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ABSTRACT

The purpose of this research was to examine the effect of project planning practices on performance of road construction projects in Kwale County, Kenya. The study employed the correlational research design to test non-causal relationships among study variables. The target population consisted of 236 project implementation team in charge of 59 road construction projects under the Kenya Rural Roads Authority in Kwale County, Kenya. The proportionate stratified random sampling technique was used to select a sample size of 148 project implementation team in charge of 37 road construction projects under the Kenya Rural Roads Authority in Kwale County, Kenya. A pilot study was conducted to ascertain the validity and reliability of the constructed survey questionnaire. A cross-sectional survey-based approach was used to collect primary data. With the help of 3 research assistants, the researcher utilized the drop and pick method to hand deliver the survey questionnaires to the project implementation team in charge of the road construction projects. The collected data was processed and entered into the statistical package for social sciences (SPSS) version 26 to create a data sheet used for statistical analysis. The collected data was analyzed using descriptive statistics and inferential statistics. The Pearson's product moment correlation results indicated that project planning practices had positive and significant relationship with performance of road construction projects in Kwale County, Kenya. The regression results indicated that that project resource planning practice and project scope planning practice had positive and significant influence on performance of road construction projects in Kwale County, Kenya. The project managers should recognize the importance of project planning practices and apply them to foster the performance of road construction projects. The policymakers should initiate policy review to motivate project managers to recognize the importance of project planning practices and apply them to foster performance of road construction projects. Future researchers should examine the moderating effect of project complexity on the relationship between project planning practices and performance of road construction projects in other regions or contexts.

Key words: *Firm Performance, Project Planning Practices, Resource Planning, Project Scope Planning, Kenya*

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INTRODUCTION

The successful road construction is a catalyst for economic growth. The successful completion of road construction projects contributes to the continued economic growth and development of the nation (Cheserek & Sangoro, 2023). The success of road construction projects is essential to the expansion and development of any economy, generating cash and jobs, road construction projects are significant for the economy (Kabiti & Kikwatha, 2022). However, some road construction projects are struggling to maintain their relevance, while others have outright failed (Adagba, Hassan, & Umar, 2023). The delay in construction projects has been a global phenomenon, hence one of the most important problems in the construction industry (Feresew, 2022; Oluwafunmilola, Sadiq, & Idris, 2022). The road construction projects can experience delays due to a variety of reasons (Matisi & Marani, 2023). The road construction projects that do not meet quality and performance standards can be viewed from various perspectives (Willar, Trigunarsyah, Dewi, & Makalew, 2023). Existent literature posits that one of the poor project performances is project delay, which results in several economic, political, social, and other consequences (Tamene, 2023; Umulisa, Mbabazize, & Shukla, 2023).

The construction industry is one of the key industries for any country. However, it is evident from the literature that most of the construction projects are seriously affected by delays (Memon, Memon, Khahro, & Javed, 2023). The delays in road construction projects are one of the many expensive, frequent, hazardous, and complicated issues that arise in the completion of road projects (Ghanbari, Zolfaghari, & Yadegari, 2023). The project delays pose a substantial challenge in the construction sector and often render previously viable technical and economic plans obsolete in the face of changing circumstances (Al Musawi & Naimi, 2023; Ghanbari & Hasani, 2024). The construction delays are the most common issue and creates many adverse effects in any construction industry (Hoque, Safayet, Rana, Bhuiyan, & Quraishy, 2023). Moreover, meeting quality and performance targets is still challenging (Şirin, Sarıkaya, Yıldırım, & Kıvak, 2021). The reoccurrence of failed and abandoned projects in Kenya has become an issue of concern as huge investments end up being wasted (Kabiti & Kikwatha, 2022). However, project planning is widely thought to be an important contributor to project success (Akinradewo, Oguntona, Ogunbayo, Aigbavboa, & Chimbadzwa, 2023; Smith, 2021).

Project planning is the process in which schedules, workforce, milestones, equipment, as well as budget estimates are specified otherwise estimating the time, cost, effort and employees' resources required in the execution of the project (Afshari & Sobhanifard, 2023; Irfan *et al.*, 2021). Essentially, project planning involves establishing the scope, aims, and objectives of a project (Alemayhu, 2023; Jotham & de Dieu, 2022). Effective project planning is critical to project success (Abdulkadir, 2023; Akinradewo *et al.*, 2022). However, project managers who fail to improve project planning can observe a decrease in performance (Tuo, 2022).

Statement of the Problem

Despite being pivotal to the global economy, the construction projects are seriously affected by delays (Memon *et al.*, 2023). The delays in construction projects have been a global phenomenon, and one of the most important problems in the construction industry (Oluwafunmilola *et al.*, 2022). Although the Kenyan government has implemented a number of policies to improve the efficiency of road construction projects, most of the road construction projects have not been completed within the deadlines that were previously planned for them (Cheserek & Sangoro, 2023). Only 35% of projects met the desired quality requirements and about 55 percent of the road construction projects in the country face a variety of difficulties, that prevent them from being completed on time, incurring cost overruns, or failing to meet the required quality requirements (Kabiti & Kikwatha, 2022). The successful

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completion of road construction projects contributes to the continued economic growth and development of the nation (Cheserek & Sangoro, 2023). However, the reoccurrence of failed and abandoned projects in Kenya has become an issue of concern as huge investments end up being wasted (Kabiti & Kikwatha, 2022). The construction delays are the most common issue and creates many adverse effects in any construction industry (Hoque *et al.*, 2023; Mahamid, 2022). The project delays pose a substantial challenge in the construction industry and often render previously viable technical and economic plans obsolete in the face of changing circumstances (Ghanbari & Hasani, 2024; Ghanbari *et al.*, 2023; Shedaga, Sahle, & Mekonen, 2024).

