

Project Staff Competency and Implementation of Road Construction Projects in Western Region, Kenya

Wekhanya Kevin Wafula^{1*}, Dr. Elizabeth Nambuswa Makokha (PhD)^{1,2}

¹College of Human Resource Development, Department of Entrepreneurship and Procurement Leadership and Management. Jomo Kenyatta University of Agriculture and Technology, P.O. Box 62000 - 00200, Nairobi Kenya

²College of Human Resource Development, Department of Entrepreneurship and Procurement Leadership and Management. Jomo Kenyatta University of Agriculture and Technology, P.O. Box 62000 - 00200, Nairobi Kenya

DOI: <https://doi.org/10.5281/zenodo.15324433>

Published Date: 02-May-2025

Abstract: The purpose of this study was to establish the effect of project staff competency on implementation of road construction projects in Western Region, Kenya. The study adopted a descriptive research design. The target population was 85 professionals in road construction projects in Western Region. Piloting was done to test the validity and reliability of data collection instrument. Both primary and secondary data was collected. The researcher will self-drop and pick the duly filled questionnaires. Piloting was done to test the validity and reliability of data collection instrument. Data was organised, coded, edited to bring a meaning. Both descriptive and inferential statistics was done. Multiple regression was done to test the significant levels of one variable over the other. Analysis of variance was also be done. Based on the findings, the study concluded that project staff competency had significant effect on implementation of road construction projects in Western region, Kenya. The study came up with the following recommendations; project implementation needs qualified staff with required sufficient skills and that any government project has to acquire and use its resources properly as it is therefore important that every government project carry out training as one of the primary steps to enhance staff competency. The finding was of significant to the researchers, academicians, stakeholders and to the entire economy as a whole.

Keywords: Project Staff Competency, Project Implementation.

1. INTRODUCTION

Project implementation is a critical phase in any organization, as it determines whether strategic goals and planned initiatives translate into tangible outcomes (Kahangirwe, et al., 2024). Effective implementation ensures that resources are utilized efficiently, timelines are met, and expected benefits are realized. Monitoring and Evaluation (M&E) is crucial in road construction as it ensures that the project is completed on time, within budget, and according to quality standards while minimizing risks and ensuring sustainability (Nyabuto et.al., 2024). Project implementation practices play a pivotal role in the overall success and performance of projects across the globe (Neema et al., 2023). Effective project management is essential for the successful execution of projects, whether in the context of industrialized nations or in the emerging economies of Africa (Silviu & Schipper, 2014). Effectively managing a project is an integral part of development as well as success of the project. The application of methodologies, processes, skills, knowledge, and experience to fulfil project objectives within agreed-upon parameters while adhering to project acceptance criteria is referred to as project management (Neema et al., 2023).

The concept of monitoring has gained much ascendancy and prominence in the last decades, and this has been due to heightened awareness to enhance performance in project management with specific focus on implementation process (Khan, 2021). The idea of monitoring process which this study sought to interrogate is aligned to the questions about project implementation process in road construction industries, and the roles played by various agencies in ensuring success of the project for the benefits of the society (Too et al., 2024).

Due to this, monitoring process has increasingly become important tool acting as a check and balance tool to achieve economic and social sustainability in projects and programs development (Mwangi & Kisimbi, 2020). At international scales, sustainability criteria and indicators for monitoring have become important tools for defining, monitoring and reporting on economic, ecological and social trends, tracking progress towards goals, influencing policy and practices (United Nations, 2017, World Bank, 2014). At regional and sub-regional scales of monitoring is a critical element in assessing the sustainability of local practices, which is an important tool in management planning (Abdi et al., 2020).

In Kenya, infrastructure has been given the highest priority to ensure that roads are in a motorable condition (Nyabuto et al., 2024). To realize this, several legislations such as the Public Service Commission Act, the Public Procurement and Disposal Act, and the Constitution of Kenya 2010, have been passed to create demand for project monitoring process as a mandatory for all public projects to ensure accountability and transparency from public institutions. However, the main question that still begs is to what extent project monitoring process has been effective and efficient in implementation of projects (Abdi et al., 2020). The performance of construction projects within public institutions is crucial for national development and infrastructure growth. However, many government construction projects in Kenya, including those managed by the Kenya Urban Roads Authority (KURA), frequently face challenges such as project delays, budget overruns, and substandard work. These issues result in wastage of public resources, reduced project effectiveness, and delays in the delivery of critical infrastructure, adversely affecting economic growth and public service delivery.

According to KNBS (2022), the construction sector performance was slower in 2021 compared to 2020. The industry cramped to 6.6% in 2021 compared to 10.1% in 2020. According to KPMG (2019) report, only 39.4% of road construction projects in Kenya are completed within the budgeted cost and timeline. Just 35% of road projects completed met the desired quality requirements. Choong (2018) established that most construction projects in Kenya are faced by several challenges, weak management and oversight, insufficient contractor experience, inept planning and scheduling, and stakeholder conflict (Kahangirwe, et al., 2024). These challenges lead to cost and time overruns and substandard quality outcomes.

According to the Ministry of Roads Service Charter report (2008), roads infrastructure accounts for about 80% of all cargoes and passengers in the country, and due to the importance of roads in socioeconomic development of the country, the government has in the recent past increased budget allocation for infrastructure in last financial year 2017/2018 to the tune of Sh134.9 billion. This includes Sh27 billion for low-volume seal roads financed by development partners. However, despite this effort by the governments, road projects in Kenya still face huge challenges such as; delay in completion, cost overruns, and low completion rates, lengthy and tedious procurement procedures, project financing, low technological uptake by construction companies and exposure levels of stakeholders to international best practices, poor quality of works due to poor workmanship, unethical conduct, unfair business practices, lack of skilled and competent workforce, lack of a standard project monitoring practices framework and inadequate capacity for law enforcement of standards and regulations (Mwangi & Kisimbi, 2020).

