PROJECT MANAGEMENT SKILLS AND PERFORMANCE OF KENYA URBAN ROADS AUTHORITY CONSTRUCTION PROJECTS IN TRANS NZOIA COUNTY, KENYA

Norah Onsando & Dr. Julius Miroga, PhD

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Norah Onsando [1] & Dr. Julius Miroga, PhD [2]

[1] MSc. (Project Management) Student, Jomo Kenyatta University of Agriculture and Technology, Kenya
Lecturer, Jomo Kenyatta University of Agriculture and Technology, Kenya

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ABSTRACT

This study determined how project management skills influence performance of Kenya Urban Roads Authority construction projects in trans Nzoia County, Kenya. A descriptive research design was used in the study. The study targeted 141 contractors register with NCA. Contractors in Trans Nzoia County having active registrations with the National Construction Authority in categories NCA 3, NCA4, NCA5, NCA6, and NCA 7 and working on projects for the Kenya Urban Roads Authority. From the targeted population, the study sampled 104 respondents using stratified random sampling techniques. The study used primary data which was collected using structured questionnaires. Pilot test was conducted in Uasin Gishu County to test validity and reliability of data collection tools. Descriptive and inferential analysis was done by the use of Statistical Package for Social Sciences (SPSS 26) and presented through percentages, means, standard deviations and frequencies. For variable relationships, inferential analysis was examined and analyzed data was presented by use of tables and models. The results revealed that that financial management skills play a significant role in the performance of Kenya Urban Roads Authority (KURA) construction projects in Trans Nzoia County. Contract management skills were identified as a critical factor in ensuring the success of KURA projects. The study recommended that Project managers should prioritize the development and application of detailed budget preparation and variance analysis techniques. Project managers should enhance their contract negotiation and interpretation skills to secure favorable and clear contract terms. Project managers must streamline procurement cycles by planning procurement timelines early and sticking to schedules. Project managers should implement structured workforce planning to ensure that the right skills are available at every project stage.

Key Words: *Financial Management Skills, Contract Management Skills, Procurement Management Skills, Human Resource Management Skills*

INTRODUCTION

Project management skills is a critical aspect of delivering successful road construction projects, as it involves the planning, coordination, and control of all aspects of the project from start to finish (Alshammari, Yahya & Haron, 2020). Effective project management skills have been shown to significantly impact project performance in terms of cost, schedule, quality, safety, and stakeholder satisfaction (Ingle & Mahesh, 2022; Demirkesen & Ozorhon, 2017). The capacity of the project manager to build and sustain support for the project across all of the project's constituents is crucial to its success, according to research by Alvarenga, Branco, and Silva (2018). This is why having skillsets for project managers is essential. The success of the project depended on possessing these skills (Mandala, 2018). The success of a project is typically gauged by how well it meets the client's initial expectations, how well it fulfills its intended purpose, and whether or not it resolves the problem it was designed to address within the required budget and timeline (Ojiako, Marshall & Williams, 2023).

Three theories will serve as guides for the study: the theory of project management competence, agency theory and the theory of constraints. According to the competency theory, created by McClelland and McBer in the 1980s, competence is a vital personal quality that correlates to high performance in a certain function or set of circumstances. Agency theory created by Jensen and Meckling (1976) describes the relationship between principals and agents, addressing potential conflicts of interest. In project management, project managers act as agents for clients, who are the principals. Clients can mitigate agency conflicts by clearly defining roles, setting aligned incentives, conducting thorough procurement processes, and closely monitoring project progress. A management concept put out by Goldratt (1984) known as the Theory of constraints holds that every manageable project is constrained in its ability to accomplish more of its objectives by a relatively small set of constraints. According to TOC, every system has at least one constraint that limits its performance, and the goal is to find and address that constraint to improve the whole system's performance hence the need for project management skills.

Project management skills are a combination of abilities, competencies, and knowledge needed to plan, execute, monitor, and control projects effectively (Amoah & Marimon, 2021). These skills are critical to ensuring that projects are delivered on time, within budget, and to the required quality standards. Magano, Vitória and Pimenta (2020) demonstrated that, alongside technical proficiency, project managers also require soft skills. Barlow, Barlow and Robinson (2016) additionally highlighted that project managers need skills beyond pure technical expertise to guide their team members toward the successful completion of projects. A proficient project manager is one who excels not only in project management but also in team management (Shchetynina, Horbatiuk & Kravchenko, 2019). According to the Project Management Institute (2017), leadership monitoring, contract management skills, financial management skills and procurement management skills are recognized as crucial soft abilities for project managers.

Usually, unbound materials were stacked in a tiered fashion to build a road's framework. At its core, a road's surface is made up of several layers of asphalt laid above a bonded base that acts as drainage and freeze protection for the local subgrade underneath. How well a road can bear weight without requiring constant repairs is directly tied to its structural design. (Gharouni & Noorzai, 2021). One definition of road performance is how well a road holds up under the weight of vehicles over time. (AASHTO, 2003). Changes in road conditions or the effectiveness of pavement constructions over time were examples of what was meant by the term "performance." (Muturi & Oguya, 2016). Therefore, when constructing roads, it is crucial to ensure that they will last as long as possible for the benefit of road users.

Bajari (2020) claims that in many developing countries, road contractors have performance issues. The budget, quality, and completion dates of many road projects are all missed. There have been many failed road projects in the past, as indicated by things like road closures, delivery modifications, inconsistencies in necessary road building supplies, design revisions, and additional tasks. Successful building projects, according to Antwi-Afari, Pärn, and Edwards (2018), depend on the accessibility of a reliable construction contractor. Pitagorsky (2020) elaborated on evaluating project performance as methods and approaches to assess the project's progress. This enables a project manager to spot early signs of potential issues that could impede the project's optimal performance. Additionally, he emphasized that when gauging the success of an ongoing project, it's crucial to focus on the project's overall performance concerning predefined schedules and budget estimates.

Road construction in Trans Nzoia County, located in Kenya's Rift Valley region, is pivotal for enhancing transportation networks, fostering economic growth, and improving access to essential services for the local population (Kenya News Agency, 2023). The county's infrastructure development, including road construction, is critical for supporting agricultural activities, as Trans Nzoia is known as the "breadbasket" of Kenya, with its large-scale production of maize and other crops (Trans-Nzoia County, 2023a). The government, both at the national and county levels, has prioritized road construction and maintenance in Trans Nzoia to address challenges related to road quality, accessibility, and connectivity (Trans-Nzoia County, 2023b). Projects typically focus on improving rural and urban road networks, upgrading existing roads, and constructing new ones to link remote areas with key towns and trade centers (Kenya News Agency, 2023). This expansion also supports the county's vision of improving transportation for both economic and social development (Trans-Nzoia County, 2023a).

Notable road projects in the region include the upgrading of roads linking major towns such as Kitale, the county's capital, to other key towns and regions. Additionally, feeder roads that connect agricultural areas to local markets have been prioritized to facilitate the transportation of goods, especially during harvest periods (Trans-Nzoia County, 2023b). While road construction in Trans Nzoia has seen improvements, challenges such as delayed projects, budget overruns, and the impact of weather conditions on road quality persist (Kenya News Agency, 2023). However, the government continues to partner with contractors and stakeholders to ensure that these projects meet their objectives, improving road safety, reducing travel time, and fostering regional integration (Trans-Nzoia County, 2023a). As road infrastructure develops, it not only enhances economic opportunities but also opens up possibilities for the development of other sectors, such as education, healthcare, and tourism, thus contributing to the overall prosperity of Trans Nzoia County (Trans-Nzoia County, 2023b).

Statement of the Problem

The development of robust transportation infrastructure, particularly road networks, is important for fostering economic growth, enhancing regional integration, and improving accessibility to essential services. Globally, the construction industry has grappled with the challenges of delivering projects within the stipulated time, budget, and quality parameters. Failed projects often stemmed from teams' inability to put their expertise to use during the execution phase. According to Alshammari (2020), successful projects need knowledgeable project managers and qualified team members. According to the findings of Owolabi et al. (2020), who examined the factors that lead to construction project delays, over 70% of Nigerian projects ran behind schedule. Up to 60% of road construction projects in India had issues with cost and time overruns, according to research by Shanmugapriya and Subramanian (2018). In East African region, various factors, including insufficient

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project management competencies, have hindered the timely and effective execution of road construction projects, hampering the region's efforts to unlock its full economic potential.

