



MONITORING AND EVALUATION PRACTICES AND PERFORMANCE OF THE NATIONAL DIGITAL SUPERHIGHWAY PROJECT IN NAIROBI CITY COUNTY, KENYA

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ABSTRACT

The purpose of this study was to assess the monitoring and evaluation (M&E) practices and performance of National Digital Superhighway Project in the various Ministries, Departments and Agencies in Kenya. Monitoring and evaluation practices play a crucial role in enhancing the efficiency and effectiveness of project planning, management, implementation and the overall performance. The main objective of this study was to assess the role of monitoring practices on the performance of the National Digital Superhighway project in Nairobi City County, Kenya. Specifically, it sought to establish whether M&E planning and reporting has an influence on the performance of the project under study. It was guided by theory of change and stakeholder theory. The study adopted a descriptive survey design with a target population of 354. Simple random sampling was used to select the 187 MDAs from the population which forms 53% of the population. This technique is more suitable because it enables the respondents to get an equal chance of being selected. It also enables the researcher to collect qualitative replies, which will result in improved understanding and more accurate research findings. Primary data was collected by use of questionnaires and interview schedules. Data analysis included both descriptive and inferential statistics. Before conducting the actual research, a pilot testing of the questionnaires was conducted to enable the researcher to re-examine the phraseology of the questions with the aim of making them clearer and unambiguous thus minimizing the chances of biasness. The pilot study was conducted with 10% of the sample hence 19 participants. The Statistical Package for Social Sciences version 28 (SPSS v28) was used for data analysis and findings were tabulated. This study examined the effect of monitoring and evaluation (M&E) practices on the performance of the National Digital Superhighway Project in Nairobi City County, Kenya. The findings revealed that M&E planning ($\beta = 0.348$, $p = 0.003$), and reporting ($\beta = 0.395$, $p = 0.000$)—positively and significantly influenced project performance. The model explained 74.3% of the variation in project performance ($R^2 = 0.743$). The study concludes that thorough M&E planning and systematic reporting are critical to the project's success. It is recommended that organizations clearly define roles and responsibilities and maintain regular and accurate reporting to improve project outcomes. These measures will ensure comprehensive monitoring, timely interventions, and overall project efficiency and effectiveness.

Key Words: Monitoring and Evaluation Practices, Performance, National Digital Superhighway project, M&E Planning, Reporting

Background of the Study

Successful performance of a project is considered as a cause of concern to clients in both public and private sector. According to Lovsin (2021), the most well-known determinants of project successes accepted by research community are; project schedule plan, client participation, personnel and technology to support the project and provide troubleshooting expertise, support from top management, client acceptance, monitoring and feedback, careful management of risks and proper communication channels. This helps the project manager and the stakeholders to make the right and well-informed decisions and acting towards the success of a project.

Project monitoring is regularly evaluating how well projects are being implemented in relation to the schedules created during their design, the use of their inputs, and the services they are providing to the intended audience. This is done in order to quickly determine whether the program is sufficient, successful, and efficient, has had an impact on the recipients, is sustainable, and serves the intended objective. (Simon, 2019).

On the other hand, project evaluation is an objective assessment of ongoing or finished projects concerning their planning, carrying out, and results (Maendo, James & Kamau, 2018). For both the initial and final assessment, M&E gives project contractors relevant information on the state of the project. This information aids in determining the necessary adjustments, especially with regard to the project's structure, effects, and estimated completion date. Because it facilitates the tracking of project progress, infrastructure project monitoring and evaluation is recognized as a crucial management tool (Tesfaye, 2019). Infrastructure projects are mostly initiated to solve a particular problem, meet community needs, or take advantage of opportunities that exist in the business world. These projects perform better in developed countries than in developing countries because the developing countries are mainly faced with different challenges for example, poor financial planning and fund allocation, poor strategic plans, lack of skills and expertise, poor communication, lack of efficient monitoring, and evaluation practices (Ye, et al., 2018).

Developing countries often perform some kind of regular monitoring activities, that range from comprehensive national evaluation systems in countries such as India and Malaysia to basic monitoring of selected projects in many countries in Africa and the Middle East (Zvoushe & Gideon, 2023). Mackay (2007), stated that it is essential to concentrate on and enhance the ability for monitoring and evaluation in all areas of Government. In Africa, M&E is relatively a new concept and has not always been accepted fully as an integral part of the operations in organizational projects. However, according to Crawford & Bryce (2020), recently a number of communities, firms and companies have taken up the concept. In his study, Muller, (2007) showed that the importance of Monitoring in global efforts toward achieving environmental, economic and social development cannot be understated. Monitoring, therefore, is a practice that is useful and relevant for the actors in the development world (Asare, 2020). However, in Kenya many mainstream Monitoring practices tend to be isolated and disconnected from management and decision-making.

