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

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D53/OL/CTY/28234/2019

A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS, ECONOMICS AND TOURISM IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE IN MASTER OF BUSINESS ADMINISTRATION (PROJECT MANAGEMENT) OF KENYATTA UNIVERSITY

APRIL, 2023
DECLARATION

This project is entirely unique to me and has never been presented to another higher education institution for an Award.

Signature: .............................. Date: 26/04/2023

Joan Kagendo Maina

D53/OL/CTY/28234/2019

I declare that the candidate worked on this project whilst being supervised by me.

Signature: .............................. Date: ......................................

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DEDICATION

This undertaking is dedicated to my parents Mr. and Mrs. Maina, my sisters Ann Maina, Esther Maina and Margaret Maina they have been there for me both emotionally and spiritually.
ACKNOWLEDGMENT

This project has been successfully completed thanks to my supervisor, Dr. Lydia Gachengo. I am grateful to my company for giving the necessary time and conducive environment for the study. My bosses Yuniesky Ferrera Sampayo and Henning Hansen thank you for always pushing me to be the best version of myself. I am grateful for my family's support and fortitude at this difficult time. My colleagues' support and encouragement in matters of ethics are greatly appreciated. I'm also appreciative of the respondents for lending their time and expertise to this study.
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OPERATIONAL DEFINITION OF TERMS

Road Construction Project: A project that enables the workers to create a smoothed or paved surface that allows vehicles to move from one destination to another.

Financial Planning: Describing all of the tools, technology, resources, and actions required to accomplish these goals as well as the durations involved. The proxies of financial planning were; the availability of financial plans, approved budgets, and forecasted expenses.

Human Resource Planning: This approach identifies the requirements for human resources that will be needed in the future for an organisation to accomplish its goals. The parameters utilized were the number of employees, the nature of training programs, and the cost of utilizing human resources.

Material Planning: A procedure that determines the material wealth that an organization will need now and in the future to achieve its objectives. Order placement, the selection of the appropriate material, and the scope statement are all markers of material utilization planning.

Project Management: Applying information, skills, resources, and procedures to program activities in order to fulfill project requirements is what this is.

Project Performance: This relates to the capability to complete the Project in accordance with the necessary requirements, within the
committed time frame, within the right budget, right time and right quality.

**Project Planning:** The practice of predicting or establishing milestones, schedules, resources, and labor costs. It specifies how much time, work, money, and human resources will be required to complete the Project. Multitasking, funding planning, resource consumption planning, and planning for human resources are all examples of planning.

**Time management:** In an organisation, it is a method that establishes time goals and phases of project implementation. The time objectives, project implementation, and time planning system served as stand-ins for time management.
ABSTRACT

The Nairobi City County express highway road project has taken longer than anticipated and cost more money. Many parties involved have questioned how well Kenyan road construction projects function in terms of the caliber and volume of work they can undertake concurrently. The Express highway road project was initially budgeted at 62B, but as of 31 January, the Project had consumed 88B. Additionally, it was targeted to be completed by 31 December 2021, but the completion date was revised to March 2022 then the later completion date was moved to 20 June 2022. The failure of significant projects across the world has been accustomed to project planning. Consequently, the goal of this investigation was to ascertain how express highway construction project performance in Nairobi City County, Kenya, is affected by project planning. Determine the impacts of time management, material consumption planning, financial resource planning, and human resource planning on the performance of the Nairobi Expressway Road project in Kenya's Nairobi City County. The theory of constraints, the stewardship theory, the project management competency theory, and the stakeholder theory served as the foundation for the study variables. 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. Figures and tables were used to present the data. The study found a positive and significant influence between human resource planning, financial resource planning, material usage planning and time management and project performance. The study concluded that human resource planning includes the processes that organize, manage, and lead the project team. Financial resources correspond to the project budget, which will be defined prior to the launch by the project sponsor. Material resources include raw materials and machines, tools, equipment, software, premises, etc. They include both resources that the company already possesses and those that it purchases or leases to carry out the project. Time resources are the periods of time available and used for the completion of each task. The duration of a task will depend on the planned and available human resources. The study recommended that construction companies need to be aware of this in order to meet the needs of project team members. The findings states that priority should be given to the use of materials in the planning of road projects. To ensure effective resource management, it is important to track the total cost of the project and the cost of each of the many work packages. The pre-generated WBS should be used to develop the schedule. The study recommends carefully arranging activities to create an accurate and functional schedule.
CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

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.
Globally, there are significant capital investments, several disciplines being used, tighter deadlines, widely scattered project participants, and strict quality standards. For instance, road projects performance in the UK have considered project planning which has helped the projects remain sustainable for an extended period (Kress, 2014). It really has significantly impacted the success of a project in the USA by bringing attention to new evolving management services and the most cutting-edge technology, in addition to the fast development of ICT. The concept of innovative construction projects is broad and ambiguous. The competitive HR department in Germany has been provided with the necessary skills, expertise, and work styles, which has led to practical and functional project management. Comprehensive resourcing procedures are essential for the achievement of the entire Project, as well as the following performance or failure of the Project or connected enterprises (Besner, & Hobbs, 2017).

According to research from energy and road projects across the United Arab Emirates, a shift from a focus on competencies to optimizing delivery towards a more value-based strategy is essential for successful execution (Picciotto, 2020). This value-based approach is developed by assuming a reflective practice attitude, aggressively disputing assumptions based on prior and extra aspects, and envisioning future scenarios. New building materials, manufactured and modular structures, and other construction technology helped to facilitate Chinese road construction even more (Cheung, 2010). Poor planning and inadequate utilization of technical tools led to the postponement of 25% of current Indian projects, according to a KPMG-PMI (2014) poll.
Chinese road project management's top priority is to meet and exceed the project sponsors' expectations from customers (Yu et al., 2016). Different managers in these projects have considered the aspects of material, time, finance, and human resource planning (Cao, 2016). Because a project must stay within its budget, schedule, and scope in order to become successful, scope management is the most critical aspect of project management (Zhang & Weijie Fan, 2013). According to Haghey (2016), the project leader will need to compare each limitation to decide which one would give the Project the best results. Financial constraints, for instance, must be assessed in order for the project manager to get the necessary results at the estimated cost. Many of the road projects in China generated desired result/outcome with minimum defects when human resource planning and material planning were well factored in.

According to Zhang and Fan (2013), road projects in South Africa have considered project planning; material, time, finance, and human resource planning and remained sustainable. According to Kress (2014), South African transportation projects have made an effort to achieve the three project requirements of time, quality, and money. The Project could, however, veer off course due to outside factors at play. Since projects require significant capital and involve several uncertainties, many project leaders have adopted the essential procedures to carry out thorough planning (Telsang, 2014). A well-planned road project often has control mechanisms built in to ensure that all important steps are taken to increase the achievement of project objectives based on the established plan.

Locally, the Kenyan government hasn't been successful in making sure that road projects are finished on schedule, under budget, and to the required standard (Shenhar, 2018). The
management mechanism ensures that the expected activities to carry out the specified plan, in reality, are capable of achieving the plan and are effectively aligned with the set objectives. Finding cost overruns or evidence of time and expense increases is not always simple for a project manager. Given that the majority of Kenya's roads have potholes, their effectiveness has not been satisfactory. A major issue today is traffic congestion, especially in urban areas. According to Gachanja (2015), road traffic is one of the significant issues affecting the efficiency of Nairobi's transportation system. Traffic congestion was expected to cost the Nairobi Metro Region's economy KSh 1.9 billion annually in 2008 because of the extra time it took to commute due to traffic. Project planning is a crucial factor in how well a road project performs (Whittaker, 2019). To improve the project performance, it's critical to identify the main issue areas during the planning phase and take remedial action.

1.1.1 Project Performance

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 and 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.
The Infrastructure Investment Strategy (2019) in Great Britain highlights the need for construction and infrastructure to take project performance into account in ways other than the traditional cost-quality-time triangle so as to achieve the government's aims. This is not intended to imply that these older performance measures are no longer important; rather, it is intended to underline the need for projects to produce better, speedier, and healthier results. To create infrastructures that not only encourage economic expansion but also equity and sustainability, it is essential to understand why certain projects fail while others succeed (Crouzet & Eberly, 2019).

The backlog in road constructions is also a result of a lack of properly equipped construction sites and trained labourers. Soderland (2012) noted that although South Africa's investments in its road infrastructure were doing well, most of the nation's big highway projects were being undertaken out by foreign construction firms. Local South African construction firms, according to Soderland (2012), encountered a number of challenges in completing infrastructure projects within the allotted budget and time frame. Lushan (2014) claims that Nigerian building companies employed efficient planning and control techniques, cooperation between architects and contractors, and technical and skilled ability to complete their structures on schedule and under budget. The successful completion of infrastructure investments also depended on the management's dedication, the availability of adequate communication and information channels, and the competence of the workforce (Boddy, 2009).

The lack of trained personnel, poor budget control, and scope creep, according to Lavasseur (2016), plagued Tanzanian construction firms, driving up costs and delaying
infrastructure expenditures. Five crucial elements were recognized by Kenyan project performance and success metrics: the goals of the stakeholders, operating assurance, education and exploitation, and client happiness (Takim, Roshana & Hamimah, Adnan, 2019). Among the potential outcomes of the project are elements like attaining user as well as customer relations, having to learn from initiatives, meeting which was before project stakeholder aims (achieving project goals as well as primary focus), and being backed by the well-contracting programs. This is due to effective and successful project metrics linked to the program's "results."

