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# **DETERMINANTS OF SUCCESSFUL PROJECT MANAGEMENT PRACTICES ON PERFORMANCE OF ROADS PROJECTS AT KENYA NATIONAL HIGHWAYS AUTHORITY**

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## **Abstract**

**Purpose:** The study aims at investigating the determinants of successful project management practices on performance of roads projects at Kenya National Highways Authority. This study was limited to four variables, which include project monitoring, management support, Project team, and Project funding.

**Methodology:** The study employed a descriptive research design. The target population included the top project management team of KeNHA, Monitoring Officers of KeNHA, Project Engineers (PEs), financial officers and auditors, Consultants and Contractors in the entire structure of KeNHA totaling to 174. The study employed stratified random sampling technique to acquire a sample size of 87. The study collected both quantitative and qualitative data through the use of a organized survey of questionnaire. Data was presented in the form of frequency distribution tables, graphs and pie charts that facilitates description and explanation of the study findings.

**Results:** The study findings revealed that project monitoring, management support, Project team competency and Project funding influence performance of roads projects at KeNHA. The results of findings indicates that a unit increase in project monitoring, management support Project team competency and Project funding leads to 0.873, 0.581, 0.713 and 0.289 increase in performance of roads projects at KeNHA respectively. The study concluded that Project Funds greatly influence road Project Completion.

**Recommendations:** The study recommends that management should provide the necessary provision to the practical and operating workers in the development of road project operations for real and practical success of objectives.. Highly qualified and experienced management support with a relevant experience and technical skills should be hired to implement road projects. This will enable the Kenya government get value for their money, achieve on-time projects completion and save huge costs.

**Key Words:** *Project Monitoring, Management Support, Project Team Competency, Project Funding and Performance of Road Project.*

## INTRODUCTION

A project is a complex, non-routine, one-time effort limited by time, budget and resource and performance specifications designed to meet customer needs(King and McGrath, 2012).The success of road construction project is measured by timely completion of the project, within the budget, required quality standards and customers' satisfaction (Davies, 2013).This study aims at investigating the determinants of successful project management practices on performance of roads projects at Kenya National Highways Authority. Performance is about how well something can be done and to measure project performance in terms of time, cost, and quality and client gratification. Project performance is an important matter in project provision internationally. The factors of project accomplishments recognized by the study communal are goals, management support, project timetable, customer consultation, human resource, computer technology to assist the project program, customer acceptance, monitoring and evaluation results and communication networks. Project management has already proved to be important in clearness, effectiveness, correctness and answerability consequential in the administrations attaining their purposes (Koitaba, 2013).

In Kenya, most of projects have challenges, in spite of the importance support accorded to the nationwide financial economy. Most of projects face challenges for example the disappointment rate and the function of the projects in the country, it is essential to research on the factors to assist the projects to continue and certainly development to the growth stage of the project life cycle (Kamunge et al., 2014). This calls for project management involvement to teach the project management and workers on how to use the accessible means of accessing financial facilities to advance their initiatives and also decrease price of doing business. Project management practices is one of the determinants that influence certainly on project performance since financial mastery are well positioned to use their creativities to continually altering commercial settings (King & McGrath, 2012).

### **Global Perspective on Performance of Roads Projects**

Worldwide, there is a rapid development in the road construction sector, which outperforms that of international Gross Domestic Product (GDP) with main attention in Malaysia, Japan, China, the US United States and India. Though, Sub Saharan Africa is described by inadequate number of companies controlling big number of works, Mostly Chinese and European workers (Queiroz, 2012). There has been rising attention in project management in the industrialized nation and later the most studies of management (Rendon, 2009). The lack of infrastructure is often mentioned as one of the main reasons of African underdevelopment (Ayogu 2007). New Partnership for Africa's Development (NEPAD, 2012) notes that with Africa's economy growing at 5 percent a year on average, without good roads network, such impressive economic growth may not translate into real socioeconomic development for Africans. Most of Africa's roads and railway lines roads are in bad condition and need huge investments, according to the Africa Development Bank (AfDB). The proportion of paved roads on the continent today is five times less than those in developed countries, notes the Bank. As a result, transport costs alone are 63 percent higher in Africa than in developed countries, hampering its competitiveness in the international and local marketplaces. Challenges in project success are a shared challenges in the road construction sector not only with an endless price to culture but also with incapacitating special effects on the constricting parties. The interruption delay in the considerable success of projects is an international issue. For example, though assessing the development and statistics of 28 highway projects throughout the period 1996-1999 in Jordan, Battaineh (2006) perceived that the regular ratio of real achievement time to the strategic agreement period is 160.5% for road constructions. Seboru (2006), additional academicians also states that the period edge for main road construction projects internationally to spread road building construction begin stage have been experiential to series from 10-30 years.