In Kenya, according to ADB (2020), it was also noted that around 52% of the road projects had financial losses, resulting in a fall in performance for the enterprises involved in these projects. KPMG (2017) notes that despite the implementation of project risk management procedures, 68% of these road projects have failed.The County Government of Trans Nzoia County Annual Development Plan (CADP) 2022/23 reports indicated that many infrastructure development projects did not provide the desired results as a result of inadequate design, execution and lack of data for effective planning. The development project oversight, particularly for roads and other facilities, is inadequate, resulting in subpar construction. Despite having the resources to complete them, a report by the World Bank (2023) revealed that poor performance in road construction projects is prevalent in Trans Nzoia County. Between 2021 and 2022, only 4 out of 22 planned road projects were completed, representing a completion rate of just 18%. This low completion rate raises concerns about the efficiency and effectiveness of road construction projects in the county.

Poor performance of roads worldwide has been attributed, in part, to gaps in project management skills within the implementing agencies and contractors, inadequate project planning and feasibility studies, corruption and lack of transparency. Project management expertise was studied extensively in connection to how well road projects turn out. For instance, Rotimi and Ramachandra (2020) analyzed the methodologies and techniques that successful project managers use. It's important to note, though, that they didn't investigate whether or not a project manager's financial management skills affect the success of road construction projects. Given the ever-shifting expectations placed on project managers in dynamic situations, this absence reflects a

significant gap in their findings. The connection between project management skills and results was also studied by Chandra (2017), who performed a case study at Philips Healthcare. However, this research did not go into the soft skills of project managers since these were judged unimportant compared to hard skills. The study's single-case design further limits our ability to generalize our findings.

Project management expertise and the success of Kenyan construction companies have been the primary foci of academic inquiry in recent years (Wambua, 2020). The result was a dearth of studies analyzing the connection between project management skill and outcome (Buigut 2020; Kipkorir 2020). While the importance of project management skills in construction is well-established (Morris & Pinto, 2004), a critical gap exists in our understanding of how specific project management skills directly impact the performance of road construction projects. This study addressed a knowledge gap by examining whether or not project management skills influence performance of road construction projects in Trans Nzoia County.

Objective of the Study

The primary objective of this study was to determine how project management skills influence performance of Kenya Urban Roads Authority construction projects in trans Nzoia County, Kenya. The specific objectives of the study were;

- To determine the influence of financial management skills on the performance of Kenya Urban Roads Authority construction projects in Trans Nzoia County.
- To determine the extent to which contract management skills on the performance of Kenya Urban Roads Authority construction projects in Trans Nzoia County.
- To establish the extent to which procurement management skills influence on the performance of Kenya Urban Roads Authority construction projects in Trans Nzoia County.
- To establish the influence of human resource management skills on the performance of

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Kenya Urban Roads Authority construction projects in Trans Nzoia County.

The study was guided by the following hypotheses;

- **H_{01}** There is no significant influence of financial management skills on performance of Kenya Urban Roads Authority construction projects in Trans Nzoia County.

- **H_{02}** There is no significant influence of contract management skills on performance of Kenya Urban Roads Authority construction projects in Trans Nzoia County.

- **H_{03}** There is no significant influence of procurement management skills on performance of Kenya Urban Roads Authority construction projects in Trans Nzoia County.

- **H_{04}** There is no significant influence of human resource management skills on performance of Kenya Urban Roads Authority construction projects in Trans Nzoia County.

LITERATURE REVIEW

Theories Informing the Study

Theory of Project Constraints

It is also argued that this theory should be applied initially for project time management, although it also can be used for project risk assessment and cost management. Moreover, timelines are a major constraint in project execution because of the need for positive cash flow, reducing contingency costs of delays and need for scope changes. Therefore, the two key underlying features in using theory of constraints are the availability of critical resources, and the ability of organizations to mobilize these resources in a timely manner to meet project schedules and maximize resource utilization (Parker, Parson & Isharyanto, 2020).

According to Parker et al. (2020) this theory is also applicable throughout the five project processes, as outlined in the PMBOK Guide (PMI, 2018) to augment appraisal of constraint implications for each of the processes. He argues that during of the project initiation stage, project managers can minimize uncertainty and risks by defining specific

project objectives, managing key stakeholders' expectations, and developing strong communication ties with the client to identify potential, foreseeable risks. In the planning phase, project managers can minimize uncertainty and risk by employing methods which have proven successful in the past, using products or materials which have been "tried and tested" and utilizing subcontractors when resources are constrained. In the monitoring and controlling phase, progress and performance can be measured against key performance indicators for time, cost, scope and quality objectives.

Project Management Competency Theory

Project Management Competency Theory highlights the importance of skills, knowledge, and behaviors in influencing project outcomes. Contemporary researchers like Ahmadi et al. (2022) and Turner (2023) stress that effective project managers possess a blend of technical, managerial, and strategic competencies. These competencies include risk management, stakeholder engagement, and communication. Modern projects are increasingly complex, requiring managers to adapt to fast-changing environments, technological disruptions, and multicultural teams. A project manager's ability to combine hard and soft skills is now considered a critical success factor in achieving desired outcomes in terms of time, budget, and scope (Mukherjee & Sen, 2023).

In the construction sector, especially road infrastructure, technical competencies such as contract management, site supervision, and quality assurance are vital. Managers must understand engineering specifications, construction materials, environmental standards, and health and safety regulations. Recent studies by Njoroge and Kimani (2023) highlight that road construction projects often face challenges due to competency gaps in cost estimation and resource planning. Competent managers mitigate these risks by applying evidence-based practices, collaborating with experts, and ensuring compliance with contractual and regulatory frameworks. Therefore, technical

proficiency alone is not enough broader contextual awareness is essential for project success.

Pareto Principle Theory

The Pareto Principle, or the 80/20 rule, is a powerful tool for prioritizing project efforts by focusing on the most significant inputs. In project management, especially within infrastructure development, 20% of issues such as contractor delays or poor procurement processes often lead to 80% of the problems experienced. Recent research by Al-Najjar and Pomatto (2020) and Githinji et al. (2023) affirms that applying Pareto analysis helps project managers identify these high-impact areas and allocate resources more efficiently. This focused approach leads to greater cost control, streamlined processes, and overall performance improvements.

In road construction, where budgets and timelines are tight, identifying and addressing the top issues early can prevent major setbacks. For example, Grachev (2020) and Kariuki and Langat (2023) found that poor coordination with local authorities and land disputes account for a large percentage of project delays. Applying Pareto analysis helps highlight such recurring issues, enabling the development of targeted interventions. By addressing these root causes first, construction projects can significantly reduce delays and cost overruns, resulting in better service delivery and higher client satisfaction.

Skill-Based Leadership Theory

Skill-Based Leadership Theory developed by Katz identifies technical, human, and conceptual skills as foundational to effective leadership. Recent studies emphasize that leadership in construction requires a balance between these competencies to address the technical and human challenges of projects (Yi & Zulaikha, 2022; Kemei & Kibet, 2023). Technical skills are essential in early project phases, especially in construction planning, budgeting, and engineering. Leaders who master these skills ensure resource optimization and adherence to quality and regulatory standards. Without technical proficiency, leaders may struggle to guide teams through the complexity of infrastructure projects.