Additionally, several studies have been done to examine factors impacting on project performance in developing countries. A study by Faridi and El-Sayegh (2006), showed that a shortage of skilled manpower, poor supervision and poor site management, unsuitable leadership; shortage and breakdown of equipment due to ineffective monitoring practices contributed to project delays in the United Arab Emirates. As established by Mbachu and Nkando (2007), quality and attitude of service are key factors constraining successful monitoring practices on project delivery in South Africa. In many developing nations, ensuring the sustainability of a project is a significant difficulty. This is because many projects are carried out at high costs and frequently encounter sustainability-related problems. Significant funders have also voiced concerns about this issue, including the World Bank, the Asian Development Bank, and bilateral aid organizations (Khan, 2012).

A government or state agency might use monitoring as an effective management instrument to improve how tasks are carried out to fulfill the mission and objective of the entire country. The information and evidence that the Government or state institutions would need to make decisions, implement policy and hold officials accountable should be derived from a results-based performance feedback system to ensure that it is possible to make more relevant and strategic, tactical and operational decisions (Myne et al., 2018).

Statement of the Problem

The Information and Communication Technology (ICT) sector plays a crucial role in modern economic and technological development, enabling countries to stay competitive in the global business environment (Saba, 2023). In response, the Kenyan Government launched the Digital Superhighway Project to strengthen its digital infrastructure and enhance network connectivity. However, despite this significant investment, the implementation and monitoring of digital infrastructure projects face persistent challenges. Currently, 3G coverage extends to 78% of Kenya's population but only covers 17% of the geographical area, primarily in urban centers (ICT Authority, 2023). The Government Common Core Network (GCCN), an Internet Protocol (IP) based network, connects only a small fraction of Ministries, Departments, and Agencies (MDAs) in Nairobi County. These connectivity limitations reflect broader implementation issues, resulting in underutilization of resources and suboptimal project outcomes.

A report by the ICT Authority on Kenya's National Optic Fiber Backbone Infrastructure (NOFBI) highlights significant gaps in coverage and performance, with internet penetration rising but less than 19% of the population actively using the internet. Access to affordable broadband is hindered by limited last-mile coverage and high costs, especially in rural areas where over 70% of the population resides (Ministry of Information, Communications, and Digital Economy, 2023). Rural residents face even greater challenges, with only 17% using the internet weekly compared to 44% in urban centers (Njogu, 2023), and many must travel over 2 kilometers to access a mobile cellular signal. These disparities highlight the critical need for effective monitoring and evaluation (M&E) practices to ensure digital infrastructure projects achieve their intended goals and enhance access across all regions.

Additionally, cybersecurity remains a major concern, with the Communications Authority (2023) reporting a dramatic rise in threats from 3.4 million incidents in early 2018 to over 79 million by 2022. This surge underscores vulnerabilities within the digital infrastructure, exacerbated by increased demand for remote working tools. Monitoring and Evaluation (M&E) practices are essential to address these challenges and improve project performance. According to Tengan and Aigbavboa (2018), more than 60% of significant projects fail to meet their goals due to inadequate monitoring practices, and currently, only 31% of Kenya's state corporations have established M&E systems, leaving 69% without this critical oversight (RoK, 2011).

Research by Pingano and Onjure (2020) shows that poor monitoring practices lead to projects being over budget, delayed, and of lower quality, negatively impacting overall performance. Similarly, Mwangi (2019) found that the performance of World Bank-funded projects in Nairobi was rated at 49%, lagging behind Uganda (61%) and Tanzania (73%) between 2009 and 2020, underscoring the need for effective M&E practices. Despite these findings, there remains a significant gap in research specifically linking M&E practices to the performance of the National Digital Superhighway Project in Nairobi City County. Previous studies by Wanjiku (2019), Ochenga (2018), Muchelule (2018), and Kissi et al. (2019) have explored M&E and project performance, but none have directly addressed the Digital Superhighway Project.

Therefore, this study aimed to fill this gap by investigating the influence of monitoring practices, planning, and reporting, on the performance of the National Digital Superhighway Project within MDAs in Nairobi County. This research sought to provide valuable insights into how effective M&E practices can improve project outcomes and address the ongoing challenges in Kenya's digital infrastructure development.

Research Objectives

The objective of this study was to determine the effect of monitoring and evaluation practices on the performance of National Digital Superhighway Project in Nairobi City County, Kenya.

Specific Objectives

1. To examine the effect of M&E planning on the performance of the National Digital Superhighway Project in Nairobi City County, Kenya.
2. To determine the effect of M&E reporting on the performance of the National Digital Superhighway Project in Nairobi City County, Kenya

LITERATURE REVIEW

Theoretical Framework

Theory of Change

This theory was first proposed by Weiss (1995). It focuses on a logical and cumulative analysis of relations between activities, outcomes and context of a project (Laing & Todd, 2019). It articulates explicitly how the National Digital Superhighway project intends to attain its objectives through actions and plans while taking into consideration the surrounding context. As Rogers (2020) elaborated, the theory of change gives details on how actions are understood to yield a variety of outcomes that contributes to the achievement of the intended impacts. That is why the ToC is popularly referred to as “a roadmap, a blueprint, an engine of change, a theory of action” that can be developed at any stage of a project (Stein & Valters, 2012).

