

# THE INFLUENCE OF HUMAN MANAGEMENT ON THE PERFORMANCE OF CONSTRUCTION PROJECTS BY KENYA NATIONAL HIGHWAYS AUTHORITY IN NAIROBI CITY COUNTY

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**Abstract:** Globally, infrastructure development is critical in defining a country's overall productivity and economic development. Road infrastructure project performance is critical for every economy's growth and development. It is vital to the economy in terms of wealth creation and job creation. However, road infrastructure projects in developing nations are more frequently underfunded, and a higher percentage of road projects built by local enterprises in these countries have encountered cost and time overruns, as well as failing to reach promised quality standards. The study investigated the influence of human management on the performance of construction projects by Kenya National Highways Authority in Nairobi City County. A descriptive research design was adopted targeting an accessible population of 10 ongoing road infrastructure projects within Nairobi City County undertaken by the Kenya National Highways Authority from 2019. The sample of the study comprised of 175 respondents made up of project managers, site engineers and project team members. A semi-structured questionnaire was used to collect primary data. Validity of the study instruments was assessed with the help of the supervisors. The reliability was determined using Cronbach's alpha coefficient. If the coefficient is 0.7 or greater, it is considered satisfactory. Descriptive and inferential statistics were employed to analyze the data. Multiple regression analyses were used to determine the relationship between variables. The study results indicated that there was a positive relationship between human management and the performance of construction projects by Kenya National Highways Authority in Nairobi City County. The study concluded that human management improved the way road construction projects done by Kenya National Highways Authority (KeNHA) in Nairobi County performed. The study recommended that for successful delivery of road construction projects, given the role that human management plays, it is critical that qualified, experienced and competent human resource be engaged in road construction projects done by KeNHA.

**Keywords:** Human management, Project performance.

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## 1. INTRODUCTION

Road infrastructure initiatives in developing nations are frequently underfunded. These nations are increasingly looking to the private sector for technical and financial assistance for Road infrastructure construction and maintenance (Matindi, 2008). According to Mansour, Aminudin, Omar and Al-Sarayreh (2020) cost and time overruns occurred in 68 percent of African road projects completed by local contractors. Furthermore, In less than five years, the bulk of the roads failed to meet the needed quality standards and were plagued with potholes. A few of them were reconstructed with the help of other companies.

Financial constraints, as well as a scarcity of modern construction equipment, according to Anand, Gupta, and Appel (2018) compromised the quality of infrastructure projects to a large extent. When it comes to infrastructure development, Sub-Saharan Africa lags far behind, and existing roads in many poor places fall well short of what is required. Maintenance of existing infrastructure has been abandoned and left in bad shape, affecting the economic progress of many African countries and deterring to some extent investments that may be made as a result of the infrastructure established.

Vandevoorde and Vanhoucke (2006) observed that the effectiveness of road construction projects can be determined by comparisons submitted to projects that addresses the main issues which include; timely, budget-friendly, flawless, efficient, accurate for the first time, safely and profitably. When a project performs successfully, it is deemed a success if it was completed under budget, on time, and in accordance with functional and technical specifications. According to Kihoro and Waiganjo (2015) successful construction projects typically meet certain performance objectives, such as meeting the quality needs of multiple stakeholders, on-time completion, on-budget completion, and on-time completion.

Today, project success is often evaluated by the final delivered project's fitness for purpose and lack of reworks (Pidd, 2012). Because the construction business is one of the most important economic contributors in the country, project success is vital. The road building project's performance KPIs include quality, timeliness, and cost. The duration from the commencement of the project to its conclusion was used as timeliness indicator. The quality indicator was concerned with the project's compliance to specifications and the cost indication was concerned with the estimates of the amount of money and resources required for the project, whereas the suitability indicator was concerned with its suitability for usage in fulfilling its intended objective. According to Kafuna (2011), project success is a critical aspect in many countries' excellent governance. On-time completion, management, and public satisfaction are all examples of project deliverables that are widely used as success indicators.

Delays in the completion of road construction projects are also a typical occurrence. In Nigeria, seven out of ten projects reviewed by Hussin and Omran (2011) had delays in completion. Maylor (2006), for example, find that despite a large number of recorded events in Sudan, cost overruns have become increasingly common in building projects ranging from the simplest to the most complicated. This pattern is also seen in Ghana, according to Gaba (2013), in most construction projects, The study revealed an increase in additional costs, delays in completion, unsatisfactory project outcomes, and unattended project objectives.

One of the most significant organizational developments in recent years has been the massive spread of project work across all industries and businesses (Maylor, 2006). In many developing countries' rural areas, projects are utilized to address challenges such as poverty, poor health, and unemployment. Infrastructure development projects play a critical part in defining a country's overall productivity and economic development. Infrastructure investments of international standard serve as a key motivator for both domestic and international investors (Sharma & Vohra, 2009).

