.289, indicating that a one-unit increase in strategic alignment corresponds to an increase in the

performance of road construction projects by 0.289 units. With a p-value of 0.012, which is less than the chosen level of significance of 0.05, this influence is significant. These findings align with Asadullah et al. (2019b), who highlighted the importance of effective strategic alignment in enhancing project success.

Top management support showed a positive coefficient of 0.399, indicating that a one-unit increase in top management support corresponds to an increase in the performance of road construction projects by 0.399 units. The p-value of 0.002, being less than the significance level of 0.05, indicates this influence is significant. This finding is consistent with Muller et al. (2015), which emphasized the role of top management support in ensuring project success by providing resources, setting priorities, and creating a supportive culture.

Positive unstandardized coefficient of 0.366 was found for project risk management, suggesting that a one-unit increase in project risk management leads to an increase in performance by 0.366 units. With a p-value of 0.005, less than the significance level of 0.05, this influence is significant, in agreement with Alsadi and Norhayatizakuan (2021) who highlighted the importance of project risk management in achieving project success.

Finally, project communication had a positive coefficient of 0.250, indicating that a one-unit increase in project communication corresponds to an increase in the performance of road construction projects by 0.250 units. The associated p-value (0.015) was less than selected level of significance (0.05) an indication that the influence of project communication on performance of road construction projects was significant. This finding is consistent with literature that highlights the importance of effective project communication in project success, including information sharing, stakeholder engagement, and conflict resolution (PMI, 2021).

Therefore, the findings suggest that strategic alignment, top management support, project risk management and project communication are significant predictors of performance of road construction projects in Kenya, with varying degrees of impact. Top management support had the highest impact followed by project risk management, strategic alignment, and lastly project communication.

Table 4.31: Beta Coefficients of Study Variables

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.255	0.064		3.984	0.000
	Strategic alignment	0.289	0.081	0.285	3.568	0.012
	Top management support	0.399	0.093	0.401	4.290	0.002
	Project risk management	0.366	0.113	0.360	3.239	0.005
	Project communication	0.250	0.066	0.251	3.788	0.015

a. Dependent Variable: Performance of road construction projects

4.10 Hierarchical Regression Model

A hierarchical regression model was conducted to test for the moderating effect, which helped to examine the fifth research hypothesis. The fifth objective of the study was to analyze the moderating effect of organizational culture on the relationship between project governance and the performance of road construction projects in Kenya. Consequently, the study performed a moderating effect regression analysis.

Ho5: There is no significant moderating effect of organizational culture on the relationship between project governance and performance of road construction projects in Kenya.

The study combined all four project governance variables (strategic alignment, top management support, project risk management, and project communication) to form a new variable, X. The study then used stepwise regression to establish the moderating effect of organizational culture (M) on the relationship between project governance (X) and the performance of road construction projects in Kenya (Y).

According to the model summary findings in Table 4.32, the first model, which is the regression between project governance (X) without a moderator and interaction, had an R-squared value of 0.693. This indicates that 69.3% of the variation in the performance of road construction projects in Kenya can be explained by changes in project governance. The p-value for the first model (0.000) was less than the selected level of significance (0.05) suggesting that the model was significant.

The findings in the second model which is project governance, organizational culture and interaction term (X*M) as predictors, the R-squared was 0.711. This implies that the introduction of organizational culture in the second model led to a 0.018 increase in R-squared, showing that organizational culture positively moderates the relationship between project governance and performance of road construction projects in Kenya. Research has shown that organization culture in beauracratic and highly hierarchical public organization only reinforces project governance. Research conceptualizes organizational culture as an embedded component of governance, integral to the functioning of internal controls, risk management and project-governance systems. Studies grounded in the COSO internal control framework emphasise that the control environment, comprising tone at the top, ethical values, managerial philosophy and institutional norms, is inseparable from organisational culture. In this view, culture constitutes the behavioural infrastructure through which governance is enacted.

Similar findings in public-sector governance research show that integrity norms, discipline, compliance habits, and shared values directly shape the effectiveness of government internal control systems. Within the project-governance literature, recent studies identify organisational culture, leadership behaviours, and organisational citizenship norms as key enablers of successful project governance: facilitating coordination, decision-making, reporting and risk processes. Here, culture is conceptualised as the "soft governance architecture" that strengthens or weakens the practical functioning of formal governance mechanisms.

Table 4.32: Model Summary for Moderation Effect

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.832[a]	.693	.634	.39019	.612	37.814	1	24	.000
2	.844[b]	.711	.672	.36941	.100	18.085	2	22	.038

a. Predictors: (Constant), project governance
b. Predictors: (Constant), project governance, organizational culture , X*M

From the model summary findings in Table 4.33, the F-calculated for the first model, was 37.814 and for the second model was 18.085. Since the F-calculated for the two

models were more than the F-critical, 3.884 (first model) and 2.650 (second model), the two models were good fit for the data. Also, the p-values for both models were less than 0.05 an indication that they were significant. Therefore, the model could be used in predicting the moderating effect of organizational culture on the relationship between project governance and performance of road construction projects in Kenya.

Table 4.33: ANOVA for Moderation Effect

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.366	1	6.366	37.814	.000[b]
	Residual	36.96	220	.168		
	Total	**43.326**	**221**			
2	Regression	7.404	3	2.468	18.085	.000[c]
	Residual	26.928	198	.136		
	Total	**34.332**	**221**			

a. Dependent Variable: Performance of road construction projects
b. Predictors: (Constant), project governance
c. Predictors: (Constant), project governance, organizational culture, X*M

Additionally, by substituting the beta values and the constant term from the coefficient findings in Table 4.34, the initial regression model was established as follows:

$$Y = 1.435 + 0.884\ X$$

By substituting the beta values and the constant term from Model 2 resulting from the second step in regression modeling, the following regression model was established

$$Y= 1.861 + 3.986\ X + 3.209\ M + 0.868\ X*M$$

Where X is project governance M is organizational culture, X*M is the interaction term between project governance and organizational culture and Y is Performance of road construction projects

In Model 1, the results indicate that project governance has a significant positive influence on the performance of road construction projects (Beta = .884, $p < .05$). In Model 2, the results show that both project governance (Beta = 3.989, $p = .002$) and organizational culture (Beta = 3.209, $p = .012$) have significant positive effects on the

performance of road construction projects. Additionally, the interaction effect between project governance and organizational culture (X*M) is also significant and positive (Beta = .868, p = .012).

These findings suggest that effective project governance and a positive organizational culture are important factors in enhancing the performance of road construction projects in Kenya. The positive interaction effect between project governance and organizational culture suggests that a positive organizational culture can amplify the positive impact of effective project governance practices on project performance. These findings are consistent with previous research in project management (Ahmeda et al., 2021), which underscores the importance of effective project governance and a positive organizational culture in achieving project success.

Table 4.34: Beta Coefficients for Moderation Effect

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.435	.544		2.638	.002
	Project governance	.884	.144	.782	6.149	.000
2	(Constant)	1.861	.379		4.910	.010
	Project governance	3.989	1.139	3.530	3.502	.002
	Organizational culture	3.209	1.168	2.066	2.746	.012
	X*M	.868	.315	3.878	2.752	.012

a. Dependent Variable: Performance of road construction projects

4.11 Optimal Model

The optimal regression model reveals that execution-oriented governance mechanisms are the most significant drivers of performance in Kenya's road construction projects. Specifically, top management support, project communication, and project risk management exhibit stronger explanatory power than formal strategic alignment. This finding indicates that, within the Kenyan road sector, project performance is shaped more by how governance is enacted during implementation than by the presence of formal strategic plans alone. In practice, this suggests that effective decision-making, timely communication, leadership commitment, and proactive risk handling play a

more decisive role in achieving cost, time, quality, and scope outcomes than strategic alignment that is weakly operationalised. Figure 4.5 shows the revised conceptual framework

This result provides important contextual and theoretical insight by demonstrating that, in developing-country public infrastructure settings, strong executional governance can compensate for relatively weaker strategic alignment. This supports and extends earlier arguments that governance effectiveness is contingent on institutional and environmental conditions rather than on idealised strategy-driven models (Osei-Kyei & Chan, 2017). In bureaucratic public-sector organisations characterised by layered approvals, political oversight, and resource constraints, executional capabilities enable projects to remain functional and adaptive despite strategic rigidity.

The optimal model further shows that organisational culture positively moderates the relationship between project governance and project performance, although its influence is moderate rather than dominant. This indicates that while organisational culture strengthens the effectiveness of governance mechanisms, it does not override formal structures and controls typical of public-sector organisations. This finding aligns with empirical evidence that cultural effects in bureaucratic environments tend to reinforce, rather than replace, formal governance systems (Ahmeda et al., 2021; Indinya et al., 2021). In this context, cultural attributes such as role clarity and task orientation enhance accountability, coordination, and problem-solving, thereby improving the effectiveness of execution-focused governance practices.

In summary, the optimal model underscores that improving road construction project performance in Kenya requires prioritising executional governance mechanisms supported by a conducive organisational culture. While strategic alignment remains important, its performance impact is realised primarily when translated into effective leadership action, communication flows, and risk management practices. These findings confirm that governance effectiveness in public road agencies is less about the existence of formal strategies and more about the institutional capacity to implement, adapt, and sustain governance practices throughout the project lifecycle.

