



**ROAD PROJECT PLANNING AND PERFORMANCE OF EXPRESS HIGHWAY CONSTRUCTION PROJECT IN
NAIROBI CITY COUNTY, KENYA**

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ABSTRACT

The goal of this investigation was to ascertain how express highway construction project performance in Nairobi City County, Kenya, is affected by project planning. The target population was the 69 officers comprising of 7 road engineers from KeNHA, China Roads and Bridge Corporation Kenya, 17 road supervisors, 12 road inspectors, 28 road surveyors, and four sub-contractors. Due small and manageable target population, the study was a census. These people were the primary resources and in the best position to respond to questions regarding the performance of the Express highway road project. The sample size was chosen using a stratified random sampling. A semi-structured questionnaire was used to collect the primary data. The Statistical Package for Social Sciences was used to code and enter the data for analysis (SPSS). The different study variables were correlated using Pearson correlation analysis. The study's findings inferred that the majority of the respondents believed that the management of human resources plays a vital role in enhancing the effectiveness of road project. The provision of adequate materials had a favorable, significant influence on the performance of road projects. The study examined how financial resource planning affected the performance of express highway road project. The results of the study revealed that time management considerably and favorably influence project performance. The study concluded that the design and execution of human resource training and recruitment were consistent with the main objective. The study found that human resource planning considerably and positively affects how well road projects operate, if the staffs are well trained and competent the results are positive. The study concluded that material usage planning and time management have significant positive effect on project performance. The study concluded that financial resource planning has insignificant effect on road project performance. Therefore, finance planning was done material usage was not well planned and the staff did not have proper training hence a lot of mistakes.

Key Words: *Project Planning, Express Highway, Time Management, Material Consumption, Financial Resource, Human Resource Planning*

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INTRODUCTION

Projects are thought to be the vehicle for implementing a company's success because they make up about 50% of all work done (Raz & Shenhar, 2013). According to Fretty (2015), project management is the coordination and combination of the Project's initiation, preparation, implementation, control, reporting, and closure steps. According to Peter, Joana, Michael, and Alan (2013), a project can be thought of as a scheme that is active and continuously changes from one phase to another during its life cycle. In terms of a general project, its status progresses from conception or idea to feasibility analysis, implementation, and finally, accomplishment. In addition, undertakings are recently a lot more sophisticated than ever before.

Performance of water and road projects is crucial to the development of the country's economic and social aspects worldwide, but particularly in the USA (Dominic, 2020). If you take into account the fact that 57% of subcontractors in the USA believe they have problems locating skilled labour, you can feel perplexed in your hunt for suitable personnel. Our enthusiastic recruiting staff provides organizations across the country with qualified, seasoned, and reliable employees because they are experts at finding top talent (Sanchez & Haas, 2018). Mabin and Baldrstone (2015) assert that more sophisticated road construction techniques and methods can aid in completing projects in Europe more rapidly and efficiently.

More so than a simple comprehension of the Project's limits, a project's effectiveness is heavily influenced by the human qualities and leadership abilities of the accessible leadership candidates. (Jiang,2019). Berg & Karlsen(2017) pointed out that project leaders have historically emphasized technical knowledge and skills as the essential elements in managing projects. Better proposal administration methodologies that consider human capital and leadership ability as vital tools in managing projects are now crucial due to the necessity for managing projects (Sumner, 2016). If a

roadway project is completed within the required time, money, and quality, it is considered successful. Project success was measured using metrics like schedule, price, reliability, customer satisfaction, new approach, business results, and health and safety (Cheung,2010). Nevertheless, the three primary performance measures evaluated were time, money, and reliability.

Per Lisar(2017), additional project success criteria include finishing the assignment toward the data type Planning process outlines timelines, personnel, goals, technologies, and budget estimates rather than determining the amount of work, cash, energy, and human capital required to complete the task (Chatzglou & Macalay,2019; Slevin & Pint, 2016). One best way for fulfilling the stated goals is logical resource distribution (Horetal, 2017). It might also be described as one of the essential resources partners employ to ensure the success of projects (Naoum et al., 2016) requirements, completing it in the budget allotted, including doing so by the deadlines.

Kenya's government (GoK), acting through the Kenya National Highways Authority (KeNHA), worked with China Roads and New Bridge Corporation to implement the first development (BOT) project for the Nairobi freeway, the country's first attempt at a BOT model initiative (Ministry of Nairobi Metropolitan Development (MNMD), 2008). (2021). The relevance of the project and its objectives include the following: the revenue risk is taken on by the investor; the project will drastically reduce commuter times to 20 minutes and the distance between James Gichuru, Nairobi's CBD, JKIA, and Athi River; and the project will minimize economic costs brought on by traffic congestion, lost time, delayed flights, and emissions (County Government of Nairobi County Integrated Development Plan 2018-2022).

