



PROJECT MANAGERS' LEADERSHIP COMPETENCIES AND PERFORMANCE OF ELECTRICAL CONSTRUCTION PROJECTS IN NAIROBI CITY COUNTY, KENYA

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Abstract

This study examined how project managers' leadership competencies influence the performance of electrical construction projects in Nairobi County, Kenya. Despite the immense role played by electrical construction projects in the country's economy, these projects have seen a surge in underperformance characterized by low completion rates, declining quality, and an inability to meet the set scope. Specifically, this study outlined how communication competency, human capital development competency, financial resources management competency, and decision-making competency influence the performance of electrical construction projects in Nairobi County, Kenya. The study was anchored on the resource dependence theory, the theory of constraints, and the dynamic capabilities theory. A descriptive research design was employed. The study targeted 396 electrical construction companies in Nairobi City County. Using a sampling formula, the study sampled 195 respondents who were later selected using a simple random technique. A questionnaire was used to collect primary data, which was analyzed using the statistical package for the social sciences. Descriptive and Multi-regression analysis was performed. The findings revealed that project managers' leadership competencies significantly affect the performance of electrical construction projects in Nairobi County. It was concluded that as a result of deficiencies in financial management,

human capital development, communication, and decision-making competencies, the projects were unable to meet the intended goals. It is therefore recommended that the project managers have a duty to embrace and uphold training on key leadership competencies, including the ability to effectively manage financial resources, develop human capital, communicate, and make effective and inclusive decisions.

Keywords: Communication Capabilities, Human Capital, Financial Resources, Decision-Making, Project Performance

INTRODUCTION

In the modern world, the success of every project any organization or government undertakes is upheld as a key enabler of the overall success of the organization. As noted by the World Bank (2019), institutions are now upholding the effectiveness of their projects to enhance their sustainability and continued performance. This shows the essence of ensuring project performance as one of the indicators of the overall organizational success. One of the core aspects that has been widely known to influence project performance is the project's leadership. This is mainly the core project manager's mandate. For any project to excel in achieving its set goals, project managers must be capable of stimulating the internal processes of the project and ensuring its seamless implementation. On the other hand, Bashir et al. (2022) noted that for project managers to effectively run the projects to success, they ought to have the right leadership skills and competencies, which go beyond the normal running of the project. These are the unique strengths and capabilities possessed by project leaders that enable them to streamline project activities for the project's success. According to Ahm and Anantatmula (2023), many projects fail due to project managers' inability to excel in fundamental leadership competencies and have an appropriate mix of technical and soft skills to run the projects.

Construction projects are at the center of driving economic success as they not only provide the much-needed employment but also strengthen infrastructural connectivity, which is a core component of the economy (Ahmadi et al., 2021). Construction projects have a wide scope, ranging from the general structural construction to specialized construction projects. This study will focus on electrical construction projects. These are projects that deal with the design and installation of electrical components, systems, and related construction in the overall building and construction sector. The success of these projects in terms of their performance is a crucial enabler in the success of other sectors, particularly the entire building and construction sector. These projects, just like any other project, are headed by project managers, most of whom have technical skills in electrical construction. However, the project managers' leadership

competencies remain an understudied area, a matter that is supported by Ahmed and Anantatmula (2017), who argue that the construction projects run by specialists in the specific construction sub-sectors may lack the appropriate skills to run and lead the projects into success.

Kenya's construction sector has been known to be a wide sector covering numerous sub-agencies, like the electrical construction sub-sector. The electrical construction projects in Kenya are mainly undertaken by electrical construction companies (electrical contractors). The companies are licensed by EPRA, a state agency mandated to license and oversee the energy and petroleum sector in the country. According to the Energy and Petroleum Regulatory Authority (EPRA) (2022), there are over 640 licensed electrical contractors in Kenya, classified into four different classes based on their capacity and the qualifications of the lead electricians. Out of these 392, equivalent to 62%, are based in Nairobi City County. These contractors undertake electrical construction projects ranging from power installations and maintenance, electricity transmission and generation, as well as the supply of electrical equipment.

The electrical construction projects are housed under electrical construction companies. While there are over 600 electrical contractors, the electrical construction companies are more than 3,000 on an annual basis, as companies undertake more than one project subsequently. In Nairobi County, the electrical construction projects have been on the rise, orchestrated by increase and growth of other construction projects that are interrelated with electrical construction. Projects such as houses, road infrastructure, and construction of stadia, among other public utility projects, require electricity for them to be operational (World Bank, 2019). According to the Nairobi City County Department of Planning, there has been a growth of over 35% of the construction industry in the last 5 years, and this has signified a surge in electrical construction projects. However, these projects perform differently based on the companies (electrical contractors) implementing them as well as other dynamics outside the control of the contractors (Okombe et al., 2023). This implies that there is a high likelihood of one electrical construction project performing differently when undertaken by different contractors.