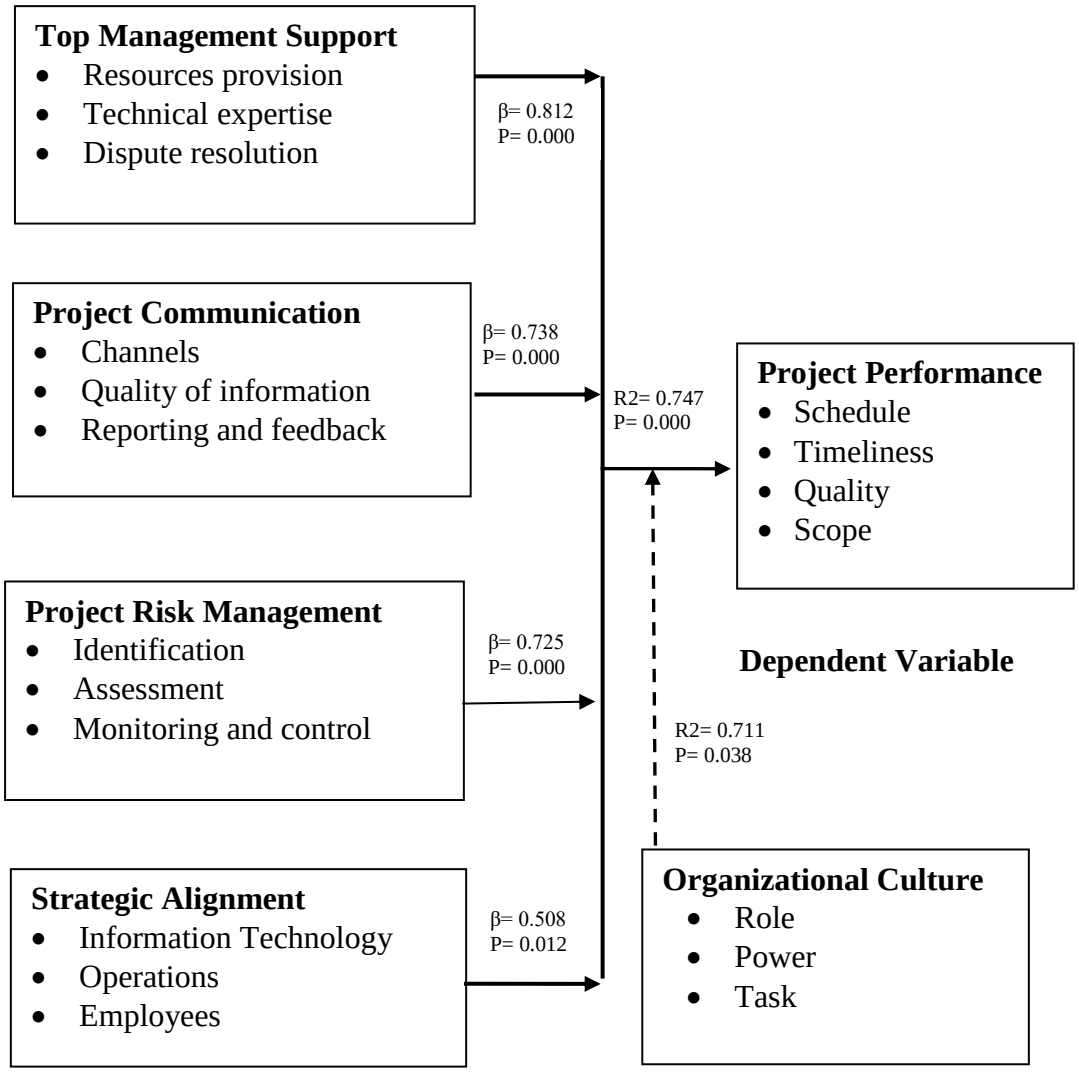

Figure 4.5: Revised Conceptual Framework

Source: (Author, 2024)

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the study's summary, conclusion, and recommendations based on its hypotheses. The primary focus of the research was to investigate how project governance affects the performance of road construction projects in Kenya.

5.2 Summary of Findings

The study's specific objectives, which are essential in guiding the research, are as follows: to determine the influence of strategic alignment on the performance of road construction projects in Kenya; to examine the impact of top management support on the performance of road construction projects in Kenya; to assess the effect of project risk management on the performance of road construction projects in Kenya; to explore the influence of project communication on the performance of road construction projects in Kenya; and to analyse the moderating effect of organisational culture on the relationship between project governance and performance of road construction projects in Kenya.

5.2.1 Strategic Alignment

The study found a positive and significant link between strategic alignment and the performance of road construction projects in Kenya, confirmed by the regression coefficient ($\beta = 0.508$, $p < 0.05$). This shows that when governance structures, institutional priorities, and operational processes are harmonised, project outcomes such as timeliness, cost efficiency, and quality compliance improve significantly. Strategic alignment thus acts as a fundamental governance mechanism, aligned with Contingency Theory, which suggests that organisational effectiveness is maximised when internal systems are adapted to current environmental conditions.

In the Kenyan road sector, strategic alignment is expressed through the integration of organizational vision, information technology infrastructure, operational planning, and

staff responsibilities with long-term national infrastructure goals. Agencies such as KeRRA, KURA, and KeNHA formally embed alignment through strategic plans, performance contracting, and sector-wide policy frameworks. However, the findings indicate a persistent gap between strategic intent and implementation practice.

A key aspect highlighted in this study is the alignment of Information Technology (IT) systems with institutional strategy. Digital platforms such as the Electronic Document Management System (EDMS), Road Management System (RMS), Intelligent Transport Systems (ITS), and evolving ERP modules have improved documentation accuracy, reporting transparency, and workflow efficiency. However, respondents pointed out that technology adoption often remains driven by compliance rather than strategic planning. System usage is inconsistent, mainly because implementation tends to be reactive to government directives and seldom guided by internal innovation or cross-departmental coordination. This has led to only partial integration of digital tools, especially in budgeting, scheduling, and risk tracking functions. In some instances, the lack of engineering expertise within IT units has caused disconnections between system capabilities and field-level technical needs, diminishing the strategic impact of digital transformation.

The study also found that operational alignment is vital for project success. Although project teams generally understood institutional strategies and performance contract indicators, operational alignment was often inconsistent. Political interference, shifting priorities, and budget limits frequently disrupted the logical flow of planning, procurement, and implementation. Rural roads projects were especially impacted, with respondents citing poor conceptualisation, scope gaps, and underestimated budgets as recurring issues. These findings highlight a structural disconnection between strategic plans and project implementation teams.

Employee alignment has emerged as a crucial factor for maintaining strategic coherence. Although staff showed moderate awareness of the agency's mission and strategic objectives, supported by cascading performance contracts and regular review forums, frontline technical personnel reported limited participation in early-stage project planning. This exclusion hampers their ability to influence realistic scheduling,

risk mitigation, stakeholder engagement, and resource allocation. Respondents also highlighted the importance of ongoing skill development in project cycle management, contract administration, and stakeholder coordination, confirming that alignment depends on continued investment in human capital rather than one-time awareness initiatives.

The empirical findings further demonstrate that strategic alignment improves inter-agency coordination, especially in multi-stakeholder or donor-funded projects. When strategic priorities are jointly established at the start, such projects show greater coherence, fewer design disruptions, and more consistent financial flows. In contrast, projects launched through ad-hoc political declarations or unstructured funding channels tend to experience fragmented planning, scope changes, and increased risk of cost overruns.

Overall, both qualitative and quantitative evidence show that strategic alignment within Kenya's road agencies is acknowledged but weakly institutionalised. Formal strategic plans exist, but operational realities such as political interference, administrative fragmentation, limited autonomy, and under-integrated digital systems hinder their implementation. Employees understand the strategic objectives but lack the empowerment, training, and resources needed to turn them into consistent results. As a result, alignment remains aspirational rather than fully embedded, limiting its ability to foster sustained improvement in project performance.

5.2.2 Top Management Support

The study confirmed a positive and significant link between top management support and the performance of road construction projects in Kenya, as demonstrated by its regression coefficient ($\beta = 0.812$, $p < 0.05$). Of all the governance dimensions analysed, top management support proved to be the most influential predictor of project outcomes. This highlights the crucial role that senior leadership plays in mobilising resources, aiding decision-making, resolving procedural delays, and ensuring project continuity, all of which ultimately influence whether infrastructure investments are completed within time, budget, and quality expectations.

A key aspect of top management support identified in this study is resource allocation, which continues to be a significant structural bottleneck in Kenya's road sector. Respondents observed that delays in fund disbursement, whether from the National Treasury or through internal agency approval processes, directly affect contractor payments, equipment mobilisation, material supply chains, and overall project momentum. These findings align with the Resource-Based View (RBV), which suggests that the availability, control, and strategic deployment of resources generate performance advantages. Projects where top management proactively secured, ring-fenced, or fast-tracked funding, especially in donor-supported initiatives, demonstrated significantly better schedule adherence, improved cash flow management, and stronger alignment with planned outputs.

Beyond financial stewardship, top management support was also evident through technical guidance and institutional decision-making. Projects benefiting from routine executive oversight, such as Board reviews, steering committee engagements, and high-level site visits, experienced faster resolution of disputes, clearer prioritisation, and more coherent alignment between technical and strategic directions. Interviewed senior managers repeatedly emphasised that escalations involving contractor disputes, design variations, or right-of-way challenges often required senior leadership authorisation for corrective interventions.

Leadership commitment to governance standards further influences performance through dispute resolution and compliance oversight. The study demonstrated that unresolved issues related to land acquisition, utility relocation, environmental claims, or contract interpretation often escalate when senior managers do not provide prompt mediation. In some cases, top leaders prioritised political harmony or institutional reputation over enforcing contractual provisions, leading to delayed arbitration and negative findings during audits by the Office of the Auditor General (OAG) or parliamentary committees.

The study also identified a pattern of "event-driven leadership," where executive involvement increases during crises such as parliamentary audits, EACC investigations, or politically motivated project openings, but remains minimal during

foundational stages like planning, risk assessment, and stakeholder mapping. This cyclical engagement damages continuity, weakens governance stability, and adds to performance fluctuations. Furthermore, frequent turnover in senior management caused by political transitions or administrative reshuffles disrupts institutional memory, strategic planning, and long-term project coherence.

Overall, the findings show that top management support functions both as the strongest enabler and a significant constraint to project performance within Kenya's road sector. While leadership intervention is essential for resource flow, dispute resolution, inter-agency coordination, and authorising technical action, these same centralised authority structures often cause delays, suppress initiative, and increase risk aversion among technical personnel. This duality highlights a broader governance paradox: the conflict between hierarchical control and the flexible decision-making needed for complex infrastructure delivery.

Unless leadership models evolve toward distributed governance, with clearer delegation, stabilized decision pathways, proactive resource assurance, and empowered mid-level management, the performance gains attributed to top management support will remain significant but uneven. Strengthening leadership systems and embedding collaborative governance approaches is therefore essential for consistent, predictable, and resilient project delivery across Kenya's road agencies.

5.2.3 Project Risk Management

The study found a positive and significant link between project risk management and the performance of road construction projects in Kenya, as indicated by the regression coefficient ($\beta = 0.725$, $p < 0.05$). This shows that systematic processes of risk identification, assessment, and mitigation are a key governance function that directly influence cost control, schedule adherence, and quality assurance. These results support the Enterprise Risk Management (ERM) Theory, which stresses that risks should be integrated into both strategic and operational activities rather than considered as separate technical issues. In Kenya's road agencies—KeRRA, KURA, and KeNHA—risk management practices were observed to exist in principle but remain inconsistent in quality, often reactive and fragmented. This situation leaves

projects vulnerable to unnecessary cost increases, contractual disputes, and delays in implementation.

A key empirical insight involved the fragmentation of risk ownership. Although most agencies keep risk registers, audit trails, and compliance reporting templates, these tools were seen as largely ceremonial—updated infrequently and rarely used as real decision-making tools during project implementation. Respondents observed that critical risks such as delayed Treasury disbursements, utility relocation problems, bad weather, and right-of-way disputes are seldom anticipated during planning.

The study further highlighted institutional weaknesses in structured risk assessment and prioritisation. Engineering teams routinely assess technical risks, yet enterprise-level risks—including regulatory changes, community resistance, environmental impacts, and contractor insolvency—are seldom subjected to probabilistic analysis or scenario modelling. This is particularly acute in rural road projects managed by KeRRA, where recurrent risks linked to land disputes, seasonal flooding, and local political dynamics require robust anticipatory strategies. Risk monitoring tools embedded in digital platforms such as RMS were found to be underutilised, largely due to insufficient staff training and weak integration of risk escalation into leadership decision-making.

Conversely, projects with effective risk governance exhibited clear evidence of forward-looking planning, such as contingency budgeting, stakeholder engagement strategies, predefined dispute resolution pathways, and transparent escalation procedures. These cases were seen in certain development partner funded projects, which benefit from strict risk planning frameworks and structured accountability mechanisms. However, such examples were rare and mostly linked to specific leadership styles rather than institutional policy frameworks.