Roads are the main transport infrastructure and single public owned national asset used by millions of commuters across the world on daily basis. According to (The World Road Association, 2014 report), roads are key national asset which underpins economic activities of a country. It is unarguably regarded as a valuable and noteworthy public asset which should be constructed and carefully managed during its life cycle. In Kenya Vision 2030, a long term planning blueprint launched in the year 2008 recognizes the improvement of infrastructure as one of its foundations to creating a globally competitive and prosperous country with high quality of life by the year 2030 (Kenya Rural Roads Authority, 2013). Western region is characterized by lack of attractive public road transport and transport services due to insufficient transport facilities. The county government in conjunction with national government and development partners' have impacted on upgrading all urban roads to bitumen standards to improve motor ability of the roads in the county. The county government is also impacting on opening up of new feeder roads in the rural areas, upgrading, rehabilitating and maintaining of road network to improve accessibility to county resources and other socio-economic activities.

The Constitution of Kenya 2010 assigns the responsibility of managing the public road network in Kenya to the National Government (National Trunk Roads) and the County Governments (County Roads). As such County and all other county governments have the responsibility to deliver developmental programs such as reliable infrastructure to assist in the transportation of goods and passengers to markets in different counties and countries (Khisa, 2015). In Western region Counties, the entire road network covers about 3000Kms. Of this 1,320 km is rural classified network, about 450kms is national classified network and the rest are unclassified (Mwanza, Namusonge, & Makokha, 2020). Approximately 30km of rural county roads are of bitumen standards, 220Km of rural county roads are gravelled and the rest are earth roads. For a long time, poor transport facility has remained a challenge in the county especially in the hinterland areas. The underdeveloped particularly in terms of inter-modality and logistics hampers efficient communication and flow of information and services in the county which is important for development because a few available roads that do not provide a fast and high-quality accessibility in the county (Kirui, 2016). A spatial distribution of road, rail and air transport network is skewed in favour of western and along Eldoret Bungoma highways. Opening up essential roads particularly those that link the hinterland to the major centres was an important strategy for long-term development of the county as it will facilitate improved mobility to areas of opportunity (Jeyakanthan & Jayawardane, 2017).

The successful implementation of road construction projects is crucial for economic growth, connectivity, and social development. However, many road projects face challenges such as delays, cost overruns, substandard work, and even abandonment. One of the key determinants of effective project implementation is Project Monitoring and Evaluation (M&E). Despite the recognition of M&E as an essential tool for project success, many road construction projects suffer from poor oversight, lack of timely progress tracking, and ineffective evaluation mechanisms (Lopes, et al., 2024). Weak M&E frameworks result in misallocation of resources, corruption, and technical inefficiencies, leading to project delays, budget overruns, and failure to meet quality standards. Additionally, inadequate stakeholder engagement in monitoring and evaluation processes further hinders the smooth implementation of these projects. Many projects experience cost overruns, delays, poor quality, and failure to meet intended objectives. One of the key factors influencing project success is the effectiveness of Project Monitoring and Evaluation (M&E). Proper M&E mechanisms ensure that road construction projects are completed within the allocated budget, on schedule, and meet quality standards. However, in many cases, weak monitoring frameworks, lack of stakeholder involvement, and inadequate evaluation strategies hinder project performance. These issues result in delayed completion, increased project costs, and compromised quality, ultimately affecting the socio-economic benefits that these roads are intended to provide. The absence of real-time data tracking, poor risk management, and insufficient corrective measures further exacerbate inefficiencies, leading to project failures. According to KNBS (2022), the construction sector performance was slower in 2021 compared to 2020. The industry crumped to 6.6% in 2021 compared to 10.1% in 2020. According to KPMG (2019) report, only 39.4% of road construction projects in Kenya are completed within the budgeted cost and timeline. Just 35% of road projects completed met the desired quality requirements. Choong (2018) established that most construction projects in Kenya are faced by several challenges, weak management and oversight, insufficient contractor experience, inept planning and scheduling, and stakeholder conflict. These challenges lead to cost and time overruns and substandard quality outcomes.

In Kenya and other developing economies, road construction projects frequently experience implementation setbacks due to ineffective M&E strategies. Studies indicate that poor coordination between government agencies, contractors, and donors, as well as weak enforcement of M&E policies, contribute to project failures. While M&E is widely recognized as a critical factor in project management, there is limited empirical evidence on its direct impact on road construction implementation. This study sought to examine the effect of project staff competency on implementation of road construction projects in Western Region, Kenya.

2. PROJECT STAFF COMPETENCY

Globally, project implementation needs qualified staff. Staff competencies require sufficient skills (Guo & Kapucu, 2019). Any government project has to acquire and use its resources properly. It is therefore important that every government project carry out training as one of the primary steps to enhance staff competency (Nagy, et al., 2024). Even though few project managers have the competencies to manage various projects, competent managers should align sufficient resources to assist their employees in overcoming different risks that may come along (Esther & Savhira, 2019). In the United States of America, government project managers are responsible for gathering all risks from the employed workers and leading the employees in a risk analysis exercise to establish which risks are likely to affect the project negatively. Plummer and

DarConte (2021) argued that effective project implementation is required for project success. A project is expressed as an undertaking that takes in inputs and gives out results that a group requires of individuals or people within a certain period. Projects have a clear life cycle completed when they have attained the intended goals, signifying their end (Nagy, et al., 2024). A project is largely thought to be effectively performed in the manner intended, with enough budget allocation and achieves each of the goals initially set for it and is acknowledged and used by the individuals for whom it was supposed to benefit (Stjerne, Söderlund & Minbaeva, 2019).

The effectiveness and efficiency of projects is depended on appropriate implementation. Competence is expressed as the ability or capability that the intent appears like a set of behavior (Buheji & Buheji, 2020). It is possible to forecast the effectiveness of the scenario by comprehending what behavior and intention are relevant. It is a key indicator of performance in a business environment or firm. Hence, competence is fundamental in enhancing the performance of the project. The abilities or capabilities of human resources in a firm are value, vision, knowledge, occupation, role responsibility, and the job needed to perform (Jiménez, Fasci & Valdez, 2019). Bals, Schulze, Kelly and Stek (2019) reported that staff competence might include management, organizational and administrative competence.