Human skills such as communication, conflict resolution, and motivation are indispensable throughout the project lifecycle. According to Harrison et al. (2018) and Otieno and Mugambi (2023), successful construction managers actively engage team members, foster collaboration, and manage interpersonal dynamics. In the Kenyan road sector, leadership challenges often stem from communication breakdowns and misaligned expectations between stakeholders. Effective leaders bridge this gap by fostering an inclusive environment where all voices are heard and team synergy is promoted. This boosts morale, productivity, and commitment to project goals.
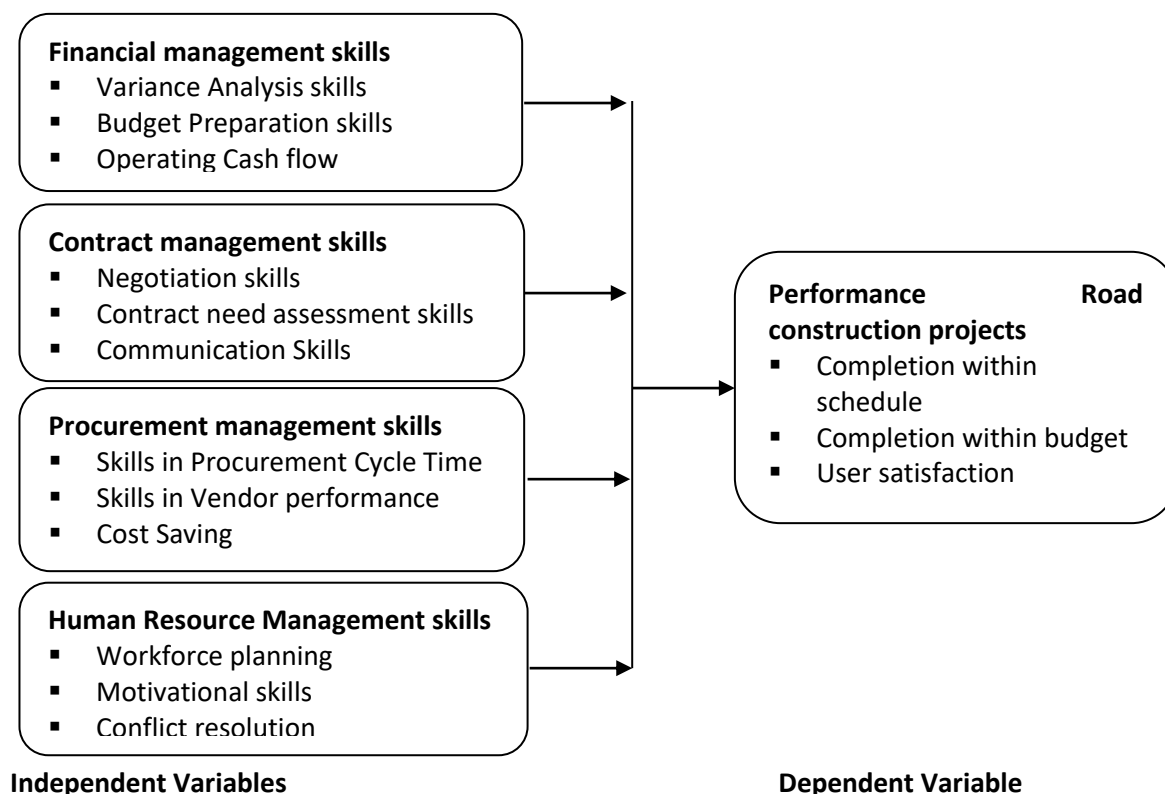
Conceptual Framework

Financial management skills
- Variance Analysis skills
- Budget Preparation skills
- Operating Cash flow

Contract management skills
- Negotiation skills
- Contract need assessment skills
- Communication Skills

Procurement management skills
- Skills in Procurement Cycle Time
- Skills in Vendor performance
- Cost Saving

Human Resource Management skills
- Workforce planning
- Motivational skills
- Conflict resolution

Performance Road construction projects
- Completion within schedule
- Completion within budget
- User satisfaction

Independent Variables   **Dependent Variable**

Figure 1: Conceptual Framework

Review of Study Variables

Financial Management Skills

Financial management skills encompass the ability to effectively plan, monitor, and control financial resources to achieve project goals. These skills include budgeting, financial forecasting, cost control, and financial reporting, all of which are critical for maintaining fiscal discipline in projects (Ahmed & Olawale, 2023). Effective financial management ensures that resources are allocated efficiently, and risks such as cost overruns and funding gaps are mitigated. In project management, financial skills are pivotal for decision-making, especially in resource-constrained environments. For instance, accurate financial analysis and risk assessment contribute to project sustainability and stakeholder confidence (Njenga & Onyango, 2023). Additionally, recent studies highlight the role of digital tools such as Enterprise Resource Planning (ERP) systems in enhancing financial transparency

and efficiency in project execution (Oketch et al., 2022).

Contract Management Skills

Contract management skills refer to the ability to draft, negotiate, execute, and monitor contracts to ensure compliance and achieve desired project outcomes. These skills are critical for managing legal obligations, timelines, and quality deliverables. Effective contract management involves not only understanding contract terms but also fostering collaboration and resolving disputes (Kariuki & Mutua, 2023). Recent research underscores the importance of adopting digital contract management systems to streamline workflows, improve documentation, and enhance compliance tracking (Mwangi & Achieng, 2022). Moreover, aligning contract management practices with organizational policies and legal frameworks is essential to minimize risks and ensure successful project delivery (Onyango & Kiplagat, 2023).

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Procurement Management Skills

Procurement management skills involve planning, sourcing, and acquiring goods and services essential for project success. Key competencies include supplier relationship management, negotiation, and adherence to procurement regulations. These skills are integral to cost efficiency, quality assurance, and timely delivery (Nyakundi & Omondi, 2023). The adoption of e-procurement platforms has transformed procurement practices by increasing transparency and reducing lead times. Studies indicate that organizations that integrate advanced procurement strategies, such as supplier audits and performance metrics, achieve superior project outcomes (Wanyama et al., 2022). Furthermore, effective procurement skills help in mitigating risks associated with supply chain disruptions and market volatility (Muiruri & Njoroge, 2023).

Human Resource Management Skills

Human resource management (HRM) skills are essential for managing project teams, fostering collaboration, and achieving organizational goals. These skills include talent acquisition, performance management, conflict resolution, and employee development. HRM skills ensure optimal team performance and adaptability in dynamic project environments (Mutiso & Wafula, 2023). Recent literature emphasizes the role of emotional intelligence and leadership in enhancing team cohesion and productivity. Furthermore, HRM practices that focus on diversity, inclusion, and employee well-being contribute significantly to project success (Mwiti & Otieno, 2022). The integration of HR analytics and technology, such as Human Resource Information Systems (HRIS), has also improved decision-making and efficiency in managing project personnel (Karanja & Obiero, 2023).

Performance of road construction projects

The performance of road construction projects refers to the extent to which these projects achieve predetermined objectives, including adherence to budget, timelines, quality standards, and stakeholder satisfaction. Performance metrics often focus on cost efficiency, project duration, and the structural integrity of completed roads (Kimani & Mwangi, 2023). Effective management of resources, skilled labor, and technology integration are critical for enhancing performance in road construction. Moreover, robust risk management strategies help mitigate issues such as cost overruns, delays, and poor workmanship. Recent studies indicate that the adoption of modern construction technologies, including Building Information Modeling (BIM) and drone surveys, significantly enhances the accuracy and efficiency of road construction projects (Njoroge & Otieno, 2022). Additionally, public-private partnerships (PPPs) have been instrumental in improving project performance by leveraging private sector expertise and resources (Omondi & Achieng, 2023). However, challenges such as procurement delays, corruption, and inadequate financing continue to hinder optimal performance in developing countries.

Empirical Studies

Johnson and Ramirez (2021) examined the impact of financial management skills on road infrastructure performance in Texas. Using a descriptive survey design, they targeted project managers and financial officers from 40 public road agencies. Stratified sampling was used, and 160 questionnaires were issued. Data were analyzed using SPSS and regression analysis. The study found that project managers with strong budgeting, cost estimation, and financial planning skills completed projects faster and within budget. Weak financial controls were linked to delays and cost overruns. The study recommended regular financial training and integration of financial experts in road project teams.

Raghavan and Mehta (2020) conducted a study on financial competency and road project delivery across five states in India. Employing a mixed-methods design, they surveyed 300 professionals through stratified random sampling and conducted 10 interviews. Quantitative data were analyzed using ANOVA, and qualitative data through

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thematic coding. The study revealed that poor financial forecasting and inadequate budgetary oversight significantly delayed project completion. Projects managed by teams with certified financial managers experienced 22% fewer delays. The study concluded that strategic financial planning and real-time budget tracking are essential for infrastructure development success.

Karanja and Mutuku (2021) examined the impact of contract management skills on the performance of road construction projects in Nairobi County. Using a descriptive research design, the study targeted 110 engineers and project managers, selected through stratified sampling. Data were collected via structured questionnaires and analyzed using regression analysis. The findings revealed that effective contract management particularly in terms of scope control, change management, and adherence to contract terms significantly enhanced project delivery timelines and cost performance. The study recommended continuous professional training to improve contract administration competencies among road project managers in Kenya.