The achievement of project success hinges on a spectrum of management practices, ranging from meticulous project planning to vigilant control and eventual closure (Alphonse & Valens, 2023; Shenhar *et al.*, 2023). Effective project planning to minimize variation orders and rework is essential to enhance overall project performance (Ghanbari & Hasani, 2024; Mahamid, 2024). However, poor project planning is one of the most critical failure factors in road construction projects (Canesi & Gallo, 2024; Elly, 2023). Project managers who fail to improve project planning can observe a decrease in performance (Tuo, 2022). The general business problem is that poor project planning practices negatively affects the performance of road construction projects. The specific business problem is that some project managers lack effective project planning to improve the performance of road construction projects.

Research Objectives

The general objective of the study was to examine the influence of project planning practices on the performance of road construction projects in Kwale County, Kenya. The specific research objectives of the study were:

- To determine the influence of project resource planning practice on performance of road construction projects in Kwale County, Kenya.
- To assess the influence of project scope planning practice on performance of road construction projects in Kwale County, Kenya.

In this study, two null hypotheses were tested.

- $H_0$1: Project resource planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya.
- $H_0$2: Project scope planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya.

LITERATURE REVIEW

Theoretical Framework

Theoretical framework is the lens through which the researcher uses to connect the literature with the study results and methodology (Bingham, Mitchell, & Carter, 2024). This research was guided by the resource-based view theory, the theory of constraints, and the theory of change.

Resource Based View Theory

This research was anchored on the resource-based view (RBV) theory (Barney, 1991; Penrose, 1959) as the underpinning theory for its research model. The RBV theory ((Peteraf, 1993; Rumelt, 1984; Wernerfelt, 1984; Wernerfelt, 1995) provides an explanation as to why some organizations are performing better and how an organization can perform better (Wu, Yan, & Umair, 2023). The RBV theory recognizes the existence of cost factors and resources, and therefore, informs proper planning so as to realize proper utilization an allocation of these resources towards achieving the project objectives (Teece, 2023a). The RBV theory posits that firms' competitiveness even in the same industry varies based on a firm's resources and capabilities (Zulkiffli, Zaidi, Padlee, & Sukri, 2022). The RBV theory is a relevant theoretical framework to explain the influence of project resource planning, project scope planning, project procurement planning and project risk planning practices on performance of road construction projects in Kwale County, Kenya.

The RBV theory emerged in the 1980s, when a number of strategic-management scholars began theorizing that a firm earns rents from leveraging its unique resources (Teece, 2023b). The RBV theory (Barney, 1986; Barney, Ketchen Jr, & Wright, 2011) proposes that the valuable, rare, inimitable and non-substitutable (VIRN) resources give a firm the ability to be more competitive (Chatterjee, Chaudhuri, Vrontis, & Thrassou, 2023). The RBV theory suggests that the VRIN resources are difficult to monetize directly through contracting arrangements that would allow other firms to utilize the resources in exchange for service fees (Vieira, Jaramillo, Agnihotri, & Molina, 2023). The RBV theory postulates that the VIRN framework is used to help companies identify certain resources and capabilities that can provide them with a sustained competitive advantage (Alvarez, Newman, Barney, & Plomaritis, 2023). Therefore, the RBV theory is the underpinning theory for the research model to explain the influence of project planning practices on performance of road construction projects in Kwale County, Kenya.

Theory of Constraints

The theory of constraints (Goldratt & Cox, 1984; Goldratt, 1990) asserts that any manageable system is limited in achieving more of its goal by a very small number of constraints, and that there is always at least one constraint (Shenhar *et al.*, 2023). The theory of constraints (Goldratt, 1996) is based on the premise that the rate of goal achievement is limited by at least one constraining process and it's only by increasing flow through the constraint can overall quantity or output can be increased (Leybourne, 2024). The theory of constraints proposes that all projects contain risks and restrictions that might make it difficult to complete high-quality projects (Mabin & Balderstone, 2020; Loffredo, Frigerio, Lanzarone, & Matta, 2024). The theory of constraints addresses the influence of project resource planning and project scope planning practices on performance of road construction projects in Kwale County, Kenya.

The theory of constraints (Kohli & Gupta, 2010) is a methodology for identifying the most important limiting factor or constraint that stands in the way of achieving a goal and then systematically improving that constraint until it is no longer the limiting constraint (Shenhar *et al.*, 2023). The theory of constraints is a multi-faceted systems methodology that has been developed to assist people and organisations to think about their problems, develop breakthrough solutions and implement those solutions successfully (Mabin & Balderstone, 2020). The core concept of the theory of constraints (McKinsey, 2001) is that every process has a single constraint and that total throughput can only be improved when the constraint is improved (Loffredo *et al.*, 2024).

The theory of constraints (Goldratt, 1990) provides an action plan for improvement. The constraints theory has provided a substantially better insight into the dimensions and complexity of the problem facing work breakdown structures in project management (Wanjau *et al.*, 2023). The theory of constraints states that the most used project planning practices may perform well or poorly from an organizational standpoint (Leybourne, 2024). The theory of constraints basically states that a set of constraints prohibits any management system from achieving more of its objectives (Kabiti & Kikwatha, 2022). As the road construction projects experience constraints such as cost, time and scope, the theory of constraints is a relevant theoretical framework to explain the influence of project planning practices on performance of road construction projects in Kwale County, Kenya.