Leading is creating a common culture and values, communicating objectives to human resources in the entire business and instilling the stated human resources with the desire to perform highly. These competencies, such as management skills and behavior, enhance the likelihood of project success in a firm. Competency among staff is expected to induce high-performance project results and optimistic business outcomes (Zuo, Zhao, Nguyen, Ma & Gao, 2018). When the jobs and activities are described, jobs ought to be developed and assigned to workers within the firm or project setting. Plummer and DarConte (2021) established that staff competence is fundamental in ensuring the performance of a particular project. Competency among staff is expected to induce high-performance project results and optimistic business outcomes (Rana and Shuja 2022). Competencies such as management skills lead to the enhancement of the likelihood of project success. Staff competence includes the combination of observable and measurable knowledge, skills, abilities and personal attributes that contribute to enhanced employee performance and ultimately result in organizational success.

To understand competencies, it is important to define the various components of competencies. Employee competencies are a list of skills and behaviors that are specific and well-defined and are used to lay out an organization's performance. Identifying the level of competence of project supervisors is required to promote effective project implementation

Shamim (2022) noted that the particular competencies might additionally include strong vision and imagination competencies, quality administration skills, safety consciousness, risk and conflict administration abilities, management skills, experience, coordination, communication skills, organizational frameworks, control mechanisms of subcontractors' work, and the overall supervisory actions in planning, organizing, leading and controlling. Project managers with a strong vision and creativity competencies considerably affect preparation for the future to contribute to the project implementation (de Oliveira & Rabechini Jr, 2019). Their level of staff competence has a significant effect on the project implementation. As a result, identifying the level of competence of project supervisors is required to promote effective project implementation. A project's staff must have the skills that will enable them to operate effectively, like when working on different projects. Inadequately trained staff might not have the required knowledge and skills, contributing to the project's failure (Thesing, Feldmann & Burchardt, 2021).

The project's success relies on the competency of individuals using the new process and systems. Implementation of the project is an intricate process and calls for the improvement and restructuring of government frameworks (Glyptis, Christofi, Vrontis, Del Giudice, Dimitriou & Michael, 2020). The process requires electronic systems for demand estimation, budget plans, sourcing, purchasing and supply monitoring. Procuring in a project is associated with enhanced performance, reduced transactional costs, low corruption cases and improved control and tracking of the public procurement process. Rana and Shuja (2022) reported that effective project implementation is required for project success. The implementation of Water, Sanitation and Hygiene Projects is of many issues internationally.

Kozłowska and Lubina (2021) conducted study to examine the impact of project staff member competency on the execution of farming projects in Israel. Some farming projects in Israel are still encountering the issues of incompetent staff, lack of supervisory skills and a lot of individuals working in those projects do not have the required expertise. Plummer and DarConte (2021) established that staff competence is fundamental in ensuring the performance of a particular project. Competency among staff is expected to induce high performance project results and optimistic business outcomes.

Competencies such as management skills lead to the enhancement of the likelihood of project success. Staff competence includes the combination of observable and measurable knowledge, skills, abilities and personal attributes that contribute to enhanced employee performance and ultimately result in organizational success (Plummer et al., 2021). To understand competencies, it is important to define the various components of competencies.

Employee competencies are a list of skills and behaviors that are specific and well-defined and are used to lay out an organization's performance. Identifying the level of competence of project supervisors is required to promote effective project implementation. The study concluded that staff competence influences the effective implementation of projects. The study recommended that much consideration be implemented to support staff competency. Organizations need to set aside resources that can be used for the capacity building of the employees. The organization's employees should be tested to examine their competency level. Creating a project group with requisite competencies to conduct their functions is important (Moussa, et al., 2024). There is a need for regular staff training to improve the competency needed in the implementation of projects. The workers should have the required skills to perform the activities adequately and attain the objectives. Creating a project group with the requisite competencies to conduct project implementation functions is necessary.

The implementation of road construction projects is a critical component of national development, influencing economic growth, regional connectivity, trade facilitation, and public service delivery (Njeru, C. M., & Kirui, C. 2022). It involves a structured process that moves from planning to execution and monitoring, with the ultimate goal of delivering durable, safe, and efficient road infrastructure (Moussa, H., & Akims, M. 2024).

Project performance metrics focuses on the impact of the project at a point in time or over a fixed timeframe (Njogu, 2016). The value of the impact of the project should supersede the cost of the intervention. Project performance is directly related to the project potential success. A project is considered to be successfully implemented if it is carried on schedule; realizes the purpose the project was designed through achieving the goals and objectives identified; the project is completed within the budgets commonly known as the project Triangle (Hammad, 2013). Despite the many literatures educating the project managers on the various tools and techniques aimed at increasing the likelihood of the success of a project, 7 out of 10 projects are considered unsuccessful (Kelbessa, 2016). These projects are considered unsuccessful either because they were not completed or they are not seen as successful even though they were rolled-out as planned (Ayatah, 2012).

Project performance is evaluated differently by various stakeholders of the project based on their expectations in relation to the actual quality, cost and time. Project performance can be measured in terms of the qualitative value the project has to the implementing organization or quantitative in terms of the earned value systems for utility and large government projects (Kelbessa, 2016). For any of the approach used small elements of the project to indicate progress are identified and monitored throughout the project life cycle. The key project indicators should be pre-established. Involvement of the key project stakeholders in the identification and selection of the indicators to monitor increases the likelihood of smooth running and implementation of the project and hence success.

Gyadu-Asiedu (2018) indicated that the overall success of a construction project is affected by the contractor's ability to effectively plan resources, estimate, budget and control cost. Swan and Khalfan (2017) posited that time is regarded as major factor that is used to determine the project success. Furthermore, bureaucratic hindrance and resource availability as planned affects the early completion of construction projects. Egemen and Mohamed (2005) were of the view that undertaking a project to meet the required quality and standard is a major factor in determining project success. The quality of a project is achieved when the legal, aesthetic and functional needs of the project customers or beneficiaries are achieved (Lau and Tang, 2009).