According to Nicholas and Steyn (2020) the definition of project performance refer to the execution of a collection of activities in a way that maximizes the end result. The final objective of project management is to stay under budget failing to meeting professional standards of quality, performance, objective sustainability, safety, and environmental protection, and failing to meet approvals, design, and occupancy deadlines (Karwitha & Kihinji, 2019).

## **STATEMENT OF THE PROBLEM**

Road infrastructure is a significant aspect in a country's development on a global scale its direct and indirect contribution to economic growth. As outlined in Kenya Vision 2030, successful road construction is a catalyst for economic development (GoK, 2007). The government has committed enormous resources to improve transportation infrastructure and continues to do so, according to the Road Sector Investment Plan (2010-2024). KSh 169.9 billion in 2019/20, up from KSh 154.5 billion in 2018/19, total government road spending is estimated to increase by 10% to KSh 169.9 billion.

To this effect, the Kenya Government committed to timely completion of road projects across the country by putting in to assess the performance of road infrastructure projects, a number of metrics have been put in place. Despite the initiatives, road infrastructure projects in Kenya continue to confront a number of obstacles, resulting in poor project performance (KPMG Report, 2014). For instance, according to the Kenya Highways Authority (KeNHA) (2020), a number of road construction projects in Nairobi City County have fallen behind schedule, owing to the coronavirus and a dusk-to-dawn curfew, which has caused workers to stay at home.

Furthermore, Measures to combat the spread of the coronavirus have resulted in a reduction in the number of casual workers on active building projects, which has hampered progress. These factors, combined with a reduction in the development budget, are expected to delay the completion of critical infrastructure projects. particularly in Nairobi City County. Project halts and delays are mostly due to interruptions in global supply chains, as well as lockdowns and travel

restrictions imposed on foreign staff, particularly Chinese workers who are regularly employed on road construction projects.

Road construction delays have had a negative influence on Kenya's social and economic gains that would have accrued if the projects had been completed on time. In the sub-sector of roads, the extent of cost and time overruns in the overall portfolio is high. In Kenya information held by KeNHA of a few sampled road constructions in Kenya show that road development projects are taking longer than expected to finish. In many projects done in Nairobi such as Nairobi Expressway, and Nairobi Western Bypass which were commissioned in 2019 are way behind schedule. Other projects such as Museum Hill - Athi River (Dual), Museum Hill – James Gichuru (Dual), Outering Road Junction - Kamulu (B63) Road and Bomas - Kiserian (B19) Road which were to be completed between 2020 and March 2021 are yet to be completed.

This has resulted in time and cost overrun. Despite the government's continued investment in road construction, According to Macharia (2016), approximately 55% of the country's road construction projects face various challenges that prohibit them from being completed on schedule, incurring cost overruns, or failing to satisfy quality standards. According to studies in Kenya, the number of public road development projects has been steadily increasing. However, completing projects within the stipulated cost budget and timetable has become difficult (Waithera & Susan, 2019). Scope creep, cost overruns, poor craftsmanship, and project time delays are all factors in the few projects that are completed (Waithera & Susan, 2019).

As a result of the formation of white elephant projects, a great deal of money is spent, business prospects are lost, customers are dissatisfied, and overall progress is slowed, among other things. According to Ondara (2017), Kenya's construction sector has a poor reputation for dealing with construction risks such as poor resource management, and as a result, cost overruns, timeTable delays, and other issues and low-quality production continue to occur, resulting in poor performance over time, money, and quality. In that case, the present study sought to evaluate how resource management influences performance of building projects in the Kenya National Highway Authority (KeNHA).

## **2. LITERATURE REVIEW**

### **Theoretical Review**

This study was guided by the resource based view theory which was developed by Wernerfelt in 1984 developed on the basis of a company's ability to employ a collection of valued tangible and intangible resources to gain a competitive advantage over competitors. It underlines the importance of vital concrete and intangible resources in enabling the organization to complete projects on time, within budget, and quality you want (Barney, 1986). According to RBV theory, a company with sufficient resources is more likely to win the competition and outperform its competitors. According to Robert and Bradley (2013), a firm must first examine its own resources in order to attain remarkable performance, determine its value, and ultimately determine how best to use those resources to offer the organization with a competitive edge. The resources a company has, such as capital, equipment, personnel talents, and patents, can help it execute tasks swiftly, according to Robert and Bradley. Furthermore, such a business may easily generate projects that meet the needs of customers.