The study also revealed that political and regulatory risks present greater threats to performance than technical risks. The involvement of multiple oversight bodies such as Parliament, the Ethics and Anti-Corruption Commission (EACC), and the Office of the Auditor General (OAG) creates procedural bottlenecks that delay procurement, slow approvals, and lead to increased contractor claims due to extended idle time.

Importantly, while quantitative results confirm the positive effect of risk management on performance, qualitative findings highlight a lack of institutional standardisation. Kenya's road agencies do not operate under a unified ERM framework; instead, each agency employs its own risk tools, leading to inconsistent approaches to contingency planning, monitoring, and escalation. Risk workshops, where conducted, are usually one-off events at the start of projects rather than ongoing processes aligned with emerging conditions. In ERM maturity terms, road agencies remain at an initial stage of development; aware of risks but lacking structured, continuous systems for proactive mitigation.

Overall, the evidence shows that risk management in Kenya's road agencies exists but is weakly institutionalised, leading to repeated exposure to foreseeable and preventable risks. The division of risk duties, coupled with politically motivated project beginnings, oversight issues, and limited environmental or stakeholder risk planning, greatly hampers performance outcomes.

In sum, Kenya's road agencies show partial ERM adoption, marked by high awareness but weak institutionalisation. Without standardised risk governance frameworks, project performance will stay inconsistent. This leaves agencies vulnerable to cost overruns, schedule delays, contractual disputes, and quality issues. Strengthening risk governance is therefore crucial for the dependable and sustainable delivery of road infrastructure projects.

5.2.4 Project Communication

The study found a positive and significant link between project communication and the performance of road construction projects in Kenya, as shown by its regression coefficient ($\beta = 0.738$, $p < 0.05$). This indicates that communication is a key factor in performance, directly reducing delays, rework, cost disputes, stakeholder conflicts, and coordination failures. In line with Communication Theory, which states that effective performance is achieved when messages are encoded, transmitted, decoded, and acknowledged with minimal distortion, communication in the road sector serves as the operational pathway through which planning, supervision, and governance decisions are translated into practical outcomes on site.

The study showed that communication systems are crucial for project governance. Agencies like KURA, KeRRA, and KeNHA have formal communication structures in place, including progress meetings, site diaries, reporting templates, and digital platforms such as RMS and EDMS. However, their use varies across different levels of the organisation. Communication at headquarters tends to be systematic and well documented.

Information quality has become a vital aspect of effective communication. Delays in approving design changes, extensions of time, or contractor claims were often due to poor documentation, unclear instructions, or overly cautious messaging around politically sensitive projects. While projects funded by development partners enforced stricter standards of documentation and communication, leading to more predictable outcomes, government-funded projects with flexible reporting norms showed greater variability in results. This highlights the importance of clarity, completeness, and accuracy in communication within governance systems.

The study also emphasised the importance of reporting mechanisms for project accountability and coordination. While monthly progress reports are officially mandated, they often serve more as routine submissions rather than strategic oversight tools. Field teams observed that risk indicators and progress updates included in their reports were frequently met with slow or no response from headquarters due to bureaucratic escalation channels. Conversely, projects employing real-time reporting dashboards, joint technical reviews, and integrated monitoring systems showed better alignment between emerging issues and managerial intervention. The findings underline that reporting should be regarded as an active governance tool that requires prompt managerial action, rather than merely a documentation exercise.

A key weakness identified in the communication ecosystem was the absence of effective feedback loops. Field teams consistently reported that communication was unidirectional, moving upward but not downward, in the form of guidance, decisions, or corrective actions. This one-way flow weakened motivation, fragmented accountability, and increased the gap between planning and implementation. In politically influenced rural roads projects, community-driven feedback often bypassed

formal channels entirely, undermining professional oversight and complicating claims management. The link between communication and organisational culture was especially evident. In agencies where leadership encouraged open dialogue, regular consultations, and participatory decision-making, communication acted as a performance enabler. However, in rigid hierarchical cultures, staff avoided slow command chains by relying on informal networks, creating parallel reporting structures and inconsistent messages.

Taken together, the findings show that despite having established formal communication mechanisms, effective communication during project execution remains hindered by bureaucratic delays, weak documentation, fragmented stakeholder engagement, over-reliance on informal modes of communication, and limited anticipatory guidance. These gaps increase project delays, fuel contractual disputes, and complicate risk management.

The Kenyan experience highlights a wider challenge common in hierarchical and risk-averse public institutions: the difficulty of turning formal communication protocols into consistent, meaningful practice. To improve project performance, road agencies must strengthen communication governance by establishing structured reporting, enhancing documentation standards, decentralising communication decision-making, adopting integrated digital platforms, and embedding structured stakeholder engagement throughout the entire project lifecycle. Without these systemic reforms, communication will remain a barrier to fully realising the benefits of project governance reforms.

5.2.5 Moderating Role of Organizational Culture

The study found that organisational culture significantly influences how project governance practices impact the performance of road construction projects in Kenya, evidenced by the positive and significant interaction effect. Although the level of moderation was moderate, the findings highlight that governance mechanisms such as strategic alignment, top management support, risk management, and communication do not affect project performance on their own. Their effectiveness is either bolstered or diminished by the cultural environment within the implementing agencies. In

Kenya's road sector, this means that the cultural context determines whether governance mechanisms actively drive performance or remain merely symbolic administrative routines.

Kenyan road agencies exhibit a mix of role culture and task culture. Role culture, characterised by hierarchy, strict adherence to procedures, and formalised accountability, remains dominant in institutions such as KURA, KeRRA, and KeNHA. While role culture supports procedural compliance and consistent interpretation of governance protocols, it limits adaptive decision-making, quick problem-solving, and cross-functional collaboration. Projects within rigid cultural frameworks tend to follow governance requirements but face difficulties with disruptions like land disputes, political budget shifts, environmental claims, or contractor insolvency due to their procedural rigidity.

Conversely, task-oriented culture, was also evident especially in development partner funded projects and Project Management Units (PMUs) which fostered more agile, collaborative, and innovation-friendly work environments. These settings encouraged early issue escalation, direct communication with contractors, cross-disciplinary teamwork, and systematic stakeholder coordination. Consequently, task-oriented cultures consistently showed stronger delivery performance, confirming that culture can enhance the operational impact of governance mechanisms.

The study further revealed that organisational culture actively influences the implementation of the four governance pillars. Strategic alignment becomes effective only when cultural norms foster a shared vision, collaboration, and consistent execution. Top management support is most successful when leadership demonstrates transparency, trust, and participatory engagement rather than autocratic control. Risk management practices are enhanced in cultures that reward proactive identification of vulnerabilities instead of penalising exposure of weaknesses. Similarly, communication systems work best where cultural norms encourage openness, prompt reporting, and horizontal information flow rather than rigid bureaucratic hierarchies.

The study findings indicate that organisational culture is not a passive backdrop where governance mechanisms function but an active factor influencing their effectiveness.

Role culture promotes stability, procedural integrity, and accountability but also limits creativity, autonomy, and swift responses, which are essential attributes for navigating dynamic implementation environments. Informal cultural practices, including uneven workload distribution and patronage ("blue-eyed-boy system"), further distort governance execution.

In sum, the findings confirm that cultural moderation is a vital pathway through which governance influences performance in Kenya's road construction sector. Without intentional cultural transformation towards more empowered, collaborative, and adaptable work environments, improvements in formal governance systems, no matter how advanced, will continue to yield inconsistent and uneven performance outcomes. Organisational culture must therefore be recognised not merely as a contextual factor but as a strategic tool essential to unlocking the full potential of governance reforms.

5.3 Conclusions

The primary aim of this study was to explore the relationship between project governance and the performance of road construction projects in Kenya, focussing on four core aspects of governance: strategic alignment, top management support, project risk management, and project communication, while also evaluating the moderating influence of organisational culture. The empirical evidence showed that project governance is not a marginal administrative task but the key factor determining project outcomes within Kenya's public infrastructure sector. With significant explanatory power, the study confirms that nearly three-quarters of the variation in project performance can be attributed to governance-related practices, emphasising that performance issues in the Kenyan road sector stem less from technical shortcomings and more from institutional governance dynamics.

The study concludes that strategic alignment is essential for project performance because it maintains the consistency of institutional priorities, resource distribution, and project selection. Projects that are guided by strategic alignment, linking organisational mission, digital platforms, and operational planning, showed greater resilience to disruption and higher efficiency in delivery. However, strategic alignment is often applied in a structural form rather than a behavioural one, frequently driven by

compliance rather than visionary leadership. The study therefore emphasises that long-term infrastructure success relies on integrating strategic thinking into daily project decision-making, moving beyond mere procedural compliance with strategic plans and performance contracts.

Top management support emerged as the most important predictor of project performance, emphasising that leadership commitment is the keystone upon which governance effectiveness depends. The study concludes that executive leadership in Kenya's road sector plays a crucial role not only in policy formulation but also in operational legitimacy, facilitating financial disbursements, resolving disputes, mobilising inter-agency coordination, and ensuring accountability. Leadership gaps, evidenced by delayed approvals, politicised prioritisation, and sporadic engagement, were consistently linked to cost increases and schedule delays. Consequently, the study states that governance frameworks need to be leadership-driven to effectively translate institutional policies into on-the-ground performance.

The study further concludes that project risk management is both an institutional necessity and a test of governance maturity. While risk management was found to improve performance significantly, it remains reactive, event-driven, and fragmented across Kenya's road agencies. The absence of enterprise-level risk frameworks, proactive contingency planning, and continuous risk tracking results in operational vulnerability. The study thus affirms that governance reform in the sector must shift from risk avoidance to risk anticipation, integrating risk registers, scenario simulations, and real-time early warning systems as standard infrastructure governance practices.

Project communication was also identified as a vital governance mechanism, emphasising that performance depends not only on decisions made but also on how those decisions are communicated, understood, and implemented. The study concludes that communication failures characterised by vague directives, delayed feedback, and inconsistent reporting create governance blind spots that weaken delivery discipline. Effective governance requires organised, mutual, and transparent communication

frameworks, bridging the gap between institutional headquarters and field project teams, and progressing beyond one-way reporting to interactive problem-solving.

Finally, the study concludes that organisational culture acts as the explanatory component of project governance. Although its moderating effect was moderate, its influence on performance is significant as it determines whether governance practices are internally embraced or externally imposed. Cultures driven by hierarchy and compliance hinder innovation and slow decision-making, while cultures based on accountability, teamwork, and meritocracy allow governance systems to operate most effectively. Therefore, governance transformation is incomplete without cultural reform that incorporates values of transparency, professional autonomy, and collaborative leadership.

Broadly, the study concludes that the performance of road construction projects in Kenya is not merely a technical engineering issue, but an issue of governance paradigms. Project success requires strong alignment between institutional vision, executive leadership, operational risk logic, and communicative integrity, all moderated by a culture that either supports or resists reform. The findings contribute significantly to existing literature by showing that governance variables have interdependent and cumulative effects, especially in public-sector megaprojects in developing economies.

5.4 Recommendations of Policy and Practice

The study findings emphasise that governance levers, namely strategic alignment, top management support, project risk management, and communication, function most effectively when embedded within a supportive organisational culture characterised by collaboration, accountability, and a learning orientation. Policy efforts should therefore aim to strengthen both formal and informal mechanisms that drive project execution. Specifically, policymakers and implementing agencies in the road sector should seek to institutionalise robust governance structures that promote transparency, stakeholder participation, and oversight throughout the project lifecycle.