According to EPRA (2024), as of July 2022, there were over 900 licensed electrical construction companies, but currently this number has reduced to 640, signifying a 41% decline. According to Chemirmir et al. (2023), when projects are performing poorly, it is most likely for contractors to close business, as their main source of revenue is these projects. Therefore, when a contractor is unable to run the assigned project successfully, it implies that they are most likely to exit the business. This is the scenario that has seen the decline in the number of electrical construction companies, as this is also evident in the increased number of stalled electrical construction projects.

Statement of the Problem

Electrical construction projects play an essential role in stimulating economic growth and development. They are core support organs to the wider building and construction industry. These projects employ thousands of people, especially youth across the country, thus contributing directly to the country's economic and social prosperity. The electrical construction projects are housed under electrical construction companies (electrical contractors), companies that are mandated and licensed to undertake electrical projects in the country (Songa, 2020). While the wider building and construction industry in Kenya has been significantly growing as indicated by the Kenya National Bureau of Statistics (KNBS), where between 2018 and 2023 the sector has grown by 21%. This has not been the case for the electrical construction companies, where over 15% of indigenous electrical construction companies have closed shop in the past five years, and more than 30% downsized to sustain their operations (KNBS, 2023). One of the fundamental indicators of success in electrical construction companies is the electrical construction projects, where the performance of these projects signifies success in the companies undertaking them (Songa, 2020). However, in the recent past, these projects have been facing tremendous challenges, with a surge of incomplete projects, stalled works, and declining quality of electrical construction works in the country (Oyieyo et al., 2020). The Kenya Power and Lighting Company (KPLC) pays an average of Ksh 1.2 billion annually as compensation for power-related incidents and injuries (KPLC, 2022), where, according to Okomol et al. (2021), most of these incidents are a result of faulty electrical work. This raises the question of the performance of electrical construction projects. Project performance is a three-dimensional achievement comprising time (timely completion), quality (ability to meet the set standards), cost (completion within budget), and sustainability (Project Management Institute, 2019).

In view of the overwhelming literature, project management leadership has been propelled to be fundamental in determining project outcome (Alvarenga et al., 2020). Some prospectives and outlays undertaken in regard to program leaders' capacities and how they instigate the success of given programs portray a bit of necessity for additional work, mainly because they have shown mixed results. A study by Ahmed and Anantatmula (2017) on the role of project leadership on project completion established that the decision-making and critical thinking leadership competencies were critical in determining the completion of a project. A study by Irfan et al. (2021) towards evaluating project management leadership and performance of not-for-profit programmes in Pakistan established that leadership competencies possessed by project managers significantly determined project performance. On the other hand, a study by Strang and Vajjhala (2022) on project leadership and sustainability of construction projects in

Nigeria outlined how the leadership aspect of projects had a weak correlation to project success as well as continuity. In Kenya, Mwando and Muchelule (2024) established that project management leadership aspects, such as decision-making skills and communication capabilities, significantly influenced project performance. These studies not only show mixed results but also focus on varied contexts. Further, the studies have conceptualized project management leadership differently. With the growing concern about construction projects in Kenya and, particularly, electrical construction projects, it is appropriate to establish what is ailing these projects as far as project leadership is concerned. In this regard, this study sought to bridge the existing gaps by assessing the role played by project managers' leadership competencies towards success among electrical construction projects in Nairobi City County, Kenya.

Research Objective

The general objective for this study was to assess the influence of project managers' leadership competencies on the performance of electrical construction projects in Nairobi County, Kenya.

Research Questions

1. How does financial resources management competency influence the performance of electrical construction projects in Nairobi County, Kenya?
2. What does the ability towards management of human capital contribute to the betterment of electrical construction projects in Kenya's capital?
3. To what level do capacity and competency in communication align with increasing success among electrical construction programs in Nairobi?
4. How do decision-making competencies determine and contribute to better success among electrical construction projects in Nairobi?

THEORETICAL LITERATURE REVIEW

This sub-section covers the review of key theories that enhance the understanding of the study variables. The theories include resource dependence, dynamic capabilities, and constraints theories.

Resource Dependence Theory (RDT)

The RDT framework was first proposed by Pfeffer and Salancik (1978) and has since then been widely used as a theoretical foundation for organizational resources and the role of

these resources in steering success. The theory suggests that organizations are interdependent in that they depend on each other for key inputs that drive their processes and operations (Indus, 2018). The interdependence of an organization, therefore, describes its growing need for external resources for it to continue operating. According to Cao et al. (2017), in the context of project management, resources play a central role in enabling the projects to be implemented as per the plan. Therefore, projects or the supporting organizations require external resources and depend on other organizations for these resources.

According to Dong and Götz (2021), the resource dependence theory supports the essence of financial resources in a project in that these are the essential inputs in a project that come from external sources. Project managers depend on external sources of financial resources in order to implement the projects. To acquire these resources, the project managers ought to have good relations with external parties since these are the providers of these resources. This interdependence, as outlined in the RDT theory, serves to enhance the way projects are funded and stimulate the successful implementation of the projects. According to Bergman et al. (2016), similar to organizations, projects cannot be self-sustaining in that they depend on other external stakeholders in order to attain their mandates.