Theory of Change

The theory of change (Connell & Kubisch, 1998; Weiss, 1995) is a theory of how and why an initiative works (Foglieni, De Salvo, Cagnin, & Maffei, 2023). The theory of change (Lewin, 1943; Msila & Setlhako, 2013) proposes that in order to achieve the envisaged outcomes, stakeholders should look at short-term outcomes that will help them achieve their specified targets (Mejía-Trejo & Aguilar-Navarro, 2023). The theory of change

(Quinn & Cameron, 1988; Serlin, 1987) is used for programme and project planning, design, monitoring, assessment and evaluation (Drabble, Allen, Morelli, de Götzen, & Simeone, 2023). Therefore, the theory of change explains the influence of project resource planning and project scope planning practices on performance of road construction projects in Kwale County, Kenya. The theory of change (Fullan, 2007; Hernandez & Hodges, 2003) is an all-inclusive illustration as well as explanation of how and why a change that is desired is expected to take place in a given setting (Mejía-Trejo & Aguilar-Navarro, 2023). The theory of change (Funnell & Rogers, 2011; Weiss, 1999) is a rigorous yet participatory process where groups and stakeholders in a project planning process articulate their long-term goals and identify the conditions required for the goals to be met (Widodo, Maysarah, Runturambi, Hanita, & Wasitova, 2023). The theory of change (Walton, Cutcher-Gershenfeld, & McKersie, 2000) helps the project manager understand how engaging stakeholders can be effective towards promoting expected change in a project (Simeone, Drabble, Morelli, & de Götzen, 2023). The theory of change (Funnell & Rogers, 2011) focuses on bridging the gap between what a change or program initiative does and how those changes generate preferred goals being attained (Foglieni *et al.*, 2023). The theory of change is, therefore, applicable to the study in that it governs the approach to project planning practices to boost project performance.

The theory of change (Chen, 1990) is a tool used for developing solutions to complex social problems (Simeone *et al.*, 2023). The theory of change provides a comprehensive picture of early and intermediate term changes that are needed to reach a long term set goal (Mejía-Trejo & Aguilar-Navarro, 2023). The theory of change provides a model of how a projects should be planned, and provides ways to test and refine through monitoring and evaluation (Foglieni *et al.*, 2023). The theory of change is a specific and measurable description of change that forms the basis for planning, implementation and evaluation (Drabble *et al.*, 2023).

Conceptual Framework

The conceptual framework illustrates that project performance is conceptualized as the dependent variable. In addition, the conceptual framework depicts that project resource planning and project scope planning are conceptualized as the independent variables. Figure 1 presents the conceptual framework.

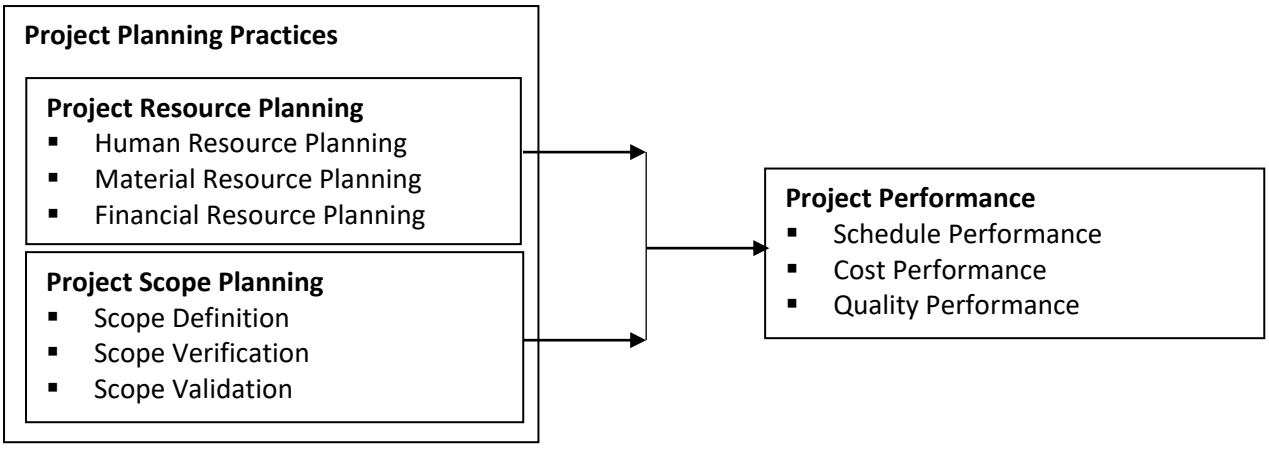

Figure 1: Conceptual Framework

Review of Literature on Variables

Project Resource Planning Practice

Project resource planning is the forecasting of the human resources, financial resources and material resources required to perform the scope of work

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within the time plan (Mohite *et al.*, 2024). Existent literature posits that project resource planning is the forecasting of the resources required to perform the scope of work within the time plan (Shenhar *et al.*, 2023). Project resource planning is an essential aspect of project management, ensuring that the right resources are allocated effectively to achieve project goals (Lwanga, 2021). The project resource planning organizes, identifies and lists the resources required to complete a project successfully (Himmah *et al.*, 2024). A proper resource plan maps out the exact quantity of the necessary resources (Sinton, 2022). The project budget considers human resources planning, financial resource planning and time and material resource planning (Ahmed *et al.*, 2021). The resource planning document can help you manage an extensive project (Himmah *et al.*, 2024). Therefore, a project budget is prepared to fix in advance the resources needed and represents the planned costs of a project at its start (Shenhar *et al.*, 2023).

The project resource planning practice considers the identification of resources requirements a project performance (Shenhar *et al.*, 2023). A resource plan is an internal document that allows project managers to estimate how they can meet a project's needs with the available resources (Ahmed *et al.*, 2021). The resource plan aims to use resources in the most efficient manner possible, contributing to the overall productivity of the project (Himmah *et al.*, 2024). While effective resource management is essential to the project's success as it directly affects the budget, the schedule, and the project's financial results, conventional techniques to resource allocation frequently fall short, due to the complexity of project contexts (Mohite *et al.*, 2024). Thus, resource planning can help a company prevent delays and optimize its staff and budget (Lwanga, 2021; Mohan, 2021). The extant literature posits that project resource planning has a positive and significant relationship with performance of road construction projects (Kabiti & Kikwatha, 2022). Moreover, some literature postulates that project resource planning has a positive and significant influence on performance of express highway construction projects (Maina, 2023).