At the same time, these governance systems should be complemented by deliberate efforts to cultivate enabling organisational cultures that promote teamwork, open communication, and shared responsibility. Reforming governance frameworks without addressing cultural aspects often leads to underperformance; thus, policy interventions should be dual-focused, integrating governance capacity building with initiatives that shape values, beliefs, and behavioural norms across road agencies such as KURA, KeRRA, and KeNHA. Embedding such cultural reinforcement mechanisms in governance reforms will enhance coordination, responsiveness, and ethical conduct, resulting in improved efficiency, quality, timeliness, and sustainability in road project delivery.

From a theoretical perspective, this study makes significant contributions to project governance theory and its contextual application. First, it broadens governance theory beyond individual project boundaries to include the programme and portfolio levels where strategic coherence, accountability, and resource alignment are managed. This wider perspective shows how governance functions as a system of interconnected controls and relationships rather than as isolated project-specific mechanisms. Second, the study emphasises the moderating influence of organisational culture in strengthening the connection between governance and performance.

The empirical evidence demonstrates that while governance structures offer direction and accountability, their effectiveness largely depends on the cultural context, especially in bureaucratic public-sector environments where hierarchical traditions may hinder adaptive learning and collaboration. Furthermore, by placing these findings within a developing-country setting, the study enhances the literature by showing how governance practices interact with institutional realities such as limited resources, political interference, and weak enforcement frameworks. Therefore, the research reveals that in such contexts, executional and cultural dimensions can together compensate for weaker formal structures, thereby extending governance theory in a more context-sensitive manner.

The study established that strategic alignment is vital for the successful delivery of road construction projects in Kenya. Therefore, it recommends enhancing ERP

systems, proactively adopting new technologies, and ensuring IT leaders possess a technical background to improve strategic alignment. Regular evaluations should ensure operations align with organisational objectives. Comprehensive planning and data analytics should be integrated into the project cycle to reduce cost overruns. Political interference in project processes should be addressed. Performance contracts should be updated to motivate and reward high performers. More resources should be allocated to ongoing staff training in critical areas. Recruitment practices should be improved to ensure staff are hired and deployed based on their technical skills and project requirements.

The study emphasised the vital role of top management support in successfully delivering road construction projects in Kenya. Therefore, it recommends that top management provide visible and consistent backing for projects, especially regarding resource allocation and guidance. Additionally, it is crucial for top management to ensure that there are sufficient and qualified human resources available for project tasks to improve performance. Furthermore, top management should allocate resources to prevent and resolve disputes. Adequate financial resources should be designated to cover the scope of road construction projects. Training programmes for technical staff should be expanded to address skills gaps and boost performance. Resources should also be allocated to promote innovations within projects. Internal dispute resolution mechanisms should be established to handle internal conflicts efficiently. Lastly, top management should be encouraged to actively monitor projects and engage with stakeholders to minimise conflicts and ensure the successful completion of projects.

The study found that project risk management is a vital factor for the success of road construction projects in Kenya. Therefore, it is recommended that organisations invest in building project risk management skills and technical expertise, especially in areas such as risk identification, risk assessment, and risk monitoring and control. Organisations should adopt a comprehensive and integrated approach to project risk management that covers identifying, assessing, mitigating, and monitoring risks throughout all project phases. This proactive approach helps to spot potential issues early and enables timely adjustments to reduce negative impacts. All road authorities

ought to develop and regularly update detailed risk management frameworks. Fostering a culture of risk management and reporting across all organisational levels is crucial. Sufficient financial, technological, and human resources should be allocated for effective risk management. Regular training on risk management practices should be provided to staff, promoting continuous improvement. Mechanisms should be put in place to identify and manage emerging risks promptly, preventing project delays and extra costs.

The study found that effective project communication is crucial for successfully delivering road construction projects in Kenya. Therefore, it is advised that organisations should establish clear communication channels and protocols for project teams and stakeholders. This includes regular status updates, clear and concise project documentation, and effective stakeholder engagement. Improving communication practices by promoting efficient internal and external channels, such as memos, meetings, and verified digital platforms like WhatsApp, is essential. Continuing to use ‘before and after’ photographs, regular progress meetings, and inspections to verify information accuracy remains vital. Clear and frequent communication with stakeholders should be maintained to address their concerns and build support. Regularly sharing information about potential risks and their effects is necessary to develop effective management strategies.

The study found that organisational culture can significantly influence the success of road construction projects in Kenya. Therefore, it is advised that organisations adopt shared governance models where decisions are made collectively by representatives from different departments or units, ensuring decisions better reflect the organisation rather than a select few. Organisations should avoid favouritism when allocating duties, instead basing decisions on an individual's education, interest, and experience. Power within the organisation should be decentralised to promote collaboration and innovation. Change management strategies should be developed and implemented to address operational overlaps and resistance to change. Tasks should be fairly distributed to prevent favouritism and foster internal collaboration. A culture of innovation, transparency, and accountability should be encouraged to improve project

governance and performance. Open and honest communication practices should be promoted to enhance collaboration and decision-making.

The primary aim of the study was to assess how project governance affects the performance of road construction projects in Kenya. It recommends establishing and applying clear guidelines for estimating project duration and costs. Using comprehensive monitoring tools like the Earned Value (EV) can improve management of time and costs. Making sure payments to contractors are made promptly is crucial to prevent delays. Planning procedures and contract documents should be improved to minimise scope variations and design modifications. Ongoing monitoring and quality assurance through regular audits and progress reports are essential. Transparent communication with stakeholders about the project's status, delays, and costs is vital to strengthen stakeholder engagement.

5.5 Contribution to Existing Theory

This study contributes to theory by demonstrating that the effectiveness of project governance mechanisms in public-sector road construction projects is conditional rather than universal. While strategic alignment, top management support, project risk management, and project communication are all positively related to project performance, their influence varies in strength and significance, challenging linear “best practice” assumptions in project governance theory.

The study advances governance theory by showing that executional governance mechanisms particularly top management support, communication, and risk management are more influential than formal strategic alignment in bureaucratic public-sector contexts. This highlights the dominance of execution over strategy in developing-country environments where institutional constraints limit the effectiveness of formal planning.

By empirically modelling organisational culture as a moderating variable, the study shows that culture actively conditions governance effectiveness, simultaneously enabling compliance-based controls while constraining flexibility and innovation.

Cultural effects are significant but moderate, indicating that culture reinforces, rather than replaces, formal governance mechanisms.

Collectively, the study reframes project governance as a contextually embedded and culturally mediated process, offering a more realistic theoretical explanation for performance variation in public infrastructure projects, particularly in developing and transitional economies.

5.6 Areas for Further Research

Based on the findings and acknowledged limitations of this study, several avenues for future research emerge. First, since the study was limited to road construction projects within Kenya, further research could expand the investigation to other industries, such as energy, water, housing, or ICT infrastructure, and to different national or regional contexts. Such comparative studies would help determine the extent to which the relationships between strategic alignment, top management support, project risk management, project communication, organisational culture, and project performance are specific to certain contexts or applicable across sectors and regions.

Second, this study mainly examined the immediate effects of project governance variables on project performance. Future research could use longitudinal designs to evaluate the long-term and post-completion impacts of these governance mechanisms, including asset sustainability, lifecycle costs, service quality, and institutional learning. Additionally, although this study examined organisational culture as a moderating variable, further research could explore both mediating and alternative moderating mechanisms. Potential mediators include team dynamics, employee motivation, leadership styles, and organisational structure; other moderators, such as project complexity, size, scope, and procurement mode, could also be examined.

Finally, future studies could expand the governance perspective by analysing normative governance principles, especially the OECD principles of transparency, accountability, responsibility, and fairness, to deepen understanding of how governance values and structures collectively influence project performance in public-sector projects.

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APPENDICES

Appendix I: Introduction Letter from JKUAT

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY

NAIROBI CBD CAMPUS
Department of Entrepreneurship and Procurement

P.O. Box 62000
NAIROBI – 00200
KENYA

TEL: 020-2211306
Email: epdnchd@jkuat.ac.ke

Ref: JKU/6/3/17a **Date: 18th November 2022**

TO WHOM IT MAY CONCERN

SUBJECT: PETER PATU GICHOHI – HD417-C003 - 1833/2015

This is to introduce to you **Mr. Peter Patu Gichohi** who is a student pursuing his Doctor of Philosophy in Project Management at Jomo Kenyatta University of Agriculture and Technology, Nairobi CBD Campus. The student is currently undertaking research thesis entitled **"Project Governance and Performance of Roads Construction Projects in Kenya"** in partial fulfillment of the requirement for the degree program.

The purpose of this letter is to request you to give the student the necessary support and assistance to enable him obtain necessary data for the project. Please note that the information given is purely for academic purpose and will be treated with strict confidence.

Yours faithfully,

JKUAT NAIROBI CBD CAMPUS
www.jkuat.ac.ke
P.O Box 62000 - 00200, NAIROBI
18 NOV 2022
ACOD, EPD DEPARTMENT

DR. MARY KAMAARA (Ph.D)
Ag. ASSOCIATE CHAIRPERSON, EPD

Appendix II: Questionnaire

Part A: Demographic Information

Please complete the following biographical information. This information will only be used for statistical purposes.

1. Please state your organization

KeNHA [ ]

KeRRA [ ]

KURA [ ]

2. Please indicate your age bracket

20-29 years [ ]

30-39 years [ ]

40-49 years [ ]

Above 50 years [ ]

3. State the number of years you have worked in road construction projects?

Less than 4 years [ ]

4-10 years [ ]

Above 10 years [ ]

4. Please indicate your level of education

PhD [ ]

Masters [ ]

Bachelor's degree [ ]

Diploma [ ]

Certificate [ ]

Section B: Strategic Alignment

Please indicate your level of agreement with the following statements on Strategic Alignment of road construction projects. Please kindly tick (√) in the appropriate space that represents your opinion. Use the scale: **Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5)**

Statements.	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
IT Alignment					
Use of information technology support the overall strategic objectives of road projects					
The Authority ensures adoption of the right IT infrastructure to enhance performance of road projects					
Am satisfied with the level of IT alignment with the set goals in road projects					
The IT architecture of road projects accommodates future scalability and adaptability requirements					
Operations Alignment					
Our organization ensures all operations are in line with the set goals in the road projects					
Operations alignment facilitates performance of road projects					
The operational plans and strategies are adaptable to address unforeseen challenges and changes in road construction projects					
Our organization ensures flexibility in operations to accommodate any changes during implementation of road projects					
Employees alignment					

Project team members understand the overall goals and objectives of the road projects they are involved in					
Project team members are aware of their specific roles, responsibilities, and deliverables in the road construction projects					
Project team members feel empowered and encouraged to contribute their ideas and suggestions for process improvement in road projects					
The authority ensures project teams are operating in their area of specialization to improve their productivity hence project success					

How else do you think strategic alignment affect performance of road construction projects in Kenya?