In the context of this study, resources are integral in supporting notable success among electrical programs; thus, the ability possessed by such managers to manage these resources effectively and enhance their efficient use is fundamental in driving the project's success. These projects are capital-intensive and would require adequate and well-managed resources from financial, infrastructural, and technological resources. This framework, therefore, is embraced in assessment herein to give support for the need for project managers' financial resource management competency in stimulating notable results among electrical programs.

Dynamic Capabilities Theory

The theory has been put forward by Teece et al. (1997). The theory champions that having adequate capacities to respond to a mutating environment, corporations/projects are able to apprehend the external environment and steer their optimal success. The framework emphasizes the need to safeguard internal aptitudes and capital that define how well an entity is able to adequately address emerging changes and vulnerabilities. According to Teece et al. (2016), as the operating environment is becoming more dynamic and unpredictable, projects are also requiring capabilities that are dynamic in nature and capable of handling the underlying conditions in the implementations of the projects. The project leadership competencies can be aligned to the need for having the right capabilities that enable one to rapidly respond to needs and demands shaped by the ever-dynamic operating framework. These capabilities ensure that

such managers are ready to lead a committed team that fosters the achievement of milestones set for given programs.

Bringing Teece's views into a PM perspective, Sako and Chondrakis (2016) described dynamic capabilities as the project manager's capacity towards configuring internal strengths as a way of giving a commensurate and effective response to external environment deviations, through which the success of given programs is assured. The dynamic capabilities theory, highlights the need for projects through the project managers to maximize their pool of human resources/dynamic capabilities since these are the main inputs that the projects require to solve the emerging issues in the healthcare system. The theory supports how capacity by program-leads, to develop appropriate human capital, steers continued and better success among electrical projects in Nairobi.

Systems Theory

The Systems Theory was put forward by Ludwig von Bertalanffy (1968). Such a framework considers programs (projects) as a complex and interconnected system composed of various subsystems that operate as a singular body to bring out any projected outcomes. The theory emphasizes that an organization is not just a collection of isolated parts, but a dynamic entity where all components are interdependent. One of the aspects that the theory upholds is the interdependent nature where various subsystems within an organization (e.g., departments, teams) are interdependent (Grothe-Hammer, 2020). Effective communication ensures that these subsystems work in harmony. Project managers who can uphold effective communication across the project have a chance to lead a more flexible and dynamic project team that is capable of steering success and better performance of the project.

The systems theory also points to the aspects of holism, where the project or organization is seen as a whole rather than merely the sum of its parts. Communication is the glue that holds the system together, ensuring that all parts function cohesively (Ramos et al., 2022). Similarly, a project manager with the right communication competency, through which information sharing among the project team is enhanced, can lead a successful project as they can put the parts of the system (project) together. The third aspect of Systems Theory is the feedback loops, as described by Sony and Naik (2020). Systems Theory highlights the importance of feedback in organizational communication. Feedback loops help the organization to self-regulate, adapt, and improve its processes by facilitating the continuous exchange of information. Project managers have to promote seamless communication and give feedback for the project team to work as one. This will stimulate continuous success, thus learning to improve project performance.

The Systems Theory, therefore, aligns with the concept of communication in a project, where leads in given programs oversee processes in a given system (project), and for them to keep this system working, they must ensure that all parts within the system are working. These parts in this case include the team in a program, the technologies, and many other parties who interact in such a program. The main way to ensure interconnectivity among these parts is through communication. The theory plays a role in expounding how the communication competence of project managers steers notable success among electrical programs within Nairobi.

Theory of Constraints

Goldratt (1990) put forward this TOC framework to highlight the constraints (challenges) deterring project success. The theory puts across how uncontained constraints, be it in business or a project, lead to negative results within a business framework, an issue that could see programs/projects fail to achieve what is intended. As outlined by Goldratt (1994), constraints mainly comprise issues that arise while a program is being implemented, and are usually unforeseen, thus considered to appear like risks. These unprecedented instances often affect how enterprises or programs are undertaken, in that they tend to bring other contexts that were not initially put into the picture. Considering how programs follow a routine that is laid out and outlined from the word go, having interference can be detrimental to the overall success of these programs, hence the need to keenly examine possible constraints and derive approaches to address them. Borrowing from a work by Mishra (2020), while project heads may try to overlook constraints, they usually have a huge impact on the final output of programs, thus putting forward the essence of addressing the minor and easily ignored occurrences when implementing given projects. A project manager should be in a position to make critical decisions that are aimed at coming up with appropriate solutions to these problems. Framework at hand (TOC), therefore, becomes essential towards bringing into context the essence of project managers' decision-making competency for improvement among electrical projects in Nairobi.