Project Scope Planning Practice

Project scope planning is the project management process that defines boundaries and deliverables (Kanyaru & Musembi, 2023). The project scope planning is the description of all the activities and works needed to attain the project objectives successfully (Mckenzie, 2022). It is a collaborative process between all the project stakeholders, the project sponsor, the project, the government, and any other key stakeholders who can help shape the work which must be completed to achieve the project goal (Agustiady & Cudney, 2024; Karimi, 2023). The project scope is defined as a statement by writing the context, main inputs and outputs and main functions of the system to be developed (Althiyabi, & Qureshi, 2021).

Project scope planning begins with the initial inputs of product description, the project charter, and the initial definition of restrictions and assumptions (Crawford, 2021), while the outputs of scope planning are the scope statement and scope management plan, with the supporting details (Wanjau *et al.*, 2023). Extant literature posits that a clear-cut project scope planning must be detailed to all stakeholders including vendors, if any, with all technical and non-technical requirements that should be signed and agreed upon prior to execution (Alnemr, 2024). The project scope plan highlights the major aspects including setting goals and objectives, defining the beneficiaries, individual and group responsibilities (Baker, 2022), found necessary for the well-functioning and effectiveness of the project (Wanjau *et al.*, 2023). The scope management plan is the collection of processes which ensure that the project includes all the work required to its completion while excluding all work which is not necessary to complete it (Aborhor, 2021). In this context, the scope management plan details how the project scope will be defined, developed, and verified (Cuypers, 2023).

The project scope definition involves sectioning into smaller and more manageable components, the main project deliverables as identified in the scope statement, which is geared towards improving the accuracy of the cost, duration and resource estimates (Ayele, 2023; Marques, Sousa, & Tereso, 2023). However, project scope validation is the process of validating the acceptance of the completed project deliverables (Marques *et al.*, 2023). In contrast, project scope verification ensures that projects or products meet the required specifications (Mckenzie, 2022). However, project scope control is the process of influencing the factors that brings about project scope changes by way of controlling the impact of those factors (Mckenzie, 2022). The main advantage of project scope control process is that it allows the scope baseline to be maintained throughout the project (Baker, 2022). The extant literature posits that project scope planning has a positive and significant influence on performance of road construction projects (Kabiti & Kikwatha, 2022).

Project Performance

Project performance measures how well a project has performed in terms of scope, budget, and time (Dorothy *et al.*, 2024). Essentially, project performance is the overall measurement of whether a project has met objectives and requirements of scope, cost, and schedule (Kerzner, 2022; Nyajowi, Kising'u, Omwenga, 2024). However, project performance is a matter of perception (Bernat *et al.*, 2023). Although there are other performance areas which are important in modern project management (Okong'o, 2022), that time, cost and quality are performance areas which most of the researchers have acknowledged (Rehman, Shafiq, & Afzal, 2021). Existent literature posits that time, cost and quality are the performance areas which most of the researchers have acknowledged (Acharya, Bhandari, & Timilsina, 2021; Ingle & Mahesh, 2022). Generally, a project may not be regarded as successful until it satisfies the cost, time and quality limitations applied to it (Sami *et al.*, 2022). Therefore, a successful project has to accomplish its technical performance, maintain its schedule, and remain within budget (Arowoiya, Oke, Ojo, & Adelusi, 2024; Safaeian *et al.*, 2022).

Empirical Review

Project Resource Planning Practice and Project Performance

Maina (2023) examined the influence of road project resource planning on performance of express highway construction projects in Nairobi City County, Kenya. The findings indicated that human resource planning, financial resource planning, material usage planning and time management had positive and significant relationship with project performance. The results showed that project resource planning had a positive and significant influence on performance of express highway construction projects.

Lwanga (2021) examined the influence of project resource planning on implementation of urban road projects in Nairobi County, Kenya. The findings showed that project resource planning had a positive and significant relationship with implementation of urban road projects. The results indicated that project resource planning had a positive and significant effect on implementation of urban road projects.

Kabiti and Kikwatha (2022) examined the influence of project resource planning on performance of KeRRA road construction projects in Meru County, Kenya. The results indicated that project resource planning had a positive and significant relationship with performance of road construction projects. The findings showed that project resource planning had a positive and significant effect on performance of road construction projects.

Shenhar *et al.* (2023) examined the effect of project resource planning on the success of skills development fund projects in Kigali City, Rwanda. The findings showed that project resource planning had a positive and significant relationship with the success of skills development fund projects. The results indicated that project resource planning had

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a positive and significant effect on the success of skills development fund projects.

Jepkorir and Pedo (2023) assessed the influence of project resource planning on implementation of information communication and technology projects in Kakamega County, Kenya. The findings indicated that project resource planning had positive and significant relationship with implementation of information communication and technology projects. The results showed that project resource planning had a positive and significant influence on implementation of information communication and technology projects.

Project Scope Planning Practice and Project Performance

Kanyaru and Musembi (2023) examined the influence of scope planning on successful implementation of projects in nongovernmental organizations in Nairobi County, Kenya. The results indicated that project scope planning had a positive and significant relationship with successful implementation of projects in nongovernmental organizations. The findings showed that project scope planning had a positive and significant effect on successful implementation of projects in nongovernmental organizations.

Kabiti, and Kikwatha (2022) examined the influence of project scope planning on performance of KeRRA road construction projects in Meru County, Kenya. The results indicated that project scope planning had a positive and significant relationship with performance of road construction projects. The findings showed that project scope planning had a positive and significant effect on performance of road construction projects.