Projects are very sensitive to decision and actions taken by any stakeholder (Aaltonen, 2010). Almost all the projects operate in a context where its respective stakeholders play a primary role in the accomplishments of tasks (Hammad, 2018). According to PMI, 'Project stakeholders is any individual, organization or group who may affect, be affected by or perceive to be affected by a decision, activity, or outcome of a project' (Project Management Institute, 2014). Project stakeholders may be within or outside the organization. Stakeholders of a particular project will vary during the life cycle of the project in terms of needs, numbers and influence. The interests, perception as well as the motivation of all the project stakeholders that have an influence on the success of the project should not be ignored. Stakeholder review and identification should be conducted throughout the project life cycle (Njogu, 2016).

Project Management literatures have discussed widely the subject of project success and no consensus has been reached on the project success criteria. According to PMI, the project success indicators include time, scope, cost and quality (PMI, 2008). These parameters relate such that if scope, time or cost changes then at least one of the other parameters was also be affected. The Iron triangle in project management has been criticized by researchers (Sundarasan, 2018; Shenhar & Dvir, 2017) citing insufficiency in defining project success. The iron triangle also referred to as project management triangle or the triple constrain omits the key dimension of success such as user satisfaction, impact of intervention to stakeholders as well as the learning.

The project management diamond framework has recently overtaken the iron triangle. The project management diamond has four vertices (time, cost, quality and scope) and customer expectations at the central focus of the intervention. According to (Shenhar& Dvir, 2017) meeting the customers' needs and expectation is more important than mere meeting the project deadlines or budget. According to (Olander, 2006) any intervention attracts a vast number of interested parties. These interested parties in a project have different needs, expectations, motivation, power, influence, behaviours, traits, literacy levels etc. (Sankaran, Haslett, & Sheffield, 2010). Projects are all about communication (Alatalo, 2012). According to (Alatalo, 2012) Communication should be enough but not too much nor too little.

Construction projects are considered successful when delivered within scheduled duration, allocated budget, and specified quality (Majid, 2006; Owolabi et al., 2014). Delay in the completion of construction facilities is a critical challenge with a global dimension, often leading to increased costs due to time extension or acceleration as well as loss of productivity, disruption of work, loss of revenue through lawsuits between contractual parties, and project abandonment (Sambasivan& Soon,2017; Owolabi et al., 2014). Many Sub Saharan Africa economies experience losses amounting to billions of dollars, as a result of delayed completion of infrastructural projects, which undermines the noble goal of poverty reduction (Gutman et al., 2015). Delay in the completion of infrastructural projects has significant cost implications, which in turn bears far-reaching consequences in the lives of citizens, especially in developing countries like Kenya. Studies conducted in various contexts have deduced that although delay in the completion of construction projects is a global phenomenon, it appears to be more common in developing than in developed countries (Sambasivan& Soon, 2017;Alaghbari et al., 2007; Aziz, 2013). Among the developed countries, delay in the completion of infrastructural projects has been reported in Canada, the United States, Australia, and Britain, among others.

In Canada for instance, De Souza (2019) attributed delays in the completion of infrastructural projects to various factors, including reduced funding by sponsors, communication breakdown, delayed disbursement of funds, poor site management by contractors, and tedious legislative procedures. In the United States, SNL Financial (2010) reported delay in the completion of a pipeline project connecting Florida State and Bahamas, particularly due to design changes.

In Kenya, delays in the completion of infrastructural facilities have been associated with factors, such as poor financial management by government agencies, inadequate designs, and poor management of the construction process by contractors (Talukhaba, 2009). Arguably, these factors are compounded by secondary factors, such as poor management of materials and equipment by contractors, inadequate recognition and response to risks emanating from the physical and socio-economic environments, as well as inadequate regard for stakeholders' needs (Talukhaba, 2009). Another study conducted by Ondari and Gekara (2018) reported significant correlation between project delays and factors, such as management support, design specifications, contractor's capacity, and supervision capacity.

3. METHOD

The study adopted a descriptive research design. The study population was focused on 85 respondents drawn from road construction working in Western Region. The study's target respondents was the Resident Engineer, Highway Engineer, Materials Engineer, Project Surveyor, Project Manager and Site Agent for Road Construction projects and the Architect, Structural Engineer, Project Manager, Site Agent and Clerk of works for Building projects, and monitoring committee. Due to the small size of the study populace, a census of the total population was used. Data collection instrument was questionnaire and other information relevant to the study. A structured questionnaire was administered to the respondents. The Primary data collection instruments was research questionnaires. The Secondary data collection instruments was bank journals, newsletters. Piloting was done to test the validity and reliability of the data collection instrument. The collected data was crosschecked and verified for errors, completeness and consistency. It was coded, entered and analyzed descriptively using IBM Statistical Package for Social Sciences (SPSS 29). Pearson correlation analysis was used to test the relationship between variables in the study hypotheses. ANOVA multiple linear regression analysis was used to determine the statistical relationship between the independent and the dependent variables.

4. DISCUSSIONS

4.1. Effect of Project Staff Competency on Implementation of Road Construction Projects in Western Region, Kenya.

The first specific objective of the study was to examine the effect of project staff competency on implementation of road construction projects in Western region, Kenya. The respondents were requested to indicate their level of agreement on statements relating to the effect of project staff competency on implementation of road construction projects in Western region, Kenya. A 5 point Likert scale was used where 1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in Table 4.1.