The contracting, investment, maintenance, and operation of projects covering roads, bridges, ports, railroads, airports, tunnels, real estate, and industrial parks were all handled by China Roads

and Bridge Corporation Kenya (CRBC) in collaboration with KeNHA. PPPs ("public-private partnerships") with 30-year concession periods that would comprise a 3-year building term and a 27-year operation period were proposed for the Project's development (KeNHA, 2019). The Project's actual completion date was set for December 31, 2021; it was later revised to March 20, 2022, and finally to June 30, 2022. Its upfront costs were 62 billion, but as of January 31, the Project had spent 88 billion, and by June 2022, this amount could rise further (KeNHA, 2022).

Statement of the Problem

The country's economy depends heavily on road improvements because they support the growth of other sectors. In order to mobilize private industry capital and experience in the infrastructure sector, the Government of Kenya (GoK), through the Kenya National Highways Authority ("KeNHA"), teamed up with China Roads and New bridge Corporation to carry out the first build-operate-transfer (BOT) Nairobi expressway project (Ministry of Nairobi Metropolitan Development (MNMD), 2021). The Project has had its fair share of challenges related to time and budget. For instance, the Project's original completion date was set for 31 December 2021; however, it was pushed back to 20 March 2022 and then again to 30 June 2022. Its initial expenses were 62 billion dollars, but as of 31 January, the Project has used 88 billion dollars, with the possibility of a rise before June 2022. (KeNHA, 2022). Despite the significance of Project planning on project performance, the effect of human resource planning, time, finance, and material is not clear.

Several empirical studies link project management plans to project success. A study on the effect of project planning on construction projects conducted by Pearce and Robinson in 2016 found a strong link between planning and project performance. The study also suggested that businesses plan for project resources to give them a competitive advantage over rivals and ensure their long-term survival. Morris (2018), TerryCooke-

Davies (2017), Lianying Zhang, and Weijie (2019), among others who have studied the impact of the planning phase on construction projects, discovered that poor planning and analysis result in a failed project, whereas sound planning boosts the Project's likelihood of success. The studies reviewed present contextual, conceptual, and methodological gaps related to the industry/country studied, operationalization of study variables, and techniques for gathering, analyzing, and presenting data.

The empirical gaps identified were filled by concentrating on a road project in Kenya, conceptualising variables based on road project performance, and using primary data. The Nairobi expressway road project is vital to the economy, and the research related to its failure to beat the deadline and budget will uniquely address the gap in the effect of time planning, material, human, and financial planning on project performance.

Objectives of the Study

Examining how project planning affected the success of the road project for the Nairobi Expressway in Kenya's Nairobi City County would be the primary goal. The specific objectives were;

- To ascertain the impacts of human resource planning on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya.
- To assess the influence of financial resource planning on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya.
- To assess how material utilization planning has an impact on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya.
- To establish the effects of time management on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya.

LITERATURE REVIEW

Theoretical Literature

Theory of Constraints

Goldratt postulated this theory of limitations as an overarching management framework (1984). It attempts to assist businesses in continuously achieving their objectives, namely, an improvement in the efficiency of their initiatives. It describes four primary restrictions that impede the execution of initiatives. The Project's budget, competence, and time frame are the restrictions, together with the Project's overall scope. The core tenet of TOC is that limitations have a detrimental impact on any performance of companies. According to the notion of limitations, project leaders should concentrate on handling these constraints well.

According to research by Klein, Debruine, and Lehman (2016), these limitations affected around 40% of the road projects built in Europe. In spite of project restrictions, the idea pushes managers to be creative in developing strategies that will help the company complete high-quality infrastructure projects. According to Linhares (2015), policies and insufficient physical resources are the leading causes of the restraints that businesses encounter. The best performance within the restrictions at hand is a vital component of the theory of constraints. It provides a framework for the duties managers must perform when managing projects. The constraints theory is a body of ideas, precepts, and metrics that concentrate on the logistical equipment that makes project work run smoothly (William, 2013).

Stewardship Theory

Another way to comprehend the present relationship between company ownership and management is through the Stewardship Theory, which Donaldson and Davis (1991 and 1993) developed. Managers diligently pursue high company profit levels and shareholder returns as competent business stewards (Donaldson & Davis, 1994). This approach emphasizes the Board's function in providing plans or advice and regards Managers as Reliable Persons. The fundamentals of

the stewardship idea are founded on social neuroscience, which emphasizes executive behavior. Directors must uphold a fiduciary obligation to shareholders in order to earn their trust and operate as good stewards of the organization's assets.