Mensah and Addo (2020) explored how contract management skills influenced the completion of road infrastructure projects in Accra. The study employed a mixed-methods approach involving surveys and interviews with 75 contractors and government officials. Purposive sampling was used, and data were analyzed through thematic and statistical methods. Results indicated that poor understanding of contract clauses, weak negotiation skills, and lack of enforcement mechanisms hindered project outcomes. Projects with managers trained in contract law and project documentation saw fewer delays and disputes. The study emphasized the need for contract-specific training to improve project success in Ghana.

Karanja and Otieno (2021) investigated the influence of procurement management skills on road construction projects in Nairobi County,

Kenya. They used a descriptive research design and sampled 100 project managers and procurement officers through stratified random sampling. Data was collected using structured questionnaires and analyzed with SPSS. The study found that procurement management, including vendor selection and contract negotiation, played a key role in improving project performance by reducing delays, costs, and ensuring higher quality outcomes. The findings highlighted that effective procurement skills were critical to meeting project objectives in a timely and cost-efficient manner.

Liu and Wang (2020) focused on procurement management skills and their impact on road construction projects in China. The study adopted a mixed-methods approach, collecting data from 100 participants through surveys and qualitative interviews. Data were analyzed using statistical tools and thematic analysis. The study found that procurement skills positively affected project outcomes, especially in terms of cost control, resource allocation, and timely completion. It emphasized that well-developed procurement practices and skilled management played a vital role in overcoming procurement challenges and improving overall project performance.

Hussein and Nasir (2021) examined the role of human resource management skills in road construction projects in Egypt. A cross-sectional survey design was used, targeting 150 construction project managers. Stratified sampling was employed, and data were collected through questionnaires. The findings revealed that HRM practices such as recruitment, employee engagement, and leadership directly influenced project performance. HRM skills were associated with improved team coordination, reduced conflicts, and timely project completion, emphasizing HRM's critical contribution to road construction project success.

Gómez and Soto (2020) analyzed the impact of human resource management skills on the

performance of road construction projects in Spain. The study used a mixed-methods approach, with 120 project managers completing surveys, followed by in-depth interviews. The study found that HRM practices like employee training, team-building, and communication skills significantly improved project outcomes. Projects managed with strong HRM skills showed enhanced productivity, reduced delays, and better quality, underlining the importance of effective HRM in road construction projects.

METHODOLOGY

A descriptive survey was used to carry out the investigation. This research approach was chosen because it is the most suitable option for gathering information on the current state of the subject under investigation. The study focused on 10 road construction projects undertaken by KURA. The study targeted 141 contractors register with NCA. Contractors in Trans Nzoia County having active registrations with the National Construction Authority in categories NCA 3, NCA4, NCA5, NCA6, and NCA 7 and working on projects for the Kenya Urban Roads Authority would make up the bulk of the study's target group. The 141 contractors in Trans Nzoia County who have previously worked in the county, who were working on construction sites or who have site labor contracts was the focus of this investigation. The study's sampling frame included NCA contractors' categories 3,4,5,6 and 7. Krejcie and Morgan formular was used to determine the population of 104 respondents.

Data was collected through structured questionnaires to collect primary data. The questionnaires were designed according to the objectives of the study by highlighting the four factors that the study checked on a Likert scale. Mugenda and Mugenda (2003) argue that these types of scales are used to measure perception, values and behaviors. This helped in minimizing subjectivity and makes it possible to use quantitative analysis. The likert scale ranged from 1-strongly disagree, 2-disagree, 3-partially agree, 4-agree and 5-strongly agree. The questionnaire was divided into five parts, part A focused on demographic characteristics of the respondents, B on financial management skills, part C on contract management skills, Part D on procurement management skills, Part E stakeholder human resource management skills and part F on performance of Kenya Urban Roads Authority construction projects.

The coded data was entered into SPSS Version 26, facilitating the data analysis process. Quantitative data analysis involves both descriptive and inferential statistics to provide a comprehensive understanding of the data collected. Descriptive analysis included frequency, percentages, mean and standard deviation. Moreover, inferential statistics was used specifically Pearson correlation and regression analysis. Multiple linear regression analysis in particular was performed, to determine the interrelationships of the study's many variables. Since the threshold of significance for the results was set at 0.05 and the study used a 95% confidence interval, the p-value needed to be less than 0.05 to be considered statistically significant. The following is an example of the form that the regression model was adopted:

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

Where:

Y=Performance of road construction projects

X_1=Financial management skills

X_2=Contract management skills

X_3=Procurement management skills

X_4=Human resource management skills

β_0=the regression coefficient or change included in Y by each X

ε=error term

RESULTS

Descriptive Statistics

Financial Management Skills

The study analyzed the effects of financial management skills on the performance of Kenya Urban Roads Authority construction projects in Trans Nzoia County. Table 4.6 summarizes the compiled outcomes pertaining to the different

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domains of financial management skills. In this scale, a rating of 5 expresses a strong agreement, a rating of 4 expresses agreement, a rating of 3 expresses neutrality, and a rating of 2 expresses disagreement and 1 have a strong disagreement viewpoint. The abbreviation "S.D" refers to the statistical value known as the standard deviation.

Table 1: Financial Management Skills

Financial Management Skills	5	4	3	2	1	Mean	S.D
Variance analysis helps to identify cost overruns in road construction projects.	12%	60%	17%	6%	4%	3.72	0.898
Variance analysis allows for timely adjustments to stay within the project budget.	6%	7%	15%	65%	6%	2.42	0.947
Effective budget preparation helps complete road construction projects on time and within budget.	16%	58%	15%	7%	4%	3.75	3.75
Budget preparation skills reduce the chances of cost overruns in road construction projects.	17%	52%	7%	21%	2%	3.60	1.080
Managing operating cash flow ensures there is enough money to pay for project expenses.	2%	32%	52%	12%	1%	3.22	0.742
Operating cash flow management keeps road construction projects on track financially.							
Average (N=81)						**3.34**	**1.48**

The study assessed the influence of financial management skills on the performance of Kenya Urban Roads Authority (KURA) construction projects in Trans Nzoia County, as shown in Table 4.6. The findings reflect varying levels of agreement across financial management indicators based on respondent feedback. The statement "Variance analysis helps to identify cost overruns" was agreed upon by 60% of respondents and strongly agreed by 12%, resulting in a mean of 3.72 and a standard deviation of 0.898, indicating strong consensus on its value. In contrast, only 6% strongly agreed and 7% agreed that "variance analysis allows for timely adjustments", while a significant 65% disagreed. This low agreement level corresponds with a mean of 2.42, suggesting many respondents perceive limited practical application or understanding of using variance analysis to proactively adjust budgets.

Budget preparation received the most favorable response, with 58% agreeing and 16% strongly agreeing that effective budget preparation helps projects finish on time and within budget. This resulted in a high mean of 3.75. Similarly, 69% of respondents (52% agreed, 17% strongly agreed) believed that strong budgeting reduces cost overruns (mean = 3.60). Regarding cash flow management, 32% agreed and 52% were neutral that it ensures sufficient funds for project expenses. However, only 2% strongly agreed, yielding a mean of 3.22 and a standard deviation of 0.742. Overall, financial management skills recorded an average mean of 3.34, with a high standard deviation of 1.48, showing moderate application and substantial variability.

The findings highlight that financial management is widely recognized as crucial for project success, particularly in budget preparation. This aligns with Flyvbjerg's (2014) argument that rigorous budgeting is essential for infrastructure projects to avoid cost overruns. However, the limited application of variance analysis for proactive adjustments suggests a gap between awareness and implementation, which contradicts Kerzner's (2017) recommendation that financial controls should be dynamic rather than reactive.

Additionally, the neutral stance on cash flow management raises concerns, as Kaming et al. (2017) found that poor cash flow management is a leading cause of project failures in developing economies. This indicates that while KURA project managers understand financial principles, they may lack the tools or training to apply them effectively in real time.

Contract Management Skills

The investigation looked at how skilled contract management affected the performance of Kenya Urban Roads Authority construction projects in Trans Nzoia County. Table 4.7 summarizes the compiled outcomes pertaining to the different domains of contract management skills. In this scale, a rating of 5 expresses a strong agreement, a rating of 4 expresses agreement, a rating of 3 expresses neutrality, and a rating of 2 expresses disagreement and 1 have a strong disagreement viewpoint. The abbreviation "S.D" refers to the statistical value known as the standard deviation.