EMPIRICAL REVIEW

Aradukunda and Sikubwabo (2024), basing their efforts in Rwanda, elaborated on how control of financial resources drove betterment and success among public projects in Kigali. The study assessed how financial resources planning and control contributed to success among such projects. While putting across mixed method prospects, the authors in this case collected data from 175 participants using a questionnaire. The findings revealed that financial resources

management through financial planning and financial control played an essential role in steering the success of the projects in Kigali. The authors noted that how project leads had to plan and control how finances in a project were utilized ensured that the projects were well-financed for seamless implementation and overall success. The study was carried out in Rwanda and generalized the projects. However, the current study was specifically focused on electrical construction projects in Nairobi County.

A study by Masiko et al. (2022) sought to establish the effect of human resource management competencies on project success. The authors undertook an empirical review where they sought to address the essence of project managers' competencies in human resources management and their role in steering project success. The findings revealed that human resources management competencies had a significant impact on the performance of projects. According to Masiko et al. (2022), strengthening a project's success requires project managers who are capable of fostering the commitment of the workforce in the project, while supporting and motivating the personnel to dedicate their skills and competencies to the project. The study was carried out in Indonesia and focused on a qualitative approach. The study focused on a descriptive approach that provides for the use of both qualitative and quantitative methods.

Elanain and Badri (2019) assessed the impact of the project communication process on the implementation of projects in Mexico. The study sought to establish the effect of the communication channels used, the adoption of technology-based communication, and the type of information shared on the implementation of the projects. The authors employed a correlational research approach and collected data from 133 participants. The results revealed that one of the major aspects in project management that determined the successful implementation of the project was communication. They established that the ability of the project team to share adequate and appropriate information through well-inclusive communication channels and the adoption of IT-enabled communication channels enhanced the effectiveness of communication among the project team. The study utilized a varied design and focused on the implementation of projects as opposed to performance. However, the current study utilized a descriptive design and will focus on project performance.

Grzesik and Piwowar-Sulej (2024), while assessing the role of program-heads' capability to lead programs to succeed, focused on the decision-making competence possessed by project leaders and how this influenced project success. Using a correlational approach, the authors surveyed 92 project managers through a questionnaire. Their results revealed that project managers' decision-making competency had a significant role in enhancing project success. The authors indicated that project managers who had knowledge in problem-solving

and people-engagement were in a better position to run their projects successfully. A varied design was used, and the projects surveyed were generalized. However, the current study focused on electrical construction projects and embraced a descriptive design.