The stewardship theory's proponents concur that managers prioritize exceptional performance over maximizing shareholder profits. The reason for this is that managers, who run the firm on a daily basis, have a greater understanding of it and make better judgments than directors, who are more outsiders (Donaldson and Davis, 1994). Because organization performance will satisfy the majority's needs and the stewards will have a defined goal, it has been observed that where a company's wealth is increased, the utility of stewards is also maximized (Smallman, 2004). Stewardship theory, therefore, refers to a claim made in the performance of enterprises that meets the needs of the interested parties, leading to a system dynamic balance for balanced governance. Sustainability theorists have suggested, according to Donaldson & Davis (1994), that top officials inside a firm won't disadvantage shareholders out of concern for harming their reputation. According to this theory, managers and staff members of construction enterprises should receive a significant the right amount of guidance to promote enhanced and more effective judgment calls.

Project Management Competency Theory

McLelland and McBer postulated this hypothesis (1980). The authors claim that competency relates to a person's underlying traits that allow them to perform admirably under a particular task or environment. A competency, according to the project management competence development platform, is a collection of related skills, knowledge, attitudes, and other traits that influence how a person handles a certain work. Project success and competency are related, and personnel development and training can raise competency (PMI, 2011).

The idea describes how program management skills are essential, how development projects are monitored and evaluated, and how team dynamics affect how well infrastructure investments perform. Technical project leaders must be able to successfully utilize knowledge, skills, tools, and procedures, according to Gladder (2010), in order to honor a promise, be capable of accomplishing the Project's goals, and augment the combined cost, time, and determination. The analysis discovered that two of the fundamental criteria—the Project management institute (PMI) and the Australian National Competency Standards—focus primarily on the knowledge side of competence, while the third standard—the PMBOK—emphasizes on proven performance. The poll also showed that some project managers lacked the skills required to oversee road construction projects.

Resource Based View Theory

Wernerfelt & Rumelt(1984) were the first to propose this notion (1984). The argument is based on how a company can use a variety of priceless intangible and tangible resources at its disposal to get a strategic advantage over rival companies. It explains how vital actual and intangible resources help the company complete projects on time, on budget, and to the intended quality (Barney, 1986). The RBV theory states that a business with enough resources is more likely to outperform other businesses and gain a competitive edge. It makes the case that every project manager aspires to boost the effectiveness of the projects they manage continually. However, small businesses have limited funds and time to devote to implementing the necessary improvements.

The company's resources can be either physical, like machinery, or intangible, like trademarks, proprietary information, and procedures. Making good use of modern tools like excavators, tippers, rollers, and graders can help a company finish an infrastructure plan within the allotted time frame and also cut down on cost escalation (Gimeno, 2011). According to Robert & Bradley (2013), in order for a business to perform better, it must first

evaluate the resources it already has, values them, and consider how to utilize them provide the firm a competitive edge. Robert and Bradley also stated that a firm's capability to incorporate new technologies is premised on its access to resources, including the capital, machinery, workers' talents, and copyrights.

Empirical Literature Review

Wright et al., (2019) investigated the relationship between 190 US chemical refineries' work performance participation as well as other Human resources practices (recruitment, education, engineering skills, management, and style of management). Overall outcomes of this research endorsed the notion that staff choice, instruction, leadership, and methodology are all directly related to employee enthusiasm. However, the study's findings show that Human resource practices (such as selection, training, administration, and scientific methods) are only strongly related to a company's project performance when those processes are integrated with the step-by-step process. The study was carried out in the United States and focused on chemical refineries, creating a contextual gap that the current research seeks to overcome by focusing on road projects in Kenya.

Guoli (2018) investigated in India the influence of financial management on construction projects. The study employed a descriptive methodology and concentrated on the stalled initiatives. The research concluded that a feature-rich budget controls project costs and promotes cash flow. The research also revealed that because there is a substantial danger that the program as a whole would be momentarily discontinued, the implications of a project's inadequate cash inflow are typically tied to delayed and considerable extra costs. The current study is intended to focus on how financial planning affects project outcomes, which was not thoroughly explored in the previous study.