Table 2: Contract Management Skills

Management Skills	5	4	3	2	1	Mean	S.D
Strong negotiation skills help secure favorable terms in road construction contracts.	15%	62%	10%	5%	9%	3.69	1.068
Negotiation skills reduce disputes and delays during road construction projects.	10%	59%	20%	5%	6%	3.62	0.956
Accurate contract need assessments prevent unnecessary changes during construction projects.	5%	54%	27%	11%	2%	3.48	0.853
Assessing the contract needs properly improves project planning and execution.	10%	47%	32%	9%	2%	3.53	0.882
Effective communication between project stakeholders improves contract execution.	7%	62%	20%	6%	5%	3.60	0.904
Clear communication skills reduce misunderstandings and conflicts during construction projects.	15%	62%	10%	5%	9%	3.69	1.068
Average (N=81)						**3.6**	**0.955**

The study thoroughly assessed the influence of contract management skills on the performance of Kenya Urban Roads Authority (KURA) construction projects in Trans Nzoia County, as summarized in Table 4.7. The findings underscore that contract management, specifically negotiation skills, contract need assessment, and stakeholder communication, plays a pivotal role in ensuring smooth and timely project delivery. The item "Strong negotiation skills help secure favorable terms in road construction contracts" was rated highly, with 15% of respondents strongly agreeing and 62% agreeing, indicating that over three-quarters (77%) of the project managers recognized negotiation skills as essential to securing beneficial

contract conditions. This variable recorded a mean of 3.69 and a standard deviation of 1.068, signifying a high level of agreement, albeit with moderate variability in responses.

Similarly, "Clear communication skills reduce misunderstandings and conflicts during construction projects" received the same percentage of agreement (15% strongly agree, 62% agree), reinforcing the idea that communication is fundamental in minimizing disputes. This item also had a mean of 3.69 and S.D = 1.068, suggesting consistency in perception with the previous item. The statement "Negotiation skills reduce disputes and delays during road construction projects" followed closely, with 10% strongly agreeing, 59%

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agreeing, and a mean score of 3.62. This finding demonstrates that respondents see skilled negotiation not only as a tool for securing favorable terms but also for avoiding delays, a major factor in project performance.

Assessment-related items were slightly less highly rated but still considered important. For instance, "Accurate contract need assessments prevent unnecessary changes during construction projects" was supported by 5% strongly agreeing and 54% agreeing, yielding a mean score of 3.48. This suggests that while most respondents value accurate need assessments, there is slightly less consensus compared to negotiation and communication skills. In terms of planning, "Assessing the contract needs properly improves project planning and execution" garnered 10% strong agreement and 47% agreement, with a mean of 3.53. This reinforces the view that thorough assessment before contract execution leads to better project outcomes.

Communication was once again emphasized in "Effective communication between project stakeholders improves contract execution", which recorded 7% strongly agreeing, 62% agreeing, and a mean of 3.60. This confirms that internal coordination and consistent updates across stakeholders are vital in executing contracts efficiently. On average, the contract management skill items had a mean score of 3.6 with a standard deviation of 0.955, suggesting that respondents generally agree on the positive impact of these skills on project performance, although responses varied slightly across specific domains.

The emphasis on negotiation and communication skills in contract management supports Cheung et al.'s (2013) findings that effective negotiation is critical in African infrastructure projects. The strong focus on communication aligns with Rahman and Kumaraswamy's (2016) relational contracting approach, which highlights the importance of stakeholder engagement in minimizing disputes. However, the relatively weaker emphasis on pre-contract assessments suggests a potential vulnerability, as Doloi (2013) demonstrated that thorough contract analysis can prevent a significant portion of construction conflicts. This implies that while KURA teams excel in managing active contracts, they could benefit from more structured risk assessment before project initiation.

Procurement Management Skills

Table 3 summarizes the compiled outcomes pertaining to the different domains of procurement management skills. In this scale, a rating of 5 expresses a strong agreement, a rating of 4 expresses agreement, a rating of 3 expresses neutrality, and a rating of 2 expresses disagreement and 1 have a strong disagreement viewpoint. The abbreviation "S.D" refers to the statistical value known as the standard deviation.

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Table 3: Procurement Skills

Procurement Skills	5	4	3	2	1	Mean	S.D
Efficient management of procurement cycle time leads to faster completion of road construction projects.	15%	62%	10%	5%	9%	3.69	1.068
Reducing procurement cycle time helps minimize delays in road construction projects.	10%	59%	20%	5%	6%	3.62	0.956
Effective vendor performance management improves the quality of materials and services used in road construction.	5%	54%	27%	11%	2%	3.48	0.853
Monitoring vendor performance closely helps avoid delays and cost overruns in construction projects.	10%	47%	32%	9%	2%	3.53	0.882
Effective procurement skills lead to significant cost savings in road construction projects.	7%	62%	20%	6%	5%	3.60	0.1044
Proficient procurement management helps identify cost-effective solutions in the procurement process.	40%	41%	6%	10%	4%	4.02	1.095
Average (N=81)						**3.66**	**0.826**

The study examined the impact of procurement management skills on the performance of Kenya Urban Roads Authority (KURA) construction projects in Trans Nzoia County, as outlined in Table 4.8. The findings reveal that procurement practices, especially efficient cycle time management, vendor oversight, and cost-effective purchasing, significantly influence project delivery and budget efficiency. The highest-rated item was "Proficient procurement management helps identify cost-effective solutions in the procurement process," with 40% of respondents strongly agreeing and 41% agreeing, totaling 81% support. It recorded the highest mean of 4.02 and a standard deviation of 1.095, indicating strong consensus on the value of skilled procurement in identifying affordable yet effective solutions, which enhances project outcomes.

The statement "Efficient management of procurement cycle time leads to faster completion of road construction projects" received similar support, with 15% strongly agreeing and 62% agreeing, showing that 77% of the respondents acknowledge the critical role procurement cycle management plays in timely project completion. The mean was 3.69, with a standard deviation of 1.068, demonstrating moderate variability in perceptions. Closely related, "Reducing procurement cycle time helps minimize delays" recorded 10% strongly agreeing, 59% agreeing, and a mean of 3.62, emphasizing the importance of time-sensitive procurement in avoiding project stagnation.

Vendor-related practices also emerged as key performance contributors. For example, "Effective vendor performance management improves the quality of materials and services" had 5% strong agreement, 54% agreement, and a mean score of 3.48, showing that vendor oversight correlates with improved material quality. Similarly, "Monitoring vendor performance closely helps avoid delays and cost overruns" was supported by 10% strongly

agreeing, 47% agreeing, and a mean of 3.53, underscoring vendor accountability in cost and time control.

Additionally, "Effective procurement skills lead to significant cost savings in road construction projects" earned a mean score of 3.60, with 7% strongly agreeing and 62% agreeing, illustrating a widespread belief that procurement proficiency translates into fiscal efficiency. The average mean across all items was 3.66, and the standard deviation was 0.826, suggesting overall strong agreement and relatively consistent perceptions among the 81 respondents.

The recognition of procurement as a key driver of project success reinforces Osei-Tutu et al.'s (2020) argument that efficient procurement is particularly impactful in African public infrastructure projects. The focus on reducing procurement cycle times resonates with Koskela's (2017) lean construction principles, which advocate for streamlined processes to minimize delays. However, the mixed

perceptions of vendor management suggest inconsistencies in supplier oversight, which is concerning given Oyegoke et al.'s (2020) evidence that poor vendor performance contributes significantly to material delays. These findings indicate that while KURA acknowledges procurement's importance, there may be uneven execution in practice.

Human Resource Management Skills

The research analyzed how effectively human resource management skills contributed to the performance of Kenya Urban Roads Authority construction projects in Trans Nzoia County. Table 4.9 summarizes the compiled outcomes pertaining to the different domains of human resource management skills. In this scale, a rating of 5 expresses a strong agreement, a rating of 4 expresses agreement, a rating of 3 expresses neutrality, and a rating of 2 expresses disagreement and 1 have a strong disagreement viewpoint. The abbreviation "S.D" refers to the statistical value known as the standard deviation.