From the results, the respondents agreed that project implementation needs qualified staff with required sufficient skills. This is supported by a mean of 4.203 (std. dv = 0.731). In addition, as shown by a mean of 3.705 (std. dv = 0.892), the respondents agreed that any government project has to acquire and use its resources properly as it is therefore important that every government project carry out training as one of the primary steps to enhance staff competency. Further, the respondents agreed that particular competencies might additionally include strong vision and imagination competencies, quality administration skills, safety consciousness, risk and conflict administration abilities, management skills, experience, coordination, communication skills, organizational frameworks, control mechanisms of subcontractors' work, and the overall supervisory actions in planning, organizing, leading and controlling. This is shown by a mean of 4.983 (std. dv = 0.754). The respondents also agreed that competency among staff is expected to induce high-performance project results and optimistic business outcomes. Competencies such as management skills lead to the enhancement of the likelihood of project success. This is shown by a mean of 4.427 (std. dv = 0.714).

With a mean of 4.714 (std. dv = 0.881), the respondents agreed that effective project implementation is required for project success.

The respondents also agreed that organizations need to set aside resources that can be used for the capacity building of the employees to improve the competency needed in the implementation of projects. This is shown by a mean of 4.691 (std. dv = 0.786).

Table 4.1: Effect of Project Staff Competency on Implementation of Road Construction Projects in Western Region, Kenya;

	Mean	Std. Deviation
Project implementation needs qualified staff with required sufficient skills.	4.203	0.731
Any government project has to acquire and use its resources properly as it is therefore important that every government project carry out training as one of the primary steps to enhance staff competency	3.705	0.892
Particular competencies might additionally include strong vision and imagination competencies, quality administration skills, safety consciousness, risk and conflict administration abilities, management skills, experience, coordination, communication skills, organizational frameworks, control mechanisms of subcontractors' work, and the overall supervisory actions in planning, organizing, leading and controlling.	4.983	0.754
Competency among staff is expected to induce high-performance project results and optimistic business outcomes. Competencies such as management skills lead to the enhancement of the likelihood of project success	4.427	0.714
Effective project implementation is required for project success.	4.714	0.881
Organizations need to set aside resources that can be used for the capacity building of the employees to improve the competency needed in the implementation of projects	4.691	0.786
Aggregate	4.453	0.793

4.1.1. Effect of Implementation of Road Construction Projects in Western Region, Kenya.

The objective was to assess the effect of implementation of road construction projects in Western region, Kenya. The reliability for implementation of road construction projects in Western region, Kenya. The respondents were requested to indicate their level of agreement on various statements relating to the effect of on performance of County government of Nakuru in Kenya. The reliability for performance of County government of Nakuru. A 5 point Likert scale was used where 1 symbolized strongly disagree, 2 symbolized disagree, 3 symbolized neutral, 4 symbolized agree and 5 symbolized strongly agree. The results were as presented in table 4.2.

From the results, the respondents agreed that project performance metrics focuses on the impact of the project at a point in time or over a fixed timeframe. This is supported by a mean of 4.551 (std. dv = 0.737). In addition, as shown by a mean of 3.148 (std. dv = 0.722), the respondents agreed that a project is considered to be successfully implemented if it is carried on schedule; realizes the purpose the project was designed through achieving the goals and objectives identified; the project is completed within the budgets commonly known as the project Triangle. The respondents further agreed that the main performance measurements are productivity, efficiency, effectiveness, quality and profitability. This is shown by a mean of 3.676 (std. dv = 0.791). The respondents also agreed that involvement of the key project stakeholders in the identification and selection of the indicators to monitor increases the likelihood of smooth running and implementation of the project and hence success. This is shown by a mean of 4.165 (std. dv = 0.698). With a mean of 4.041 (std. dv = 0.732), the respondents agreed that the overall success of a construction project is affected by the contractor's ability to effectively plan resources, estimate, budget and control cost. The respondent also agreed that delay in the completion of infrastructural projects has significant cost implications, including reduced funding by sponsors, communication breakdown, delayed disbursement of funds, poor site management by contractors, and tedious legislative procedures which in turn bears far-reaching consequences in the lives of citizens, especially in developing countries like Kenya. This is shown by a mean of 3.406 (std. dv = 0.788).

Table 4.2: Implementation of Road Construction Projects in Western Region, Kenya.

	Mean	Std. Deviation
Project performance metrics focuses on the impact of the project at a point in time or over a fixed timeframe	4.551	0.737
A project is considered to be successfully implemented if it is carried on schedule; realizes the purpose the project was designed through achieving the goals and objectives identified; the project is completed within the budgets commonly known as the project Triangle	3.148	0.722
The main performance measurements are productivity, efficiency, effectiveness, quality and profitability	3.676	0.791
Involvement of the key project stakeholders in the identification and selection of the indicators to monitor increases the likelihood of smooth running and implementation of the project and hence success.	4.165	0.698
The overall success of a construction project is affected by the contractor's ability to effectively plan resources, estimate, budget and control cost	4.041	0.732
Delay in the completion of infrastructural projects has significant cost implications, including reduced funding by sponsors, communication breakdown, delayed disbursement of funds, poor site management by contractors, and tedious legislative procedures which in turn bears far-reaching consequences in the lives of citizens, especially in developing countries like Kenya	3.406	0.788
Aggregate	3.831	0.745

4.2 Inferential Statistics

Inferential statistics in the current study focused on correlation and regression analysis. Correlation analysis was used to determine the strength of the relationship while regression analysis was used to determine the relationship between dependent variable (implementation of road construction projects in Western region, Kenya) and the independent variable (project staff competency).

4.2.1 Correlation Analysis

The present study used Pearson correlation analysis to determine the strength of association between independent variables (project staff competency) and the dependent variable (implementation of road construction projects in Western region, Kenya) dependent variable. Pearson correlation coefficient range between zero and one, where by the strength of association increase with increase in the value of the correlation coefficients. The current study employed Taylor (2018) correlation coefficient ratings where by 0.80 to 1.00 depicts a very strong relationship, 0.60 to 0.79 depicts strong, 0.40 to 0.59 depicts moderate, 0.20 to 0.39 depicts weak.