According to Peteraf and Barney (2003), the RBV theory produces resource-based inter-firm competition. Project performance is influenced by the resources available to an organization. This hypothesis is important for this study because it describes the financial, material, and technical resources needed to improve the performance of a road projects. RBV theory's inventors, Rumelt (1984) and Wernerfelt (1984), envisioned the project management setting as fitting within this theory (1984). Because any construction company's purpose when it comes to completing a job successfully, efficiency becomes a vital factor.

### **Empirical Review**

Carter (2012) looked into the issues that road infrastructure companies in Sub-Saharan Africa have in delivering high-quality projects. Project managers and contractors were given 100 questionnaires to fill out the study examined the impact of outsourcing technical human resources. It revealed that, in compared to international construction firms, local construction firms experienced a variety of obstacles, recruiting technical professionals with the necessary competency abilities to finish projects is very difficult. Research has also found that each company has a limited number of operational resources. Because of this, the main task of the project manager was to figure out how to effectively implement the program while working given the restrictions of available resources Projects involving road infrastructure involve careful resource planning, that includes bringing together a team of skilled workers to carry out organizing additional resources, such as tools and equipment, as well as project activities (Warner, 2013).

Belout and Gauvreau (2004) examined project success variables with a focus on human resource management's role. Their findings demonstrated that there was a strong link between project success and the personnel component, indicating that the two factors are linked. According to Hussin and Omran (2011) 70 percent of Malaysian transportation due to financial challenges faced by developers, contractors, local and national governments, stakeholders such as donors, and others, construction projects have been abandoned. Piper (2011) reported that between 1999 and 2007, up to 71 percent of road and other construction projects that failed in Malaysia and Madagascar, took longer than intended, or modified the start dates more than once due to strained financial allocation and contractual time arrangements.

Wambua (2013) looked at the impact of HRM actions on organizational performance focused on project research. The study found that having a beneficial impact on an organization's performance, depending on the level of practice practiced, according to the study. Mugira (2014) conducted a similar analysis of workers' activities and their impact on the implementation of the Ripples International project. The recruitment and selection of Ripples International, performance appraisals, and collaborations all contributed to the project's performance, according to the findings.

Research has shown that the training and development provided by the project's performance is unaffected by the organization. Kipngok, Wanyoike and Kemboi (2014) intended to know what factors influence the key implementing agencies, GDC and KenGen, in implementing geothermal development projects in Kenya. Human capacity is crucial for the execution of geothermal projects in Kenya, according to survey data, with the expected power generation against optimal staff revealing a significant scarcity of educated technical workers.

### CONCEPTUAL FRAMEWORK

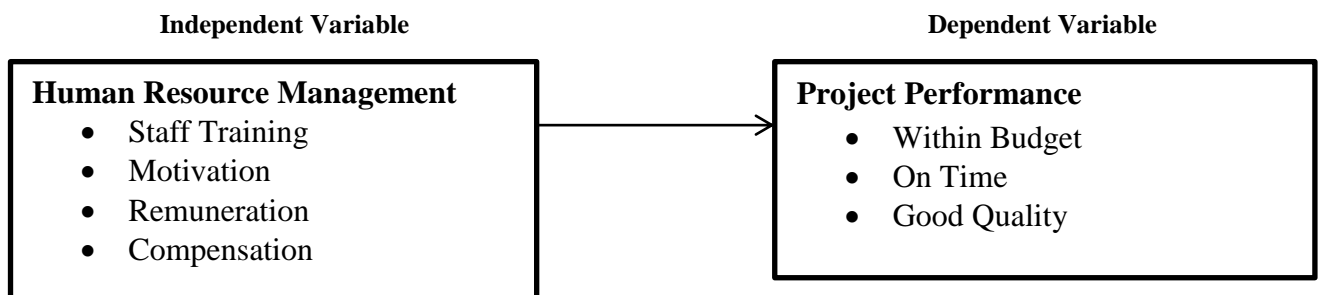


Figure 1: Conceptual Framework

### 3. RESEARCH METHODOLOGY

A descriptive research design was adopted targeting an accessible population of 10 ongoing road infrastructure projects within Nairobi City County undertaken by the Kenya National Highways Authority from 2019. The sample of the study comprised of 175 respondents made up of project managers, site engineers and project team members. A semi-structured questionnaire was used to collect primary data. Validity of the study instruments was assessed with the help of the supervisors. The reliability was determined using Cronbach's alpha coefficient. If the coefficient is 0.7 or greater, it is considered satisfactory. Descriptive and inferential statistics were employed to analyze the data. Multiple regression analyses were used to determine the relationship between variables.

### 4. FINDINGS

The study sought to establish the influence of human management on the performance of construction projects by Kenya National Highways Authority in Nairobi City County. The findings are given in Table 1.