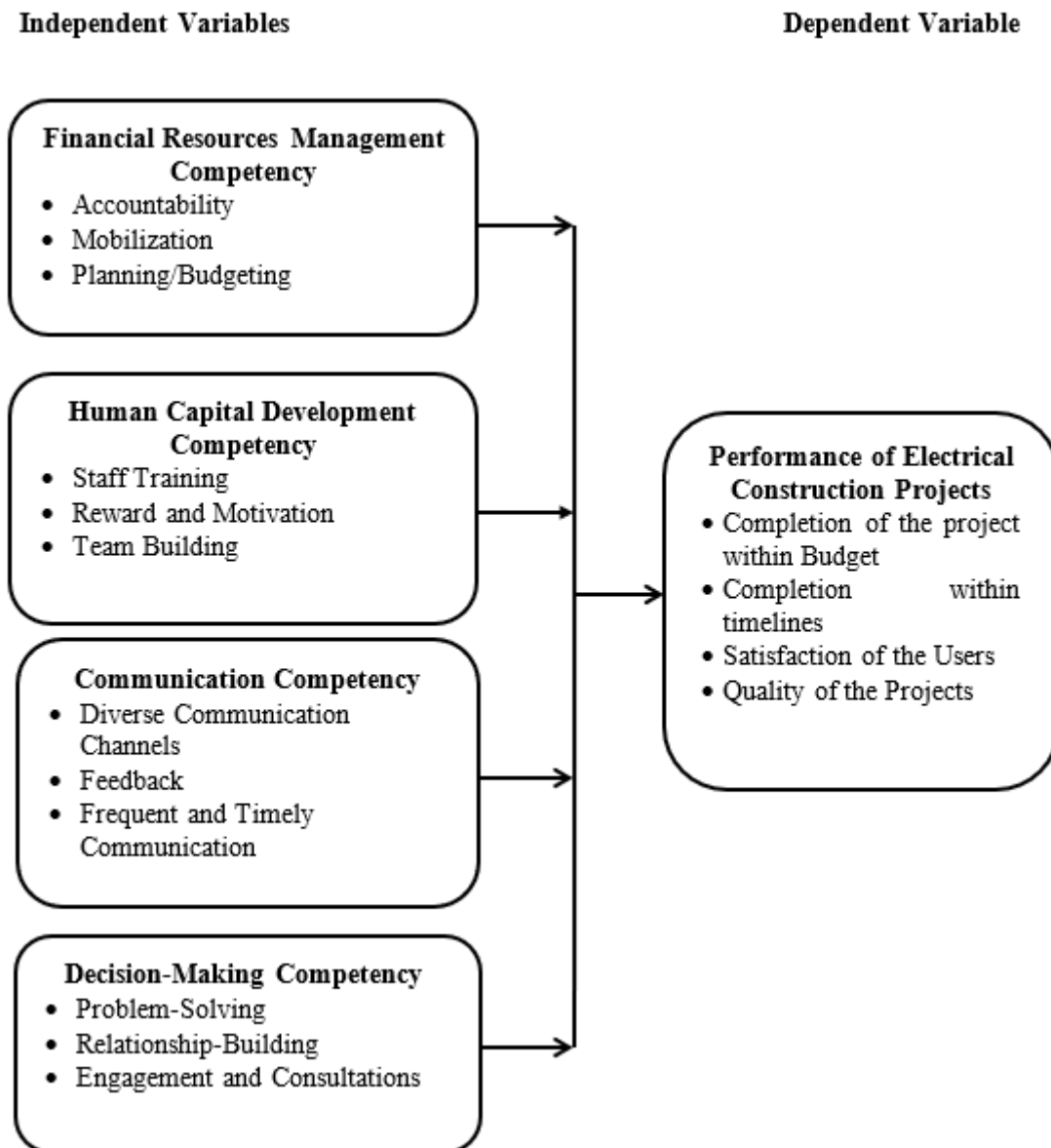


Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

The researcher adopted a descriptive research design to explain the phenomenon as it is. The design provided a room to assess interaction between leadership capacities among program heads towards steering continued and projected success among electrical programs within Nairobi (Sileyew et al., 2019). The study target population included 396 electrical

construction companies in Nairobi County, Kenya. These companies are licensed to undertake projects in the country. The units of observation were the project managers in these companies. The researcher used Fisher et al.'s (2018) formula to identify the projected sample size for the study.

$$nf = \frac{n}{1 + (n/N)}$$

Where;

nf = sample size desired for population below 10,000

n = sample size desired for population above 10,000 (384).

N = population estimate size (396)

$$nf = \frac{384}{1 + (384/396)}$$

$$nf = 194.95 \sim 195$$

The participants were selected using a simple random identification technique from the reference population. A structured questionnaire was adopted to collect data. The researcher also conducted a pilot study, in which 10% of the employees were selected to achieve pretest goals. The exercise comprised 20 respondents (10% of 384) who were not included in the main data collection. The respondents were drawn from electrical construction companies in Kiambu County. In addition to the pilot study, the research instrument was subject to expert review, including the supervisor, lecturers, and classmates. More so, the instrument reliability was tested through Cronbach's Alpha, where a coefficient of 0.7 and above was considered acceptable.

Table 1: Reliability Analysis

Variable	Cronbach's Alpha	N of Items
Financial Resources Management Competency	.815	8
Human Capital Development Competency	.803	8
Communication Competency	.757	8
Decision-Making Competency	.843	8
Success of electrical construction projects	.771	8

The Cronbach's Alpha values presented in Table 1 show that all variables had above 0.7, the minimum required threshold. Furthermore, the researcher used SPSS software to analyze data. A quantitative framework of analysis employing descriptive statistics, including percentages and frequencies, was utilized. The researcher performed descriptive statistics analysis to determine the degree of agreement among the Likert items. The researcher also performed inferential statistics, such as regression, to determine the degree of influence

between the variables of the study. The analysis output was presented using tables and figures with percentages. Here is the regression model used:

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

Where:

Y = Success of Electrical Construction Projects

β_0 = y-intercept

$\beta_1 - \beta_4$ = coefficients of Xs;

X1 = Financial Resources Management Competency

X2 = Human Capital Development Competency

X3 = Communication Competency

X4 = Decision-Making Competency

ε = error term.

FINDINGS

Table 2: Descriptive Statistics Analysis for Independent Variable

Statements	SD	D	N	A	SA	Mean	Std. Dev.
Financial Resources Management Competency							
We have always ensured accountable use of the financial resources allocated to the projects	20.4%	39.7%	6.8%	13.3%	19.8%	2.41	1.577
There are systems put in place to ensure the project's finances are tracked for use in the intended purpose	30.1%	26.5%	6.8%	14.3%	22.3%	2.42	1.588
There have been no cases of misappropriation of finances allocated to projects in our organization	31.1%	29.4%	5.8%	14.3%	19.4%	2.41	1.563
The project management team in our projects has been effectively mobilizing for the required financial resources	32.0%	25.5%	7.8%	17.9%	6.8%	2.39	1.424
Human Capital Development Competency							
The personnel in our projects are frequently trained on new and emerging skills and competencies	37.9%	21.7%	10.7%	12.3%	17.5%	2.49	1.577
The project managers frequently undertake assessments of skills gaps among the project team to identify the missing and required skills	35.0%	29.7%	7.5%	7.5%	20.4%	2.28	1.569
The project managers give project personnel room to seek individual skills development	32.0%	29.7%	13.3%	17.5%	7.5%	2.44	1.492
The project managers frequently reward project personnel who meet the set targets	29.1%	28.7%	11.7%	10.1%	20.4%	2.33	1.546