Table 4.3: Correlation Coefficients

	Implementation of road construction projects	Project staff competency
Implementation of road construction projects	Pearson Correlation	1
	Sig. (2-tailed)	
	N	70
Project staff competency	Pearson Correlation	.729**
	Sig. (2-tailed)	.002
	N	70

From the results, there was a very strong relationship between project staff competency and implementation of road construction projects in Western region. ($r = .729$, p value = 0.002). The relationship was significant since the p value 0.002 was less than 0.05 (significant level).

4.2.2 Regression Analysis

Multivariate regression analysis was used to assess the relationship between independent variables (project staff competency) and the dependent variable (implementation of road construction projects in Western region).

Table 4.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.991	.871	.791	.9394321

a. Predictors: (Constant), Project Staff Competency.

The model summary was used to explain the variation in the dependent variable that could be explained by the independent variables. The r -squared for the relationship between the independent variables and the dependent variable was 0.871. This implied that 87.1% of the variation in the dependent variable (implementation of road construction projects in Western region) could be explained by independent variables (project staff competency).

Table 4.5: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	56.321	1	13.723	65.1051	.001 ^b
1 Residual	27.641	69	.042		
Total	83.962	70			

a. Dependent Variable: implementation of road construction projects in Western region

b. Predictors: (Constant), project staff competency)

The ANOVA was used to determine whether the model was a good fit for the data. F calculated was 65.1051 and p value was 0.000 the model was considered as a good fit for the data. Therefore, the model can be used to predict the effect of project staff competency on implementation of road construction projects in Western region, Kenya.

Table 4.6: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta	t	Sig.	
1	(Constant)	.711	.171		5.441	.000
	Project staff competency	.932	.319	1.421	4.272	.000

a Dependent Variable: implementation of road construction projects in Western region, Kenya

Table 4.6 showed that if project staff competency are all held constant, implementation of road construction projects in Western region, Kenya would be at 0.711.

Implementation of road construction projects in Western region, Kenya = 0.524 + 0.932 (project staff competency).

The regression model was as follows:

$$Y = 0.711 + 0.932X_1 + \varepsilon$$

According to the results, project staff competency has a significant effect on implementation of road construction projects in Western region, Kenya. ($\beta_1=0.932$, p value= 0.000). The relationship was considered significant since the p value 0.004 was less than the significant level of 0.05.

5. CONCLUSIONS AND RECOMMENDATIONS

Based on the findings, the study concluded that project staff competency has a significant effect on implementation of road construction projects in Western region, Kenya. ($\beta_1=0.932$, p value= 0.000). The relationship was considered significant since the p value 0.004 was less than the significant level of 0.05. The study came up with the following recommendations; project implementation needs qualified staff with required sufficient skills and that any government project has to acquire and use its resources properly as it is therefore important that every government project carry out training as one of the primary steps to enhance staff competency.

REFERENCES

- [1] Abdi, M., & Sang, P. (2020). Project Planning and Implementation of Projects at Safaricom Limited in Mombasa County, Kenya. *International Journal of Business Management, Entrepreneurship and Innovation*, 2(3), 114-127. <https://doi.org/10.35942/jbmed.v2i3.142>
- [2] Abduletif, A. A., Neszmelyi, G. & Nagy, H. (2024). Role of Transport Infrastructure in the Ethiopian Economy
- [3] Alinaitwe, H., Apolot, R., & Tindiwensi, D. (2013). Investigation into the Causes of Delays and Cost Overruns in Uganda's Public Sector Construction Projects. *Journal of Construction in Developing Countries*, 18(3), 33-47.
- [4] Bals, L., Schulze, H., Kelly, S., & Stek, K. (2019). Purchasing and supply management (PSM) competencies: Current and future requirements. *Journal of purchasing and supply management*, 25(5), 104-119. <https://doi.org/10.1016/j.pursup.2019.100572>
- [5] Booth, D. & Mutebi, F.-G. (2015). *Reforming the Roads Sector in Uganda; A Six Year Retrospective*.
- [6] Bryman, A., & Bell, E. (2015). *Business Research Methods* (3 ed.). New York, United States: Oxford University Press Inc.
- [7] Burke, R. (2013). *Project management: planning and control techniques*.
- [8] Bygrave, D. (2014). The entrepreneurial process, the portable *MBA in, entrepreneurship*, Hoboken, NJ: John Wiley and Sons: 5-6.
- [9] Charles, G.K. (2015). Human Bin Mohamed. Efficacy of Monitoring and Evaluation Function in Achieving Project Success in Kenya: A conceptual framework. *Science journal of business and management*, 3(3), 82-94.