Telsang (2019) examined the materials strategic plan and its effects on construction projects in Australia. The design of the study was descriptive. This investigation was concentrated on Indian

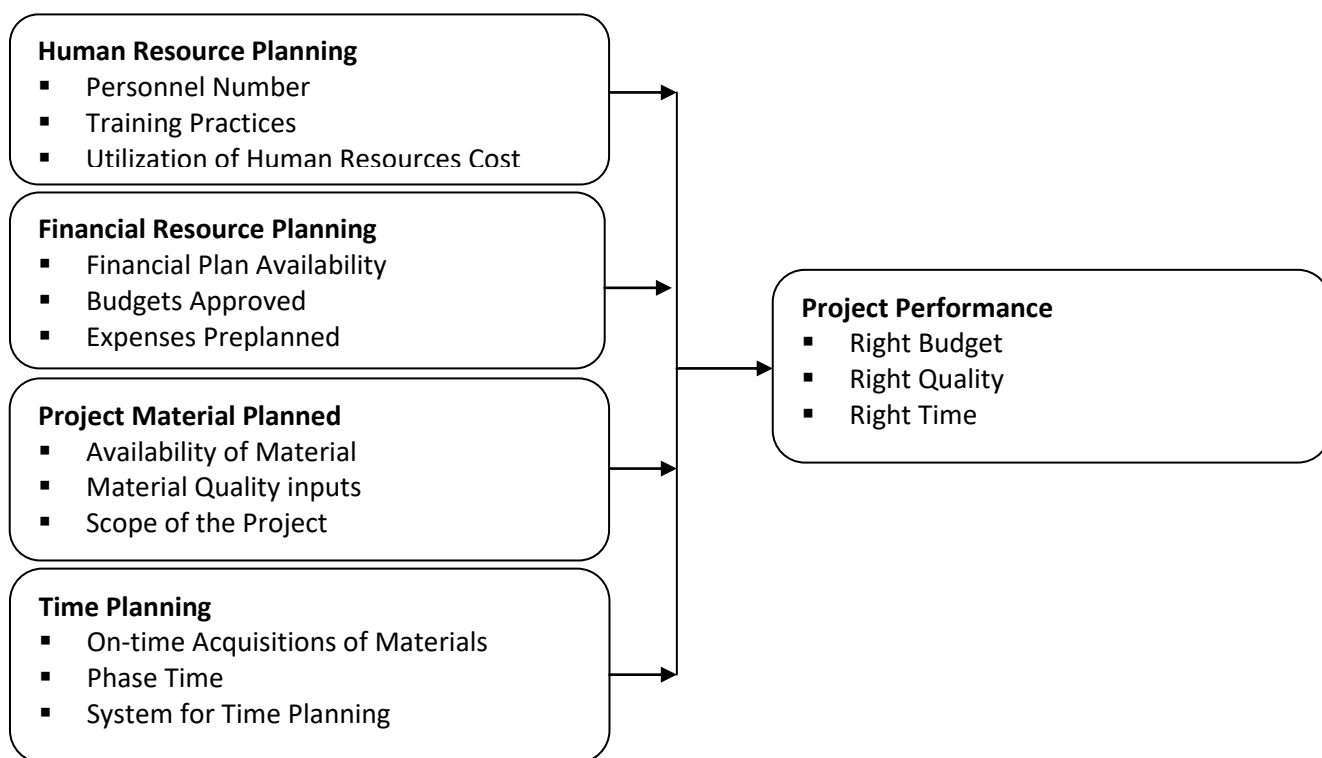
projects. The study found that planning identifies the activities, sets the time and budgetary objectives, and establishes performance standards, all of which are necessary for a project to be executed successfully and its goals to be met. The study came to the additional conclusion that now the strategy must incorporate all essential facilities, equipment, materials, and workforce in order to assure the success of the complete operation. The achievement of an intended outcome is not always guaranteed by timely planning and allocation. It rarely occurs in this manner since unforeseen circumstances sometimes arise irrespective of timely planning. The study was done in Australia presenting a contextual gap.

The factors influencing time preparing systems in Nigerian construction enterprises were investigated by Akpan and Chizea in 2017. The case study analyzed were botched projects in Nigeria. The

research showed that time planning systems necessitate the practical evaluation of implementation using pre-established criteria, and if execution diverges from the typical organizational objective, then corrective measures are swiftly applied. In contrast, a successful Project represents the realization of a planning process as well as keeping track of the plan's effectiveness in reaching the target aims. But the research did not determine how time management impacts project outcomes, which is the present study's primary objective.

Conceptual Framework

The links seen between various components are shown by the mathematical framework. The decision is the coefficient of determination, and the essential variables are human resources planning, personal finances, time management, and industrial equipment.



Independent Variables

Dependent Variable

Figure 1: Conceptual Framework

Source: Researcher (2023)

METHODOLOGY

Research Design: The research design for the study were both descriptive and explanatory Mugenda Mugenda (2008) and Williams *et al.* (2007) stated that using many approaches helps the study get its best findings. In order to determine how well the Nairobi Expressway road project is managed, the study used both experimental and descriptive designs based on a survey. Because this study took a statistical approach to data collecting, analysis, and presentation of project planning or performance of projects characteristics, a descriptive research design based on a survey was appropriate.