Communication Competency							
The project management has embraced diverse communication channels for the project team	34.0%	26.2%	13.6%	15.5%	10.7%	2.42	1.376
The project managers always encourage project team members to share any information that is relevant to the project at any time	25.2%	31.4%	12.6%	15.2%	15.5%	2.44	1.446
The queries by the project team to the project managers are addressed or responded to promptly	24.3%	35.5%	8.7%	16.9%	14.6%	2.31	1.448
There is feed mechanisms put up to give and receive feedback from the project team	29.1%	35.2%	10.7%	7.5%	17.5%	2.48	1.488
Decision-Making Competency							
The project management has embraced diverse communication channels for the project team	34.0%	26.2%	13.6%	15.5%	10.7%	2.42	1.376
The project managers always encourage project team members to share any information that is relevant to the project at any time	25.2%	31.4%	12.6%	15.2%	15.5%	2.44	1.446
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There is feed mechanisms put up to give and receive feedback from the project team	29.1%	35.2%	10.7%	7.5%	17.5%	2.48	1.488

As per the result on financial resource management, the majority (60.1%) disagree (with a $m=2.41$, and Std. Dev. = 1.577) that there was always accountable use of financial resources allocated in the projects. This implies that there is a weakness in ensuring transparency and accountability in financial handling. Financial transparency is critical for maintaining trust and efficient resource utilization in electrical construction projects. Similarly, 56.6% of the respondents disagreed (M: 2.42, Std. Dev.: 1.588) that systems were in place to ensure the project's finances were tracked for the intended purpose. This implies that there is a huge problem in financial oversight mechanisms. The problem is likely to contribute to the deviation from project goals and cause inefficiencies. More so, 60.5% of the respondents largely disagreed (Mean: 2.41, Std. Dev.: 1.563) that there have been no cases of misappropriation of finances allocated to projects in their organization. This implies that their financial integrity concerns, which undermine project performance. Furthermore, a significant portion 57.5% strongly disagreed that the project management team had been effectively mobilizing for the required financial resources (Mean: 2.39, Std. Dev.: 1.424). This reflects inadequate proactive efforts in securing funds. The inefficiency leads to delays and resource shortages. The results

align with those of Kerzner (2017), who emphasized that effective financial management competency is essential for project success, particularly in controlling budgets and preventing mismanagement in construction contexts.

Result analysis on human capital indicated that the majority disagreed that personnel in their projects were frequently trained on new and emerging skills and competencies, where 37.9% strongly disagreed, and 21.7% disagreed (Mean: 2.49, Std. Dev.: 1.577). This implies that in the ongoing professional development, there is a limitation on the project team's ability to adapt to evolving technical demands in the electrical construction sector. More so, 35.0% and 29.7% strongly disagree and disagree respectively (M: 2.28, Std. Dev.: 1.569) that project managers frequently undertake assessments of skills gaps among the team to identify missing and required skills. This is an indication that the lack of proactive identification of competency needs leads to project inefficiency. Additionally, the 61.7% (Mean: 2.44, Std. Dev.: 1.492) disagreed that project managers gave personnel room to seek individual skills development. This implies that limiting support for self-growth restricts personal initiative and long-term capacity building. More so, 57.8% (M: 2.33, Std. Dev.: 1.546) disagree that project managers frequently reward personnel who meet set targets. This implies that deficiencies in recognition systems diminish incentives for project performance. As noted by Kerzner (2017), inadequate attention to skills development and team cohesion by project managers often leads to reduced productivity and higher turnover, particularly in skill-intensive sectors like electrical construction in developing contexts such as Kenya.

Result analysis on communication competency indicated that the majority disagreed that project management had embraced diverse channels of communication among the project team, with 34.0% strongly disagreeing and 26.2% disagreeing (Mean: 2.42, Std. Dev.: 1.376). This suggests reliance on limited or traditional channels, potentially hindering effective information flow in complex electrical construction environments. Similarly, respondents disagreed that project managers always encouraged team members to share relevant project information at any time, where 31.4% disagreed and 25.2% strongly disagreed (Mean: 2.44, Std. Dev.: 1.446). This indicates a possible culture of restricted openness, limiting proactive contributions from team members. The respondents also largely disagreed that queries by the project team to managers were addressed or responded to promptly, with 35.5% disagreeing and 24.3% strongly disagreeing (Mean: 2.31, Std. Dev.: 1.448). This highlights delays in responsiveness, which could lead to unresolved issues and project setbacks. Furthermore, a significant portion disagreed that there was feedback mechanisms put in place to give and receive feedback from the team, with 35.2% disagreeing and 29.1% strongly disagreeing (Mean: 2.48, Std. Dev.: 1.488). This may reflect inadequate structures for constructive dialogue,

essential for continuous improvement. As noted by Kerzner (2017), poor communication practices by project managers, such as inadequate follow-ups and hierarchical rigidity, frequently lead to information silos and conflicts, particularly in technically demanding and multi-stakeholder projects like electrical construction in urban contexts such as Nairobi.