### **Regional Perspective on Performance of Roads Projects**

In Africa road construction is a rare task and wherever roads are constructed, they are mostly and poorly preserved. A study research survey conducted out by the World Bank shows that normal road compactness in Africa is 20.4km per 100 square kilometers of land area. Inferior still, of these only a small part is surfaced. Southern Africa is the only area in Africa with a equally good road transport arrangement. South Africa in precise is described to have 62km of road per 100km square kilometers near to the United States of America that has 67km of roads per 100 square kilometer. This achievement story has been credited to the country's renewal of its road and railway system before the FIFA World Cup Of 2010. The low road building in Africa has had dire penalties. The results of bad road connection in Africa cannot be over stressed. The World Bank notes that with poor road connection the cost of goods expressively goes up.

A research by UN Commission for Trade and Development (2001) on building construction sector turmoil and their inferences for New Partnership for Africa's Development recognized expensive



programme challenges as a main problem and poor project time, quality and cost performance as a main matter. There is, consequently, a essential to solve the impulsiveness of the completion of roads projects in relations of time delivery, cost and to the normal of quality predictable. The stakeholders need to do things inversely and to reconsideration the procedure in which African construction sector uninterruptedly recovers performance by questioning the current and developing project delivery tactics.

Infrastructural development through construction of new roads and maintenance of existing ones is a fundamental aspect in development of every economy. The total percentage of the global cover of the paved roads was measured as 64.94% in 2009 according to the World Bank. Paved roads are those surfaced with crushed stone (Macadam) and hydrocarbon binder or bituminized agents, with concrete, or with cobblestones as a percentage of all country's roads measured in length (World Bank, 2013).

The data available shows that Africa had approximately 311,184km of paved roads in 1996, with approximately half of them in poor condition. According to African Development Bank, With the exception of Mauritius and the North African countries of Algeria, Egypt, Morocco, and Tunisia, paved roads account for less than 50 per cent of the road network in Africa. Indeed, paved roads in sub-Saharan Africa account for less than 17 per cent in 1996, with many countries falling below the average. About 57 per cent of the roads in North Africa were paved compared to 25 per cent in South Africa and 10.2 per cent in Central Africa. Road density per unit area of one km<sup>2</sup> is generally much lower than those of Asia and Latin America (ADB 1999:122; World Bank, 2014). In developing nations especially Africa, building and construction projects signify a strategic choice in attaining maintainable development goals. Projects are categorized with the requirements for most ratends strategy information and practical services, knowledgeable and competent personnel and management capabilities as well as unnecessary cost asset. Equally, in Africa skill lack of so many of these need which hinder the growth of Mega Construction Projects (MCPs) in Africa Nations.

### **Kenyan Perspective on Performance of Roads Projects**

Locally, in Kenya construction industry has been robust with a lot of roads and buildings being constructed. Foreign investors have shown a lot of interest to have a stake in Kenyan road construction industry. They consider Kenya as a business hub in East and Central Africa and a center from which they can operate within Africa. As a consequent, Nairobi and its environs has witnessed a boom in road construction projects. Other construction projects include government, Private individuals, private companies, international businesses and institution sanctioned (Kenya facts and figures, Kenya National Bureau of statistics, 2012).

Information from the World Bank report on world's road projects indicates that Kenya had a partly 14.3% of paved roads as a percentage total of the entire roads in year 2010 (World Bank 2013). The transport sector in Kenya comprises a road network with 169,886 km of roads and 350,000 vehicles, a single-track railway running from Mombasa to Uganda, a major seaport at Mombasa, small ports at Lamu and Malindi, a ferry service to Uganda, an oil pipeline from Mombasa to Kisumu via Nairobi and Eldoret, four international and many small airports, and three inland container depots (IEA, 1998). In Kenya With a 34% share in the total transport sector in 1998, road transport has the highest contribution to national output among the transport systems. It is followed by air transport, with 25%, and water transport, with 16% (Ikiara et al. 2000).

Considering that this level of performance was achieved over a period of deficient road maintenance, it is obvious that the subsector and by implication the road infrastructure policy holds the potential for rapid economic growth and poverty reduction through its influence on production costs, employment creation, access to markets, and investment (Howe and Richards 1984; van de Walle 1996; GoK 2014).

Out of the 169,886 km of total road network in Kenya, only 11,197 km is classified as paved while the remaining 149,689 is unpaved (KRB, APRP FY 2012/2013). This therefore implies that quality roads are critical for development of any country. Fast deteriorating state of roads in Kenya calls for need to focus on management practice of roads during construction. This study will focus on determinants of successful project management practices on performance of roads projects at Kenya National Highways Authority. In Kenya National government discharges its mandates in road infrastructural development through two key ministries - Ministry of Transport and Infrastructure as well as the Ministry of Environment, Water and Natural resources. The Ministry of Transport and Infrastructure of Kenya discharges this mandate through four key parastatals namely; The Kenya Roads Board (KRB), The Kenya National Highways Authority (KeNHA), The Kenya Rural Roads Authority (KeRRA) and the Kenya Urban Roads Authority (KURA). Kenya Roads Board is mandated with accessing for funds through the Central Government and allocation of these funds on need basis to the other sister Authorities (Kenya gazette, 2006).