- [10] Chin CMM (2012). Development of a Project Management Methodology for Use in a University-Industry Collaborative Research Environment (Doctoral Dissertation). University of Nottingham, Semenyih Selangor Darul Ehsan, Malaysia.
- [11] Creswell, J. W. (2013). *Research design: A qualitative, quantitative, and mixed method approaches*. Sage publications.
- [12] David, J. (2013). Secrets Behind Successful Management of Infrastructure projects in Columbia. *European Journal of Business Management*, 1(11), 20-24.
- [13] Dinsmore, P. & Cabanis-Brewin, J. (2014). *AMA Handbook of Project Management (4th Edition)*. USA: AMACON Books. Edition. <http://knowledge.apm.org.uk>
- [14] Eskerod, P. & Lund Jepsen, A. (2013). *Fundamentals of Project Management: Project Stakeholder Management*. England: Gower Publishing Limited. USA: Gower Publishing Limited.
- [15] Eva, M.W, (2020). *Centralization and Decentralization: Compatible Governance Concepts and Practices*, Oxford university press, <https://doi.org/10.1093/acrefore/9780190228637.013.1390>
- [16] Glyptis, L., Christofi, M., Vrontis, D., Del Giudice, M., Dimitriou, S., & Michael, P. (2020). EGovernment implementation challenges in small countries: The project manager's perspective. *Technological Forecasting and social change*, 15(2), 119-128. <https://doi.org/10.1016/j.techfore.2019.119880>
- [17] Gyadu-Asiedu, W. (2018), "Towards a systemic construction industry development: a research agenda for a fragmented industry in Africa", *Journal of Construction Project Management and Innovation*, Vol. 3 No. 2, pp. 680-696
- [18] Government of Kenya [GOK]. (2013). Medium term plan cycle (2013-2017). Whose theme is—Transforming Kenya: Pathways to Devolution, Socio-economic Development, Equity and National Unity.
- [19] Harris, J., Croot, L., Thompson, J & Springett, J. (2015). *How stakeholder participation can contribute to systematic reviews of complex interventions*, *Epidemiol Community Health*, 0:1–8. doi: 10.1136/jech2015-20570.
- [20] Hilson, D. & Murray, W. (2012). *Scaling the PEAKS of Project Management Competency*; PMI Europe. The Project Management Festival, 19-20. <http://smallbusiness.chron.com/effective-communication-organization-400.html>. Accessed on 12.10.2019. <http://thecommunicationprocess.com/models-of-communication/>.
- [21] Hwang B, Lim E (2013). Critical success factors for key project players and objectives: Case study of Singapore. *J. Constr. Eng. Manage*, 139(2), 204-215.
- [22] Ika LA, Diallo A, Thuillier D (2012). Critical success factors for World Bank projects: an empirical improved Governance and Human Development. *A paper presented at 2nd International Conference on Implementing and Evaluating Effective Communication*. USA: Ash gate Publishing.
- [23] Jaszczolt, K. & Potkanski, T (2010). *Internal project M&E systems and development of evaluation capacity*. Experience of World Bank funded rural programs.
- [24] Jiménez, M. B., Fasci, M. A., & Valdez, J. (2019). A Comparison of Management Style for Mexican Firms in Mexico and the United States. *International Journal of Business*, 14(3), 89-93
- [25] Johannessen, J. & Olsen, B. (2017). Projects as communicating systems: Creating a culture of innovation and performance, *International Journal of Information Management* 31 (2011)30–37. <http://www.sciencedirect.com/science/article/pii/S0268401210000617>.
- [26] Kariungi, S. M. (2014). Determinants of Timely Completion of Projects in Kenya: A Case of Kenya Power and Lighting Company, Thika. *ABC Journal of Advanced Research*, 3(2), 9-19.
- [27] Kahangirwe, P., & Vanclay, F. (2024). Social impacts arising from road infrastructure projects in Sub-Saharan Africa: better management of social issues is needed in road construction, upgrading and rehabilitation. *Impact Assessment and Project Appraisal*, 42(4), 309–322. <https://doi.org/10.1080/14615517.2024.2385877>

- [28] Mutua, M. M., Juma, J., & Owuor, D. (2020). Effect of project monitoring practices on implementation of road construction projects. A case study of Bungoma County. *The Strategic Journal of Business & Change*
- [29] Kenyatta Obegi., Ahmad O. A., Mbiti T.K. (2015). *International Journal of Soft Computing and Engineering (IJSCE)* ISSN: 2231-2307, Volume-5 Issue-4.
- [30] Kendall, M. G. (2021). The Analysis of Economic Time Series: Part I: Prices. *Journal of Royal Statistical Association*, 116, 11-34. <https://doi.org/10.2307/2980947>
- [31] Kibebe, L. W., & Mwirigi, P. W. (2014). Selected Factors Influencing Effective Implementation of Constituency Development Fund (CDF) Projects in Kimilili Constituency, Western Region, Kenya. *International Journal of Science and Research*, 3 (1), 44-48.
- [32] Kikwasi, G.J. (2017). 'Causes and Effects of Delays and Disruptions in Construction Projects in Tanzania. *Australasian Journal of Construction Economics and Building, Conference Series*, (2) 52B59Kingdom. Knowledge Integration Framework and Value Focused Approach. USA: J. Ross Publishing.
- [33] Kothari, C. R., & Garg, G. (2014). *Research methodology methods and techniques* (3rd ed.). New Delhi: New Age International (P) Ltd.
- [34] Kozłowska, M., & Lubina, M. (2021). The Burmese road to Israeli-style agricultural cooperative: The Namsang project, 1956–63. *Journal of Southeast Asian Studies*, 52(4), 701-725. <https://doi.org/10.1017/S0022463421000977>
- [35] Length, (2014). Effects of Failure to Supervise Project Activities. *International Journal of Project Management*, 12(4), 94-106.
- [36] Leyman, G. (2013). Effects of Project Competency Skills in Large Swedish organizations. *Journal of operation management* 25, 765-786Magd, H. A. (2008). ISO 9001: 2000 in the Egyptian manufacturing sector: perceptions and perspectives. *International Journal of Quality & Reliability Management*, 25(2), 173200.
- [37] Lopes, J. & Banaitienè, N. A(2024). Model for construction sector development in middle-income sub-Saharan African countries. *Technol. Econ. Dev. Econ.* 30, 1229–1255. <https://doi.org/10.3846/tede.2024.21453>
- [38] Magondu, A. (2013). *Factors influencing implementation of monitoring and evaluation in HIV research projects. A case of Kenya Aids Vaccines Initiative (Kavi)*. University of Nairobi, Kenya. 161
- [39] Mahmoud-Jouini, S., Midler, C., & Silberzahn, P. (2016). Contributions of Design Thinking to Project Management in an Innovation Context. *Project Management Journal*, 47(2), 144-156.
- [40] Maina, B. M. (2016). Influence of Stakeholders' Participation on the Success of the Economic Stimulus Programme: *A Case of Education Projects in Nakuru County*. Kenya.
- [41] Mambo, S. & Charagu, K. (2013). Collapse of Road Construction Structures. *IEK presentation*.
- [42] Marshall, C., & Rossman, G. B. (2014). *Designing qualitative research*. Sage publications.
- [43] Mbeche IM (2011). Critical success factors of industrial and commercial projects in Kenya. *Operations Research Society of Eastern Africa Journal*, 1(1), 93-108.
- [44] Mladenovic, G., Vajdic, N., Wüdsch, B., & Salaj, A. T. (2013). Use of Key performance indicators for PPP transport projects to meet stakeholders' performance objectives. *Built Environment Project and Asset Management*, 3(2), 228-249.
- [45] Mohammed, E. (2012). Role of Project Managers in Resource and Work Allocation in Project Management. *European Management Journal*, 21(3), 369-395.
- [46] Mongina, C., & Moronge, M. (2021). Project management practices and performance of road construction projects in Nairobi City County, Kenya. *The Strategic Journal of Business & Change Management*, 8 (1), 545 – 562.