Lisa (2016), assert that there are additional project success criteria that include completing the job on time, within budget, and to the stipulated standards. The Project's effectiveness is heavily reliant on important performance indicators, such as the delivery date and adherence to regulations established by a number of authorities, such as federal and local officials (Kagalwala & Ram, 2017). The current study used quality control, financial planning, and finish date to assess the projects' effectiveness.

1.1.2 Project Planning

Perlisar (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 (Chatzoglou & 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.

In the United States of America, a project management plan has been viewed as an effective strategy for achieving predetermined project goals (Faniran, Oluwoye & Leard, 2018). Most European construction companies define project goals and decide on the project structure, techniques, strategies, goals, objectives, and timeframes while informing the relevant parties of the same (Hore et al., 2017). Projects in China typically span a variety of activity sectors, include numerous internal and external stakeholders, and have a wide range of goals. Since 1980, many Chinese professionals and academicians have agreed that subject to a series of resource consumption planning, personal finance, and management of human resources (HRM) planning are the most critical elements in an organization's success (Dvir, Raz & Shenhar, 2017).

In African enterprises, practices for human resources management (HRMP) are being reinvented, and they are progressively reaffirming their strategic role. For instance, in Ghana, HRMP is one factor that affects employees' intentions to leave, work satisfaction, and organizational commitment, which has an impact on a project's effectiveness (Huang, 2019). HRM practices improve a project's performance, which aids in its growth and establishment of enduring competitive advantage. All primary tasks necessary for a project to achieve deadlines are included in the project delivery time.

Thus, according to the project management body of knowledge, the planners in the time information domain include assessment, schedule development, activity time estimate, and resource assessment of the action (2004). One of the essential plans for a project is indeed
the time plan. An employment structure (WBS) that has already been established is used to build time schedules. So, according to Antvik and or Sjöholm, (2017) tasks need to be meticulously arranged in order to create realistic and achievable schedules.

The procedure of activity reservoir characterization includes estimating the amount of each commodity that will be utilized in the activity in addition to the resources that are necessary. Materials like staff, technology, and materials may be required; therefore, material planning. Determining the timing of each resource's availability for the Project, mainly the material used, is another step in the process (PMBOK, 2004). Cost budgeting and expense estimation are both included in the business' financial planning stage. Cost management aims to accomplish the Project within the budgeted spending cap. Project budgets are crucial because they have an impact on every aspect of execution and planning. When recording the expenses for the various task bundles within an organization, all expenditures are significant and must be kept on track.

According to KeNHA (2019), in a road project in Kenya, a reserve price is tasked with performing tasks with a low level of project tasks or comprehensive information that could have significant cash risks due to numerous factors that are unpredictable. This suggests that the success of road construction may depend significantly on project planning. However, taking into account MRP's fundamental ideas, road managers ought to be able to restrict their schedule to only taking into account the materials, time, people, and money that are necessary, as well as when they are needed (Ritzman, 2018). The current study will use time management, material consumption budgeting, funding planning, and human resources management as planning stage indicators.
1.1.3 Nairobi Expressway Projects in Nairobi City County, Kenya

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).
1.2 Statement of the Problem

Because projects vary in value, size, and complexity, each has its own set of performance requirements. A project’s failure can be caused by a variety of factors, including an unclear definition of the objectives, an inadequate project schedule, numerous changes, insufficient control, ineffective communication, an unclear role of the stakeholders, or a lack of top management support, all of which are related to the organizational system (Doloi, 2018). Nicholas (2020) observe that the Government of Kenya and its development partners continue to allocate huge financial resources to finance projects managed by these Parastatals. However, the intended benefits are partly or never realized due to many unsuccessful project implementations.

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 31st 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). In addition, the continual changes in the social, economic, political, and natural environments drive the express highway construction project original plan to
be altered. 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), Terry Cooke-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.

1.3 General Objective

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.
1.3.1 Specific Objectives

i. To ascertain the impacts of human resource planning on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya.

ii. To assess the influence of financial resource planning on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya.

iii. To assess how material utilization planning has an impact on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya.

iv. To establish the effects of time management on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya.

1.4 Research Questions

The questions listed below served as the study's compass:

i. What is the impact of human resource planning on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya?

ii. What is the influence of financial resource planning on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya?

iii. How does material utilization planning impact on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya?

iv. To what extent does time management influence the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya?
1.5 Significance of the Study

Construction companies will gain from the study because they will be able to determine how project planning influences the success of road projects and get knowledge of several useful planning strategies such as personal finance, workforce planning, and time management. This research will greatly benefit the project leaders in general in determining the appropriate path on enhanced the project portfolio in all the counties. The study's conclusions can be used as a guide by other researchers. When conducting research on similar disciplines in various areas of interest, it will be helpful to them as a secondary source of data. The study will assist other academics in gaining knowledge in the area of managing projects.

1.6 Scope of the Study

The study was based in Nairobi City County Kenya. The aim of the analysis was to appraise how well the Nairobi Expressway Road project in Kenya's Nairobi City County performed as a result of project design. The study investigated how the effectiveness of the Nairobi Expressway Road project in Nairobi City County, Kenya, was impacted by human resource planning, time planning, material planning, and financial planning. Study utilized a descriptive research design. Since this was the time frame during which the Project was finished, statistics for 2022 was taken into consideration.

1.7 Limitations of the Study

The limitations which could underpin the study included fear of victimization where some respondents may not be willing to open up and provide the much needed information. However the researcher sought to create a good rapport with them and ensure that they
voluntarily give the information. Due to confidentiality of the information being sought, the respondents could not be willing to cooperate but the researcher ensured that they also built trust with their information and also explained the purpose of the study. The study was also limited due to the fact that the respondents were busy due to their tight schedule; getting information was a major challenge as it would take several weeks to get the information.

1.8 Organization of the Study

This study is categorized as follows: In the opening section of chapter one, the study aims, its significance, its scope, and its limitations are all outlined. The second chapter provides a conceptual framework, a literature analysis, and empirical results on the impact of the planning phase on construction projects. The research methodology utilized in the research is described in detail in Chapter 3, including the study design, sampling strategy, target population, and methods for data collecting, analysis, and presentation. Chapter four presents the research findings and discussions. The conclusions and recommendations are presented in Chapter 5.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction
This chapter covers theoretical literature review, empirical literature review, summary of reviewed literature and research gaps and conceptual framework.

2.2 Theoretical Literature
The theories supporting the study variables are presented in this section. These theories include; dynamic capability theory, theory of constraints, resource-based, stakeholder theory, and theory of constraints.

2.2.1 Dynamic Capability Theory
Teece, Pisano, and Shuen (1997) developed this theory to explain a firm's ability to grow. It relies on the company's ability to assemble and maintain continuous integration and reconfiguration of its external and internal competencies to handle uncertain business scenarios. There are four dynamic power ratings. The ability to recognize opportunities and direct operational activities towards them is represented by the ability to detect an opportunity. Having the potential to acquire tools that foster innovation and creativity is known as grasping. Implementation skills to manage key initiatives such as inventions. Last but not least, the firm must have the ability to reconfigure current resources (Teece, 2007).

Danneels (2012) observe that organizations in changing environments must anticipate and respond to uncertainties. Dynamic features allow project managers to determine the detailed activities, costs, and schedules involved during the project implementation
process. A more detailed view also allows for examining the different organizational capabilities within the organization and helps project managers understand how to develop critical factors for effective project implementation. The theory also enables project managers to react to changes in the environment and stakeholders, and to build structures, procedures, and designs that help the project team identify needed changes as opportunities or threats are identified. Therefore, this theory is used to explain project performance variable.

2.2.2 Theory of Constraints

Goldratt postulated this theory of limitations in the year 1984 as an overarching management framework. The theory tries to support companies in the continuous achievement of their objectives, namely the improvement of the efficiency of their initiatives. It describes four main limitations that impede the execution of initiatives. Project budget, skills, and schedule are the constraints, as well as the overall scope of the project. The basic premise of TOC is that throttling hurts business performance. According to the concept of constraints, project leaders must focus on the proper management of these constraints.

According to research by Klein, Debruine and Lehman (2016), these restrictions have affected around 40% of road projects in Europe. Despite the project's limitations, the idea prompts managers to be creative in developing strategies that will help the company complete high-value infrastructure projects. According to Linhares (2015), politics and insufficient physical resources are the main causes of the barriers companies face. Best performance within available constraints is an essential part of constraint theory. It
provides a framework for the tasks managers have to perform when managing projects. The Theory of Constraints is a set of ideas, regulations, and statistics that focus on the logistical equipment that keeps project work running smoothly (William, 2013).

Eric, Debra and James (2015) study on the impact of program management skills on construction projects, noted that the project leader should focus on these constraints to improve productivity and efficiency in construction project execution road. Critical Chain Project Management (CCPM), according to the study by Armit and Schomaker (2015) on construction projects, is a philosophy of constraints applied to projects. It is a technique for organizing and supervising projects intended to deal with uncertainties in project management, taking into account the limited resources available. Resources may include management and support skills in addition to physical resources and human capabilities. Price, timing and scope are the three main constraints of project management.