Target Population: The study targeted the Nairobi Expressway Road project in Nairobi City County, Kenya. The unit of observation was made up of 7 road engineers from KeNHA and China Roads and Bridge Corporation Kenya, 17 road supervisors, 12 road inspectors, 28 road surveyors, and 4 sub-contractors.

Sampling Design: The study used a census technique because the quantity of participants is small and controllable.

Data Collection Instrument: In order to gather key data for the Nairobi Expressway Road project, respondents were given semi-structured surveys. Both open-ended and closed-ended items were included in the semi-structured questionnaire.

Pilot Study: A pilot study was done to evaluate the content and face validity of the questionnaire, the leading research instrument, before actual data were collected.

Validity of the Research Instruments: Through the use of three project managers and three project contractors, the validity of the study's content were evaluated.

Reliability: Cronbach's alpha coefficient of consistency reliability was utilized to test the validity of this research (Mugenda & Mugenda, 2013).

Data Analysis and Presentation: Both qualitative and quantitative information were considered for

the study. Inferential and descriptive statistics were used to analyze quantitative data, and standard deviation and mean were employed in descriptive statistics for describing frequency distributions. Multiple regression analyses were utilized to ascertain the impact of each predictor variable and its effect on the project achievement.

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

Y will be project performance

β_0 will be the constant

β_1 to β_4 will be the coefficients of X_1 to X_4 , respectively

X_1 = Human resource planning

X_2 = Project time planning

X_3 = Financial planning

X_4 = Material planning

The level of confidence was measured at 95%. Tables and potential measurement estimations was used to present the data.

FINDINGS

Descriptive Analysis

With regard to the independent and dependent variables, descriptive analysis of the data collected from respondents was presented in this part. The data in this section were explained using the mean and standard deviation. While the standard deviation showed how far respondents' responses varied from the mean, a high mean implied that most respondents strongly agreed with the assertions made.

Human Resource Planning

This section determines how human resource planning affected performance of Nairobi Expressway road project in Nairobi City County, Kenya. The questionnaire had a number of statements that represented the degree of human resource planning for the chosen projects. The level of agreement among respondents on topics pertaining to human resource planning for the accomplishment of performance of Nairobi Expressway Road project in Nairobi City County, Kenya was summarized in Table 1.

Table 1: Human Resource Planning

	Mean	Std. Dev
The company's planning process is heavily influenced by the human resources department.	3.9847	.30192
In keeping with the overall objective, human resource training has been developed and is being put into practice.	3.8999	.48048
The task of managing human resources is given significant weight.	3.9999	.30484
All of the available resources were used (qualified personnel and infrastructure)	3.9831	.43516
Members of the project team received training.	3.9983	.31484
Project managers took part in the planning process.	4.220	.35274
Aggregate Score	4.0143	.36552

Source: Researcher (2023)

According to the results in table 1, the majority of responders agreed that the company's planning process is heavily influenced by the human resources department, as evidenced by the mean of 3.98 and the small std deviation of 0.302. Given a mean of 3.99 and a very small Std Deviation of 0.31, it is apparent that most responders agreed that project team members had received training. The response further agreed that in keeping with the overall objective, human resource training has been developed and is being put into practice as evidenced by mean of 3.89 and a std deviation of 0.48. Project managers took part in the planning process as demonstrated by mean of 4.22 and a std deviation of 0.353.

All of the available resources were used (competent employees and facilities) as demonstrated by a mean of 3.98 and a std deviation of 0.435. Therefore, it is evident that the road project used successful human resource planning techniques by

taking into account the crucial function of human resource managers, allocating adequate human resources, and providing them with quality training. The study supports Batt's results from 2016 that businesses place a greater emphasis on high skill training, employee engagement in decision-making, and human resource incentives including employment security. The study was further supported by Werner & DeSimone (2016) that human resources allows firms to foresee the effects that changes in their strategy will have on the demands placed on their and the changing personnel needs.

Financial Resource Planning

The respondents were asked to rate their agreement with the researcher's assertions about how financial resource planning affects the success of development of road projects. The outcomes of applying various financial resource planning indicators were shown in table 2.