……

……

……

……

Section C: Top Management Support

Please indicate your level of agreement with the following statements on top management support on road projects. Please kindly tick (√) in the appropriate space that represents your opinion. Use the scale: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5)

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Resources Provision					
Top management provide adequate resources for successful implementation of the projects					
Top management provided adequate resources to encourage a supportive stakeholder environment for successful projects completion.					

Top management ensure availability of necessary resources to support project teams during crises					
Top management provide adequate resources to facilitate system adaptations in the organization.					
Technical Expertise					
Top management possesses relevant technical expertise and experience in project management					
Top management often recognized the changes and implications related to project implementation					
Top management recognized the power and interest of stakeholders around the project					
Top management motivated the project team to achieve project objectives and enhance organizational performance.					
Dispute Resolution					
Top management protect the project team members fallout by solving arising disputes					
Top management investigates the source of disputes in order to find an acceptable solution					
Top management use joint problem solving as dispute resolution strategy					
Top management exercise its authority to resolve arising disputes.					

How else do you think top management support affect performance of road construction projects in Kenya?

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Section D: Project Risk Management

Please indicate your level of agreement with the following statements on project risk management of road projects. Please kindly tick (√) in the appropriate space that

represents your opinion. Use the scale: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5).

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Risk Identification					
The authority ensures potential risks and uncertainties on road projects are identified and documented					
Project team members are actively involved in the identification of risks related to road projects					
The authority ensures external factors such as weather conditions, regulatory changes, and political stability are considered in the risk identification process					
Risk Assessment					
Risks are assessed in terms of their potential impact on the successful completion of road projects					
Risks are assessed based on their likelihood of occurrence in road projects					
Project team members use quantitative and/or qualitative methods to assess the magnitude of risks in road projects					
Risk Monitoring and Control					
The authority ensures that risk mitigation measures are effective implemented and monitored to ensure their effectiveness in addressing identified risks					
Project team members regularly review and update risk registers to reflect the current status and progress of risk management activities in road projects					
The authority ensures response strategies are reviewed and updated to address evolving risks in road projects					

How else do you think project risk management affect performance of road construction projects in Kenya?

……

……

……

Section E: Project Communication

Please indicate your level of agreement with the following statements on project communication on road projects. Please kindly tick (√) in the appropriate space that represents your opinion. Use the scale: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5)

	Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Communication Channels					
Formal and informal forms of communications are usually used during project implementation					
There is top-down (leaders to subordinates) hierarchical structure and chain of command that is used in communication					
We usually identify communication channels soon so that the channel and information being passed are consistent					
Quality of Information					
There is effective and regular communication among the stakeholders					
Top management possesses relevant technical expertise in managing communication					
Proper communication strategies helps enhance effective flow of information throughout the project					
Feedback and Reporting					
Top management effectively communicated with the stakeholders to enhance organizational efficiency					
Top management continuously communicated and discussed implications of the project with various groups of stakeholders					

There is frequent reporting on project progress					

How else do you think project communication affect performance of road construction projects in Kenya?

……

……

Section F: Organizational Culture

Please indicate your level of agreement with the following statements on organizational culture on performance of road construction projects. Please kindly tick (√) in the appropriate space that represents your opinion. Use the scale: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5).

	Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Role Culture					
In my organization, roles are delegated according to individual education qualification and specialization					
When assigning tasks, individual educational qualification and interests are considered					
Individuals have authority in positions they occupy					
Power Culture					
In my organization, power remains in the hands of few individuals					
Decision making in my organization is made by few individuals who have power					
Subordinates in my organization have to strictly follow their superior's instructions					
Task Culture					
In my organization, teams are formed to achieve set targets					
In my organization, critical problems are solved in teams					

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Team members in my organization have to contribute equally to accomplish tasks					
My organization depends on teamwork to produce results					

How else do you think organizational culture affect project governance on performance of road construction projects in Kenya?

……

……

Section G: Performance of Road Projects

Please indicate your level of agreement with the following statements on performance of road construction projects. Please kindly tick (√) in the appropriate space that represents your opinion. Use the **scale**: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5).

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Timely Completion					
Projects are finished on time.					
Projects activities were carried out as scheduled.					
Completion Within Specified Cost					
The projects are finished within budget.					
There are no project cost overrun incurred					
Completion Within Specified Quality					
The project quality was satisfactory					
Stakeholders are satisfied with completed projects					
Baseline Scope Adherence					

The projects was completed as per the defined scope					
Project execution adheres to all of a project's key elements.					

Thank You for Participating

Appendix III: Interview Guide for Top Management

Section I: Preliminaries

Name of Top Management Staff……

Road Authority……

How long have you served as a member of top management?.....

Section II: Strategic Alignment and Project Performance

From your experience, how does strategic alignment (employee, Information Technology, operational) impact project success?.....

What metrics do you use to evaluate the effect of strategic alignment on project performance?.....

Can you share an example where enhanced strategic alignment led to improved project outcomes?.....
.

Section III: Top Management Support and Project Performance

In your experience, how does top management support influence overall project success?.....

What metrics do you use to evaluate the impact of management support on project performance?.....

Can you provide a case study where strong management support led to exceptional project results?.....
.

Section IV: Risk Management and Project Performance

Based on your experience, how does effective risk management correlate with project success?.....

What metrics do you use to assess the impact of risk management on project performance?.....

Can you share an example where strong risk management practices led to exceptional project outcomes?.....
.

Section V: Project Communication and Project Performance

In your experience, how do effective communication practices correlate with project success?.....

Can you provide specific examples where improved communication led to better projectperformance?.....
.....

What metrics do you use to measure the impact of communication on project outcomes?.....
.....

Section VI: Organizational Culture

In your experience, how do different cultural types (role, power, task) correlate with project success?.....
.....

Can you share specific metrics or indicators that demonstrate the impact of organizational culture on project performance?.....

How does the organization adapt its culture to improve project outcomes?.....
.

Section VII: Project Performance

1) Timely Completion

i) Scheduling Practices

How do you develop project schedules to ensure timely completion?.....

What tools or methodologies do you use to track progress against the schedule?.....

ii) Handling Delays

Can you describe a situation where a project faced delays? What steps were taken to mitigate them?.....
...

How do you communicate delays to stakeholders, and what strategies do you use to keep them informed?.....
.....

2) Time Management Techniques

What time management techniques do you find most effective in your projects?.....
.

How do you prioritize tasks to ensure deadlines are met?.....

3) Completion within Specified Cost

i) Budgeting Process

How do you create and manage project budgets?.....
.....

What factors do you consider when estimating costs?.....
.....

ii) Cost Control Measures

What measures do you implement to control costs throughout the project lifecycle?.....
.

Can you provide an example of a project where you successfully managed to stay within budget?.....
.

iii) Handling Budget Overruns

How do you address situations where costs exceed the initial budget?.....
.

What communication strategies do you use to inform stakeholders about budget
changes?.....

4) Completion within Specified Quality

i) Quality Standards

What quality standards or benchmarks do you establish for your projects?.....
.

How do you ensure that these standards are communicated to the team?.....
.

ii) Quality Assurance Processes

What quality assurance processes do you have in place to monitor project deliverables?.....
.

Can you share an example of how quality issues were identified and resolved during a project?.....

iii) Feedback Mechanisms

How do you gather feedback on the quality of project outcomes from stakeholders?.....

What role does team feedback play in maintaining quality standards?.....

5) Baseline Scope Adherence

i) Scope Definition

How do you define and document project scope at the outset?.....
.

What processes do you use to ensure that all stakeholders agree on the scope?.....

ii) Managing Scope Changes

How do you handle requests for changes to the project scope?.....

Can you provide an example of a time when scope changes impacted project performance? How did you manage it?.....

iii) Monitoring Scope Adherence

What tools or techniques do you use to monitor adherence to the baseline scope?.....

How do you communicate scope adherence or deviations to the project team and
stakeholders?.....

Appendix IV: Secondary Data Collection Tool

Secondary data on performance of road construction projects was collected from Quality Assurance, Monitoring and Evaluation and Internal Audit reports from the three road agencies.

Road Authority	S/No	Road name	Cost overrun	Time overrun	Cost of defects	Description of variation (if any)
KURA						
KeRRA						
KeNHA						

Appendix V: List of Road Projects

KURA PROJECTS	
County	Project Description
Nairobi	Completion of Utawala Area Roads
Nairobi	Dualling of Ngong Road (Dagoretti Corner - Karen Roundabout Section)
Kiambu	Opening of Corridor for Gatundu Town Roads
Kiambu/Murang'a	Construction of Thika Bypass
Tana River	Opening of Corridor for Garsen Town Roads
Mandera	Upgrading to Bitumen Standards of Mandera Town Roads
Marsabit	Corridor Opening and Upgrading to Bitumen Standards of Goromuda (Moyale Boys Junction - Moyale Water Office) Road
Nairobi	Upgrading of Lucky Summer - Gitwamba - Kasarani Mwiki Road
Kiambu	Construction of Githurai - Kimbo Road (Phase III)
Nairobi	Construction to Bitumen standard of Rhino Park & other access roads
Nairobi	Rehabilitation of Kasarani - Mwiki Road
Mwingi	Completion of Mwingi Township Roads
Narok	Construction of Narok Town Roads
Nyeri	Upgrading to Bitumen Standards of Othaya Town Roads
Marsabit	Upgrading to Bitumen Standards of Marsabit County Headquater Roads
Meru	Upgrading of Roads in Meru County Headquarters
Garissa	Improvement to Bitumen Standards of A3 Jn - Bulla Madina - Sankuri - Kengen Road in Garissa County
Nyeri	Upgrading to Bitumen Standards of Othaya Level 6 Hospital Access Roads
Kirinyaga	Upgrading to Bitumen Standards of Kirinyaga Town Roads
Nairobi	Improvement of Nairobi Roads Lot 2 (Part of Likoni Road Enterprise Road and Shreeji Road
Nairobi	Improvement of Nairobi Roads Lot 1 (Part of Missing Link 12)
Nairobi	Construction of Valley Road/Ngong Road/Nyerere Road Interchange and Upperhill Overpasses
Kisumu	Upgrading of Tom Mboya Estate Roads
Nakuru	Improvement of Nakuru Chief's Office - Ndaragu River Road
Machakos	Upgrading to Bitumen Standards of Mlolongo - Athi River Joska Road
Nakuru	Improvement of Mother Kelvin Road
Nairobi	Rehabilitation of Innercore Estate Roads
Nairobi	Construction of Ngong Road Footbridges
Murang'a	Upgrading to Bitumen Standards of Mukuyu - Kambwe - Sewerage Road in Murang'a
Nyeri	Upgrading to Bitumen Standards of Nyeri Town Roads