ToC has been used in strategic planning to assist in the formulation of more realistic goals, shed light on accountabilities and support a shared understanding regarding strategies to be used in achieving the project goal. Furthermore, during implementation it pinpoints which indicators must be tracked, data to be gathered and how to analyze it during evaluation (Roger, 2020). Hence, the ToC supports the articulation of projected outcomes to be realized through investing the current state, risks, opportunities, planned actions and the sequence of change projected to unfold (Rogers, 2020). According to Corlazzoli and White (2023), ToC gives pointers during project implementation on the state of the project, program or strategy, whether it is on track to accomplish the sought-after change, and if the environment is changing as projected in the project or program design.

This theory therefore postulates that a framework approach is necessary to guide M&E in determining the magnitude of activities both during the project implementation and post-implementation phase. According to Gooding, Makwinja, Nyirenda, Vincent, & Sambakunsi (2018), the ToC often depicts visually, through a diagram, steps to be taken between project activities and intended impact, indicating the underlying assumptions on how intervention activities are projected to work. It assists in outlining a structure within which projects are planned, monitored and evaluated, their impact is assessed and lessons are learned for improvement. This provides an explicit framework for long term change which can aid in addressing performance challenges facing the National Digital Superhighway project. Monitoring and evaluation framework also gives a well-thought- out method to the project as well as an opening to document and disseminate learning.

The M&E framework is important in this project as it permits the implementers to measure and compare progress made, abide to requirements and standard progress report information (Lalengzuala, 2020). According to Okeyo et al. (2019), ToC has the ability to describe how the project operates by unfolding the components of the project and the steps required to attain the wanted results Furthermore, the theory defines the links between factors necessary for implementation as well as articulates the external and internal factors that may perhaps affect project success.

Theory of Constraints

This theory was first proposed by Goldratt (1990). It can be used to demonstrate how managers can run organizations efficiently using systematic thinking and constraint management assumptions (Kohli & Gupta, 2020). The theory of constraint-based management philosophy focuses on change at three levels: organizational thought, organizational behavior, and organizational methodology (Gupta & Boyd, 2008). Project management is complicated by requirements and limitations in multi-party work situations (which are required for construction projects) (Lau & Kong, 2006). Hence, constraints must be managed for effective project management.

Most ventures are difficult to handle, according to Jacob and McClelland (2001), since they are full of complexities and require three separate and conflicting commitments like concept, budget, and content. The time, scope, and money restrictions are widely recognized as markers of project performance in project management. Executives view the triple constraint as essential to the success of the organization. These three components can be rationalized to increase quality and produce a positive outcome. The performance of the company is impacted by the three limits on the task's scope, cost, and time. Since this component has several connections, one must eventually have an impact on the other two.

The triple constraint theory, which contends that the majority of monitoring and assessment procedures may function well or poorly from an organizational perspective, will be the main focus of this study. Project delays are a frequent occurrence in the construction industry, which not only causes intangible losses for the country but also has a crippling impact on the contractor. This study will focus on the triple constraint theory, which states that most used monitoring and assessment procedures may function well or poorly from an organizational perspective. In the construction sector, project delays are common, and this leads to not only intangible losses for the country but also has a crippling impact on the contractor (Ondari & Gekara, 2023). A project's success also depends on factors like cost and quality (Nwachukwu & Emoh, 2011). Therefore, this theory informs the dependent variable: project performance. It describes the steps for implementing the project such as cost, quality and time which are covered in this study.

Conceptual Framework

This is a theoretical illustration put forth to show the relationship between the dependent and independent variables under study. It defines the relevant objectives for your research process and maps out how they come together to draw coherent conclusions (Swaen & George, 2022).