The end goal of the project must be created and this is called the scope constraint. Compared to smaller projects, larger and more complex projects with multiple tasks to complete are more difficult. Martin defined a project as a complex undertaking involving sophisticated equipment, materials, technology, and labor. To reduce the complexity of the project, if it is too complicated, Balderstone (2017) recommended outsourcing part of the activities. Outsourcing is essential because it allows project managers to break down complex projects into basic projects that can be coordinated appropriately. This theory is relevant to the study because it raises the issues that prevent the realization of projects involving road systems. This theory was used to explain material utilization planning variable.
2.2.3 Stewardship Theory

Another way to understand the current relationship between ownership and management of a business is through the Stewardship Theory developed by Donaldson and Davis (1991). Managers diligently pursue high levels of corporate profit and shareholder returns as skilled business stewards (Donaldson & Davis, 1994). This approach emphasizes the function of the board to make plans or recommendations and to view leaders as trustworthy. The principles of the stewardship idea are based on social neuroscience, which emphasizes executive behavior. Directors must fulfill a fiduciary duty to shareholders to earn their trust and act as good stewards of the assets of the organization.

Proponents of stewardship theory agree that managers prioritize outstanding performance over maximizing shareholder profits. The reason for this is that managers, who run the day-to-day business, have more insights and make better decisions than executives, who are more of an outsider (Donaldson & Davis, 1994). Because the organization's performance will meet the needs of the majority and stewards will have a particular purpose, it has been observed that as a firm's wealth increases, stewards' utility is also maximized (Smallman, 2004). Stewardship theory, therefore, refers to a claim made in the performance of firms that meets the needs of stakeholders, leading to a dynamic system equilibrium for balanced governance. Sustainability theorists have suggested, according to Donaldson and Davis (1994), that top corporate executives will not penalize shareholders for concern about damaging their reputation. According to this theory, managers and employees of construction companies should receive a significant amount of guidance to encourage improved and more efficient judgment.
The success of companies and management should be seen as a positive link, according to stewardship theory, which validates our first several variables. Directors use the company's performance to increase and protect shareholder wealth. The preponderance of stakeholders within an organization is met by a steward actually leading to better performance, such as Davis, Schoorman & Donaldson (1997), when these parties have goals that are well served by increasing the wealth of the firm. This theory was used to explain financial resource planning variable.

2.2.4 Project Management Competency Theory

Mclelland and McBer postulated this hypothesis (1980) state that competence refers to the underlying qualities of a person that allow them to perform admirably in a given task or environment. According to the Project Management Skills Development Platform, a skill is a set of skills, knowledge, attitudes, and other related characteristics that affect how a person performs a specific job. Project success and competence are linked, staff development and training can increase competence (PMI, 2011).

The idea describes the importance of program management skills, how development projects are monitored and evaluated, and how team dynamics affect the performance of infrastructure investments. According to Gladder (2010), technical project managers must be able to successfully apply knowledge, skills, tools, and procedures to deliver on a promise, achieve project goals, and increase cost, time, and resolve. combined. The analysis revealed that two of the core criteria - the Project Management Institute (PMI and the Australian National Competency Standards) - focus primarily on the knowledge side of the skill, while the third standard - the PMBOK - emphasizes proven performance. The
survey also showed that some project managers lacked the skills to oversee road construction projects.

Garish and Huemann (2014) argue that project managers should have access to a wide variety of management strategies and tools to increase the success of infrastructure investments. According to research, highly skilled project managers could make good use of different strategies for different projects to improve project performance (Edum-Fotwe, 2011). Therefore, companies implement infrastructure improvements in a more structured way to ensure that work is done consistently and is performed by personnel with the required qualifications. The capabilities of each team member should be assessed and documented in a continuously updated database of competency profiles (Kometa, 2013).

The key roles and responsibilities filled by project managers in modern road construction are subject to change. In order to maintain their own personal competency standards, project managers in this profession must adapt to the changing structure of the industry using the skills and knowledge they have acquired through education and experience. The extent to which this training enables project managers to adapt successfully to changing requirements is of great importance for the training of future project managers (Francist & Ronald, 2010). This theory assumes that managing road infrastructure projects using traditional methods is unproductive.

According to Ryssel (2013), traditional management techniques, including rigid frameworks, complicated work distribution systems, and control procedures, can lead to failure of road construction projects. A project manager must be able to integrate different project methodologies, meet essential project scope, schedule, cost and quality
requirements, manage and minimize project risk, and manage the physical and human resources necessary to the implementation of the project (Sodeland, 2012). The theory also focuses on the tools assigned for project completion, the procurement model used, the selection criteria for the project leader, the project contract and planning committee, and the strategic strategy used to complete road projects.

According to Hilson and Murray (2012), to be competent in any area of life, one must be literate, have the ability to successfully apply that knowledge to achieve a goal, and be ready to act. A paradigm developed by Ruth and David (2011) also defined the five critical components that go into competence. Personal traits, expertise, attitudes, education and talents are among them. They also pointed out that supervisors are more likely to be more effective when their personal qualities match the needs of the job. They added that project managers must have the skills to deliver effective performance that leads to project success. Simons (2014) showed that there is a strong need for trained, skilled and competent highway project managers due to the distinct industry structure, ever-changing regulatory standards and challenges of global competition. Triesch (2015) lists the following behavioral traits as behaviors: self-control, aggression, inventiveness, direct consequence, practicality, reliability, and valuing team members' beliefs. This theory advocates people management because it emphasizes how to use people's skills and competencies to complete a project. This theory was used to explain human resource planning variable.
2.2.5 Resource Based View Theory

Wernerfelt and Rumelt (1984) were the first to propose this term. The argument is based on how a company can use a variety of invaluable intangible and physical resources at its disposal to gain a strategic advantage over competing companies. It explains how significant physical and intangible resources help the company to complete projects on time, within budget and with the expected quality (Barney, 1986). The RBV theory states that a firm with sufficient resources is more likely to outperform other firms and gain a competitive advantage. This shows that every project manager strives to continuously increase the efficiency of the projects they manage. However, small businesses have limited resources and time to devote to necessary improvements.

Company resources can be physical, such as machines, or intangible, such as brands, proprietary information, and processes. Judicious use of modern tools such as excavators, dump trucks, rollers, and graders can help a company complete an infrastructure plan on time and also reduce cost explosion (Gimeno, 2011). According to Robert and Bradley (2013), for a company to be more successful, it must first assess the resources it already has, value them and think about how to use them to give the company a competitive advantage. Robert and Bradley also explained that a company's ability to integrate new technologies depends on its access to resources, including capital, machinery, worker talent, and intellectual property.

This idea has been applied by Barney and Smith (2010) in their study comparing constraint theory with MRP and JIT. They noted that basic materials, including physical, economic and technical resources, must be available to carry out a project safely and effectively.
Without these resources, large-scale infrastructure initiatives will be difficult to implement. The idea was applied in the study by Hertz and Bofinger (2009) on the variables that influence the effectiveness of project management. Bofinger has found that assembling a team of resources to perform different project operations is the single most important source of competitive advantage. Crivelli and Gupta's (2013) study of general population mobilization efforts and Might and Fisher's (2011) study of consequences and causes both used the theory.

The firm's resources allow it to outperform other firms (Heinrich & Bofinger, 2009). They added that a company can maintain its edge if it cultivates and develops its resources. Michael said that asset perspective theory and Porter's value chain model agree that improving resources is the only way to stay competitive. Porter sees innovation as a factor in the development of competitive advantage (CA). A company's management should therefore commit to providing significant funding to acquire superior technological advances that can be used to implement road improvements.

In support of this theory, Briceno, Karlis, and Vivien (2010) noted that the question of a firm's professionalism has been central to strategy research for decades, and that it encompasses the vast majority of other questions posed in the discipline, including the factors that determine the behavior of organizations, how they apply their strategies and how they are regulated. Peteraf and Berney (2012) added that the RBV hypothesis promotes asset-based interfirm rivalry. The resources available to a company affect the success of the project. Because it expresses the essential material, people and technology that appear to increase the effectiveness of road designs, the theory is crucial to this
research. According to Rumelt and Wirtz (1984), the creators of the RBV theory, the project management framework fits into this idea. Efficiency becomes a crucial issue as every construction company strives to complete a project successfully. The RBV is relevant to this study because it describes the financial and human resources needed by community businesses to effectively carry out road construction. Therefore, the Theory supports the time management variable.

2.3 Empirical Literature Review

This part deals with a review of empirical studies that are related to the study objectives; these are discussed as follows as per individual specific objectives.

2.3.1 Human Resource Planning and Project Performance

Wrightet 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.

In Pakistan, Huang (2019) investigated the impact of HRM methods on employees' performance, including job satisfaction, departure intent, and commitment. Workers in the
building business were the subject of the investigation. The research claims that a company's methods of human resource management improve performance, which aids in the growth and acquisition of a long-lasting competitive advantage. The above studies made an effort to clarify the relationship among both human resource management strategies and business ratios as well as the preservation of a chance to compete in a changing situation, however they failed to consider the quality requirements of highway projects, a disparity that the latest research fills.

The factors influencing project outcomes in China were examined by Belout and Gauvreau in 2017. The research, which used a data study, had as its subject matter employees on several initiatives. The study found a helpful connection between HR scheduling and project productivity. As per the report, businesses should undertake personnel management initiatives that would give workers the chance to consider their own professional experiences, attitudes, and goals for the future. In the research, only people's contributions were factored into the equation; quasi-input, such as preparation for funds and materials, was not.