Murugi and Nyang'au (2023) examined the influence of project scope planning on performance of maintenance projects on trunk roads. The results indicated that project scope planning had a positive and significant relationship with performance of maintenance projects on trunk roads. The findings showed that project scope planning had a positive and significant effect on performance of maintenance projects on trunk roads.

Shenhar *et al.* (2023) examined the effect of project scope planning on the success of skills development fund projects in Kigali City, Rwanda. The findings showed that project scope planning had a positive and significant relationship with the success of skills development fund projects. The results indicated that project scope planning had a positive and significant effect on the success of skills development fund projects.

METHODOLOGY

The research was guided by the positivist research philosophy which regards the world as made up of observable and measurable facts and assumes that there is an objective reality out there. The positivist research philosophy regards the world as made up of observable and measurable facts and assumes that there is an objective reality out there (Ma & Xie, 2023). Drawing on a quantitative non-experimental research methodology, the research utilized a correlational cross-sectional survey research design to examine the non-causal relationship between study variables. The design was appropriate for collecting data once from many individuals at a single point in time to test statistical relationships between two or more variables without the researcher controlling or manipulating any of them (Aryuwat *et al.*, 2024).

The target population consisted of 236 project implementation team in charge of 59 road construction projects under the Kenya Rural Roads Authority in Kwale County, Kenya. The project managers, site agents, resident engineers and assistant resident engineers. The target population is as per the KeRRA, 2023's database. The unit of analysis consisted of the road construction project, while the unit of observation consisted of the project implementation team. Table 1 presents the target population.

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Table 1: Target Population

Strata	Target Population	Percentage
Project Managers	59	25%
Site Agents	59	25%
Resident Engineers	59	25%
Assistant Resident Engineers	59	25%
Total	**236**	**100%**

The sampling frame for this research consisted of the list of 236 project implementation team in charge of 59 road construction projects under the Kenya Rural Roads Authority in Kwale County, Kenya. The sampling frame was as per the Kenya Rural Roads Authority (2023)'s data base as at 31st December, 2023. The Yamane (1967) formula was used to calculate sample size at 95% confidence level and 5% significance level to ensure that the sample size was truly reflective of the target population.

$$n = \frac{\mathrm{N}}{1 + \mathrm{N}e^2)}$$

Where:

n = Sample Size;

N = Target Population;

e = Margin of Error = 0.05.

With a target population of 236 project implementation team in charge of 59 road construction projects under the Kenya Rural Roads Authority in Kwale County, Kenya, the minimum recommended sample size for the study was calculated as:

$$n = \frac{236}{1 + 236(0.05)^2} = 148$$

Therefore, the minimum recommended sample size consisted of 148 project implementation team in charge of 37 road construction projects under the Kenya Rural Roads Authority in Kwale County, Kenya. Table 2 presents the sample size.

Table 2: Sample Size

Strata	Target Population	Sample Size
Project Managers	59	37
Site Agents	59	37
Resident Engineers	59	37
Assistant Resident Engineers	59	37
Total	**236**	**148**

The proportionate stratified random sampling technique was used to select a sample size of 148 project implementation team in charge of 37 road construction projects under the Kenya Rural Roads Authority in Kwale County, Kenya. The choice of the proportionate stratified random sampling technique was justified by the heterogeneous target population.

A self-administered structured questionnaire was the means for collecting primary data. The data collection method was appropriate, because of its ability to collect a large amount of information in a reasonably quick span of time (Saunders & Kulchitsky, 2021).

A cross-sectional survey-based approach was used to collect primary data. Through the drop and pick method, the researcher and three research assistants hand delivered the survey questionnaire to a random sample of 148 project implementation team in charge of 37 road construction projects under the Kenya Rural Roads Authority in Kwale County, Kenya. A continuous follow up on responses was made by the researcher and research assistants.

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A pilot study was conducted to test the validity and reliability of the constructed survey questionnaire. The pilot study was carried out with a pilot trial sample size of 32 project implementation team in charge of 8 road construction projects under the Kenya Rural Roads Authority in Kwale County, Kenya. Generally, at least 30 representative participants from the target population provides a reasonable minimum recommendation for a pilot study (Snell *et al.*, 2021).

The collected data was checked for accuracy, completeness and consistency. The data was coded, edited, and entered into the Statistical Package for Social Sciences (SPSS) version 26 to create a data sheet that was used for analysis. The descriptive statistics were used to compute, summarize the data in respect to each of the study variables and describe the sample's characteristics. The Pearson's product moment correlation analysis was performed to confirm or deny the relationship between the study variables. A multiple linear analysis was performed with project performance as the dependent variable and project resource planning practice and project scope planning practice as the predictor variables.

The multiple linear regressions model was specified as:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$ ..... Model 1

Where:

Y = Performance of Road Construction Projects
β_0 = Constant Term
X_1 = Project Resource Planning Practice
X_2 = Project Scope Planning Practice
$\beta_1 - \beta_2$ = Regression Coefficients to be Estimated
ε = Stochastic Error Term

In this research, two null hypotheses were tested at 5% level of significance ($\alpha = 0.05$; $t = 1.960$) at a 95% confidence level to statistically help draw acceptable and realistic inferences. Therefore, the decision rule was to reject the H_0i if the $P \leq 0.05$, and otherwise fail to reject the H_0i if the $P > 0.05$. Table 3 presents the hypotheses testing procedure.