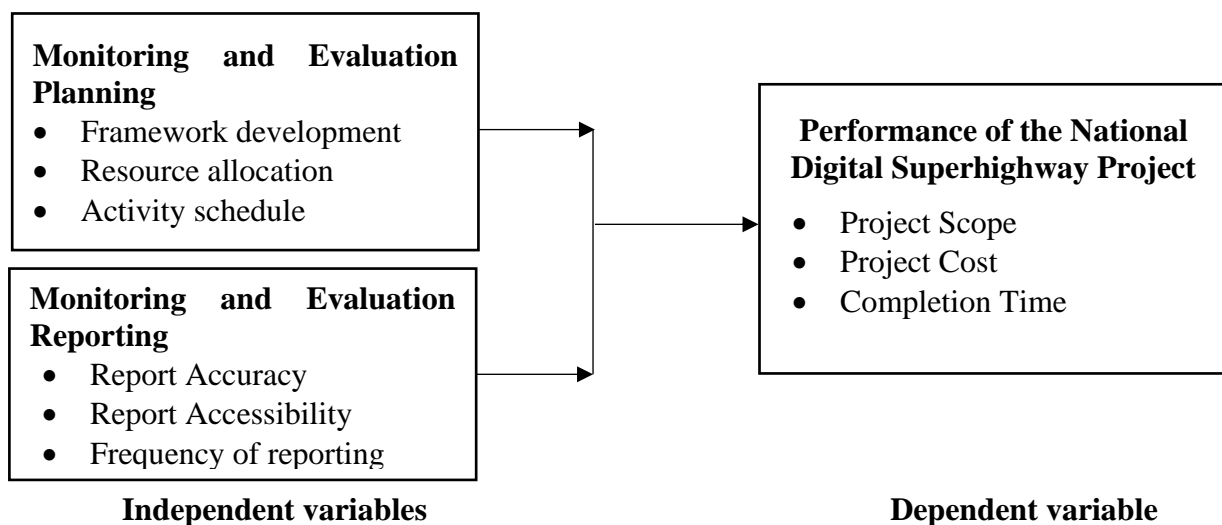


Figure 2. 1: Conceptual Framework

Monitoring and Evaluation Planning

Stakeholders use M&E planning as a crucial tool to ensure project success (Naoum, Fong, & Walker, 2004; Ling & Chan, 2002; Thomas et al., 2002). M&E planning is the methodical distribution of project resources to meet project goals (Tola 2019). Preconstruction and construction planning are also included, covering the project's lifecycle from inception to completion (Faniran et al., 1998). For companies to match long-term goals with their vision, mission, objectives, and activities, strategic planning is essential (Pearce & Robison, 2012). Effective implementation is just as important for organizational survival and success as strategy planning (Thompson & Strickland, 2012).

Performance indicators, logical frameworks, theory-based monitoring, set studies, rapid evaluation methods, participatory techniques, open usage tracking studies, impact monitoring, and cost-benefit analysis are just a few of the tools and methods used in monitoring and evaluation (World Bank, 2012). To cross-validate data, evaluators might use a variety of techniques (Nabris, 2002). Planning and design should be essential components of the project in order to improve the efficacy of monitoring systems (Nabris, 2002). The information needed, the parties involved, and the related expenses all influence the choice of monitoring tools (World Bank, 2012).

M&E planning has difficulties in spite of its significance, such as expensive expenses, time restraints, and the requirement for specialized training (ACF, 2011). The relevance of connecting M&E to project plans, efficiency, participatory approaches, using both local and international expertise, disseminating results widely, using multiple data sources, and applying data for program improvement are all highlighted by best practices, as shown by USAID Turkey (Mathis et al., 2001). Effectively formulated and implemented M&E work Plans support project objectives and global norms, guaranteeing state companies make evidence-based decisions (Jha et al., 2020).

Monitoring and Evaluation Reporting

A number of criteria must be met in order for Monitoring and Evaluation tools to be used to effectively provide evidence for well-informed decision-making throughout the duration of the program. To create a framework that supports high-quality M&E for every stage of the program cycle, it is essential to incorporate M&E issues from the outset of program design (Bamberger, 2009). M&E faces difficulties, like possible weaknesses in internal monitoring systems. Robust monitoring systems that can deliver dependable data for evidence-based decision-making are essential to addressing these problems. Effective M&E procedures should take particular settings into account while allowing for creativity and adaptability. It emphasizes the significance of selecting appropriate methods, tactics, and tools throughout the monitoring planning phase. The choice of M&E tools depends on the project's operational context, implementing agency capacity, and unique requirements (Chaplowe, 2008).

In modern times, monitoring and assessment instruments play a major part in determining the efficacy and efficiency of initiatives spanning multiple nations. They play a crucial role in evaluating the performance of projects at every level, from planning and selection to execution and completion. A monitoring and evaluation planning tool, according to Tola (2019), acts as a roadmap or guide, outlining the aims and objectives of a single project or a group of related projects. It provides the intended impact on the project owner as well as the community involved by outlining the expected course of the project from the planning stage to goal achievement.

Empirical Literature Review

Monitoring and Evaluation Planning and Project Performance

Tache (2020) conducted a study called building up a coordinated Monitoring and Evaluation stream for Sustainable Investment Projects in Romania. Establishing a general integrated stream with a venture checking framework and a project assessment framework for the

investment projects that included financial destinations as well as cross-cutting social and natural aims was the aim of the investigation. The analysis, which made use of fundamental research, discovered that the assessed favorable conditions as well as the drawbacks of using such an administrative tool opened up new avenues for developing further improved models and frameworks where Monitoring has a significant impact on how manageable the tasks are in Romania. Hwang and Lim (2023) also established that adopting project monitoring on budget performance, schedule performance, and quality performance could lead to project performance. The monitoring should involve gathering information, examination and writing a report at the predetermined recurrence.