- [47] Moussa, H., & Akims, M. (2024). Effect of Monitoring and Evaluation Practices on Performance of Construction Projects in Gasabo District- Rwanda. *International Journal of Entrepreneurship and Project Management*, 9(3), 16–35. <https://doi.org/10.47604/ijepm.3024>
- [48] Muchelule. Y, Mbawi G. Muchelule S., Achayo (2018). Influence of Monitoring and Evaluation on Performance of Constituency Development Fund Projects In Kajiado East Sub-County, Kenya. *The International Journal of Management Science and Information Technology (IJMSIT)*, 30(23), 35-45.
- [49] Mutua, M. F. (2015). Influence of Beneficiary Participation on Effective Monitoring and Evaluation of Community Based Water Projects in Kenya: The Case of Kiabaibate-Nchura in Tigania West Sub County. *Unpublished Master's Thesis*, University of Nairobi. 2015.
- [50] Mwandali, K. (2013). "Implementing a new Performance Management System within a Project-Based Organization: A case study", *International Journal of Productivity and Performance Management*, 56 (1), 60 – 75.
- [51] Mwangi, W. (2015). Monitoring and Evaluation: Factors Influencing the Performance of Road Infrastructural Projects: A Case Study of Nyandarua County, Kenya.
- [52] Nagy, H., Abdulkadr, A. A. & Neszmélyi, G. I. (2024). The role of transport, ICT and power infrastructure in the Ethiopian economy. *Econ. Reg.* 20, 235–247. <https://doi.org/10.17059/ekon.reg.2024-1-16>
- [53] Neema Hakim Salim Bitesigirwe & Dr. Fredrick W.S Ndede (2023). Effects of Project Implementation Practices on Project Performance in Tanzania: The Case of Mnazi Bay Gas . *International Journal of Project Management* ISSN 2520-4519 (Online) Vol.5, Issue 2, pp 16 - 30, 2023
- [54] Njogu, E.M. (2016). *Influence of stakeholders' involvement on project performance: A Case of Nema Automobile Emission Control Project in Nairobi County, Kenya*. Retrieved from <http://erepository.uonbi.ac.ke/bitstream/handle/11295/99866/>
- [55] Nyabuto S. J., Musembi A,(2024). Monitoring And Evaluation Practices and Performance of Kenya Urban Roads Authority construction Projects in nairobi City County. *Journal Of Applied Social Sciences In Business And Management (Jassbm) Volume 3, Issue 2, 2024* journal Homepage: <https://Grandmarkpublishers.Com/Index.Php/Jassbm>
- [56] Odeyinka, H. and Yusuf, A. (2014). The causes and effects of delays on infrastructure projects. *Journal of financial management*, 3(5), 35-43.
- [57] OECD (2018). Monitoring tool. For Tracking Progress of Reform Implementation Economic Reform Programme. OECD. (2012). *Glossary of Key terms in Evaluation and Results based Management*. Paris:
- [58] Olatunji, A. A. (2010). *Influences on construction project delivery time. PhD. Thesis*: Nelson Mandela Metropolitan University, Estern Cape, South Africa.
- [59] Oluka, P. and Basheka, B. (2014) Determinants and Constrains to Effective Procurement Contract Management in Uganda; A Practioner's Prespective. *International Journal of Logistics Systems and Management*, 17(2), 104-124.
- [60] Omran, A., Abdalrahman, S., Pakir, A.H.K. (2015). Project Performance in Sudan Construction Industry: A Case Study, *Academic Research Journals (India)*, 1(1), 55-78.
- [61] Ondari, P. O., & Gekara, J. M. (2013). Factors influencing successful completion of roads projects in Kenya. *International Journal of Arts and Entrepreneurship*, 1(5), 1-22.
- [62] Rana, A. G., & Shuja, A. (2022). Influence of Leadership Competencies on Transport Infrastructure Projects' Success: A Mediated Moderation through Innovative-WorkBehavior and the Project Type. *India Journal of Commerce and Social Sciences*, 16(1), 1- 33
- [63] Roeder, T. (2013). *Managing Project Stakeholders: Building a Foundation to Achieve Project Goals*. USA: John & Wiley Sons.
- [64] Sambasivan, M., & Soon, Y. W. (2014). Causes and effects of delays in Malaysian construction industry, *International Journal of Project Management*, 25, 517 – 526.

- [65] Schwab, D. P. (2013). Research methods for organizational studies. *Psychology Press*.
- [66] Tabassi, A.A.; Roufechaei, K.M.; Ramli, M.; Bakar, A.H.A.; Ismail, R.; Pakir, A.H.K. (2016). Leadership competences of sustainable construction project managers. *J. Clean. Prod.* , 124, 339–349.
- [67] Toroitich, J. K., Mburugu, K. N. & Waweru, L. (2017). Influence of employee competence on the implementation of electronic procurement in the selected county governments in Kenya. *International Academic Journal of Human Resource and Business Administration*, 2(3), 242-254.
- [68] Wambui, D. N., Ombui, K., & Kagiri, A. (2015). Factors Affecting Completion of Road Construction Projects in Nairobi City County: Case Study of Kenya Urban Roads Authority (KURA); *International Journal of Scientific and Research Publications*, 5(11), 201-225.
- [69] Zuo, J., Zhao, X., Nguyen, Q. B. M., Ma, T., & Gao, S. (2018). Soft skills of construction project management professionals and project success factors: A structural equation model. *Engineering, Construction and Architectural Management* 9(3), 17-34. <https://doi.org/10.1108/ECAM-01-2016-0016>