Table 3: Hypotheses Testing

Hypotheses		Model	Hypotheses Testing	Decision Rule
$H_0$1:	Project resource planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya.	$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$ ..... Model 3.1	Standard Multiple Regression Analysis	$H_0$1: $\beta_1 = 0$ $H_1$1: $\beta_1 \neq 0$ If the $P \leq 0.05$ reject the $H_0$1. If the $P > 0.05$ fail to reject the $H_0$1.
$H_0$2:	Project scope planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya.			$H_0$2: $\beta_2 = 0$ $H_1$2: $\beta_2 \neq 0$ If the $P \leq 0.05$ reject the $H_0$2. If the $P > 0.05$ fail to reject the $H_0$2.

FINDINGS

Response Rate

Out of the 148 survey questionnaires distributed for the main study, only 115 valid responses were obtained. Therefore, there was a valid response rate of 77.7%, which was adequate for data processing and analysis. Existent literature posits that survey response rates of 70% or higher are needed if findings are to be considered generalizable (Ericson *et al.*, 2023). Table 4 presents the response rate results.

Table 4: Response Rate

Strata	Frequency	Response Rate
Response	115	77.7%
Non-Response	33	22.3%
Total	**148**	**100.0%**

Correlation Results

The Pearson's product moment correlation analysis was performed to confirm or deny the relationships between the study variables. The correlation results indicated that project resource planning practice had a moderately strong positive and significant relationship with performance of road construction projects ($r = 0.643$, $p \leq 0.05$) in Kwale County, Kenya. However, the correlation results showed that project scope planning practice had a strong positive and significant relationship with performance of road construction projects ($r = 0.776$, $p \leq 0.05$) in Kwale County, Kenya. Table 5 presents the Pearson's product moment correlation results.

Table 5: The Pearson's Product Moment Correlation Results

Variable		X_1	X_2	Y
Project Resource Planning Practice (X_1)	Pearson Correlation	1	.565**	.643**
	Sig. (2-tailed)		.000	.000
	n	115	115	115
Project Scope Planning Practice (X_2)	Pearson Correlation	.565**	1	.776**
	Sig. (2-tailed)	.000		.000
	n	115	115	115
Performance of Road Construction Projects (Y)	Pearson Correlation	.643**	.776**	1
	Sig. (2-tailed)	.000	.000	
	n	115	115	115

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

Multiple Regression Results

A standard multiple linear analysis was performed with performance of road construction projects as the dependent variable and project resource planning practice and project scope planning practice as the predictor variables. The multiple regression analysis was performed to test to what extent, if any, the two project planning practices significantly predict the performance of road construction projects in Kwale County, Kenya.

Model Summary

From the model summary in table, it is clear that the value of coefficient of correlation (R) was 0.814, while the value of coefficient of determination (R^2) was 0.663, while the value of the adjusted R^2 was 0.657. Additionally, the value of the std. error of the estimate was 0.240 and the value of the Durbin-Watson test was 2.459. The R value of 0.814 suggested that there was a strong positive correlation between the project planning practices and the performance of road construction projects in Kwale County, Kenya. The R^2 value of 0.663 suggested that the overall model as a whole (the model involving constant, project resource planning practice and project scope planning practice) was able to significantly predict and explain approximately 66.3% of the variance in the performance of road construction projects in Kwale County, Kenya.

The Adjusted R Square value of 0.657 suggested that the overall model as a whole (the model involving constant, project resource planning practice and project scope planning practice) significantly predicted and explained 65.7% of the variance in the performance of road construction projects in Kwale County, Kenya. The std. error of the estimate value of 0.240 suggested that there could be other factors not included in the model in

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the current study that could also predict and explain the remaining 34.3% of the variance in the performance of road construction projects in Kwale County, Kenya. Therefore, there is in need for future research to discover the other variables not included in the model in the current study that also predict the remaining variance in the performance of road construction projects in Kwale County, Kenya.

From the model summary table, the Durbin-Watson test statistic had a value of 2.459, falling within the optimum range of 1.5 to 2.5, suggesting that there was no severe autocorrelation detected in the in the residual values in the datasets. Generally, Durbin-Watson statistics falling within the optimum range of 1.5 to 2.5 indicates that there is no severe autocorrelation detected in the in the residual values in the datasets (Hair *et al.*, 2021). Table 6 presents the model summary results.

Table 6: Model Summary[b] Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.814[a]	.663	.657	.240	2.459

a. Predictors: (Constant), Project Scope Planning Practice (X_2), Project Resource Planning Practice (X_1)
b. Dependent Variable: Performance of Road Construction Projects (Y)

Analysis of Variance

From the Analysis of Variance (ANOVA) table, the overall model as a whole (the model involving constant, project resource planning practice and project scope planning practice), achieved a high degree of fit, as reflected by $R^2 = 0.663$, adj. $R^2 = 0.657$, $F(2, 112) = 110.317$, $p < 0.05$. The null hypothesis was that the linear combination of predictor variables (project resource planning practice and project scope planning practice) was not able to significantly predict the performance of road construction projects in Kwale County, Kenya. However, the alternative hypothesis was that the linear combination of predictor variables (project resource planning practice and project scope planning practice) was able to significantly predict the performance of road construction projects in Kwale County, Kenya. The standard multiple linear regression results showed that the linear combination of predictor variables (project resource planning practice and project scope planning practice) significantly predicted the performance of road construction projects in Kwale County, Kenya. The null hypothesis was rejected in favor of the alternative hypothesis. Therefore, the decision was that the linear combination of predictor variables (project resource planning practice and project scope planning practice) significantly predict the performance of road construction projects in Kwale County, Kenya. Table 7 presents the ANOVA results.