Muchelule (2018) examined the manner in which monitoring practices influence projects performance of Kenya State Corporations. The study concluded that project performance is positively influenced by M&E planning, tools, techniques as well as the uptake of monitoring practices. In order to generalize the link between monitoring practices and project performance. The study suggested a that a similar study on M&E uptake, implementation, challenges, strategies, and M&E be conducted in other industries and in county governments. Furthermore, a study investigating the relationship between project planning and project success was carried out by Yang, Huang, and Wu (2018). The study used questionnaires to evaluate project managers' leadership styles and the extent, cost, quality, and client satisfaction of their projects. The results showed that stronger leadership in project management influences better project planning and team dynamics, which in turn affects project performance as a whole. The statistical significance of the effect of cooperation spirit on project success was also highlighted by the study.

In another study, Mwangi and Jagongo (2019) focused on the impact of resource allocation on judicial work in Embu District, Kenya. The project evaluation expenses and translation time were used as benchmarks for budget allocation. The conclusion showed that funding distribution had a favorable effect on the judiciary's ability to operate. Furthermore, the judiciary's most notable accomplishment in terms of how resources are allocated to meet gender balance requirements in the constitution and significantly raise the standard of service delivery. But because the research was based on ideas other than the ones applied in this study, it revealed a theoretical gap.

Monitoring and Evaluation Reporting and Project Performance

According to PMI (2020), reporting is very important in achieving project's performance. To decrease the likelihood of failure, boost productivity, and prevent repeat errors, the project team finds it helpful to report findings (Ni et al., 2018). Since poor communication is the root cause of up to 95% of troubleshooting incidents, Manoj and Baker (2007) regard communication as being of utmost importance in project management. According to (Carvalho 2023), formal meetings, presentations, documentation, informal conversations, meeting minutes, and recordings are just a few of the ways that project reporting can be done. In a study conducted in South Africa, Nyandongo and Davids (2020) evaluated the relationship between communication and project management performance. They found that 49% of the sample, or project managers, answered "yes" when asked if communication was the most crucial factor in the success of their projects. This validates past research results that demonstrated the importance of reporting and project performance (Aliaset al., 2020). According to (Kerzner 2023), increased communication leads to improved project success. In his study on the relationship between reporting and project performance in Uganda's public universities.

RESEARCH METHODOLOGY

This study adopted a descriptive research design. In this study, the population of interest consists of 354 Ministries, Departments, and Agencies (MDAs), including 21 ministries, 224 state corporations, and 109 tertiary institutions. These groups were purposefully selected because they are well-positioned to provide comprehensive information related to the research questions. The MDAs form the unit of analysis, while project managers within these MDAs

formed the unit of observation. In this study, the sampling frame was the 354 MDAs in Kenya. This study adopted the simple random sampling approach for sample size selection. The study adopted a general formula that Yamane (1967) created for selecting a reliable sample. The sample size was 187 MDAs.

This study used primary data gathered using questionnaires and interviews. Qualitative data analysis was used to transform and model the tabularized data into meaningful information. The Statistical Package for Social Sciences version 28 (SPSS v28) was used for data organization, and simple graphs, charts, tables, and frequency tables were used for reporting. Multiple regression analysis was utilized in the analysis of the variable relationships

RESEARCH FINDINGS AND DISCUSSIONS

Out of the 168 distributed questionnaires, 134 were returned, yielding a response rate of 79.8%. According to Mugenda and Mugenda (2023), a response rate of 50% and above is adequate for analysis and reporting, 60% is good, and 70% and above is excellent. Therefore, the response rate of 79.8% was considered excellent for further analysis and reporting.

Descriptive Statistics

Monitoring and Evaluation Planning

The first objective of the study was to examine the effect of M&E planning on the performance of the National Digital Superhighway Project in Nairobi City County, Kenya. Respondents rated their agreement with statements on M&E Planning. The findings are summarized in Table 1.