Results on decision-making indicate that a majority of respondents disagreed that project managers in their projects had the capability to easily make decisions, with 32.3% disagreeing and 23.3% strongly disagreeing (Mean: 2.39, Std. Dev.: 1.413). This suggests perceived challenges in timely and confident decision-making, which can lead to delays in dynamic electrical construction environments. Similarly, while some agreement existed on demonstrating ability to solve complex problems (highest A at 29.1%), overall disagreement was notable, with 29.1% disagreeing and 23.3% strongly disagreeing (Mean: 2.66, Std. Dev.: 1.301). This indicates limitations in handling intricate technical and operational challenges common in electrical projects. Respondents also disagreed that project managers considered possible options before taking a stand on issues, with 31.1% disagreeing and 22.3% strongly disagreeing (Mean: 2.62, Std. Dev.: 1.245). This may reflect a tendency toward rushed or unilateral decisions, potentially overlooking optimal solutions. Furthermore, a significant portion disagreed that the project management team had always built strong relationships with the rest of the team, with 33.6% strongly disagreeing and 29.4% disagreeing (Mean: 2.27, Std. Dev.: 1.300). This highlights gaps in relational aspects that support collaborative decision-making. The results align with those of Podgórska and Pichlak (2019), who found that cognitive competencies, including decision-making and problem-solving, significantly predict project success criteria in complex environments, yet deficiencies often lead to inefficiencies.

Table 3: Descriptive Statistics Analysis for the Project Performance

Statements	SD	D	N	A	SA	Mean	Std. Dev.
Financial Resources Management Competency							
The electrical construction projects have been achieved within the budget	30.1%	27.5%	6.6%	22.0%	13.8%	2.47	1.073
The electrical construction projects have been achieved within the planned schedule	24.3%	36.5%	9.4%	18.2%	11.7%	2.36	1.172
The projects undertaken by our organization have always met the needs of the targeted users	25.2%	29.3%	8.7%	26.1%	10.7%	2.67	1.399
There have been fewer complaints regarding the quality of our project from our customers	28.2%	25.2%	6.8%	24.9%	14.9%	2.61	1.315

The results in Table 3 indicated that the majority disagreed that electrical construction projects by their organization had always been completed within the set budget, with 30.1% strongly disagreeing and 27.5% disagreeing (Mean: 2.47, Std. Dev.: 1.073). This indicates frequent cost overruns, a common challenge that erodes profitability and stakeholder confidence in construction projects. Similarly, respondents largely disagreed that projects had always been completed within the set timelines, where 36.5% disagreed and 24.3% strongly disagreed (Mean: 2.36, Std. Dev.: 1.172). This highlights persistent delays, potentially stemming from resource constraints or poor planning prevalent in the Kenyan construction sector. The respondents also disagreed that projects undertaken by their organization had always met the needs of the targeted users, with 29.3% disagreeing and 25.2% strongly disagreeing (Mean: 2.67, Std. Dev.: 1.399). Furthermore, a significant portion disagreed that there had been fewer complaints regarding project quality from customers, with 28.2% strongly disagreeing and 25.2% disagreeing (Mean: 2.61, Std. Dev.: 1.315). This suggests inconsistencies in delivering expected standards, impacting client satisfaction and repeat business. The results agree with those of Odimabo et al. (2022), who reported that construction projects in Kenya frequently experience poor performance characterized by delays, budget overruns, and quality deficiencies due to managerial and environmental factors.

Multi-regression Analysis

A multiple regression model was undertaken to bring out core context regarding the extent to which key project managers' leadership competencies correlated with the performance of electrical construction projects in Nairobi County, Kenya.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.858 ^a	.736	.719	.31726
a. DV: Performance of Electrical Construction Projects				

The model summary indicates a strong multiple correlation coefficient ($R = .858$), suggesting a high degree of association between the predicted and observed values of project performance. The model explained 73.6% of the variance in project performance ($R^2 = .736$), with an adjusted R^2 of .719, accounting for the number of predictors and confirming the model's robustness even after adjusting for potential overfitting. The standard error of the estimate was .31726, reflecting reasonably precise predictions.

Table 5: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	40.555	4	10.139	113.792	.000 ^b
Residual	13.535	152	.0891		
Total	54.091	156			

a. DV: Performance of Electrical Construction Projects

The ANOVA analysis was used to test the significance of the model, through which the viability of such a model to predict the relationship between the variables is established. The results are shown in Table 6. The ANOVA results confirm the overall statistical significance of the regression model ($F = 113.792$, $df = 4, 152$, $p = .000$), indicating that the four competencies collectively have a significant influence on project performance. The regression sums of squares (40.555) far exceeded the residual (13.535), reinforcing that the model accounts for a substantial portion of the total variance (54.091). It is deducible that this model was well-aligned to tell whether there existed any notable relationship among the study's variables.