Werner and DeSimone (2016) studied how the management of human resources impacts a company's efficiency in the USA. Managers of human resources were the target audience for the study's inference research design. Understanding their needs for human resources allows firms to predict how changes in their approach may impact the demands placed on their HR. Based on the survey, because the outside market requires continuously shifting swiftly, it is imperative for any company to plan for its personnel needs. The study focused
on the demands for human capital and how they influence the organization, but it ignored
the issue of resource development, especially in the execution of highway projects.

This study employed a descriptive design, and descriptive, co-relational, and interpretative
methodologies were used to analyze the results. The analysis revealed that incentive
strategies are a crucial part of HRM in a business and should be linked with some other
Hrm activities so that they help and motivate one another to accomplish the desired goal.
However, the findings did not align with a 2017 study by Hightower & Gold on the
influence of development in human resources on organisational effectiveness. According
to the study, a reward system that motivates employees may increase staff efficiency. The
study's emphasis was on the general organizational performance and did not consider the
project performance, which prompts the current research on road projects.

2.3.2 Financial Planning and Performance of Projects

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.

In Sweden, Karlsson (2017) investigated how budgeting affected the success of projects.
The study utilized a descriptive survey and focused on projects in Sweden. The analysis
argued that training, society, and personal finances are backdrop factors that influence project planning techniques and procedures. Many corporate executives, meanwhile, lack any formal power. This is due to the fact that supervisors are in control of a particular region where they can make decisions, which is difficult since it was not part of this study. Many construction organizations are far more organized, and managers are granted more authority. This relates to the greater degree of influence within this firm and may have an impact on how revenue is spent. The study did not take into account the metrics relating to road project performance because it was primarily focused on project performance in Sweden. By concentrating pertaining to the execution of road projects in Kenya, the present study will close the gap.

In Sweden, Antvik and Sjöholm (2017) conducted research on the influence of financial planning on project effectiveness. A study was conducted. The analysis concluded that expense evaluation must take into account the program's Complexity, scale, and relationship to its strategy. The research also demonstrated that each attack's cost is also required to come to conclusions on its particular characteristics in order again for the task to produce an appropriate estimate. It is best to put some funds aside for projects that really are at significant risk with little to no accurate data because of the various unforeseen characteristics of the Project and the was done in Sweden creating a contextual gap.

2.3.3 Material Planning and Performance of Projects

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.

In the UK, Plenrt and Best's (2018) research looked at how material utilization planning affected the performance of the Project. Again, for the study, a survey of building companies was done. They found that the majority of the expenses and advantages of JIT happened whenever prices went up, leading to considerable raises in the cost of holding inventory. This was revealed using descriptive analysis. Companies ought to be able to restrict their planning to only the items they will need at what moment, according to the research. The research was unable to show how building projects or material use are related clearly. The study was conducted in UK construction firms, which raises the prospect of a contextual gap.

Kress (2018) investigated the impact of production planning on team effectiveness using a convenient sampling with a selection of UK building contractors. The delayed building projects in Britain were the main subject of the study. The primary objective of project management, based on the analysis, is to fulfill or even exceed the program's expectations as set out by the buy requisition sponsors. is to fulfill or even exceed the program's
expectations as set out by the buy requisition sponsors. The study discovered that a given project delivers desired results with minimal errors and that those assumptions are group membership in three groups. Cost: A project plan achieves the intended effect at the projected cost. Schedule: A specific project results in the desired result in the allotted period. Nevertheless, a number of competing influences that might intervene and attempt to sway your Project's aims were not taken into account. The study was conducted at UK construction firms and presented the possibility of contextual gaps.

2.3.4 Time Planning and Project Performance

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.

In Japan, Lloyd (2016) investigated the effects of time preparation functions on construction projects. The research involved a survey of building initiatives. The participants for this study were management consultants and funders, and it concentrated on initiatives that were not finished on time. According to the study, a function can be defined as the program's forethought and planning anywhere at the moment based on current certainties and revised possibilities. The study also concluded that this is
appropriate because the Project's limits and even aims can change as it is being implemented. Detection of deviation from plans is complex and occasionally not even possible. It may be stated in this introduction that detailed preparation is necessary for control to be possible because it loses

In India, Telsang (2016) investigated how project designs affected project performance. The study design was explanatory. The study's respondents comprised of proprietors of the chosen construction firms in New Delhi, India. The research suggested that adopting substitute project schedules on time, minimizing or averting their detrimental impacts from occurring, and doing so while the project is being implemented can all strengthen the mechanism of the management system. The study also came to the conclusion that effective monitoring is essential to a project's success; as a result, monitoring's main objective is to guarantee that the system and its operational plans, which were created for the Project's execution, are followed. Possibly also. The study's methodological flaw was unable to estimate the magnitude to which the time plan and project success were associated.
2.4 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**

<table>
<thead>
<tr>
<th>Road Project Planning</th>
<th>Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human resource planning</strong></td>
<td>Project performance</td>
</tr>
<tr>
<td>• Personnel number</td>
<td>Within schedule</td>
</tr>
<tr>
<td>• Training practices</td>
<td>Within budget</td>
</tr>
<tr>
<td>• Utilization of human resources cost</td>
<td>Customer satisfaction</td>
</tr>
<tr>
<td><strong>Financial resource planning</strong></td>
<td></td>
</tr>
<tr>
<td>• Financial Plan Availability</td>
<td></td>
</tr>
<tr>
<td>• Budgets Approved</td>
<td></td>
</tr>
<tr>
<td>• Expenses Preplanned</td>
<td></td>
</tr>
<tr>
<td><strong>Project material planning</strong></td>
<td></td>
</tr>
<tr>
<td>• Availability of Material</td>
<td></td>
</tr>
<tr>
<td>• Material Quality inputs</td>
<td></td>
</tr>
<tr>
<td>• Scope of the Project</td>
<td></td>
</tr>
<tr>
<td><strong>Time management</strong></td>
<td></td>
</tr>
<tr>
<td>• On-time Acquisitions of Materials</td>
<td></td>
</tr>
<tr>
<td>• Phase Time</td>
<td></td>
</tr>
<tr>
<td>• System for Time Planning</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2.1: Conceptual Framework

Source: Researcher (2023)

Figure 2.1 shows the relationship between variables whereby the independent variables are; human resource planning, financial resource planning, project material planning and time management. The dependent variable is the project performance.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
This chapter comprises of research design, target population, sampling design and sample size, data collection instruments, pilot study, data collection procedure, data analysis and ethical consideration.

3.2 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. According to Saunders, Lewis and Thornhill (2011) descriptive research design is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals. A descriptive research design involves a field survey where subjects are observed in their natural set ups without manipulation of the environment. Therefore, the study was guided by descriptive research design by soliciting data from the respondents and analyzing it as per the respondents’ perspective. Further, descriptive design minimizes biases in the study by limiting the extent to which the researcher can manipulate the variables.

3.3 Target Population
The study targeted the Nairobi Expressway Road project in Nairobi City County, Kenya. The unit of observation was made up of 68 respondents comprising 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 as shown in Table 3.1.
Table 3.1: Target Population

<table>
<thead>
<tr>
<th>Category</th>
<th>Population</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road engineers</td>
<td>7</td>
<td>10.3</td>
</tr>
<tr>
<td>Road supervisors</td>
<td>17</td>
<td>25.0</td>
</tr>
<tr>
<td>Road inspectors</td>
<td>12</td>
<td>17.6</td>
</tr>
<tr>
<td>Road surveyors</td>
<td>28</td>
<td>41.2</td>
</tr>
<tr>
<td>Sub-contractors</td>
<td>4</td>
<td>5.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>68</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Nairobi City County, Kenya Report of 2022

3.4 Sampling Design and Sample Size

Sampling design allows collection and analysis of data for a smaller portion of the population which must be a representative of the entire population and then apply the results to the whole population (Green, 2016). Mugenda and Mugenda (2003) observe that in a situation where the study population is less than 100 cases there is no need to sample otherwise the total population should be studied. Therefore, a census of 68 respondents was carried out because the population is small.

3.5 Data Collection Instrument

In order to gather key data for the Nairobi Expressway Road project, respondents were given semi-structured surveys. The use of questions is planned because they are simple to deliver and because participants can complete them without the researcher present. It is recommended that structured questionnaires be used to obtain data from large samples by Reyman by Harries (2008) as well as Leung Xha (2014). It has also been reported by Burges and Stern (2013) as well as Durene (2011) that questionnaire-based data collection makes data analysis simpler.
Both open-ended and closed-ended items were included in the semi-structured questionnaire. Section A, Section B, Section C, Section D, Section E, and Section F make up the six sections of the questionnaire. Background information was included in Section A, human resource management data was captured in Section B, financial planning data was included in Section C, project time management data was outlined in Section D, and material planning data was captured in section E, and project performance data was captured in Section F.

3.6 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. Three research supervisors and three research contractors from the Nyeri motorway project was randomly selected for the pilot study. The pilot study aims to ascertain whether the questions were understood by the respondents, whether they were pertinent, and if they were arranged logically and transparently.