Kiambu	Rehabilitation of Thika Town roads
Kajiado	Construction of Kajiado Town Roads Phase I
Nairobi	Improvement of Access Roads to Starehe Affordable Housing Project
Nairobi	Improvement of Affordable Housing Access Roads in Shauri Moyo
Nairobi	Construction of Ruai (Housing Project) Roads
Nairobi	Upgrading to Bitumen Standard of Mariguini (Housing Project) Roads
Nairobi	Access to Park Road Housing Project
Machakos	Upgrading To Bitumen Standards of Roads within East Africa Portland Housing Scheme in Machakos County
Machakos	Upgrading to Bitumen Standard of Mombasa Road(Devki)-Kinanie Park/Kinanie Leather Park Machakos County
Homabay	Homabay Town Roads Phase 1
Machakos	Upgrading to Bitumen Standards of Mwanyani Katoloni Road
Kwale	Upgrading to Bitumen Standard of Kwale and Ukunda Township Roads
Embu	Construction of Access to Embu University
Nakuru	Kipangawau - Kibowen Pry - Access/Mwiriki Sec School-Pembe Mbili- Eldoret
Kisii	Construction of Kisii By-Pass Phase II
Wajir	Construction of Tarbaj Town Roads in Wajir County
West Pokot	Upgrading to Bitumen Standards Kapenguria Town Roads West Pokot County
Nairobi	Access to Donholm Phase 8
West Pokot	Upgrading to Bitumen Standards of Tartar Junction-Kamuino Chewoyet-Sakas in West Pokot County
Machakos	Access to Stoni Athi Housing Project
Muranga	Upgrading to Bitumen Standards of Kigumo Town Roads
Nakuru	Construction of Access Roads to Maai Mahiu and Suswa SGR Stations
Nairobi/Kiambu	Dualling of Nairobi Eastern Bypass (From Baraka Roundabout to Ruiru/Kamiti Junction)
Wajir	Construction of Bute Town Roads
Mandera	Construction of Banisa Township Roads
Wajir	Construction of Eldas Township Roads
Wajir	Construction of Habaswein Township Roads
Mandera	Upgrading to Bitumen Standards of Mandera Town Roads Phase II
Nairobi	Improvement of Access to Kibera Housing Project
Kiambu	Dualling of United Nations Avenue (UN Avenue/Limuru Road Junction-Northern Bypass
Kiambu	Dualling of Limuru Road Phase I (Forest Road Junction-Muthaiga Road Junction)

Source: https://kura.go.ke/urban-roads-status-data/

KeRRA Projects
Projects by County
Baringo
Kabartonjo - (Up) Kipsaraman - Kinyach - Arror Kipsaraman - Kinyach Section) Road
Marigat-Muchongoi-Karandi, Ol Ngarua-Muhotetu-Jnct C77 & Muhotetu-Sipili Roads
Oinamoi-Kapluk- Barwessa
Bomet
Daraja Sita- Dikirr- Chebole-Labotiet (D233 & D234)
Jn C24 (Tengecha) Koiwa - Kaptebeng' Wet&Koiwa - Cheptalal - Sotit - Kaptebeng' Wet -Chebangang - Kimulot - Changoi (Jn 23) Roads
Silibwet - Merigi - Kapkimolwa - Jnc B3 / Longisa - kembu - Hemaner - Tegat - jnc D236
Soimet - Kapletundo- Mogogosiek & Kapletundo -Kapngoken-Kilgoris-Olososayiet Roads
Teganda - Ndaraweta - Isaik -Sigorwet - Leldaret Road
Bomet/Nandi
Kyangong- Chebunyo- Longisa Road
Bungoma
Kapskwony -Kopsiro- Namwela Chwele
Lwakakha - Korosiondet - Tulienge- Sirisia -Namwela–Chwele
Musikoma- Mungatsi &Myanga-Mateka Roads.
Busia
Malaba - Angurai - Malakisi & Angurai- Moding- Kakamer
Elegeyo Marakwet / Uasin Gishu
Tenden- Kibingos Road
Embu
Embu Hsp - Kathangariri - Kiajokoma - Runyenjes - Mugui - Mbui Njeru - Kanja - Sikago
Kiritiri - Siakago
Homa Bay
Kadel - Alara - Pala - Kanyadhiang /Centre - Kilusi - Opanga - Ramba Roads
Mbita - Sindo - Kiabuya - Karungu
Isiolo
Isiolo Town Roads Lot 1
Isiolo Town Roads Lot 2
Isiolo/Meru
Isiolo -Kiutine- Kina - Garbatula
Kajiado
Imaroro-Mashru-Isara

Ngong-Suswa
Ongata Rongai - Gataka - Em Mbul Mbul, Co Operative College (Karen) - Matasia - Nkoroi, Ongata Rongai - Nazerene University - Rimpa & Jn (C 58) - Lewisa Academy - Kihara
Kakamega
Ibokolo -Iindanglasia - Shianda -Malaba - Nambacha Road
Kakamega- Navagoro- Musikoma (C41)
Kakamega/ Siaya
Butere-Sidindi &Butere(Bukolwe)-Musanda-Bungasi-Sigomere-Ugunja Roads
Kakamega/ Uasin Gishu
Soy-Serekea-Kilimani-Turbo, JNCT (B14) Nangil - Ziwa Machine - Ziwa Sirikwa & Ziwa Sirikwa - Kerotet - Maji Mazuri - Moi's Bridge Road
Kericho
Brooke Bond - Maili - Nne - Kpkelion - Londiani/ Maili Nne - Chepseon
Kericho - Ainamoi - Kapsoit&Ainamoi - Thessalia Mission Road, Premier - Kabianga - Taplotin Road, Cheborge - Kibugat Road &Cheplanket - Kapkatet Loop Road And Kerichobypass(Brooke Bond - Kaptebeswet- Chepnyogaa Road)
Sigowet-Chepkemel-Kitere/Chepkemel-Kapsorok-Soko Huru
Taita Girls - Liloch & Mutaragon - Fortenan
Kiambu
Brister Girls School - Star Of Hope Children' S Home Loop & Access To Kwihota Secondary School
E495 Ndaragu (A2)- Mangu (C66) Bob Harris Road
Gatukuyu - Matara
Gatundu-Mukinye-Juja/Gatundu-Gitati Ini-Karinga/Gatundu- Ituru-Kagumoini-Karinga Roads
Indian Bazaar-Ndumberi-Ting' Ang' A-Riabai/Kist-Njathaini& Access To Starehe Girls Road
Kerwa - Thigio/Thigio - Kikuyu/Thigio -Kamangu /Keroe - Makutano
Kibichoi-Kiganjo/Mundoro-Flyover/Gachika-Flyover/Kigaa-Thegi/Kiamwangi-Kahenia-Karembu/D424-Wamita-Gathage/Kagera-Kigingo/E499 Mundoro-Gachika Roads. Brister Girls School - Star Of Hope Children' S Home Loop & Access To Kwihota Secondary School
Muigai Inn-Ichaweri-Gatundu-Kang' Oo, Kibichoi-Ichaweri-Nembu-Gachika, Broadway-Kiandutu-Athena-Engen-Kiaganjo-Muthaiga And Courtesy Beach Loop Roads
Ngecha-Gitangu-Kanjeru/Gitangu(Karia)-Nyathuna/Ngecha-Mahinga-Site (Jnct 104)/ Kabocha-Gikuni-Mukui Karura/Zambezi-Kahuho-Kingeero/Kahuho-Kanjeru/Zambezi-Kamuguga-Kiambaa-Gwa Gichini & Zambezi-Kamuguga Polytechnic-Mangorano.
Ruaka-Banana-Limuru (D407) - Ngecha (E423)&Thogoto-Gikambura-Mutarakwa (Phase 111)-(D411)

U-G29664 Kamunyu A/ U-G29671 Kamunyu B/U-G29572 Gathiaka - Gathuya/ Marigi Gategi/ Cununuki - Gacharage/ Gitwe Kiganjo/ Kahata - Munyuini/ Karinga - Kimaruri/Kuri - Cununuki - Gacharage/Ruburi - Wanugu - Flyover
Kilifi
Malindi - Kakoneni -Sala Gate Road(C103) And Sabaki Marikebuni Road(D553)
Marekebuni-Majengo-Marafa-Sosoni Road (D553)
Mariakani - Bamba (D549)and Kilifi-Kiwandani Primary School Roads
Kirinyaga
Kerugoya(Rutue) -Kiandieri - Gitumbi - Old Kangaita / Baricho - Njegas - Ngaru - Gakoigo - Ithare - Kabare / Gatuto - Mukinduri
Kutus - Kianyaga - Kiamutugu - Githure Roads (D458)
Mutithi - Kagio / Baricho-Getuya-Kagumo / Kagumo - Kiamaina -Gathuthuma - Gatwe / Kimicha - Canal / Ndaba - Kangai / Kandongu - Kangiciri / Kagio - Kathaka - Kiangwachi & Kandongu - Kangichiri - Karira Mission Hosp - Ngurubani Roads
Njegas-Mutito-Gatwe-Kangaita/Kiaga-Kianjege-Mukinduri Roads
Kisii
Keboko-Nyangusu-Nyamache-Nyacheki Roads
Kemera - Kiendege - Eberege - Gachuba -Keumbu
Metembe- Owalo- Rioma - Marani - Ng' Enyi- Bobaracho- Ragogo- Kegogi- Nyakoora- Rioma- Gesieka- Nyaore- Marani
Mogonga-Kenyenya-Riokindo-Nyabitunwa/Riokindo-Magenche-Kenyenya/Mariba-Nyagancha-Eberege-Daraja/Riokindo-Kenyenya Ttc- Magena
Nyamira - Igonga - Gesonso - Nyabioto ; 2. Nyamatutu - Mogumo - Igonga; 3. Nyagwekoa - Nyabieyo - Riana - Nyamatutu; 4 Riana - Chisaro - Jnc A1; 5 .Ekiendege - Chisaro - Mwata; 6. Motonto - Suneka - Nyagwekoa; 7 Suneka - Kiabusura; 8 Riana - Mwata - Jnc A1; 9 Ekiendege - Ekerorano - Jnc A1 - Bitare - Kiabusura - Motonto - Itibo
Omoringamu - Kenyenya - Motonto / Parainye - Mesesi- Tabaka / Bonyancha - Nyabisiongororo / Iyabe- Sengera -Nyansara / Sengera - Nyakoiba Roads
Sosera - Ekona - Ramasha - Kiomiti
Kisumu
Maseno-Kombewa-Kalandini (D245)& Maseno Town
Kitui
Kamuongo - Kandwia - Gai - Kyuso - Tymua
Kwa Vonza-Kenyatta University-Mikuyuni Primary-South Eastern Kenya University Road
Nguuni - Nuu
Kwale
Jcn A14(Lungalunga)-Vanga/Jego-Majoreni/Jcn A14(Kanana)- Shimoni Road
Milalani - Mivumoni - Kilulu
Samburu- Kinango
Laikipia