Table 2: Financial Resource Planning

	Mean	Std. Dev
Project costs were accurately estimated.	2.1695	.56179
The project could be completed with the allocated money	2.2285	.44422
The project's budget was appropriately established (combining the anticipated prices of several tasks or work packages to create a baseline approved cost)	2.0012	.51123
The project manager had the ability to predict costs	2.0091	.50422
The project was completed without difficulties	2.0005	.32452
Aggregate Score	2.0818	.46919

Source: Researcher (2023)

Results in table 2 showed that the majority of respondents disagreed that the project was

successfully accomplished without difficulties and that the project managers were unable to predict

expenses, as demonstrated by mean of 2.00 and 2.09, respectively. Additionally, respondents concurred that the project's budget was improperly controlled (combining the anticipated prices of several tasks or work packages to create a baseline approved cost) and that the funds allotted were insufficient to finish the project, as demonstrated by mean of 2.22 and 2.00, correspondingly. Finally, a mean of 2.0818 and a std deviation of .56 indicate that respondents felt the project cost was inaccurately predicted.

Overall, it is evident from the analysis that thorough financial planning was carried out as evidenced by accurate cost forecasts and timely, hassle-free completion of project phases. The study concurs with Guoli (2018), who discovered that project costs and professionally created budget controls result in

favorable cash-flow situations. The study also revealed that a project's limited cash flow repercussions are frequently associated with delays and substantial additional costs because there is a great possibility that the project scope could be temporarily put on hold. Karlsson (2017) agreed that training, society, and personal finances are backdrop factors that influence project planning techniques and procedures.

Material Usage Planning

The section of the study ascertains how material usage planning affected project performance. As shown in table 3, the researcher combined a variety of various indications of material consumption planning and provided them as statements to the responders.

Table 3: Material Usage Planning

	Mean	Std. Dev
Appropriate material was provided	2.1915	.53733
Project information and organization were effectively shared during the planning phase	3.1111	.44422
The project's scope was clearly defined	2.4407	.50073
Project results were clearly specified.	2.0007	.53405
Adequate planning was done	2.0729	.55393
Allotted material resources were fully utilized	2.5085	.50000
Average Aggregate Score	2.3876	.51171

Source: Researcher (2023)

The majority of respondents, as validated by a mean score of 2.1915 and a std deviation of 0.5000 in table 4's study findings, disagreed that appropriate material had been provided. Respondents also disagreed that allotted material resources were fully utilized, and the project's output was poorly defined, as indicated by mean scores of 2.00 and 2.44, respectively. A mean score of 2.0729 indicates that there was poor planning; moreover, a mean score of 2.11 indicates that respondents disagreed that project information and organization were effectively shared during the planning phase.

The results showed that material utilization planning was not well implemented, as shown by

the low quality, improper, and evidence that all materials needed for the projects were not available at the proper moment. The data supports Plenert and Best's (2018) conclusion that the majority of JIT expenditures occurred during periods of high inflation and hence high increases in the cost of maintaining inventory. The report indicates that firms should be able to restrict their planning to only the material resources required at the time. The study agrees with Kress (2018) that a project plan achieves the intended objectives if material usage plan is effective.

Time Management

The section of the study was to ascertain how time management affected project performance. The findings were displayed in table 4.

Table 4: Time Management

	Mean	Std. Dev
The planning phase was successful in terms of defining the project's scope.	3.1015	.50022
Schedules were well developed (prepared)	3.3001	.49190
Activity time was accurately predicted	3.0763	.49839
The task was finished according to the initial (specified) schedule	2.1100	.50422
All projects were finished on schedule	2.1007	.51173
Aggregate Score	2.7377	.50291

Source: Researcher (2023)

According to the results in Table 4, the majority of responders agreed that activity time was accurately predicted as evidenced by a mean of 3.07 and a std deviation of 0.4983, and that schedules were fairly done, as evidenced by a mean of 3.300 and a low std deviation of 0.49190. The mean of 3.1015 and a std deviation of 0.50022 show that the project scope was moderately clearly defined throughout the planning phase. Additional respondents indicated that all projects were not finished on the agreed time, as evidenced by mean of 2.100 and 2.11, correspondingly, and that the project was not finished on the initial timetable.

The study concurs with Lloyd's (2016) results that project performance is influenced by time planning functions. According to the study, planning needs to

be sufficiently thorough to enable management because it quickly loses its convenience if deviations from it is undetectable and rapidly corrected. According to the study, Telsang's (2019) results that allocating resources and developing timely plans do not always ensure that a desired outcome would be attained are incorrect. The study indicated that regardless matter how meticulous the planning process may have been, time management rarely works that way since the unexpected happens more frequently.

Project Performance

The study determined the extent of express way project performance. The degree of agreement between respondents and various statements provided to them was summarized in Table 5.