Table 7: ANOVA[a] Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.667	2	6.333	110.317	.000[b]
	Residual	6.430	112	.057		
	Total	19.097	114			

a. Dependent Variable: Performance of Road Construction Projects (Y)
b. Predictors: (Constant), Project Scope Planning Practice (X_2), Project Resource Planning Practice (X_1)

Multiple Regression Coefficients

From the coefficients table, when the unstandardized regression coefficients (B) were substituted to the multiple regression model specified for the study, the final predictive equation was:

$$Y = 1.745 + 0.190X_1 + 0.372X_2$$

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The final predictive equation suggested that holding all factors in to account constant (project resource planning practice and project scope planning practice), constant at zero, the performance of road construction projects in Kwale County, Kenya would be 1.745. Additionally, the final predictive equation postulated that with all other factors held constant, a unit increase in project resource planning practice would lead to 0.190 unit increase in the performance of road construction projects in Kwale County, Kenya. Moreover, the final predictive equation suggested that with all other factors held constant, a unit increase in project scope planning practice would lead to 0.372 unit increase in the performance of road construction projects in Kwale County, Kenya. Based on the magnitude of the unstandardized regression coefficients (B) of the independent variables, project scope planning practice was the best predictor of the variance in the performance of road construction projects in Kwale County, Kenya.

The multiple regression results indicated that project resource planning practice had a positive and significant influence on the performance of road construction projects ($\beta_1 = 0.301$; $t = 4.535$; $p \leq 0.05$) in Kwale County, Kenya. The regression results indicated that project scope planning practice had a positive and significant influence on the performance of road construction projects ($\beta_2 = 0.605$; $t = 9.107$; $p \leq 0.05$) in Kwale County, Kenya. Table 8 presents the multiple regressions coefficients results.

Table 8: Multiple Regression Coefficients[a] Results

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics
		B	Std. Error	Beta	t	Sig.	Tolerance
1	(Constant)	1.745	.146		11.975	.000	
	Project Resource Planning Practice (X_1)	.190	.042	.301	4.535	.000	.763
	Project Scope Planning Practice (X_2)	.372	.041	.605	9.107	.000	.681

a. Dependent Variable: Performance of Road Construction Projects (Y)

VIF
1.310
1.469

Hypotheses Test Results

In this research, 4 null hypotheses were tested. The hypotheses were tested at 5% level of significance, $\alpha = 0.05$, $t = 1.960$, and 95% confidence level to statistically help draw acceptable and realistic inferences. Therefore, the decision rule was to reject the null hypothesis H_0i if the $P \leq 0.05$, and otherwise fail to reject the null hypothesis H_0i if the $P > 0.05$.

Hypothesis One Test Results

The first null hypothesis ($H_0 1$) predicted that project resource planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya. The decision rule was to reject the null hypothesis $H_0 1$ if the $\beta_1 \neq 0$, $t \geq 1.960$, $P \leq 0.05$, and otherwise fail to reject the null hypothesis $H_0 1$ if the $\beta_1 = 0$, $t < 1.960$, $P > 0.05$. The standard multiple regression results showed that project resource planning practice had a positive and significant influence on the performance of road construction projects ($\beta_1 = 0.301$; $t = 4.535$; $p \leq 0.05$) in Kwale County, Kenya. Consequently, the $H_0 1$ was rejected, providing the empirical support for $H_1 1$. Therefore, deduction was

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made that project resource planning practice has a significant influence on performance of road construction projects in Kwale County, Kenya.

Hypothesis Two Test Results

The second null hypothesis ($H_0 2$) predicted that project scope planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya. The decision rule was to reject the null hypothesis $H_0 1$ if the $\beta_1 \neq 0$, $t \geq 1.960$, $P \leq 0.05$, and otherwise fail to reject the null hypothesis $H_0 1$ if the $\beta_1 = 0$, $t < 1.960$, $P > 0.05$. The standard multiple regression results showed that project scope planning practice had a positive and significant influence on the performance of road construction projects ($\beta_2 = 0.605$; $t = 9.107$; $p \leq 0.05$) in Kwale County, Kenya. Consequently, the $H_0 2$ was rejected, providing the empirical support for $H_1 2$. Therefore, deduction was made that project scope planning practice has a significant influence on performance of road construction projects in Kwale County, Kenya. Table 9 presents the hypotheses test results.

Table 9: Hypotheses Test Results

Hypothesis	β	t	Sig.	Decision
$H_0 1$: Project resource planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya.	.301	4.535	.000	Reject the $H_0 1$
$H_0 2$: Project scope planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya.	.605	9.107	.000	Reject the $H_0 2$

Discussions

The purpose of this quantitative correlational research was to examine the influence of project planning practices on the performance of road construction projects in Kwale County, Kenya. Specifically, the research sought to examine the influence of project resource planning practice and project scope planning practice on the performance of road construction projects in Kwale County, Kenya. The Pearson's product moment correlation analysis was performed to confirm or deny the relationship between the study variables. The correlation results indicated that the project planning practices had positive and significant relationship with performance of road construction projects in Kwale County, Kenya. A standard multiple linear analysis was performed with performance of road construction projects as the dependent variable and project resource planning practice and project scope planning practice as the predictor variables. The regression results showed that the project planning practices had positive and significant influence on the performance of road construction projects in Kwale County, Kenya. The results are consistent to the results of previous studies (Kabiti & Kikwatha, 2022; Maina, 2023; Oroni, 2023; Winnie & Yusuf, 2021).

The first specific objective was to determine the influence of project resource planning practice on the performance of road construction projects in Kwale County, Kenya. The first null hypothesis ($H_0 1$) predicted that project resource planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya. The Pearson's correlation results indicated that project resource planning practice had a moderately strong positive and significant relationship with the performance of road construction projects in Kwale County, Kenya. The regression results showed that project resource planning practice had a positive and significant influence on performance of road construction projects in Kwale County, Kenya. The $H_0 1$ was rejected, providing the empirical support for the $H_1 1$. Therefore, the decision was that project resource planning practice has a significant influence on performance of road construction projects in Kwale County, Kenya. The results are

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consistent to the results of previous studies (Kabiti & Kikwatha, 2022; Maina, 2023).