Table 1: Descriptive Statistics for Monitoring and Evaluation Planning

| Statements | Mean | Std. Dev. |
|--|--------------|-----------|
| There is clear roles and responsibilities assignment at the M&E planning stage | 3.895 | 0.853 |
| There has adequate resource allocation for M&E | 3.780 | 0.873 |
| M&E planning offers clear scope and scheduling that has positive influence on the execution of the project | 3.804 | 0.891 |
| Conducting Initial needs Assessment has been critical in enhancing better project implementation of county government projects | 3.841 | 0.876 |
| M&E planning processes have contributed to the project performance | 3.793 | 0.905 |
| There is sufficient consultation in the M&E pre planning stage. | 3.748 | 0.899 |
| Aggregate Score | 3.810 | |

The findings show that the respondents agreed on average that there is clear roles and responsibilities assignment at the M&E planning stage (M= 3.895, SD= 0.853); that there has adequate resource allocation for M&E (M= 3.780, SD= 0.873); and that M&E planning offers clear scope and scheduling that has positive influence on the execution of the project (M= 3.804, SD= 0.891). Respondents also agreed that conducting Initial needs Assessment has been critical in enhancing better project implementation of county government projects (M= 3.841, SD= 0.876); that M&E planning processes have contributed to the project performance (M= 3.793, SD= 0.905); and that there is sufficient consultation in the M&E pre planning stage (M= 3.748, SD= 0.899).

For M&E Planning, the aggregate mean score was 3.810, reflecting respondents' agreement that M&E planning practices positively influenced project performance. The results indicate that clear assignment of roles and responsibilities, adequate resource allocation, and structured planning processes are key elements that drive effective project execution. Respondents highlighted the importance of well-defined M&E frameworks, which help in coordinating activities, ensuring that all stakeholders understand their roles, and optimizing resource use. This is consistent with studies that have shown that robust M&E planning leads to better project outcomes by providing clear guidance and structure throughout the project lifecycle.

This finding is consistent with Tache's (2020) study on building a coordinated M&E stream for sustainable investment projects in Romania, which emphasized the significance of a well-defined M&E framework and clear roles in enhancing project sustainability and performance. Tache's research found that establishing an integrated M&E stream with clear roles and responsibilities was crucial for the success of investment projects. Additionally, Muchelule (2018) examined how monitoring practices influenced the performance of Kenya State Corporations and concluded that M&E planning, including the clear assignment of roles and responsibilities, was a key factor in improving project outcomes. Muchelule's study highlighted that effective M&E planning leads to better project performance by ensuring that all stakeholders understand their roles and responsibilities, which aligns with the findings of this study.

Monitoring and Evaluation Reporting

The third objective of the study was to determine the effect of M&E reporting on the performance of the National Digital Superhighway Project in Nairobi City County, Kenya. Respondents rated their agreement with statements on reporting practices. The findings are summarized in Table 2.

Table 2: Descriptive Statistics for Monitoring and Evaluation Reporting

| Statements | Mean | Std. Dev. |
|---|--------------|-----------|
| The implementing agency, (ICT Authority) generates performance reports based on data obtained | 3.814 | 0.883 |
| Recommendations from M&E reports are implemented by the county government | 3.734 | 0.901 |
| The project is implemented based on the project's logical framework | 3.704 | 0.889 |
| M&E reports are accessible to all project stakeholders | 3.743 | 0.873 |
| Recommendations from M&E reports are implemented by the project managers. | 3.764 | 0.880 |
| M&E reports are provided often | 3.781 | 0.860 |
| Aggregate Score | 3.757 | |

The findings show that on average, the respondents agreed that the implementing agency, (ICT Authority) generates performance reports based on data obtained ($M= 3.814$, $SD= 0.883$); that recommendations from M&E reports are implemented by the county government ($M= 3.734$, $SD= 0.901$); and that the project is implemented based on the project's logical framework ($M= 3.704$, $SD= 0.889$). Respondents also agreed that M&E reports are accessible to all project stakeholders ($M= 3.743$, $SD= 0.873$); that recommendations from M&E reports are implemented by the project managers ($M= 3.764$, $SD= 0.880$); and that M&E reports are provided often ($M= 3.781$, $SD= 0.860$).

For M&E Reporting, the aggregate mean score was 3.757, indicating that respondents agreed that reporting practices were effective. The results suggest that performance reports were regularly generated, accessible to stakeholders, and utilized in decision-making processes. Respondents emphasized the value of implementing recommendations from M&E reports, which drives continuous improvement and accountability. Effective reporting practices not only enhance transparency but also ensure that project managers and stakeholders are well-informed, enabling them to make strategic adjustments that align with the project's objectives. This finding is supported by literature that highlights the importance of accurate and timely reporting in enhancing project performance.

This finding is supported by the study conducted by Nyandongo and Davids (2019), which evaluated the relationship between communication and project management performance in South Africa. Their research found that effective communication, including the generation and dissemination of performance reports, was crucial for project success, with 49% of project managers indicating that communication was the most critical factor in their projects.

Furthermore, the study by Project Management Institute, (2018) underscores the importance of regular and accurate reporting in achieving project performance. PMI highlighted that performance reports not only facilitate better decision-making but also enhance transparency and accountability among stakeholders. These studies corroborate the positive perceptions of reporting practices observed in this study, emphasizing the critical role of generating comprehensive performance reports in enhancing project outcomes.