Table 5: Project Performance

	Mean	Std. Dev
The road met the specifications in the planning stage	3.0288	.73884
The work was of a high calibre.	3.0847	.70192
The project's cost was accurately predicted and stayed within the allocated budget	1.5763	.49839
The road phases were completed at the right time	2.2831	.73088
Aggregate Score	2.4932	.6675

Source: Researcher (2022)

Results in Table 5 showed that a larger percentage of respondents, as proven by a mean of 3.0288 and a std deviation of 0.7388, agreed that the specifications delivered product partially met the parameters in the planning stage. Cost is the determining factor in all projects; a greater budget

would probably enable one to engage more personnel, who would finish the project more faster and deliver more. So, until a budget is prepared, the project plan isn't complete. But regardless of the size of your project and the number of resources and activities involved, the procedure for

determining the final outcome is always the same (Telsang, 2019). Additionally, the respondent agreed that, as demonstrated by the mean of 3.0847 and a std deviation of 0.701, project delivery quality was moderately done to the clients' expectations is essential for the success of a project implementation. Project cost was not well estimated and was within the budget and project wasn't finished on schedule (Mean of 1.5763 and mean of 2.2831).

It is obvious that the projects that were chosen had shown a high level of project planning procedures, and these practices translated to strong project performance that complied with the client's requirements. The findings concur with Kress' (2014) conclusions that Project management's main objective is to satisfy or surpass the intentions of the project's financiers. The study reveals that a specific project delivers the required result with the

fewest defects, for the predicted cost schedule, and within the anticipated timeline. Lloyd (2016) further supported that the appropriate project's limits and even aims can change as it is being implemented when time, quality and budget is considered.

Inferential Analysis

This section presents the correlation and regression results. The correlation presents the interrelationship amongst variables while regression presents the linear relationship amongst variables.

Correlation Analysis

Pearson correlation was used to show the relationship amongst variables. It shows the relationship which ranges from +1 to -1. The figures show positively perfect correlation and negatively perfectly correlation respective. A value close to zero shows the possibility of non-correlation.

Table 6: Correlations

		HRP	MRP	FRP	TM	PP
HRP	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	59				
MRP	Pearson Correlation	.196	1			
	Sig. (2-tailed)	.468				
	N	59	59			
FRP	Pearson Correlation	.347**	-.186	1		
	Sig. (2-tailed)	.507	.159			
	N	59	59	59		
TM	Pearson Correlation	.237	-.206	.958**	1	
	Sig. (2-tailed)	.071	.118	.400		
	N	59	59	59	59	
PP	Pearson Correlation	.548**	.583**	.655**	.650**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	59	59	59	59	59

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

Source: Researcher (2023)

A positive correlation between road project performance and human resource planning was found, as shown by the correlation value of 0.548, as per the study's findings in Table 6. It was also clear that there was a strong correlation between material resource planning and the success of road

construction, with a correlation coefficient of 0.583. The performance of road projects and financial resource planning were shown to be positively correlated, with a correlation value of 0.655, and time management and performance being

positively correlated, with a correlation value of 0.650.

The findings showed a strong relationship between time management, material usage planning, financial resource planning, and human resource planning and road project performance. The study's findings support Belout and Gauvreau's (2014) conclusion that there is a favorable relationship between project success and the planning of human resources, time, material resources, and finances. Wright's (2019) findings support and concur with those of the present study that the efficiency of projects is directly correlated with the choice of human resources, material planning, financial planning, and time management.

Regression Analysis

To ascertain how changes in the four independent variables would affect changes in the performance

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.855 ^a	.731	.711	1.60136

a. Predictors: (Constant), HRP, MRP, FRP, TM

Source: Researcher (2023)

According to the adjusted R², the four independent variables (human resource planning, financial resource planning, material usage planning, and time management) had a 71.1% effect on road project performance. As a result, 28.9% of the performance of road projects was influenced by other elements that weren't considered in this study. The independent and dependent variables

of road projects (the dependent variable), the researcher used multiple regression analysis.

Model Summary

The coefficient of determination, which described how well variations in the dependent variable can be accounted for by alterations to the independent variables, was presented in the model summary. As a proportion of variance in the dependent variable's (road project performance) description by each of the four independent factors, it may also be explained (human resource planning, financial resource planning, material usage planning and time management). The outcomes were shown in table 7.

have a high positive correlation, according to the correlation coefficient value of 0.855.

Analysis of Variance

The section of the study was to present its overall study significance. The outcomes were displayed in table 8.

Table 8: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	376.373	4	94.093	36.693	.000 ^b
	Residual	138.475	54	2.564		
	Total	514.847	58			

a. Dependent Variable: PP

b. Predictors: (Constant), HRP, MRP, FRP, TM

The results in table 8 showed that the model as a whole was significant (sig=0.000). A estimated F statistic of 36.693 indicated that the model as a

whole was significant (p value <0.05). The generated F statistics exceeded the necessary F statistic in size. The results showed that time

management, material consumption planning, financial resource planning, and human resource planning were all effective predictors of road project performance.