3.6.1 Validity of the Research Instruments

Validity test involves checking whether the data collection instrument will give data regarding the intended objective of the study (Orodho, 2005). There are three types of validity; content, criterion and construct validity. Content validity refers to the extent to which the items on a test are fairly representative of the entire domain the test seeks to measure. In this study, content validity will be evaluated by involving the supervisor as the research expert to rate the questionnaire items based on their relevance and representativeness to the content domain. To produce valid results, the content of the
questionnaires will be ensured that it covers all relevant parts of the subject it aims to measure.

3.6.2 Reliability of Research Instrument

In order to test the internal consistency of the questionnaire, reliability as outlined by Yasin, Yunus, Rus, Ahmad and Rahim (2015) was carried out. Cronbach alpha test will be used to check for reliability of the questionnaires whereby the alpha coefficient of Cronbach was calculated from the data collected from the pilot study to check a coefficient of correlation of the test results. Mugenda and Mugenda (2003) indicate that test scores range from 0 to 1 and if the test score is nearer to 1 show that the instrument is more reliable. The study achieved a correlation coefficient 0.798 as shown in Table 3.2.

Table 3.2: Results of Reliability Tests

<table>
<thead>
<tr>
<th>Variable</th>
<th>Alpha Coefficient Value</th>
<th>Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human resource planning</td>
<td>0.791</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Financial planning</td>
<td>0.823</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Material planning</td>
<td>0.714</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Time management</td>
<td>0.863</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Project performance</td>
<td>0.798</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Aggregate score</td>
<td>0.798</td>
<td>Acceptable</td>
</tr>
</tbody>
</table>

Source: Pilot Study (2023)

The results as given in Table 3.2, show that alpha coefficient value of Human resource planning, financial planning, material planning, time management and project performance was 0.791, 0.823, 0.714, 0.863 and 0.798 respectively. The study concluded that all the statements addressing each variable were reliable as all the alpha coefficient values were above 0.7.
3.7 Data Collection Procedures

A study letter of approval was received from Kenyatta University’s Graduate School. The NACOSTI, which authorized and enable the research, received a copy of this letter. Each respondent received a copy of a research authorization letter, the questionnaire, and an introduction from the investigator. The researcher administered the questionnaires and gave the respondents two weeks for filling in the questionnaires. The researcher made a visit to the respondents to remind them on the importance of filling the questionnaires so as to ensure high response rate.

3.8 Data Analysis and Presentation

Data obtained from the questionnaires were first edited, cleaned and categorized into common themes to represent meaningful data. Quantitative data was analyzed using descriptive statistics such as mean and standard deviation. This was made possible by using Statistical Package for Social Sciences (SPSS) version 20.0. Data was presented in tables, graphs and charts. Inferential statistics involved the use of multiple regression and correlation analysis. Inferential statistics such as regression analysis was used to test association between dependent variable and against dependent variables at 95% confidence level and an error term of 5%.

The regression equation is as presented below:

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

\( Y \) will be project performance
\( \beta_0 \) will be the constant
\( \beta_1 \) to \( \beta_4 \) 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.

### 3.8.1 Diagnostic Tests

Tests for normality, multicollinearity and hetero-scedacity was performed for the study to confirm that the fundamental beliefs of the regression analysis are valid.

#### 3.8.1.1 Normality Test

To ascertain if data collected were taken from regular people and given, a normalcy test is utilized (within some tolerance). A population sample with a regular distribution must be used for a variety of statistical tests, such as the Two sample t and only one and two-way Factorial.

#### 3.8.1.2 Multi-collinearity Test

Multi-collinearity develops when variables in a regression model are interrelated. Considering that independent variables should be differentiated, this link is problematic. If there is a strong enough correlation between the variables, it could be challenging to fit the model and interpret the results. The variance inflation factor (VIF) determines the existence and magnitude of correlations between independent variables. A VIF is calculated for each independent variable using statistical software. VIFs have no upper bound and begin at 1. A correlation between this independent variable and any other
variables is not present, as shown by a value of 1. VIFs between 1 and 5 show a moderate association, however it is not sufficient to necessitate intervention. A VIF larger than 5 indicates a critical threshold of multicollinearity, where the p-values and coefficients are unknowable.

3.8.1.3 Heteroscedasticity Tests

It is used to check for heteroscedasticity in a linear regression model and assumes that the errors are normally distributed. The Breusch-Pagan test will be used. It investigates whether the variance of the errors in regression is affected by the independence of the variables.

3.9 Ethical Consideration

The researcher acquired research approval letter from the university a permit from the National Commission for Science, Technology and Innovation (NACOSTI) before proceeding to the study area. Before data collecting begins, ethical constraints will be taken into account. The appropriate authorities will be contacted for permission, and respondents will be made aware that taking part in the study is entirely optional. Each participant will need to complete and sign a permission form as proof of their agreement to take part in the study. The responders will be given the assurance that the study's sole intent is academic.
CHAPTER FOUR
RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter detailed the findings' interpretation and presentation. The study's goal was to investigate how the Nairobi Expressway Road project in Nairobi City County, Kenya, performed in terms of project planning methods. Frequency tables and graphs were employed by the researcher to convey data. The aim of the findings was to address the research questions for the study.

4.2 Response Rate

The study targeted 7 road engineers from KeJNHA and China Roads and Bridge Corporation Kenya, 17 road supervisors, 12 road inspectors, 28 road surveyors, 4 sub-contractors. The total target population was 68 respondents. The researcher received completely filled questionnaires from 59 respondents making a response rate of 87%. Mugenda & Mugenda (2013) assert that this was an excellent response to make interpretation and inferences from.

![Response Rate](image)

Figure 4.1: Response Rate

Source: Research Data (2023)
4.3 Demographic Characteristics

4.3.1 Level of Responsibilities

The researcher aimed to determine the duties and responsibilities of the targeted responders. Table 4.1 presents the results. The results infers that 42% of the responders in the study were road surveyors, 25% were road supervisors, 19% were road inspectors, 10% were road engineers and 4% were sub-contractors. The study indicates that every category of the employees targeted was well represented.

Figure 4.2: Job Tasks
Source: Research Data (2023)

4.3.2 Level of Education

This section of the study determined each respondent's level of schooling. Table 4.1 exhibits the findings.
Table 4.1: Level of Education

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Others (A level, Form 4)</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Diploma</td>
<td>6</td>
<td>10.2</td>
</tr>
<tr>
<td>Degree holder</td>
<td>32</td>
<td>52.2</td>
</tr>
<tr>
<td>Masters Holder</td>
<td>21</td>
<td>38.6</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Research Data (2023)

Table 4.1’s results show that the majority of responders (52.2%) had earned a degree as their greatest academic qualification, 38.6% had a master degree as their highest educational level, and 10.2% had a diploma. Perrett (2003) noted that an organization's personnel' academic backgrounds improve their capacity to manage their jobs and comprehend any functioning formula created on the job. This implies that the majority of personnel involved in road project initiatives had the necessary knowledge to carry them out successfully.

4.4 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.

4.4.1 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 4.2.

**Table 4.2: Human Resource Planning**

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>M</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>The company's planning process is Heavily influenced by the human resources department</td>
<td>41.2</td>
<td>34.1</td>
<td>12.9</td>
<td>8.2</td>
<td>3.98</td>
<td>0.302</td>
</tr>
<tr>
<td>In keeping with the overall objective, human resource training has been developed and is being put into practice</td>
<td>35.3</td>
<td>49.4</td>
<td>4.7</td>
<td>4.7</td>
<td>5.9</td>
<td>0.480</td>
</tr>
<tr>
<td>The task of managing human resources is given significant weight.</td>
<td>38.8</td>
<td>55.3</td>
<td>3.5</td>
<td>2.4</td>
<td>0.0</td>
<td>0.305</td>
</tr>
<tr>
<td>All of the available resources were used (qualified personnel and infrastructure)</td>
<td>36.5</td>
<td>49.4</td>
<td>11.8</td>
<td>2.4</td>
<td>0.0</td>
<td>0.435</td>
</tr>
<tr>
<td>Members of the project team received training</td>
<td>45.9</td>
<td>44.7</td>
<td>0.0</td>
<td>5.9</td>
<td>3.5</td>
<td>0.315</td>
</tr>
<tr>
<td>Project managers took part in the planning process</td>
<td>39.5</td>
<td>46.6</td>
<td>6.8</td>
<td>4.7</td>
<td>2.6</td>
<td>0.353</td>
</tr>
<tr>
<td><strong>Aggregate Score</strong></td>
<td><strong>39.6</strong></td>
<td><strong>46.9</strong></td>
<td><strong>6.2</strong></td>
<td><strong>4.9</strong></td>
<td><strong>1.9</strong></td>
<td><strong>4.01</strong></td>
</tr>
</tbody>
</table>

Source: Survey Data (2022)

The findings in Table 4.2 indicates that the respondents agreed that human resource planning influences the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya as a shown by aggregate mean score of 4.01 and a standard deviation of 0.366. 39.6% of the respondents strongly agreed, 46.9% agreed, 6.2% neutral, 4.9% disagreed and 1.9% strongly disagreed. This is line with the finding of a study by Wrightet et al., (2019) which 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). 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 mean score of 3.98 indicates that the respondents agreed that the company's planning process is heavily influenced by the human resources department with a standard deviation of 0.302. This statement was strongly agreed by 41.2% of the respondents, 34.1% agreed, 12.9% neutral, 8.2% disagreed and 3.5% strongly disagreed. These findings concur with the findings of a study by Huang (2019) which investigated the impact of HRM methods on employees' performance, including job satisfaction, departure intent, and commitment. The research claims that a company's methods of human resource management improve performance, which aids in the growth and acquisition of a long-lasting competitive advantage.