Table 4: Human Resource Management Skills

Human Resource Management Skills	5	4	3	2	1	Mean	S.D
Effective workforce planning ensures that the right number of skilled workers is available for road construction projects.	17%	59%	5%	14%	5%	3.70	1.066
Workforce planning skills contribute to the efficient allocation of labor resources in road construction projects.	25%	49%	15%	6%	5%	3.83	1.034
Motivating employees effectively enhances their productivity and performance in road construction projects.	22%	47%	15%	9%	7%	3.68	1.138
Project managers with strong motivational skills create a positive work environment that improves project outcomes.	25%	47%	15%	11%	2%	3.80	1.018
Conflict resolution skills are essential in preventing delays caused by team disagreements on road construction projects.	40%	41%	6%	10%	4%	4.02	1.095
Effective conflict resolution leads to improved collaboration among team members, contributing to project success	42%	30%	17%	7%	4%	3.99	1.112
Average (N=81)						**3.84**	**1.077**

The study explored the influence of human resource management skills on the performance of

Kenya Urban Roads Authority (KURA) construction projects in Trans Nzoia County, as summarized in

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Table 4. The results underscore the central role of human capital in determining construction project outcomes through effective planning, motivation, and conflict resolution. The highest-rated item was "Conflict resolution skills are essential in preventing delays caused by team disagreements," which had 40% of respondents strongly agreeing and 41% agreeing, amounting to 81% support. It recorded a mean of 4.02 and a standard deviation of 1.095, indicating that most respondents view conflict resolution as critical to maintaining workflow continuity and avoiding costly project interruptions.

Following closely was "Effective conflict resolution leads to improved collaboration among team members", where 42% strongly agreed and 30% agreed, totaling 72% agreement and yielding a mean of 3.99. This highlights the value of interpersonal management in enhancing teamwork and, subsequently, construction project success. Workforce planning also emerged as a key factor. "Workforce planning skills contribute to efficient allocation of labor" received 25% strong agreement and 49% agreement, with a mean of 3.83, while "Effective workforce planning ensures the right number of skilled workers is available" earned 17% strong agreement, 59% agreement, and a mean of 3.70. These findings affirm that skilled labor planning significantly impacts the availability and productivity of construction teams.

Additionally, "Motivating employees enhances productivity" and "Motivational project managers improve outcomes" received means of 3.68 and 3.80, respectively. With more than 69% of respondents agreeing or strongly agreeing with both statements, these results suggest that motivation plays a substantial role in fostering a productive and results-driven workforce in road construction projects. Overall, the average mean across all items was 3.84, with a standard deviation of 1.077, indicating widespread agreement on the significance of HR management skills and a relatively consistent perception among the 81 respondents.

The strong emphasis on conflict resolution aligns with Fenn et al.'s (2018) research, which identifies interpersonal conflict as a major disruptor in construction projects. The value placed on workforce planning supports Loosemore's (2016) assertion that proper labor allocation is critical for productivity. Additionally, the focus on motivation reflects Lingard et al.'s (2019) findings that employee engagement directly impacts project outcomes. However, the variation in responses suggests that while some teams prioritize HR management, others may treat it as secondary to technical aspects. This reinforces Ofori's (2013) argument that the "human factor" is often undervalued in construction despite its proven impact.

Project Performance

This research aimed to determine the various components of performance of road construction projects. Table 5 summarizes the compiled outcomes pertaining to the different domains of performance. In this scale, a rating of 5 expresses a strong agreement, a rating of 4 expresses agreement, a rating of 3 expresses neutrality, and a rating of 2 expresses disagreement and 1 have a strong disagreement viewpoint. The abbreviation "S.D" refers to the statistical value known as the standard deviation.

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Table 5: Performance of Road Construction Projects

	5	4	3	2	1	Mean	S.D
Kenya Urban Roads Authority construction projects in Trans Nzoia County are typically completed within the scheduled timeframe.	40%	48%	5%	6%	1%	4.19	0.882
The timely completion of road construction projects is consistently achieved by Kenya Urban Roads Authority in Trans Nzoia County.	25%	44%	12%	10%	9%	3.67	1.204
Kenya Urban Roads Authority construction projects in Trans Nzoia County are generally completed within the allocated budget.	43%	30%	16%	6%	5%	4.00	1.140
Effective financial management ensures that road construction projects by Kenya Urban Roads Authority in Trans Nzoia County stay within budget.	17%	52%	26%	2%	2%	3.79	0.847
The quality of road construction projects by Kenya Urban Roads Authority in Trans Nzoia County meets the expectations of the end users.	20%	49%	16%	10%	5%	3.69	1.056
Users are generally satisfied with the road construction projects delivered by Kenya Urban Roads Authority in Trans Nzoia County.	15%	51%	22%	7%	5%	3.63	0.993
Average (N=81)						**3.83**	**1.02**

The study assessed the performance of Kenya Urban Roads Authority (KURA) construction projects in Trans Nzoia County by examining key metrics such as time, cost, and quality. Table 4.10 presents the respondents' perceptions on these performance dimensions using a 5-point Likert scale. The item with the highest agreement was "KURA projects are completed within the scheduled timeframe," with 40% strongly agreeing and 48% agreeing, producing a high mean score of 4.19 and a low standard deviation (S.D = 0.882). This indicates a strong perception that project timelines are generally met.

Similarly, "Projects are completed within allocated budgets" received a mean of 4.00, with 43% strongly agreeing and 30% agreeing, further emphasizing financial efficiency in project delivery. Respondents also acknowledged the role of sound fiscal practices, as "Effective financial management ensures budget adherence" scored a mean of 3.79. Regarding quality, 49% agreed and 20% strongly agreed that KURA projects meet user expectations, yielding a mean of 3.69. Likewise, user satisfaction was noted with 15% strongly agreeing and 51%

agreeing, producing a mean of 3.63. Overall, the performance variables achieved an average mean of 3.83 and standard deviation of 1.02, indicating generally favorable views with moderate variability. These results suggest that while most projects are timely and cost-efficient, areas such as user satisfaction and perceived quality present opportunities for further enhancement.

The generally positive perceptions of project timelines and budget adherence are encouraging, particularly when contrasted with broader regional challenges documented by Aje (2016) and the World Bank (2021). However, the slightly lower confidence in quality standards echoes Kadiri et al.'s (2018) observations about persistent quality assurance issues in African road projects. This suggests that while KURA performs well in meeting schedules and budgets, there may be opportunities to enhance quality control mechanisms.

Correlation Analysis Results

Finding out whether there is a connection between the two factors was the primary focus of this investigation. It has been suggested by Kothari

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(2004) that the product moment correlation should only be used when both the dependent and independent variables have been assessed on a ratio or interval scale. Correlation coefficients below -1 indicate a negative relationship between variables, as shown by research by Kothari (2011) and Oso & Onen (2009). That's because a negative correlation between the two states that when the

dependent variable rises, the independent one falls. In other words, if the independent variable is trending upwards, it is highly correlated with the dependent variable, and vice versa, then the correlation value is 1. An inverse correlation of -1, on the other hand, shows a null statistical relationship between the two variables.

Table 6: Correlations Analysis

		CMS	PMS	FMS	HRMS
CMS: Contract Management Skills	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	81			
PMS: Procurement Management Skills	Pearson Correlation	.193	1		
	Sig. (2-tailed)	.084			
	N	81	81		
FMS: Financial Management Skills	Pearson Correlation	.600**	.415**	1	
	Sig. (2-tailed)	.000	.000		
	N	81	81	81	
HRMS: Human Resource Management Skills	Pearson Correlation	.507**	.511**	.639**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	81	81	81	81
Performance of Road Construction Projects	Pearson Correlation	.595**	.609**	.719**	.747**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	81	81	81	81

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

The findings of the correlation analysis reveal a strong and significant relationship between key management skills Contract Management Skills (CMS), Procurement Management Skills (PMS), Financial Management Skills (FMS), and Human Resource Management Skills (HRMS) and the performance of Kenya Urban Roads Authority (KURA) construction projects in Trans Nzoia County.

Contract Management Skills demonstrated a strong positive correlation with project performance (r = 0.595, p < 0.01), suggesting that effective handling of contract terms, adherence to timelines, and proper dispute resolution mechanisms significantly enhance the success of KURA road construction projects. When contracts are well managed, resources are efficiently utilized, legal risks are minimized, and deliverables are met on time, thus boosting overall project

outcomes. This aligns with Gichichi et al. (2019) and Chege & Wang (2020), who argue that effective financial planning and control are key to cost containment and timely project completion in infrastructure projects. However, the low agreement on timely budget adjustments contrasts with Dandibi et al. (2019), who found that SMEs with stronger financial response mechanisms adapt better to budget variances. The divergence may reflect gaps in training or limited autonomy of KURA project managers in adjusting budgets mid-cycle.