The second specific objective was to assess the influence of project scope planning practice on performance of road construction projects in Kwale County, Kenya. The second null hypothesis ($H_0$2) predicted that project scope planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya. The Pearson's correlation results indicated that project scope planning practice had a strong positive and significant relationship with performance of road construction projects in Kwale County, Kenya. The regression results showed that project scope planning practice had a positive and significant influence on performance of road construction projects in Kwale County, Kenya. The $H_0$2 was rejected, providing the empirical support for the $H_1$2. Therefore, the decision was that project scope planning practice has a significant influence on performance of road construction projects in Kwale County, Kenya. The results are in harmony with the results of past studies (Kabiti & Kikwatha, 2022; Kanyaru & Musembi, 2023; Murugi & Nyang'au, 2023).

SUMMARY

The purpose of this quantitative correlational research was to examine the influence of project planning practices on performance of road construction projects in Kwale County, Kenya. The Pearson's product moment correlation analysis was performed to confirm or deny the relationship between the study variables. The correlation results indicated that the project planning practices had positive and significant relationship with performance of road construction projects in Kwale County, Kenya. A standard multiple linear analysis was performed with performance of road construction projects as the dependent variable and project resource planning practice and project scope planning practice as the predictor variables. The regression results showed that the project planning practices had positive and significant influence on the performance of road construction projects in Kwale County, Kenya.

The first specific objective was to determine the influence of project resource planning practice on the performance of road construction projects in Kwale County, Kenya. The first null hypothesis ($H_0$1) predicted that project resource planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya. The Pearson's correlation results indicated that project resource planning practice had a moderately strong positive and significant relationship with the performance of road construction projects in Kwale County, Kenya. The regression results showed that project resource planning practice had a positive and significant influence on performance of road construction projects in Kwale County, Kenya. The $H_0$1 was rejected, providing the empirical support for $H_1$1. Therefore, the decision was that project resource planning practice has a significant influence on performance of road construction projects in Kwale County, Kenya.

The second specific objective was to assess the influence of project scope planning practice on performance of road construction projects in Kwale County, Kenya. The second null hypothesis ($H_0$2) predicted that project scope planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya. The Pearson's correlation results indicated that project scope planning practice had a strong positive and significant relationship with performance of road construction projects in Kwale County, Kenya. The regression results showed that project scope planning practice had a positive and significant influence on performance of road construction projects in Kwale County, Kenya. The $H_0$2 was rejected, providing the empirical support for $H_1$2. Therefore, the decision was that project scope planning practice has a significant influence on performance of road construction projects in Kwale County, Kenya.

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CONCLUSION

The purpose of this quantitative correlational research was to examine the influence of project planning practices on performance of road construction projects in Kwale County, Kenya. The Pearson's product moment correlation analysis was performed to confirm or deny the relationship between the study variables. The correlation results indicated that the project planning practices had positive and significant relationship with performance of road construction projects in Kwale County, Kenya. A standard multiple linear analysis was performed with performance of road construction projects as the dependent variable and project resource planning practice and project scope planning practice as the predictor variables. The regression results showed that the project planning practices had positive and significant influence on the performance of road construction projects in Kwale County, Kenya. Therefore, the conclusion was that project planning practices have significant influence on performance of road construction projects in Kwale County, Kenya.

The first specific objective was to determine the influence of project resource planning practice on the performance of road construction projects in Kwale County, Kenya. The first null hypothesis ($H_0$1) predicted that project resource planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya. The Pearson's correlation results indicated that project resource planning practice had a moderately strong positive and significant relationship with the performance of road construction projects in Kwale County, Kenya. The regression results showed that project resource planning practice had a positive and significant influence on performance of road construction projects in Kwale County, Kenya. The $H_0$1 was rejected, providing the empirical support for $H_1$1. Therefore, the first conclusion was that project resource planning practice has a significant influence on performance of road construction projects in Kwale County, Kenya.

The second specific objective was to assess the influence of project scope planning practice on performance of road construction projects in Kwale County, Kenya. The second null hypothesis ($H_0$2) predicted that project scope planning practice has no significant influence on performance of road construction projects in Kwale County, Kenya. The Pearson's correlation results indicated that project scope planning practice had a strong positive and significant relationship with performance of road construction projects in Kwale County, Kenya. The regression results showed that project scope planning practice had a positive and significant influence on performance of road construction projects in Kwale County, Kenya. The $H_0$2 was rejected, providing the empirical support for $H_1$2. Therefore, the second conclusion was that project scope planning practice has a significant influence on performance of road construction projects in Kwale County, Kenya.

RECOMMENDATIONS

From the findings of this research, the research recommends that managers implement project planning practices to foster the performance of road construction projects.

From the findings of this research, the research recommends that policy makers within construction industry should to review the policy framework to encourage project managers to implement project planning practices to foster the performance of road construction projects.

Limitations and Future Research

This research paper generates novel insights into how project planning practices predict the performance of road construction projects. However, the current research has a number of limitations, that need to be taken into consideration. First, the research was limited to the influence of project planning practices on performance of road construction projects in Kwale County, Kenya. Subsequently, caution should be taken when attempting to generalize the results beyond the construction industry. Future research

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could examine the influence of project planning practices on project performance in other sectors or in other regions. Second, the research was contextually limited to only two project planning practices, namely project resource planning practice and project scope planning practice. Future research should examine the influence of other project planning practices on performance of road construction projects. Third, as the research paper relied on a cross-sectional survey design, no inferences about the causality of relationships can be made. Therefore, future researchers should consider conducting a longitudinal study on the influence of project planning practices on performance of road construction projects.

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