The mean score of 3.89 indicates that the respondents agreed that in keeping with the overall objective, human resource training has been developed and is being put into practice with a standard deviation of 0.480. 35.3% of the respondents strongly agreed, 49.4% agreed, 4.7% neutral, 4.7% agreed and 5.9% strongly disagreed. The factors influencing project outcomes in China were examined by Belout and Gauvreau in 2017. The study found a helpful connection between HR scheduling and project productivity. As per the report, businesses should undertake personnel management initiatives that would give workers the chance to consider their own professional experiences, attitudes, and goals for the future.
The mean score of 3.99 indicates that the respondents agreed that the task of managing human resources is given significant weight with a standard deviation of 0.305. 38.8% of the respondents strongly agreed, 55.3% agreed, 3.5% neutral and 2.4% agreed. The results concur with Werner and DeSimone (2016) who studied how the management of human resources impacts a company's efficiency in the USA. Understanding their needs for human resources allows firms to predict how changes in their approach may impact the demands placed on their HR Based on the survey.

The mean score of 3.98 indicates that the respondents agreed that All of the available resources were used (qualified personnel and infrastructure) with a standard deviation of 0.435. 36.5% of the respondents strongly agreed, 49.4% agreed, 11.8% neutral and 2.4% agreed. The mean score of 4.22 indicates that the respondents agreed that Project managers took part in the planning process with a standard deviation of 0.353. 39.5% of the respondents strongly agreed, 46.6% agreed, 6.8% neutral, 4.7% disagreed and 2.6% strongly disagreed. The findings concur with Muchega (2022) study which observes that a reward system that motivates employees may increase staff efficiency. The study's emphasis was on the general organizational performance and did not consider the project performance, which prompts the current research on road projects. 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.
4.4.2 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 4.3.

**Table 4.3: Financial Resource Planning**

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>M</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project costs were accurately estimated</td>
<td>43.5</td>
<td>47.1</td>
<td>8.2</td>
<td>1.2</td>
<td>0.0</td>
<td>2.169</td>
<td>0.562</td>
</tr>
<tr>
<td>The project could be completed with the allocated money</td>
<td>50.6</td>
<td>42.4</td>
<td>5.9</td>
<td>1.2</td>
<td>0.0</td>
<td>2.229</td>
<td>0.444</td>
</tr>
<tr>
<td>The project’s budget was appropriately established (combining the anticipated prices of several tasks or work packages to create a baseline approved cost)</td>
<td>36.5</td>
<td>34.1</td>
<td>11.8</td>
<td>4.7</td>
<td>12.9</td>
<td>2.001</td>
<td>0.511</td>
</tr>
<tr>
<td>The project manager had the ability to predict costs</td>
<td>30.6</td>
<td>31.8</td>
<td>15.3</td>
<td>7.1</td>
<td>15.3</td>
<td>2.009</td>
<td>0.504</td>
</tr>
<tr>
<td>The project was completed without difficulties</td>
<td>68.2</td>
<td>12.9</td>
<td>0.0</td>
<td>18.8</td>
<td>0.0</td>
<td>2.000</td>
<td>0.325</td>
</tr>
<tr>
<td><strong>Aggregate Score</strong></td>
<td><strong>45.9</strong></td>
<td><strong>33.7</strong></td>
<td><strong>8.2</strong></td>
<td><strong>6.6</strong></td>
<td><strong>5.6</strong></td>
<td><strong>2.082</strong></td>
<td><strong>0.469</strong></td>
</tr>
</tbody>
</table>

Source: Survey Data (2022)

The findings in Table 4.3 indicates that the respondents agreed that financial resource planning influences the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya as shown by aggregate mean score of 2.082 and a standard deviation of 0.469. 45.9% of the respondents strongly agreed, 33.7% agreed, 8.2% neutral, 6.6% disagreed and 5.6% strongly disagreed. The mean score of 2.169 indicates that the respondents agreed that project costs were accurately estimated with a standard deviation of 0.562. 43.5% of the respondents strongly agreed, 47.1% agreed and 1.2%. The results agree with Guoli (2018) study which investigated in India the influence of financial
management on construction projects. 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 mean score of 2.229 indicates that the respondents agreed that the project could be completed with the allocated money with a standard deviation of 0.444. 50.6% of the respondents strongly agreed, 42.4% agreed, 5.9% neutral and 1.2% neutral. The mean score of 2.001 indicates that the respondents agreed that the project’s budget was appropriately established (combining the anticipated prices of several tasks or work packages to create a baseline approved cost) with a standard deviation of 0.511. 36.5% of the respondents strongly agreed, 34.1% agreed, 11.8% neutral, 4.7% disagreed and 12.9% strongly disagreed. The finding concurs with Karlsson (2017) study which investigated how budgeting affected the success of projects. The analysis argued that training, society, and personal finances are backdrop factors that influence project planning techniques and procedures.

The mean score of 2.009 indicates that the respondents agreed that the project manager had the ability to predict costs with a standard deviation of 2.009. 30.6% of the respondents strongly agreed, 31.8% agreed, 15.3% neutral, 7.1% disagreed and 15.3% strongly disagreed. The mean score of 2.000 indicates that the respondents agreed that the project was completed without difficulties with a standard deviation of 2.000. 68.2% of the respondents strongly agreed, 12.9% agreed and 18.8% disagreed. The findings agree with Antvik and Sjöholm (2017) who conducted research on the influence of financial planning
on project effectiveness. The research also demonstrated that each attack's cost is also required to come to conclusions on its particular characteristics in order again for the task to produce an appropriate estimate.

4.4.3 Material Usage Planning

The section of the study ascertains how material usage planning affected project performance. As shown in table 4.4, the researcher combined a variety of various indications of material consumption planning and provided them as statements to the responders.

Table 4.4: Material Usage Planning

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>M</th>
<th>Std.Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate material was provided</td>
<td>56.5</td>
<td>18.8</td>
<td>0.0</td>
<td>18.8</td>
<td>5.9</td>
<td>2.192</td>
<td>0.537</td>
</tr>
<tr>
<td>Project information and organization were effectively shared during the planning phase</td>
<td>29.4</td>
<td>49.4</td>
<td>1.2</td>
<td>20.0</td>
<td>0.0</td>
<td>3.11</td>
<td>0.444</td>
</tr>
<tr>
<td>The project's scope was clearly defined</td>
<td>60.0</td>
<td>18.8</td>
<td>0.0</td>
<td>8.2</td>
<td>12.9</td>
<td>2.44</td>
<td>0.500</td>
</tr>
<tr>
<td>Project results were clearly specified</td>
<td>55.3</td>
<td>42.4</td>
<td>0.0</td>
<td>2.4</td>
<td>0.0</td>
<td>2.00</td>
<td>0.554</td>
</tr>
<tr>
<td>Adequate planning was done</td>
<td>63.5</td>
<td>27.1</td>
<td>0.0</td>
<td>4.7</td>
<td>4.7</td>
<td>2.07</td>
<td>0.554</td>
</tr>
<tr>
<td>Allotted material resources were fully utilized</td>
<td>36.5</td>
<td>34.1</td>
<td>11.8</td>
<td>4.7</td>
<td>12.9</td>
<td>2.51</td>
<td>.500</td>
</tr>
<tr>
<td><strong>Aggregate Score</strong></td>
<td><strong>52.9</strong></td>
<td><strong>31.3</strong></td>
<td><strong>0.2</strong></td>
<td><strong>10.8</strong></td>
<td><strong>0.0</strong></td>
<td><strong>2.38</strong></td>
<td><strong>0.511</strong></td>
</tr>
</tbody>
</table>

The findings in Table 4.4 indicates that the respondents agreed that material usage planning influences the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya as a shown by aggregate mean score of 2.38 and a standard deviation of 0.511. 52.9% of the respondents strongly agreed, 31.3% agreed, 0.2% neutral and 10.8% disagreed. The results agree with Telsang (2019) study which examined the materials strategic plan and its effects on construction projects in Australia. 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 mean score of 2.1692 indicates that the respondents agreed that appropriate material was provided with a standard deviation of 0.537. 56.3% of the respondents strongly agreed, 18.8% agreed and disagreed respectively and 5.9% strongly disagreed. The mean score of 3.11 indicates that the respondents agreed that Project information and organization were effectively shared during the planning phase with a standard deviation of 0.444. 29.4% of the respondents strongly agreed, 49.4% agreed, 1.2% neutral and 20.0% disagreed. The findings concur with Plenrt and Best's (2018) research which looked at how material utilization planning affected the performance of the Project. They found that the majority of the expenses and advantages of JIT happened whenever prices went up, leading to considerable raises in the cost of holding inventory.