Table 6: Coefficients of Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.218	.147		1.481	.069
Financial Resources Management Competency	.304	.073	.316	4.162	.000
Human Capital Development Competency	.271	.062	.278	4.369	.000
Communication Competency	.239	.058	.263	4.121	.000
Decision-Making Competency	.219	.066	.226	3.319	.001

a. DV: Performance of Electrical Construction Projects

The regression coefficients for the regression model are shown in Table 6. The results revealed that all four competencies individually contributed positively and significantly to predicting project performance. Financial resources management competency had a significant positive effect ($B = 0.304$, $Beta = 0.316$, $t = 4.162$, $p = 0.000 < 0.05$), implying that improvements in financial accountability, tracking, mobilization, and monitoring substantially enhance outcomes such as budget adherence and cost control. Human capital development competency also exerted a significant positive influence ($B = 0.271$, $Beta = 0.278$, $t = 4.369$, $p = 0.000$), indicating that stronger practices in training, motivation, rewards, and team-building lead to

better team performance and project success. Communication competency was a significant predictor ($B = 0.239$, $Beta = 0.263$, $t = 4.121$, $p = 0.000$), underscoring its role in facilitating coordination, timely information flow, and stakeholder alignment to reduce delays and misunderstandings. Alvarenga et al. (2019) reported that communication and interpersonal competencies are among the strongest predictors of construction project performance, with multiple regression models explaining over 60% of variance in outcomes. Decision-making competency similarly showed a significant positive impact ($B = 0.219$, $Beta = 0.226$, $t = 3.319$, $p = 0.001$), highlighting the value of inclusive, informed, and timely decisions in mitigating risks and improving overall project delivery. The constant term was not significant ($B = .218$, $p = .069$).

Among the predictors, financial resources management competency exhibited the highest standardized coefficient ($Beta = .316$), followed closely by human capital development ($Beta = .278$), suggesting these may have relatively stronger relative influences within the model, though all competencies were meaningful contributors. The regression model strongly supports the hypothesis that project managers' leadership competencies in these four areas significantly drive the performance of electrical construction projects, explaining nearly three-quarters of the variation observed. The findings align with Podgórska and Pichlak (2019), who, through regression analysis, demonstrated that project managers' competencies, including decision-making and resource management, account for substantial variance in project success metrics in complex technical environments.

CONCLUSION

The study concluded that financial resources management competency among project managers in electrical construction projects in Nairobi County is critically weak and significantly undermines project performance. Poor accountability, inadequate tracking systems, and ineffective resource mobilization directly contribute to cost overruns and financial mismanagement. Given its strong predictive power in the regression model, enhancing this competency through structured financial controls, regular monitoring, and capacity building is essential for achieving budget adherence and overall project success.

The study further concluded that human capital development competency is severely deficient in most of the projects, characterized by minimal training, low motivation, and weak team cohesion. This deficiency significantly hampers workforce capability and project outcomes. With the strongest correlation and significant regression contribution it implies that strengthening human capital through deliberate investment in continuous skills development, reward systems,

and team-building initiatives is indispensable for building a competent, motivated, and collaborative workforce capable of delivering high-performing electrical construction projects.

On communication competency, the results showed that communication competency was a major shortfall among project managers, whereby there were inadequate communication channels, poor feedback mechanisms, delayed responses, and hierarchical rigidity, which foster misunderstandings and coordination failures. Strengthening open, timely, and multi-directional communication practices is not merely beneficial but imperative for reducing delays, enhancing stakeholder alignment, and ensuring the successful delivery of electrical construction projects in Nairobi County.

The study further concluded that the decision-making competency of project managers had a significant effect on the performance of electrical construction projects. From the results, it was evident that decision-making among project managers was inadequate, marked by limited inclusivity, insufficient option analysis, and weak stakeholder consultation; deficiencies that significantly impede the timely and effective resolution of project challenges. As a significant predictor of performance, it is an indication that fostering structured, participative, and evidence-based decision-making processes is crucial for minimizing risks, improving scope adherence, and steering electrical construction projects toward sustained success and organizational growth.

RECOMMENDATIONS

Project managers overseeing electrical construction projects should undergo targeted training in financial accountability, implement robust tracking and monitoring systems, establish clear budgeting protocols, and prioritize proactive resource mobilization to strengthen financial controls and prevent mismanagement in electrical construction projects. The organizations in charge of electrical construction projects should introduce regular skills training programs, conduct periodic skills gap assessments, implement performance-based rewards, enhance motivation strategies, and organize frequent team-building activities to build a competent, motivated, and collaborative workforce. Project managers should adopt diverse communication channels, promote open information sharing, establish timely feedback mechanisms, ensure prompt query responses, and encourage hierarchical flexibility to foster effective coordination and reduce misunderstandings in projects. Project managers should be trained in structured decision-making processes, promote inclusive team engagement and stakeholder consultation, systematically evaluate options, and build stronger relationships to enhance timely, informed, and effective decisions for project success.

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