Lamuria-Ngobit-Withare-Jnct B5, Jnct B5 (Solio)-Lamuria And Jnct B5 (Gatemu)Ngobit Girls High School-Kihara Primary School
Narumoru - Ngaring'iru - Nairutia Ngobit
Rumuruti - Sipili - Ndindika
Machakos
Kenol - Ngoleni - Kaani / Mutituni - Kaseve
Kimutwa - Makaveti - Kwa Mutisya
Matuu - Ekalakal - Kangulu & Jnctn C439
Tala- Ol Donyo- Sabuk- (C446)
Makueni
Kali- Kikima- Kitundu- Kuthungu-Nduluku/ Kikima Kyambalasi/ Forest-Kikima And Kikima Utangwa Township Roads
Sultan Hamud Kasikeu-Wautu-Kyambeke-Kikoko(D515)
Tawa - Nguluni- Itangini
Mandera
Mandera-Fino
Marsabit
Laisamis - Ngurunit
Marsabit/Wajir
Odda -Bute-Danaba
Meru
Athi-Kimongoro-Nkinja-Ugoti-Katithine, Auki Athii-Gaiti, Kijiji-Thii-Gaiti Roads And Access To Meru University
Cocacola - Mpuri - Kithaku - Katheri & Kithurune - Kariene - Kaguma / Gaitu - Giaki
Kangeta-Muutine Lare
Kisima - Kibirichia - Kima - Ruiri
Kunene - St Ann - Miomponi
Lare-Ndumuru
Maua -Athiru -Kilili-National Park
Mikinduri - Kunati - Katithine Road
Nkubu - Rubiri - Kamurita
Thanatu Bridge-Kagwata -Mulika Market Road
Migori
Masara- Sori
Motemorabu - Suba Kuria Nyangoge - Nyankore - Getonyanga - Masaba
Riosiri-Moi University(Rongo Campus), Ogwedhi-God Jope Centre
Migori/Narok
Isebania- Ikerege - Kehancha - Ntimaru - Gwitembe-Ang'ata-Lolgorian
Murang`a
Gakira - Ngonda - Mununga, Gakonya - Mahuaini & Mukuyu - Kambirwa - Mirira/Jcn A2 Roads

Gatanga - Kionyo - Nyaga - Mukurwe - Githiri - Mariaini Road & Jnct Muthandi-Mbugiti-Kagarie Loop
Gati-Iguru - Ithanga - Mithini - Kirimiri - Gakungu / Gakungu - Makuyu - Kamahuha - Mbombo Roads
Jnc C67 Kirwara - Kigio - Jnc C67 Blue Post
Jnc C71 Karugia - Ngurweini - Gathimaini - Turuturu - Githima Jnc C70 Mathareini Roads
Kiria-Kagaa-Kiruri/Kirurir-Githambo-Murarandia
Mugeka- Thuita- Kiria Ini, Kagumoini- Karugia & Mataara- Gacharage Road
Muranga Town (Huhi Town Stn) - Karii Railway Stn - Muthingiriri - Marewa - Gakindu Bridge - Wandaka - Gikuu- Kayuyu - Mirira
Sabasaba-Kamahuha-Kaharati/Sabasaba (C71)-Mbogoini-Mugumoini-Githembe-Gathimaini/Githembe-Karuri-Kambi-Maragua/Mugumo Primary School-Ichagaki-Jora(D418)Ichagaki-Irembu Roads
Nakuru
Elementaita - Mau Narok
Jnct B5 Subukia - Maseno - Lower Solai - Maji Matamu- Kamukunji - Solai - Jnct B5 Maili Kumi
Mauche - Bombo - Olenguruone - Kiptagich - Silibwet
Miti Mingi- Bagaria- Naishi- Store Mbili
Nandi
Danger - Chemswa - Cheptiret - Kesses - Lessos - Jn C36 - Cheptiret - Moi University & Himak - Nandi Hills Road
Timboroa - Meteitei - Songhor - Kopere & Kaiboi - Chepterwai - Kipkaren River (Jn. A104) Roads
Narok
Kilgoris - Shartuka- Soit - Markan- Emurua Dikirr
Kilgoris- Logorian
Mulot-Sogoo-Tendwet-Saptet & Sogoo- Ololunga
Olchobezi - Kabolecho - Mgondo/Mogondo - Changina - Emurrua Dikirr
Ololunga -Mukenyo
Nyamira
Kijauri - Nyansiongo-Raitigo-Metamaywa
Mosobeti - Kebirigo
Nyandarua
Ack St.Joseph - Ol Kalau - Gichungo Munyeki - B20 Loop/ Ol Kalou Township Roads
Captain - Ndemi - Wanjohi-Ndunyu Njeru
Kirima - Ndinda - Kirima -- Engineer & Access To North Kinangop Hospital
Maili Kumi - Subuku- Sipala- Shamata - Kaka - Kariamu/ Warukira- Shamata/ Shamata Town Roads/ Access to Shmata Girls Secondary School Roads
Mirangi - Tumaini - Mawingu - Kanyiriri Road (Tumaini - Mawingu Section)

Ndaragwa - Maili Kumi /Ndaragwa - Kanyagia - Subuku/ Ndaragwa-Ngamini Uruko/ Jnc B-Karagoini Secondary School- Wakahoti Centre/ Githae (Karagoini Nursery School) Roads
Roliondo - Kagaa - Captain
Nyeri
Access To Karatina University
Endarasha-Charity-Gakanga-Embaringo-Kimunyuru-Jnct D447
Githagara-Kagicha/Witima-Giathenge/Chinga Boys-Nyamari/Gathunguri-Kabebero/Gachemi-Kihome/ Gatuturu-Kirangi
Hohwe Dam-Karogoto,Gatiki-Ndimaini/River Sagana-JnE560 Gathagara (Mukurweini), Karundudu-D4340-Mungetho Roads
Ihwa - Ihururu, Ndugamano - Gura/ Ndugamano - Gachatha, & Gachatha - Kangaita - Ithekahuno - Gatiki Roads
Karai - Nairutia - Muringa - Kiawara - Narumoru Babito
Karatina Slaughter House-Ragati-Unjiru-Ihwagi-Gaikuyu-Gitunduti-Kabiru-Ini
Kiawara-Gatarakwa-Mugunda-Nairutia Road
Marua-State Lodge, Ruthagati-Mahigaini,Chieni-Hiriga-Kiamariga,Ndundu-Ini-Kwa Wambui- Karandi Roads
Thaara - Karaba - Muthuthini - Gikondi, & Gaikundo - Gakindu - Gikondi - Mukurweini Roads
Nyeri / Kirinyaga
Karima A2 - Kianjege - Mukangu - Ndimaini - Karatina & Kiburu - Kabonge
Siaya
Kodiaga-Wagai-Onyinyore/Akala And Nyangweso-Jn, B1 Muhanda (D248/E386)
Ndere - Boro
Tana River
Junction B8 - Masalani
Tharaka Nithi
Access-Chuka Univesisty
Chiakariga - Marimanti - Gatunga Road
Chogoria- Weru- Marima- Kiriani
Keria-Kathwana
Trans Nzoia
Kapsigilai-Tenden/Access To Schools
Lessos-Namanjala
Moisbridge - Moiben River - Kaplamai - Sibanga - Maili Saba - Bwayi - Maili Kumi Na Moja (D330)
Turkana
Lodwar - Lorugum -Lorengippi -Db -Loya -Kanyao -Alale - Nayuapong -Db - Turkana
Todonyang - Lokitaung- Kalokol
Uasin Gishu
Bugar - Chebiemit / Jnct D329 (Kaplolo) - Kaplamai - Jnct C50 Kruger Farm

Jnc A104 - Drys - Jnc C53 - Kapchorwa - Plateau -Naiberi
Moi`Sbridge - Kachibora / Tuigoin - Chepterit - Barsombe ‑ Kipsigilai
Moiben ‑ Chebororwa ‑ Kapcherop ‑ Kachibora
Naiberi ‑ Moiben & Jctn Marulla ‑ Koitoror Loop Road.
Soy-Kipsangui- Kabenes & Eldoret - Kiplombe- Soy
Uasin Gishu/Nandi
Rivatex ‑ Simat ‑ Lemook ‑ Kipkaren Selia ‑ Kapkatembo & Kaplemur ‑ Kabiet & St. Theresa ‑ Centre Kwanza (Sugoi B Dispensary) Roads
Vihiga
Ekwanda -Luanda - Esirulo ‑ Magada
Gisambai- Shamakoko Road
West Pokot
Kamatira ‑ Cheptongei
Kapsait-Kapsangar-Tapash-Sondany
Makutano - Kacheliba -Konyao

Source: KeRRA (Low Volume Seal Projects)

KENHA PROJECTS	
S/No.	Contract Name
1	Lot 1; Mombasa – Kwa Jomvu Section
2	Lot 1: Mombasa – Mtwapa (A7) Road Section
3	Lot 2: Dualling and Upgrading of Lot 2: Mtwapa – Kwa Kadzengo - Kilifi (A7) Road Section
4	Lot 2: Kisii - Ahero (A1) Section
5	Dualling of Lot 1: Kenol – Sagana
6	Dualling of Lot 2: Sagana – Marua
7	Lot 1: West Pokot, Turkana South, Turkana East And Turkana Central Sub-Counties
8	Lot 2: Loima, Turkana North And Turkana West Sub-Counties
9	2. Rehabilitation of Kakamega – Webuye Road (A1)
10	New Contract for Completion of Remaining Works at Kisumu Boys-Mamboleo
11	New Contract for Completion of Remaining Works at Ahero and Kericho Interchanges
12	Duelling of Athi-River Machakos Turnoff
13	Lot 1: Barpello (Moru) – Tot Junction
14	Lot 2: Tot Junction – Chesegon – Kopasi River
15	Lot 3: Kopasi River – Lomut – Sigor – MarichPass
16	Lot 1: Mamboleo Junction (A12) – Miwani
17	Lot 2: Miwani – Chemelil Road
18	Lot 3: Chemelil – Kipsitet Road
19	Construction of Kwale - Kinango (B92) Road
20	Section 3 (Segel- Marsabit)
21	Marsabit Segel - Section 2
22	Mau Mau Road Project Lot 1A: Kiambu County Section
23	Mau Mau Road Project Lot 1B: Kiambu County Section
24	Mau Mau Road Project Lot 2: Murang'a County Section
25	Mau Mau Road Project - Lot 3: Nyeri County Section
26	Kinyona - Gatura – Njabini Road (B20)
27	Rehabilitation and Improvement of Uplands – Githunguri – Ruiru
28	Rehabilitation and Improvement of Thika-Magumu (B20/D1315)
29	Lamu-Ijara-Garissa(A10) Road & Associated Spur /roads to /all Weather Gravel Standards.
30	Garissa -Isiolo Road & Associated Spur /roads to /all Weather Gravel Standards.

31	Upgrading and Landscaping of Kenyatta Road (C565) EPC Turnkey Commercial Contract
32	Mpard - Package 2: Mwache -Tsunza – Mteza (Dongo Kundu)
33	Upgrading of Isiolo – Kulamawe (A10/B84) Road And Civil Works Associated With Installing A Fibre Optic Cable Along This Road Section (77km)
34	Upgrading Of Kulamawe – Modogashe Road And Garbatulla Spur Road (128 Km) And Civil Works Associated With Installing A Fibre Optic Cable Along Kulamawe – Modogashe – Samatar Road Section
35	Duelling Of Magongo (A109l) Road Phase II
36	Capacity Enhancement of James Gichuru-Rironi

Source: https://kenha.co.ke/on-going-projects/

Appendix VI: Summary of Projects and Study Population

S/No.	Road Authority	Projects (No.)	Top Management (No.)	Resident Engineer	Assistant Resident Engineer	Project Surveyor	Total
1	KURA	61	5	61	61	61	188
2	KeRRA	155	5	155	155	155	470
3	KeNHA	36	6	36	36	36	114
	Total	**252**	**16**	**252**	**252**	**252**	**772**

Source: Kenya Urban Roads Authority, Kenya Rural Roads Authority, Kenya National Highways Authority

Appendix VII: Approval to Submit Thesis

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY

OFFICE OF THE DIRECTOR, GRADUATE SCHOOL

P.O. BOX 62000, 00200 • NAIROBI •KENYA•TEL: (067)-5870001-4• Email: director@bps.jkuat.ac.ke

REF: GS/HD417-C003-1833/2015 **4th July , 2024**

Mr. Peter Patu Gichohi,
C/o Dean SOBE
JKUAT

Dear Mr. Peter,

RE: APPROVAL OF YOUR INTENT TO SUBMIT Ph.D. THESIS FOR EXAMINATION

We are in receipt of your intent to submit your Ph.D. thesis for examination dated 10th April 2024.
This is to inform you that your request has **been considered and approved.** It is however a requirement that you clear with all the relevant departments/sections of the University and forward the duly completed Clearance Form to the Graduate School to facilitate the processing of your thesis for examination.