Table 1: Descriptive Summary of Human Resource

	N	Mean	Std. Dev
The human resource department plays a significant role in the planning process.	94	3.82	1.077
Human resource training programs are developed and implemented in accordance with the overall purpose.	94	4.03	.782
The function of human resource management is given a significant amount of weight.	94	3.91	.969
Training was done to project team members	94	4.14	.923
Project managers were involved in planning stage	94	4.35	.839

There is proper supervision that ensures timely completion of projects	94	4.40	.807
All our project members are highly skilled and qualified to implement quality projects	94	4.21	.788
Our members are competitively recruited based on their qualifications	94	4.11	.910
Our members are fairly remunerated and motivated through bonus	94	2.94	1.096
The project team members coordinate activities	94	4.35	.876
<b>Aggregate Value</b>		<b>4.03</b>	<b>0.907</b>

Source: Field Data, 2021

The items value of mean score and deviation for human management and construction project performance are found in Table 1. The mean response on a scale of 5 done in the questionnaire approximates a mean of 4.03 (Agree), indicating that respondents were generally in agreement with the items on human management. The overall standard deviation (SD= 0.907) is also low, meaning that the responses are restricted to a small range around the overall mean response. Further, The findings of the analysis are shown in the table, which show that the majority of respondents shared the same viewpoint (undecided) that human resource department is majorly involved in the process of planning (M= 3.82; SD =1.077).

In response to the question about develop and implement staff training programs that are consistent with the overall purpose, the majority of respondents agreed on this opinion (M= 4.03; SD =0.782). The respondents were split on whether or not the human resource management function should be given a high priority (M = 3.91; SD =0.969). Further, the study sought to establish respondents' views on training of project team members, project manager's involvement in planning stage; proper supervision that ensures timely completion of projects and project members' skills and qualifications to implement quality projects all posted a high mean of between 4.14 to 4.40 implying that they were in agreement in regard to human management. On the item of fair remuneration, views of the respondents showed that they generally disagreed (M = 2.94; SD =1.096).

In general, the findings of the Kenya National Highways Authority (KeNHA) in Nairobi County on the influence of human management on the performance of construction projects found that the majority of respondents agreed that human management influenced the performance of construction projects. This means that the human management resources tasked with delivering a project have a significant impact on its success. These findings were backed up by Umulisa, Mbabazize and Shukla (2015), who agreed that the project's performance was influenced by human capital management techniques.

## 5. RESULTS OF INFERENTIAL STATISTICS ANALYSIS

Table 2: Correlation Analysis

		Project team
Human Resource Management	Pearson Correlation	1
	Sig. (2-tailed) N	94
Project Performance	Pearson Correlation	.144
	Sig. (2-tailed)	.165
	N	94

Source: Field Data, 2021

Human management (r = 0.144; p-value = 0.165) all showed a positive association in Table 2.

Table 3: Model Summary of Regression Analysis

Model	R	R <sup>2</sup>	R <sup>2</sup> Adjusted	Estimate of St. Error	Change Statistics				
					Change in R <sup>2</sup>	F Change	df1	df2	Sig. F Change
1	.297 <sup>a</sup>	.088	.047	.51056	.088	2.150	4	89	.081

Source: Field Data, 2021

The value of the adjusted R<sup>2</sup>, or rather multiple determinations of coefficient is the level at which dependent variable value varies due to the influence of the independent variable either individually or collectively. As a result, the human management according to the modified R square, these factors account for 47 percent of performance of the project. As a



result, other elements that were not investigated in this study account for 53% of the project's performance. The results also reveal a substantial R square change of 0.088 and F-change of 2.150, indicating that the prediction has improved significantly. At 0.081 p-value, more than 0.05, shows that the model was insignificant.

**Table 4: Coefficient of Determination of the Variable**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.619	1.048		1.544	.000
	Human resource management	0.103	0.212	0.053	0.485	.000

The results as illustrated in Table 4 shows that holding human resource management to a constant, project performance would be at 1.619. The study revealed that the human resource management influence positively and significantly the project performance as indicated by t-values ( $\beta=0.485$ ,  $p < 0.05$ ).

The resulting regression equation was  $Y = 1.619 + 0.103X_1$

Where  $Y$  = Project performance

$X_1$  = Human resource management

## 6. CONCLUSIONS AND RECOMMENDATIONS

The study concluded that human management improved the way road construction projects done by Kenya National Highways Authority (KeNHA) in Nairobi County performed. Globally competitive organizations including construction industry to obtain a competitive advantage, companies rely on the uniqueness of their human resources and effective human resource management systems. Human resource management include not only the drivers and primary value generators of the knowledge industry's output, but also intellectual capital and infrastructural investments such as road construction projects.

The study recommended that for successful delivery of road construction projects, given the role that human management plays, it is critical that qualified, experienced and competent human resource be engaged in road construction projects done by KeNHA. This will help to ensure that road construction projects timely completed, within the stipulated budget and timeframe.

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