Procurement Management Skills also showed a strong positive relationship with project performance (r = 0.609, p < 0.01). This underscores the critical role of strategic procurement planning, supplier evaluation, and transparent tendering processes in ensuring timely acquisition of materials and services. In the

context of KURA projects, efficient procurement processes reduce delays, control costs, and ensure quality compliance, all of which directly influence performance. This supports Saka et al. (2019) and Wanambisi (2022), who emphasize that strong negotiation and clear contracts reduce scope creep and delays. However, while respondents recognized the value of contract needs assessment, its relatively lower rating contradicts Hakizimana et al. (2023), who report that thorough pre-contract assessments are consistently prioritized in successful public sector projects. This inconsistency may result from time constraints or lack of capacity among field-level managers.

Financial Management Skills yielded one of the highest correlations with performance (r = 0.719, p < 0.01), highlighting the importance of sound budgeting, financial tracking, and cost control in infrastructure development. For KURA projects in Trans Nzoia County, the ability to effectively manage funds directly affects the scope, pace, and quality of road works. This supports findings by Delorme (2023) and Boutbhirt & Adaskou (2023), which highlight the role of strategic procurement in ensuring project quality and timeliness. However, while the current study places significant weight on procurement's impact, Amankwah-Amoah et al. (2023) note that in some African contexts, bureaucratic hurdles and corruption undermine procurement efficiency. The high influence observed in Trans Nzoia may suggest successful localization or reform in KURA's procurement operations.

Human Resource Management Skills showed the strongest correlation with project performance (r = 0.747, p < 0.01). This indicates that the management of skilled labor, motivation, and deployment of personnel is crucial in ensuring project continuity and technical efficiency. In KURA projects, where multidisciplinary teams are involved, effective HR practices reduce staff turnover, improve morale, and enhance productivity factors that are essential for successful project delivery. Conflict resolution and workforce planning were highly rated, aligning with Mayanja et al. (2023) and Ali et al. (2020), who found that motivated and well-managed teams are central to infrastructure project success. This finding is further reinforced by Horak & Suseno (2023), who argue that informal networks and soft HR practices significantly enhance productivity in complex construction environments. No major contradicting studies were identified, indicating strong consensus on the value of HR management in road projects.

Regression Analysis Results

Potential correlations between factors were analyzed using a multivariate linear regression model. The regression model used parameters derived from the mean evaluations of four distinct independent variables, namely contract management skills, procurement management skills, financial management skills, and human resource management skills.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.858[a]	.736	.722	.24632

a. Predictors: (Constant), Contract Management Skills, Procurement Management Skills, Financial Management Skills and Human Resource Management Skills

The regression analysis results reveal a strong predictive relationship between the four independent variables Contract Management Skills, Procurement Management Skills, Financial Management Skills, and Human Resource Management Skills and the performance of Kenya Urban Roads Authority (KURA) construction projects in Trans Nzoia County. The model summary

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indicates a multiple correlation coefficient (R) of 0.858, which signifies a strong overall correlation between the combined management skills and project performance. The R^2 value of 0.736 shows that approximately 73.6% of the variation in project performance can be explained by the four management skills included in the model. This high R^2 demonstrates the substantial contribution of these skills to the success of KURA road construction projects. The Adjusted R^2 value of 0.722 confirms that even after adjusting for the number of predictors in the model, the independent variables still collectively account for 72.2% of the variance in performance.

Table 8: Analysis of Variance of the Regression (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12.869	4	3.217	53.024	.000^b
	Residual	4.611	76	.061		
	Total	17.480	80			

a. Dependent Variable: performance of Kenya Urban Roads Authority construction projects in Trans Nzoia County

b. Predictors: (Constant), Contract Management Skills, Procurement Management Skills, Financial Management Skills and Human Resource Management Skills

The Analysis of Variance (ANOVA) results in Table 8 confirm the statistical significance of the regression model used to examine the relationship between management skills and the performance of Kenya Urban Roads Authority (KURA) construction projects in Trans Nzoia County. The F-statistic is 53.024 with a significance level (p-value) of .000, which is well below the conventional threshold of 0.05. This indicates that the regression model is statistically significant, meaning that the combined effect of the four independent variables Contract Management Skills, Procurement Management Skills, Financial Management Skills, and Human Resource Management Skills has a meaningful impact on the dependent variable, which is project performance.

Table 9: Significance of Independent Variables

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.254	.177		7.096	.000
Contract Management Skills	.132	.046	.220	2.8104	.005
Procurement Management Skills	.208	.049	.295	4.214	.000
Financial management Skills	.180	.059	.262	3.052	.003
HR Management Skills	.151	.040	.318	3.765	.000

a. Dependent Variable: performance of road construction projects

Basing on the regression coefficients, the study model took the following form:

$$Y = 1.254 + 0.132\,X_1 + 0.208X_2 + 0.180\,X_3 + 0.151\,X_4$$

X_1 is Contract Management Skills
X_1 is Procurement Management Skills
X_1 is financial management Skills
X_1 is HR Management Skills

Financial management skills

Financial management skills also played a significant role, with a coefficient of 0.180 and a p-value of 0.003. A unit increase in Financial Management Skills results in a 0.180 unit gain in performance (B = 0.180, p = 0.003), indicating that budget preparation, variance analysis, and operating cash flow management are essential for cost containment and project sustainability. This

reflects the importance of budgeting, fund allocation, expenditure tracking, and financial reporting in project execution. Proper financial oversight ensures that funds are used efficiently and transparently, contributing to the timely and quality delivery of road infrastructure projects. These results support prospect theory as put forth by Kahneman and Tversky (1979). Prospect Theory was a foundational concept in behavioral finance, which studied how psychological biases affect financial decision-making. Financial managers can draw on behavioral finance insights to anticipate how project stakeholders might react to financial information and tailor their communication and financial strategies accordingly. Prospect theory can be a valuable tool for project managers to improve their financial management skills. Project managers may improve their resource allocation, risk management, and stakeholder communication skills by first gaining a knowledge of how people make choices in the face of risk and uncertainty. Project managers can use prospect theory to develop more realistic and achievable budgets. For example, they can avoid setting budgets that are too ambitious, as this can lead to disappointment and frustration.

The findings were in line with existing empirical studies. For instance, Oyebode (2022) found out that there is a favorable correlation between financial management skills impact and timely project completion. Budgeting was the one of four skill components that affect project cost performance. Furthermore, Rotich and Mungai (2023) indicated a somewhat substantial connection between competent project budgeting and the success of WASH initiatives. Colins (2018) claimed most construction companies' financial managers consider budgeting to be their responsibility. Management team members' abilities and personalities matter greatly when deciding how to divide up work. (Ofori, 2020). A successful financial manager understands the need of working together to meet shared goals. Pinto (2020) believed that various tasks call for various project managers. The CFO's priority should be to maximize profit on projects through value recovery. (Dubois, 2020). Dubois argued that in order to succeed, complicated projects required project managers who are equipped with specific competencies.

Contract management skills

Contract management skills demonstrated a positive and significant influence on project performance, with a coefficient of 0.132 and a significance level of p = 0.005. This implies that for every unit increase in contract management competence, project performance is likely to increase by 0.132 units. This finding highlights the critical role of effectively managing contracts, ensuring compliance with contract terms, timely execution of tasks, and clear communication between contractors and supervising agencies in enhancing the outcomes of road projects.

The outcomes of the research are supported in a manner that is acceptable by the pareto analysis theory (Pareto, 1923). Contract management expertise in the field of project management benefited greatly from the application of the Pareto principle, often known as the 80/20 rule or the law of the vital few. The contracts that have the most impact on the project's timeline, budget, and level of risk may be identified using a Pareto analysis. This data may be used to direct contract management efforts toward the agreements that have the most impact on achieving the project's objectives. By concentrating on the most important aspects of contract management, it enables project managers and contract managers to more efficiently prioritize their time and resources. Pareto analysis theory can be a valuable tool in contract management skills within project management by helping professionals identify, prioritize, and allocate resources to the most critical aspects of contract management. This approach enhanced efficiency, reduces risk, and contributed to the overall success of the project.