Performance of the National Digital Superhighway Project

The main objective of the study was to determine the effect of monitoring and evaluation practices on the performance of the National Digital Superhighway Project in Nairobi City County, Kenya. Respondents rated their agreement with statements on the performance of the National Digital Superhighway Project. The findings are summarized in Table 3.

Table 3: Descriptive Statistics for Performance of the National Digital Superhighway Project

| Statements | Mean | Std. Dev. |
|---|--------------|-----------|
| There is proper utilization of project resources on its performance. | 3.828 | 0.861 |
| The project meets its intended goals and objectives. | 3.799 | 0.869 |
| The project meets the required scope and project quality standard. | 3.786 | 0.882 |
| The project is working within the expected timeframe and budget. | 3.819 | 0.891 |
| There is transparency and accountability of project resources during monitoring and evaluation. | 3.836 | 0.854 |
| Regular project reports on its progress are provided for decision making. | 3.783 | 0.874 |
| Seeking project feedback and opinions from key stakeholders improves project performance. | 3.764 | 0.878 |
| Aggregate Score | 3.802 | |

The findings showed that the respondents agreed on average that there is proper utilization of project resources on its performance ($M= 3.828$, $SD= 0.861$); that the project meets its intended goals and objectives ($M= 3.799$, $SD= 0.869$); and that the project meets the required scope and project quality standard ($M= 3.786$, $SD= 0.882$). Respondents also agreed that the project is working within the expected timeframe and budget ($M= 3.819$, $SD= 0.891$); that there is transparency and accountability of project resources during monitoring and evaluation ($M= 3.836$, $SD= 0.854$); that regular project reports on its progress are provided for decision making ($M= 3.783$, $SD= 0.874$); and that seeking project feedback and opinions from key stakeholders improves performance of the National Digital Superhighway Project in Nairobi City County, Kenya ($M= 3.764$, $SD= 0.878$).

The results for the Performance of the National Digital Superhighway Project showed an aggregate mean score of 3.802, indicating that respondents felt the project was performing well. The findings suggest that there was proper utilization of project resources, the project met its intended goals and quality standards, and it operated within the expected timeframe and budget. Respondents particularly highlighted the role of transparency and accountability in resource management as critical factors in achieving project success. This positive perception of project performance underscores the overall impact of robust M&E practices, demonstrating that effective monitoring, evaluation, and reporting contribute significantly to the achievement of project objectives and enhance overall project outcomes.

This finding aligns with the study by Mwangi and Jagongo (2019), which examined the impact of resource allocation on judicial work in Embu District, Kenya. Their research concluded that transparent and accountable resource distribution significantly enhanced the judiciary's performance, highlighting the importance of resource management in project success. Similarly, Muchelule (2018) found that the incorporation of monitoring practices, including transparency and accountability, positively influenced the performance of Kenya State

Corporations' projects. Muchelule emphasized that effective monitoring and evaluation practices ensure that resources are utilized efficiently and transparently, leading to better project outcomes. These studies support the observed positive perceptions of the National Digital Superhighway Project's performance, underscoring the critical role of transparency and accountability in achieving project success.

Correlation Analysis

Pearson correlation was used to measure the strength and direction of the linear relationship between the variables. The table below presents the correlation coefficients between the dependent variable (performance of the National Digital Superhighway Project in Nairobi City County, Kenya) and the independent variables (M&E Planning Reporting). Pearson R correlation was used to measure the strength and direction of the linear relationship between variables. The association was considered to be small if $\pm 0.1 < r < \pm 0.29$; medium if $\pm 0.3 < r < \pm 0.49$; and strong if $r > \pm 0.5$. Table 4 presents the correlation findings obtained.

Table 4: Correlation Analysis

| | | Performance | M&E Planning | Reporting |
|---------------|---------------------|-------------|--------------|-----------|
| Performance | Pearson Correlation | 1 | | |
| | Sig. (2-tailed) | | | |
| | N | 134 | | |
| M&E Planning | Pearson Correlation | .784** | 1 | |
| | Sig. (2-tailed) | .000 | | |
| | N | 134 | 134 | |
| M&E Reporting | Pearson Correlation | .793** | .487 | 1 |
| | Sig. (2-tailed) | .000 | .098 | |
| | N | 134 | 134 | 134 |

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

The positive correlation between M&E planning and performance ($r = 0.784$, $p < 0.001$) indicates that thorough and well-structured M&E planning positively influences the success of the National Digital Superhighway Project. Effective M&E planning involves defining clear roles and responsibilities, setting realistic and measurable objectives, allocating adequate resources, and establishing a detailed schedule for M&E activities. This systematic approach ensures that the project is monitored and evaluated consistently, providing timely insights that can inform project management decisions and adjustments. Hwang and Lim's (2023) study supports this finding, showing that project monitoring on budget performance, schedule performance, and quality performance leads to better project outcomes. Their research emphasizes the need for gathering information, examination, and reporting at predetermined intervals. Yang, Huang, and Wu (2016) also found that project managers' leadership styles and planning significantly impact performance, with better planning leading to improved team dynamics and project success.