The mean score of 2.44 indicates that the respondents agreed that the project's scope was clearly defined with a standard deviation of 2.44. 60.0% of the respondents strongly agreed, 18.8% agreed, 8.2% disagreed and 12.9% strongly disagreed. The mean score of 2.00 indicates that the respondents agreed that the project results were clearly specified with a standard deviation of 0.554. 55.3% of the respondents strongly agreed, 42.4% agreed and 2.4% disagreed. The findings agree with Kress (2018) study which investigated the impact of production planning on team effectiveness using a convenient sampling with a selection of UK building contractors. The study discovered that a given project delivers desired results with minimal errors and that those assumptions are group membership in
three groups. Cost: A project plan achieves the intended effect at the projected cost. Schedule: A specific project results in the desired result in the allotted period.

The mean score of 2.07 indicates that the respondents agreed that adequate planning was done with a standard deviation of 0.554. 63.5% of the respondents strongly agreed, 27.1% agreed, 4.7% disagreed and strongly disagreed. The mean score of 2.51 indicates that the respondents agreed that allotted material resources were fully utilized with a standard deviation of 0.500. 36.5% of the respondents strongly agreed, 34.1% agreed, 11.8% neutral, 4.7% disagreed and 12.9% strongly disagreed. The findings concur with Plenrt and Best's (2018) research which looked at how material utilization planning affected the performance of the Project. They found that the majority of the expenses and advantages of JIT happened whenever prices went up, leading to considerable raises in the cost of holding inventory.

4.4.4 Time Management

The section of the study was to ascertain how time management affected project performance. The findings were displayed in table 4.5.

**Table 4.5: Time Management**

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>The planning phase was successful in terms of defining the project’s scope.</td>
<td>34.1</td>
<td>61.2</td>
<td>0.0</td>
<td>0.0</td>
<td>4.7</td>
</tr>
<tr>
<td>Schedules were well developed (prepared)</td>
<td>45.9</td>
<td>35.3</td>
<td>2.4</td>
<td>2.4</td>
<td>14.1</td>
</tr>
<tr>
<td>Activity time was accurately predicted</td>
<td>38.8</td>
<td>28.2</td>
<td>1.2</td>
<td>9.4</td>
<td>22.4</td>
</tr>
<tr>
<td>The task was finished according to the initial (specified) schedule</td>
<td>55.3</td>
<td>29.4</td>
<td>0.0</td>
<td>4.7</td>
<td>10.6</td>
</tr>
<tr>
<td>All projects were finished on schedule</td>
<td>30.6</td>
<td>55.3</td>
<td>3.5</td>
<td>2.4</td>
<td>8.2</td>
</tr>
<tr>
<td><strong>Aggregate Score</strong></td>
<td><strong>38.8</strong></td>
<td><strong>43.5</strong></td>
<td><strong>1.4</strong></td>
<td><strong>4.5</strong></td>
<td><strong>11.8</strong></td>
</tr>
</tbody>
</table>

**Source:** Survey Data (2022)
The findings in Table 4.5 indicates that the respondents agreed that time management influences the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya as shown by aggregate mean score of 2.74 and a standard deviation of 0.503. 38.8% of the respondents strongly agreed, 43.5% agreed, 1.4% neutral, 4.5% disagreed and 11.8% strongly disagreed. 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.

The mean score of 3.10 indicates that the respondents agreed that the planning phase was successful in terms of defining the project’s scope with a standard deviation of 0.500. 34.1% of the respondents strongly agreed, 61.2% agreed and 4.7% strongly disagreed. The mean score of 3.30 indicates that the respondents agreed that schedules were well developed (prepared) with a standard deviation of 0.492. 45.9% of the respondents strongly agreed, 35.3% agreed, 2.4% neutral and disagreed respectively and 14.1% strongly disagreed. In Japan, Lloyd (2016) investigated the effects of time preparation functions on construction projects. According to the study, a function can be defined as the program's forethought and planning anywhere at the moment based on current certainties and revised possibilities.

The mean score of 3.07 indicates that the respondents agreed that activity time was accurately predicted with a standard deviation of 0.498. 55.3% of the respondents strongly
agreed, 29.4% agreed, 4.7% disagreed and 10.6% strongly disagreed. The mean score of 2.11 indicates that the respondents agreed that all projects were finished on schedule with a standard deviation of 0.504. 30.6% of the respondents strongly agreed, 55.3% agreed, 3.5% neutral, 2.4% disagreed and 8.2% strongly disagreed. In India, Telsang (2016) investigated how project designs affected project performance. The research suggested that adopting substitute project schedules on time, minimizing or averting their detrimental impacts from occurring, and doing so while the project is being implemented can all strengthen the mechanism of the management system.

4.4.5 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 4.6.

Table 4.6: Project Performance

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>M</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>The road met the specifications in the planning stage</td>
<td>45.9</td>
<td>35.3</td>
<td>2.4</td>
<td>2.4</td>
<td>14.1</td>
<td>3.03</td>
<td>0.739</td>
</tr>
<tr>
<td>The work was of a high calibre</td>
<td>38.8</td>
<td>55.3</td>
<td>3.5</td>
<td>2.4</td>
<td>0.0</td>
<td>3.08</td>
<td>0.702</td>
</tr>
<tr>
<td>The project’s cost was accurately predicted and stayed within the allocated budget</td>
<td>36.5</td>
<td>49.4</td>
<td>11.8</td>
<td>2.4</td>
<td>0.0</td>
<td>1.58</td>
<td>0.498</td>
</tr>
<tr>
<td>The road phases were completed at the right time</td>
<td>63.5</td>
<td>27.1</td>
<td>0.0</td>
<td>4.7</td>
<td>4.7</td>
<td>3.99</td>
<td>0.315</td>
</tr>
</tbody>
</table>

Source: Survey Data (2022)

The results in Table 4.6 show that the mean score of 3.03 indicates that the respondents agreed that the road met the specifications in the planning stage with a standard deviation of 0.739. 45.9% of the respondents strongly agreed, 35.3% agreed, 2.4% neutral and
disagreed respectively and 14.1% strongly disagreed. The mean score of 3.08 indicates that the respondents agreed that the work was of a high calibre with a standard deviation of 0.702. 38.8% of the respondents strongly agreed, 55.3% agreed, 3.5% neutral and 2.4% disagreed. Berg and 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).

The mean score of 1.58 indicates that the respondents agreed that the project’s cost was accurately predicted and stayed within the allocated budget with a standard deviation of 0.702. 36.5% of the respondents strongly agreed, 49.4% agreed, 11.58% neutral and 2.4% disagreed. The mean score of 3.99 indicates that the respondents agreed that the road phases were completed at the right time with a standard deviation of 0.315. 63.5% of the respondents strongly agreed, 27.1% agreed, 4.7% neutral and disagreed respectively. 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.
4.5 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.

4.5.1 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 4.7: Correlations

<table>
<thead>
<tr>
<th></th>
<th>HRP</th>
<th>MRP</th>
<th>FRP</th>
<th>TM</th>
<th>PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PP</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**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 4.7. 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.

4.5.2 Regression Analysis

To ascertain how changes in the four independent variables would affect changes in the performance of road projects (the dependent variable), the researcher used multiple regression analysis.

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 4.8.

Table 4.8: Model Summary

<table>
<thead>
<tr>
<th>Mode</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.855a</td>
<td>.731</td>
<td>.711</td>
<td>1.60136</td>
</tr>
</tbody>
</table>

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

Source: Researcher (2023)

According to the adjusted $R^2$, 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 have a high positive correlation, according to the correlation coefficient value of 0.855.

The section of the study was to present its overall study significance. The outcomes were displayed in table 4.9.

Table 4.9: Analysis of Variance

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>376.373</td>
<td>4</td>
<td>94.093</td>
<td>36.693</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>138.475</td>
<td>54</td>
<td>2.564</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>514.847</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: PP
b. Predictors: (Constant), HRP, MRP, FRP, TM
The results in table 4.9 show 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.

Table 4.9 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 4.10: Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>0.731</td>
<td>0.130</td>
<td>5.623</td>
<td></td>
</tr>
<tr>
<td>HRP</td>
<td>0.746</td>
<td>0.249</td>
<td>.639</td>
<td>2.996</td>
</tr>
<tr>
<td>MRP</td>
<td>0.644</td>
<td>.120</td>
<td>.157</td>
<td>5.367</td>
</tr>
<tr>
<td>FRP</td>
<td>0.704</td>
<td>.117</td>
<td>.004</td>
<td>6.017</td>
</tr>
<tr>
<td>TM</td>
<td>0.538</td>
<td>.107</td>
<td>.439</td>
<td>5.028</td>
</tr>
<tr>
<td>a. Dependent Variable: PP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results in Table 4.10 show that when human resource planning, financial resource planning, material usage planning and time management are held at constant, the project performance would be at 0.731. The results also show that, when human resource planning is increased by one unit the project performance would be increased by a factor of 0.746(74.6%). A unit increase in financial resource planning would lead to increase in
project performance by 0.704(70.4%). A unit increase in time management would lead to increase in project performance by 0.538(53.8%).

The established regression equation was \( Y = 0.731 + 0.746X_1 + 0.644X_2 + 0.704X_3 + 0.538X_4 \). Therefore, the project performance = 0.731 + (0.746X_1 human resource planning) + (0.644X_2 material usage planning) + (0.704X_3 financial resource planning) + (0.538X_4 time management).