Regression Analysis

Table 9 displays the research coefficients of independent variables. The coefficients show how the dependent variable has changed and in what direction as a result of the independent variables' changes.

Table 9: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	14.571	4.246		3.432	.001
1 HRP	.722	.223	.264	3.242	.002
MRP	1.266	.158	.584	7.997	.000
FRP	-.201	.405	-.136	-.497	.621
TM	1.133	.406	.738	2.791	.007

a. Dependent Variable: PP

$$Y = 14.571 + 0.722X_1 + 1.266X_2 + 1.133X_4 + \epsilon$$

The performance of road projects was 14.571 when applying the regression equation above and keeping all other variables (human resource planning, financial resource planning, material usage planning, and time management) constant. According to table 9's findings, improving human resource planning would result in significantly better road project performance. Insights from a study by Armstrong and Murlis (2014) on how human resource planning techniques affect project performance. The findings did not support Bratton and Gold's (2017) study on the impact of HRP procedures on business performance who found that HRP has insignificant effect on project performance.

According to table 9's findings, better planning of material utilization would result in improved road project performance (B=1.266, sig=0.000). Material Resource planning had a significant effect on road project performance. The findings of the study are congruent with those of Plenert and Best (2018) about the impact of material level on project performance. The study discovered that by significantly lowering the cost of transporting and keeping inventory, material consumption planning improves project performance. The study supports Kress' (2017) research on the impact of material

planning on project performance, which discovered that efficient material usage significantly affects project performance.

The findings also indicated that financial resource planning had insignificant effect on road project performance (P value<0.05). The study disagrees with the conclusions of an earlier study by Antvik & Sjöholm (2013) on the effect of financial planning on project performance which concluded that financial resource planning significant affects project performance. The study assert that cost budgeting and cost estimating procedures used in project cost planning have insignificant impact on project performance.

According to table 9's findings, better time management results in better project performance. Time management had a significantly favourable impact on project performance. According to Lloyd (2016), who supports this study, time planning must be sufficiently comprehensive to allow for control, which greatly improves project performance. The findings of the current study, which demonstrated a considerable impact of time planning systems in construction businesses on project performance, are supported by Akpan and Chizea's (2012) study.

CONCLUSIONS AND RECOMMENDATIONS

According to the study's findings, the human resource management as a crucial role in enhancing the effectiveness of road projects. The study also concluded that the design and execution of human resource training were consistent with the main objective. The study found that human resource planning considerably and positively affects how well road projects operate. The study concluded that material usage planning and time management have significant positive effect on project performance. The study concluded that financial resource planning has insignificant effect on road project performance.

Due to the positive effects of human resource planning on project performance, businesses should empower their human resources with suitable and continuous training programs tackling the performance of road projects. The study suggests that in order to address the project team members' prerequisites, building businesses should be aware of them. It's also advised that construction projects predict their performance level before they are officially launched.

According to the report, planning the material utilization for a road project should be a priority. This is so that road project stakeholders can receive higher-quality output and services by reducing lead times through proper material scheduling, which boosts productivity. The adoption of this will provide businesses a competitive advantage.

The study determined that project budgets are an essential part of budgets and significantly affect both the planning and execution phases of projects. For efficient resource management, it is important to keep track of both the project's overall costs and

the costs of each of the many work packages. The project scope needs to be utilized to estimate project expenses utilizing the WBS attached to the project plan. Approximating the value of specific actions dependent on the circumstances surrounding their execution will aid in the creation of an accurate inclusive cost estimate. On the same note, the study suggests that materials management be a focus for effective construction project planning to guarantee that projects are completed on schedule and within budget.

According to the study, time schedules should be made using the WBS that was previously produced. The study recommends careful activity sequencing to produce exact and workable schedules. The sequencing method includes determining dependencies and logical links between the project components. routine checks and controls needs to be put in place in order to spot deviations. as soon as is practical because an uncontrolled time schedule is useless to the project organization. If deviations are caught early, the project team will be capable of taking the appropriate action.

Suggestions for Further Study

The study focused on project planning practices and performance of Express highway project in Nairobi City County, Kenya. The study was limited to one project and more specifically a road project. The independent variables of the study were time management, human resource planning, financial resource planning and material usage planning. The study suggests further studies in other sectors, other regions and countries. The conceptualization of variables should also be based on other literature and theory sources supporting a certain sector under study.

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