The strong positive correlation between performance and reporting ($r = 0.793$, $p < 0.001$) indicates that effective reporting practices significantly enhance performance of the National Digital Superhighway Project in Nairobi City County, Kenya. This suggests that the systematic generation, documentation, and dissemination of performance reports are crucial for the success of the National Digital Superhighway Project. Effective reporting ensures that all stakeholders are informed about the project's progress, challenges, and achievements, facilitating better decision-making and timely interventions. It also promotes transparency and accountability, which are essential for maintaining stakeholder trust and ensuring the efficient use of resources. This finding aligns with Carvalho's (2013) research, which identified that formal and informal reporting mechanisms, such as meetings and documentation, are critical for project management success. Additionally, Kerzner (2013) highlighted that increased

communication through regular reporting leads to improved project outcomes, as it helps in identifying issues early and implementing corrective measures promptly.

Multiple Regression Analysis

Beta Coefficients of the Study Variables

The beta values were used to fit the regression equation and answer the research questions.

Table 5: Beta Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|--------------|-----------------------------|------------|---------------------------|-------|------|
| | B | Std. Error | Beta | | |
| (Constant) | 0.845 | 0.112 | | 7.554 | .000 |
| M&E Planning | 0.348 | 0.092 | 0.302 | 3.783 | .003 |
| Reporting | 0.395 | 0.089 | 0.367 | 4.438 | .000 |

From the findings, the following regression equation was fitted:

$$Y = 0.845 + 0.348 X_1 + 0.395 X_2$$

Where:

Y = Performance of the National Digital Superhighway Project in Nairobi City County, Kenya; X1 = M&E Planning; and X2 = Reporting

The positive and significant beta coefficient for M&E planning (B = 0.348, $p < 0.05$) shows that thorough planning of M&E activities contributes significantly to project success. This finding is supported by Hwang and Lim (2023), who demonstrated that well-planned M&E practices, including clear roles and responsibilities, positively influence budget performance, schedule performance, and quality performance. Effective M&E planning ensures that projects are systematically monitored and evaluated, leading to timely and informed decision-making.

The positive and significant beta coefficient for reporting (B = 0.395, $p < 0.05$) suggests that effective reporting practices have the most substantial impact on performance of the National Digital Superhighway Project in Nairobi City County, Kenya among the variables studied. Regular and accurate reporting ensures that all stakeholders are informed about the project's progress, facilitating transparency, accountability, and timely interventions. This finding aligns with Kerzner's (2023) study, which highlighted that increased communication through regular reporting leads to improved project success by identifying issues early and implementing corrective measures.

Conclusions

The study concludes that thorough M&E planning significantly contributes to the success of the National Digital Superhighway Project. Clear assignment of roles and responsibilities, adequate resource allocation, and a detailed scope and schedule are essential components of effective M&E planning. The strong positive correlation between M&E planning and project performance indicates that systematic planning is fundamental to achieving project goals and objectives.

The study concludes that effective reporting practices have the most substantial impact on the performance of the National Digital Superhighway Project. Regular and accurate reporting ensures that stakeholders are well-informed about the project's progress, facilitating transparency, accountability, and timely interventions. The strong positive correlation between reporting and project performance underscores the critical role of systematic reporting in enhancing project outcomes.

Recommendations

To enhance the performance of the National Digital Superhighway Project, thorough and structured M&E planning is essential. This involves clearly defining roles and responsibilities

for all stakeholders, including project managers, M&E officers, ICT officers, and external consultants. Adequate resource allocation is crucial, ensuring that both financial and human resources are available to support M&E activities. Establishing a detailed schedule for M&E activities, including regular monitoring visits, progress reviews, and evaluation milestones, can ensure that the project is systematically monitored and evaluated. Effective planning will enable the project team to identify potential issues early, make informed decisions, and implement corrective actions promptly, thereby enhancing the overall project performance.

Maintaining effective reporting practices is essential for the success of the National Digital Superhighway Project. Organizations should ensure that regular and accurate reporting mechanisms are in place to keep all stakeholders informed about the project's progress. This includes generating performance reports based on data obtained from M&E activities and making these reports accessible to all stakeholders. Regular updates should be provided to highlight achievements, challenges, and areas requiring attention. Implementing recommendations from M&E reports is crucial to address identified issues and improve project outcomes. Effective reporting promotes transparency and accountability, facilitating informed decision-making and ensuring that the project stays on track to achieve its objectives.

Suggestions for Further Studies

Future studies should expand geographically beyond Nairobi City County and employ mixed methods, including qualitative approaches, to gain deeper insights into M&E practices across various sectors. Additionally, research should explore the impact of other factors, such as leadership styles and organizational culture, on project performance to complement the findings and enhance understanding of drivers of project success.

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