Kindly note that clearance is done online (Log into '*Jkuat eservices*', *create an account and initiate the clearance process*). Once you have been cleared in all the areas, make a print out of the clearance form which should accompany your thesis for examination.

Yours sincerely,

PROF. FRANCIS K. NJONGE
DIRECTOR, GRADUATE SCHOOL
Copy to: Dean SOBE

Appendix VIII: NACOSTI Letter

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **289836**

Date of Issue: **06/December/2022**

RESEARCH LICENSE

This is to Certify that Mr.. PETER GICHOHI PATU of Jomo Kenyatta University of Agriculture and Technology, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: GOVERNANCE OF PROJECTS AND PERFORMANCE OF ROADS CONSTRUCTION PROJECTS IN KENYA for the period ending : 06/December/2023.

License No: **NACOSTI/P/22/22516**

289836

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

Appendix IX: Google Form

PROJECT GOVERNANCE AND PERFORMANCE OF ROADS CONSTRUCTION PROJECTS IN KENYA

Please provide your email. This information will only be used for tracking responses.

* Indicates required question

1. Email *

Part A: Demographic Information

Please complete the following biographical information. This information will only be used for statistical purposes.

2. 1. Please state your organization *

Mark only one oval.

- ◯ KeNHA
- ◯ KeRRA
- ◯ KURA
- ◯ CONTRACTOR
- ◯ CONSULTANT

3. 2. Please indicate your age bracket *

Mark only one oval.

- ◯ 20-29 Years
- ◯ 30-39 Years
- ◯ 40-49 Years
- ◯ Above 50 years

4. 3. State the number of years you have worked in roads construction projects *

Mark only one oval.

- ◯ Less than 4 Years
- ◯ 4-10 Years
- ◯ Above 10 Years

5. 4. Please indicate your level of education *

Mark only one oval.

- ◯ PHD
- ◯ Masters
- ◯ Bachelor's Degree
- ◯ Diploma
- ◯ Certificate

Section B: Project Information

6. 5. Please indicate the project name

_____

7. 6. Please indicate the project cost *

Mark only one oval.

- ◯ Upto Ksh 0.5Billion
- ◯ Between Ksh 0.5 Billion and Ksh1Billion
- ◯ Between Ksh1Billion and Ksh1.5Billion
- ◯ Between Ksh1.5Billion and Ksh 2Billion
- ◯ Above Ksh. 2Billion

8. **Project Supervision Team** *

7. Please indicate the team responsible for project implementation

Mark only one oval.

- ◯ Road Authority Team
- ◯ Consultant

Section C: Strategic Alignment

Please indicate your level of agreement with the following statements on Strategic Alignment of road construction projects. kindly select the appropriate rating that represents your opinion. Use the scale: **Strongly Disagree** (1), **Disagree** (2), **Neutral** (3), **Agree** (4), **Strongly Agree** (5)

9. **IT Alignment** *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Use of information technology support the overall strategic objectives of road projects	◯	◯	◯	◯	◯
My Organization ensures adoption of the right IT infrastructure to enhance performance of road projects	◯	◯	◯	◯	◯
Am satisfied with the level of IT alignment with the set goals in road projects	◯	◯	◯	◯	◯
The IT architecture of road projects accommodates future scalability and adaptability requirements	◯	◯	◯	◯	◯

10. **Operations Alignment** *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Our organization ensures all operations are in line with the set goals in the road projects	◯	◯	◯	◯	◯
Operations alignment facilitates performance of road projects	◯	◯	◯	◯	◯
The operational plans and strategies are adaptable to address unforeseen challenges and changes in road projects	◯	◯	◯	◯	◯
Our organization ensures flexibility in operations to accommodate any changes during implementation of road projects	◯	◯	◯	◯	◯

11. **Employee Alignment** *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Project team members understand the overall goals and objectives of the road projects they are involved in	◯	◯	◯	◯	◯
Project team members are aware of their specific roles, responsibilities, and deliverables in the road construction projects	◯	◯	◯	◯	◯
Project team members feel empowered and encouraged to contribute their ideas and suggestions for process improvement in road projects	◯	◯	◯	◯	◯
My organization ensures project teams are operating in their area of	◯	◯	◯	◯	◯

specialization
to improve
their
productivity
hence project
success

12. How else do you think strategic alignment affect performance of roads construction projects in Kenya?

Section D: Top Management Support

Please
indicate your level of agreement with the following statements on top management support on road projects. Please kindly tick (√) in the appropriate space that represents your opinion. Use the scale: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5)

13. **Resources provision** *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Top management provide adequate resources for successful implementation of the projects	◯	◯	◯	◯	◯
Top management provided adequate resources to encourage a supportive stakeholder environment for successful projects completion.	◯	◯	◯	◯	◯
Top management ensure availability of necessary resources to support project teams	◯	◯	◯	◯	◯
Top management provide adequate resources to facilitate system	◯	◯	◯	◯	◯

14. **Expertise** *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Top management possesses relevant expertise and experience in project management	◯	◯	◯	◯	◯
Top management often recognized the changes and implications related to project implementation	◯	◯	◯	◯	◯
Top management recognized the power and interest of stakeholders around the project	◯	◯	◯	◯	◯
Top management motivated the project team to achieve project objectives and enhance organizational performance.	◯	◯	◯	◯	◯

15. **Dispute Resolution** *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Top management protect the project team members fallout by solving arising disputes	◯	◯	◯	◯	◯
Top management investigates the source of disputes in order to find an acceptable solution	◯	◯	◯	◯	◯
Top management use joint problem solving as dispute resolution strategy	◯	◯	◯	◯	◯
Top management exercise its authority to resolve arising disputes.	◯	◯	◯	◯	◯

16. How else do you think top management support affect performance of roads construction projects in Kenya?

Section E: Project Risk Management

Please indicate your level of agreement
with the following statements on project risk management of road projects.
Please kindly tick (√) in the appropriate space that represents your opinion.
Use the scale: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4),
Strongly Agree (5).

17. **Risk Identification** *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My organization ensures potential risks and uncertainties on road projects are identified and documented	◯	◯	◯	◯	◯
Project team members are actively involved in the identification of risks related to road projects	◯	◯	◯	◯	◯
My Organization ensures external factors such as weather conditions, regulatory changes, and political stability are considered in the risk identification process					

My Organization ensures external factors such as weather conditions, regulatory changes, and political stability are considered in the risk identification process					

18. **Risk Assessment** *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Risks are assessed in terms of their potential impact on the successful completion of road projects	◯	◯	◯	◯	◯
Risks are assessed based on their likelihood of occurrence in road projects	◯	◯	◯	◯	◯
Project team members use quantitative and/or qualitative methods to assess the magnitude of risks in road projects	◯	◯	◯	◯	◯

19. **Risk Monitoring and Control** *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My organization ensures that risk mitigation measures are effective implemented and monitored to ensure their effectiveness in addressing identified risks	◯	◯	◯	◯	◯
Project team members regularly review and update risk registers to reflect the current status and progress of risk management activities in road projects	◯	◯	◯	◯	◯
My organization ensures response strategies are reviewed	◯	◯	◯	◯	◯

and updated to address evolving risks in road projects

20. How else do you think project risk management affect performance of roads construction projects in Kenya?

Section F: Project Communication

Please indicate your level of agreement with the following statements on project communication on road projects. Please kindly tick (√) in the appropriate space that represents your opinion. Use the scale: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5)

21. **Communication Channels** *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Formal and informal forms of communications are usually used during project implementation	◯	◯	◯	◯	◯
There is top-down (leaders to subordinates) hierarchical structure and chain of command that is used in communication	◯	◯	◯	◯	◯
We usually identify communication channels soon so that the channel and information being passed are consistent	◯	◯	◯	◯	◯

22. **Quality of Information** *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
There is effective and regular communication among the stakeholders	◯	◯	◯	◯	◯
Top management possesses relevant expertise in managing communication 2	◯	◯	◯	◯	◯
Proper communication strategies helps enhance effective flow of information throughout the project	◯	◯	◯	◯	◯

23. **Reporting and Feedback** *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Top management effectively communicated with the stakeholders to enhance organizational efficiency	◯	◯	◯	◯	◯
Top management continuously communicated and discussed implications of the project with various groups of stakeholders	◯	◯	◯	◯	◯
There is frequent reporting on project progress	◯	◯	◯	◯	◯

24. How else do you think project communication affect performance of roads construction projects in Kenya?

Section G: Organizational culture

Please
indicate your level of agreement with the following statements on organizational culture on performance of roads construction projects. Please kindly tick (√) in the appropriate space that represents your opinion. Use the scale: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5).

25. **Role culture** *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
In my organization, roles are delegated according to individual education qualification and specialization	◯	◯	◯	◯	◯
When assigning tasks, individual educational qualification and interests are considered	◯	◯	◯	◯	◯
Individuals have authority in positions they occupy	◯	◯	◯	◯	◯

26. **Power culture** *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
In my organization, power remains in the hands of few individuals	◯	◯	◯	◯	◯
Decision making in my organization is made by few individuals who have power	◯	◯	◯	◯	◯
Subordinates in my organization have to strictly follow their superior's instructions	◯	◯	◯	◯	◯

27. Task culture *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
In my organization, teams are formed to achieve set targets	◯	◯	◯	◯	◯
In my organization, critical problems are solved in teams	◯	◯	◯	◯	◯
Team members in my organization have to contribute equally to accomplish tasks	◯	◯	◯	◯	◯
My organization depends on teamwork to produce results	◯	◯	◯	◯	◯

28. How else do you think organizational culture affect project governance on performance of roads construction projects in Kenya?

Section H: Performance of Road Projects

Please indicate your level of agreement with the following statements on performance of roads construction projects. Please kindly tick (√) in the appropriate space that represents your opinion. Use the **scale**:
Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5).

29. **Timely completion** *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Projects are finished on time.	◯	◯	◯	◯	◯
Projects activities were carried out as scheduled.	◯	◯	◯	◯	◯

30. **Cost of project** *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The projects are finished within budget.	◯	◯	◯	◯	◯
Contractors implement cost monitoring and control measures	◯	◯	◯	◯	◯

31. **Project quality** *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The project quality was satisfactory	◯	◯	◯	◯	◯
Stakeholders are satisfied with completed projects	◯	◯	◯	◯	◯

32. **Scope adherence** *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The projects was completed as per the defined scope	◯	◯	◯	◯	◯
Project execution adheres to all of a project's key elements.	◯	◯	◯	◯	◯

Thank You for Participating