In addition, Table 4.10 shows that human resource planning, financial resource planning, material usage planning and time management had a positive and significant relationship as indicated by t-values. The relationships (p < 0.05) are all significant with human resource planning (\( \beta = 0.639, p < 0.05 \)), financial resource planning (\( \beta = 0.004, p < 0.05 \)), material usage planning (\( \beta = 0.157, p < 0.05 \)) and time management (\( \beta = 0.439, p < 0.05 \)).

The procedure of activity reservoir characterization includes estimating the amount of each commodity that will be utilized in the activity in addition to the resources that are necessary. Materials like staff, technology, and materials may be required; therefore, material planning. Determining the timing of each resource's availability for the Project, mainly the material used, is another step in the process (PMBOK, 2004). Cost budgeting and expense estimation are both included in the business' financial planning stage. Cost management aims to accomplish the Project within the budgeted spending cap. Project budgets are crucial because they have an impact on every aspect of execution and planning. When recording the expenses for the various task bundles within an organization, all expenditures are significant and must be kept on track.
CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter highlights the summary of the findings, conclusions, recommendations and suggestions of future research.

5.2 Summary of the Study

The study mainly focused on examining how project planning affected the success of the road project for the Nairobi Expressway in Kenya's Nairobi City County. Project planning was conceptualized in terms of human resource planning, financial resource planning, material utilization planning and time management. Data was collected using questionnaires. The analysis of data was done using descriptive analysis and inferential statistics. The summary of the findings are presented as below.

The first research objective sought to ascertain the impacts of human resource planning on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya. The study found a positive and significant influence between human resource planning and project performance. The task of managing human resources is given significant weight, members of the project team received and that training project managers took part in the planning process.

The second research objective sought to assess the influence of financial resource planning on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya. The study found a positive and significant influence between financial resource planning and project performance. The project’s budget was appropriately established
(combining the anticipated prices of several tasks or work packages to create a baseline approved cost), the project manager had the ability to predict costs and that the project could be completed with the allocated money.

The third research objective sought to assess how material usage planning has an impact on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya. The study found a positive and significant influence between material usage planning and project performance. Project information and organization were effectively shared during the planning phase, project results were clearly specified, adequate planning was done and allotted material resources were fully utilized.

The fourth research objective sought to establish the effects of time management on the performance of the Nairobi Expressway Road project in Nairobi City County, Kenya. The study found a positive and significant influence between time management and project performance. The planning phase was successful in terms of defining the project's scope, activity time was accurately predicted, the task was finished according to the initial (specified) schedule) and that all projects were finished on schedule.

5.3 Conclusions

The study concluded that human resource planning includes the processes that organize, manage, and lead the project team. The project team is comprised of the people with assigned roles and responsibilities for completing the project. Project team members may have varied skill sets, may be assigned full or part-time, and may be added or removed from the team as the project progresses. Human resources are coupled with cognitive
resources because they are the ones who hold the knowledge and know-how: technical skills, knowledge, business expertise, etc.

The study concluded that the financial resources correspond to the project budget, which will be defined prior to the launch by the project sponsor. They are used to finance: the human and material resources of the project, generally covering the remuneration of the actors of the project, the purchase of material resources or their rental, other costs, such as travel expenses for example. Every project requires adequate financial resources to contribute to its implementation and ultimately its success. The successful management of a project finances translates into efficient steering of the various project resources. These must be determined as early as possible, ideally before the project is even launched.

The study concluded that material resources include raw materials and machines, tools, equipment, software, premises, etc. They include both resources that the company already possesses and those that it purchases or leases to carry out the project. They can be goods that are temporarily made available for the project, which can be used again later, but also consumables that can be used in a given quantity and that have a unit cost.

The study concluded that time resources are the periods of time available and used for the completion of each task. The duration of a task will depend on the planned and available human resources. These resources are not inexhaustible: they have limits, hence the importance of knowing how to manage them to achieve the project’s objectives. Examples of these resources may include: project plan, project schedule and time invested.
5.4 Recommendations of the Study

Since workforce planning has a positive impact on project performance, companies must empower their employees through adequate and ongoing training programs related to road project implementation. This study suggests that construction companies need to be aware of this in order to meet the needs of project team members. It's also a good idea to predict performance levels before a construction project officially begins.

The findings state that priority should be given to the use of materials in the planning of road projects. It enables road project stakeholders to improve productivity by reducing lead times through proper planning of materials, resulting in higher quality products and services. By adopting it, companies will gain a competitive advantage.

In the study, project budgets were identified as an important part of the budget, which significantly affects both the project planning and execution stages. To ensure effective resource management, it is important to track the total cost of the project and the cost of each of the many work packages. The project scope requires the use of the WBS associated with the project plan for project cost estimates. Determining the value of specific actions, taking into account the circumstances surrounding their execution, will help create accurate inclusive cost estimates. Also, the study reveals that materials management is essential for effective planning of construction projects to ensure that projects are completed on time and within budget.

According to this study, the pre-generated WBS should be used to develop the schedule. The study recommends carefully arranging activities to create an accurate and functional schedule. The sequencing method involves identifying dependencies and logical
connections between project components. Regular checks and inspections are required to
detect abnormalities. This is possible as soon as possible, because an uncontrolled schedule
is useless for project organization. If deviations are detected early, the project team will be
able to take appropriate measures.

5.5 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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APPENDICES

APPENDIX I: INTRODUCTORY LETTER

RE: ASK TO COMPLETE THE QUESTIONNAIRE

I am an MBA student at Kenyatta University carrying out a research on: effects of Project planning practices on performance of Nairobi Expressway road project in Nairobi City County, Kenya.

I'm writing to respectfully ask you for some information that will help me to complete my research goals and fulfill a prerequisite for the Master of Business Administration degree. Any information provided will be kept private and solely utilized for this work.

I greatly appreciate you devoting your time in this study since you encourage the development of fresh knowledge that will benefit both the academia and the industry.

Sincerely,

Joan Kagendo Maina
D53/OL/CTY/28234/2019
APPENDIX II: QUESTIONNAIRE

SECTION A: BACKGROUND INFORMATION

1. Indicate your duties in this Project
   - Road supervisors [ ]
   - Road inspectors [ ]
   - Road Surveyors [ ]
   - Contractor [ ]

2. What is your highest educational level?
   - Masters Degree [ ]
   - Bachelors Degree [ ]
   - Diploma [ ]
   - A – Level [ ]
   - Form 4 [ ]

SECTION B: HUMAN RESOURCE PLANNING.

3. Please express your level of agreement or disagreement with each of the following assertions using the following scale:

   5 = Strongly Agree, 4 = Agree, 3 = Not Sure, 2 = Disagree, 1 = Strongly Disagree

<table>
<thead>
<tr>
<th>Assertions</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The company's planning process is heavily influenced by the human resources department.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In keeping with the overall objective, human resource training has been developed and is being put into practice.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The task of managing human resources is given significant weight.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All of the available resources were used (qualified personnel and infrastructure)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Members of the project team received training.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project managers took part in the planning process.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Please list the difficulties the human resources department has had in ensuring that projects are completed on schedule. ............................................

SECTION C: FINANCIAL RESOURCE PLANNING

7. Please express your level of agreement or disagreement with each of the following assertions using the following scale:

5 = Strongly Agree, 4 = Agree, 3 = Not Sure, 2 = Disagree, 1 = Strongly Disagree

<table>
<thead>
<tr>
<th>Assertions</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project costs were accurately estimated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The project could be completed with the allocated money</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The project's budget was appropriately established (combining the anticipated prices of several tasks or work packages to create a baseline approved cost)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The project manager had the ability to predict costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The project was completed without difficulties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Please list any additional causes that contributed to the project not being finished within the projected budget in addition to the ones indicated above. ............................................

..........................................................................................................................
SECTION D: MATERIAL USAGE PLANNING

9. Please express your level of agreement or disagreement with each of the following assertions using the following scale:

5 = Strongly Agree, 4 = Agree, 3 = Not Sure, 2 = Disagree, 1 = Strongly Disagree

<table>
<thead>
<tr>
<th>Assertions</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate material was provided</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>During the planning phase, project information and organization were</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>effectively shared.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The project's scope was clearly defined</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project results were clearly specified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate planning was done</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allotted material resources were fully utilized</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION E: TIME MANAGEMENT

10. Please express your level of agreement or disagreement with each of the following assertions using the following scale:

5 = Strongly Agree, 4 = Agree, 3 = Not Sure, 2 = Disagree, 1 = Strongly Disagree

<table>
<thead>
<tr>
<th>Assertions</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>The planning phase was successful in terms of defining the project's</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>scope.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schedules were well developed (prepared)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity time was accurately predicted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The task was finished according to the initial (specified) schedule</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All projects were finished on schedule</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION F: PROJECT PERFORMANCE

11. Please express your level of agreement or disagreement with each of the following assertions using the following scale:

5 = Strongly Agree, 4 = Agree, 3 = Not Sure, 2 = Disagree, 1 = Strongly Disagree

<table>
<thead>
<tr>
<th>Assertions</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the planning stage, the road complied with the requirements.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The work was of a high calibre</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The project's cost was accurately predicted and stayed within the allocated budget.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The road phases were completed at the right time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. What kinds of methods were used if project monitoring and reporting mechanisms were a part of your project planning processes?

Workforce Assignment [ ]

Progress Tracking [ ]

Week End Modifier [ ]

Budget Management [ ]

Other specify__________________________________________________________

THANK YOU FOR YOUR TIME