The findings presented in this study provide corroborating evidence for the assertions made by Crawford (2020) on the significance of several

technical skills in project management, such as managing contracts, managing one's time, managing costs, the management of procurement, and managing human resources. Bajari's (2020) asserted that the assessment of construction contractors during prequalification and tender evaluation included a significant consideration of their management capacity. The study results provided further support to Chipulu's (2018) asserted that the development of competences was crucial for project managers in order to effectively respond and adapt to the changing market and industry requirements.

Procurement management skills

Procurement management skills had the highest impact among the four variables, with a coefficient of 0.208 and a significance of p = 0.000. a unit increase in Procurement Management Skills is associated with a 0.208 unit increase in performance (B = 0.208, p = 0.000), underscoring the critical role of efficient vendor management, procurement cycle control, and sourcing of quality materials in ensuring value for money and project success. This suggests that improved procurement processes including supplier evaluation, competitive bidding, and contract awards directly translate to better project delivery and resource utilization. Efficient procurement practices reduce project delays, cost overruns, and the risk of substandard work, thus significantly boosting road construction performance.

The research results provide credence to the Competency hypothesis proposed by McClelland and McBer (1980). Managing the necessary materials and equipment is a crucial part of every project. Procurement professionals' efficiency and effectiveness may be boosted by adopting a project management mindset and applying Project Management Competency Theory to their procurement management skills within a project management framework. In order to succeed in project management roles, one needs a wide variety of skills, knowledge, and abilities, which are the primary emphasis of the Project Management

Competency Theory. When it was applied to procurement management inside project management, it helped professionals manage the purchase of the necessary commodities and services for projects in a more efficient manner. In order for a project to be effective, it is necessary to go through the process of procuring the various products and services that are required. In order to be successful, procurement managers need to have a broad variety of skills and expertise, including the ability to effectively manage contracts, to effectively manage suppliers, and to effectively communicate.

In addition, the findings were consistent with the observations that Michell, Bowen, and Pearl (2020) observed, which indicated that construction clients prioritize the timely completion of their projects within the allotted budget and with the desired standards of quality. The findings of the current study contributed to the research that Yates and Eskander (2018) had already conducted. Their proposition asserted that a successful project is distinguished by its punctual conclusion, adherence to financial limitations, accomplishment of project objectives, and achievement of the intended standard of excellence. Despite variations between projects, Love and Wardani (2020) argued that clients consistently opt for the same procurement processes they've used in the past. Improved awareness of how various procurement processes impact various facets of project performance was crucial for bringing about transformation. (Laedre, 2018).

Human Resource Management Skills

Lastly, human resource management skills had a coefficient of 0.151 and a significance level of p = 0.000, indicating a strong influence on project outcomes. A unit increase in Human Resource Management Skills contributes a 0.151unit improvement in performance (B = 0.151, p = 0.000), showing that workforce planning, motivation, and conflict resolution significantly enhance productivity and collaboration on construction sites. This underscores the importance of managing

personnel effectively through training, motivation, deployment, and supervision to ensure that the workforce remains productive, compliant with standards, and aligned with project goals. Skilled HR management facilitates coordination among teams and enhances labor efficiency, which ultimately improves project performance. Human resource management (HRM) skills were essential for the effective management of road construction projects. Road construction projects were complex and often involved a large number of workers with different skills and experience levels. Project success on schedule, within budget, and with a high quality output is a direct result of effective human resource management practices implemented by project managers. This was in line with Project Management Competency Theory (PMCT) as outlined by McClelland and McBer (1980). This theory focused on the knowledge, skills, and abilities required to excel in project management roles. When applied to HRM, it helps HR professionals better manage HR-related projects, programs, and initiatives. By applying PMCT to human resource management skills, organizations can develop and retain HR professionals who have the competencies needed to be successful project managers. This can lead to improved project outcomes and increased organizational success.

The findings were further adequately supported by other empirical studies. Stone et al. (2020). showed that there was a finite amount of operational resources available to each given business. Managing the program's implementation within the confines of available resources was a major issue for the project manager. Careful resource management was essential for road infrastructure projects, which necessitated assembling a group of knowledgeable individuals to coordinate not just the human resources necessary to complete the work, but also the tools and equipment that was used. Wright and Ulrich (2017) revealed a close connection between the HR aspect of a project's success and the overall outcome. Mugira (2020) also analyzed the effects of workers' actions on the

Ripples International project's execution. The findings indicate that Ripples International's hiring and selection practices, performance reviews, and teamwork were all undertaken, and that these factors may have contributed to the project's success.

CONLUSION AND RECOMMENDATIONS

Based on the results, the research concludes as follows;

The study concludes that while financial management skills positively influence KURA project performance, their application is inconsistent and in some areas underutilized. Findings showed strong agreement that variance analysis and budget preparation contribute significantly to cost control and timely project delivery. However, a large proportion of respondents disagreed that variance analysis was used to make timely budget adjustments, and many were neutral on cash flow management practices. This suggests gaps in the consistent application of financial monitoring tools. Despite these inconsistencies, regression analysis confirmed that financial skills still have a meaningful impact on project outcomes, supporting their importance for successful project execution.

The study concludes that contract management skills have a direct and positive impact on the performance of KURA construction projects. Respondents widely agreed that strong negotiation and communication skills help secure favorable contract terms and reduce disputes, which are vital for smooth project execution. Furthermore, contract need assessment and stakeholder communication were acknowledged as supporting effective planning and reducing misunderstandings. These observations were reinforced by correlation and regression results, which showed that improved contract management directly contributes to better project outcomes in terms of efficiency, compliance, and dispute mitigation.

The study concludes that procurement management skills are critical drivers of KURA

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project success, particularly in terms of timely completion and cost control. The strongest support was observed for statements relating to identifying cost-effective solutions and efficient procurement cycle management. Respondents acknowledged that monitoring vendor performance and maintaining procurement discipline reduces delays and ensures quality. These findings were further supported by the regression analysis, which indicated that procurement management had the highest individual contribution to project performance, making it a vital area for continuous improvement.

The study concludes that human resource management skills play a foundational role in enhancing project performance for KURA in Trans Nzoia County. The findings demonstrated overwhelming agreement on the importance of workforce planning, motivation, and conflict resolution. The highest-rated statements confirmed that resolving team disputes and fostering collaboration significantly prevent project delays. Additionally, motivational strategies and proper labor allocation were recognized for boosting team productivity and morale. Regression results validated that HR skills had the strongest correlation with project success, highlighting the need for strategic personnel management in public infrastructure development.

The following are suggestions developed throughout the study that are consistent with the stated goals;

Project managers should prioritize the development and application of detailed budget preparation and variance analysis techniques. This includes actively monitoring financial progress against planned budgets and making timely adjustments to control costs. Managers must ensure that all project expenditures are aligned with approved cash flow plans and regularly report budget deviations to senior management for corrective action.

Project managers should enhance their contract negotiation and interpretation skills to secure favorable and clear contract terms. They should also conduct thorough contract needs assessments before project initiation and ensure continuous communication among stakeholders throughout the contract period to avoid conflicts and delays. Clear documentation and prompt resolution of contract issues should be a standard practice.

Project managers must streamline procurement cycles by planning procurement timelines early and sticking to schedules. They should also rigorously vet vendors and suppliers to ensure timely delivery and quality compliance. Monitoring vendor performance through set KPIs should be a routine task, and managers should always pursue the most cost-effective procurement options without compromising quality.

Project managers should implement structured workforce planning to ensure that the right skills are available at every project stage. They must foster motivation through recognition and performance incentives and resolve conflicts quickly to maintain team cohesion. Regular site meetings and feedback sessions should be conducted to boost morale and improve communication within teams.

Suggestions for Further Research

The inability to extrapolate the findings to other contexts may stem from this restriction. More research on a wider scale, such as a county or region, is needed to isolate the impact of project management skills on performance of road construction as shown by the results of the current study.

The research used quantitative data that was gathered by the administration of a structured questionnaire. Hence, it is recommended that future research endeavours include qualitative methodologies such as focus groups, open-ended surveys, and interviews, since these may contribute to the refinement of more conclusive findings.

The scope of the research was narrowed to focus on only four types of management skills: human resource management, contract management,

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procurement management, and finance management. Further studies should focus on other management skills such as monitoring and evaluation skills.

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