### **Statement of the Problem**

Most counties in Kenya have been experiencing quite a lot of challenges in monitoring, management support, incompetent project team and insufficient project funding hence poor performance in Roads projects (Korir, 2014). For example, in the road construction of Thika Super Highway, the price intensified from 26.54 billion to 34.55 billion the original limit of the Thika project super high way was July 2011, which was advanced reviewed to July 2013 (World Bank, 2014). Despite the increased budgetary allocation to the sector, year after year, KeNHA still faces the challenge of in complete projects within the constraints of the budget, time and quality.

Statistics from the republic of Kenya report show that KeNHA has been experiencing cost over runs nits roads projects. Data from Kenya National Bureau of Statistics (KNBS, 2013) report show that poor monitoring , Poor management support, incompetent project team and insufficient project funding is a key factor lead to stagnation of roads projects in various counties in Kenya. Local Studies done include Musa (2012) conducted a research to investigate on the effects of quality management practice on financial oil performance of Companies in Kenya. The study found out that personnel management and financial management determines the performance of the oil companies in kenya to a great extent. Bundi (2013) conducted a study survey on challenges affecting procurement management in Kenya Urban Roads Authority the study established that political intrusions and insufficient provisions of finance delay successful completion of KURA procurement of works and services.

None of the above studies has been done on the determinants of successful project management practices on performance of roads projects at Kenya National Highways Authority. The researcher was motivated to fill knowledge gap by evaluating the determinants of successful project management practices on performance roads projects at Kenya national highways authority.

### **Research Objectives**

1. To assess the influence of project monitoring on performance of roads projects at Kenya national highways authority.
2. To find out the influence of management support on performance roads projects at Kenya national highways authority
3. To establish how Project team competency performance of roads projects at Kenya national highways authority
4. To determine the influence of Project funding on performance of roads projects at Kenya national highways authority

## **LITERATURE REVIEW**

### **Theoretical Review**

#### **Program Theory**

Program theory is a plausible and sensible model on how a program is supposed to work (Bickman, 1987). Lipsey (1993) stated that it is a proposition with regard to the transformation of input into output and how to transform a bad situation into a better one through inputs. It is also illustrated as the process through which program components are presumed to affect outcomes. Rossi (2004) argued that a program theory consist of an organizational plan on in what way to organize assets and establish the accomplishments of the project undertakings to guarantee that the planned

provision arrangement is established and sustained. The theory promotes contracts with the provision consumptions strategy which examines how the planned target population obtains the planned quantity of involvement. This is over the collaboration of the provision service provision arrangements. Lastly, program theory emphasizes on how the proposed intervention for the specified target population represents the desired social benefits. Rogers as cited by Uitto (2000) illustrates the advantages of using a theory based framework in monitoring and evaluation. It includes the ability to attribute project outcomes of specific projects or activities as well as identification of anticipated and undesired program consequences.

The program theory is a guidance theory in the evaluation of projects as it shows the capacity of the program to attend to specific problems that need to be reviewed within projects. It further offers guidance on what areas need to be emphasized on during the monitoring process.

### **Management Theory**

Management is the procedure of planning and conserving surroundings environment in which persons, working in an organized manner such as in groups, professionally achieve designated goals (Koontz and Weihrich, 2004). In its prolonged procedure, this simple meaning means numerous things, as management, individuals take out the management tasks as preparation, consolidating, recruitment of staff, leading, and monitoring. Management relates to any way of business. Management to leaders at all business stages, the purpose of all administrators in management is the similar; to make excess. Lastly, management is anxious with efficiency which suggests efficiency and competence. Management is similar to all other profession practice for example medical doctors, music directors and composers, manufacturing, accounting. It involves undertaking works in the right of the certainties of a condition. However management can work better through using the planned skills on management. It is this information knowledge that establishes discipline. Though, the science fundamental handling is impartially unpolished and inaccurate. This is accurate since the numerous variables with which executives agreement are tremendously multifaceted. However, such controlling knowledge can surely advance managerial preparation. Management who endeavor to achieve without management discipline essential put their faith to luck, instinct, or what they did in the previous (Gardiner, 2000).

In management, as in some other arena, except specialists are to study by experimental and mistake, around is no where they can get a expressive leadership further than the accrued information fundamental their preparation; this accrued information is philosophy. For applied determinations, all management must grow three groups of abilities; theoretical conceptual, practical, and human resource (Peterson 2004). Management theory stresses the need for effective management support and planning to ensure that organizational goals are obtained. Management theory emphasizes that effective and successful implementation of projects is based on top



management support and good planning. The management theory supports the management functions by recognizing key managerial functions that a project manager should adopt while implementing the project from the initial stage to closure of the project so as to minimize on project risks and deliver project result on time, within the budget and according to client specification.

### **Situational Leadership Theory**

Management experts and authors Paul Hersey and Ken Blanchard developed the situational leadership theory. Their theory Centers on the perspective that one of the most critical traits of effective managers is situational leadership adaptability. Rather than operating with one leadership style and forcing that approach in every scenario, situational leaders adapt from their preferred style based on the needs of their organization and workers (Hersey & Blanchard, 2008). Rendering to situational leadership theory, management and leadership is mainly a skill slightly than established of traits. These services comprise the capacity to straight, inspire and provision assistants while serving the collection of group stay intensive on the work.

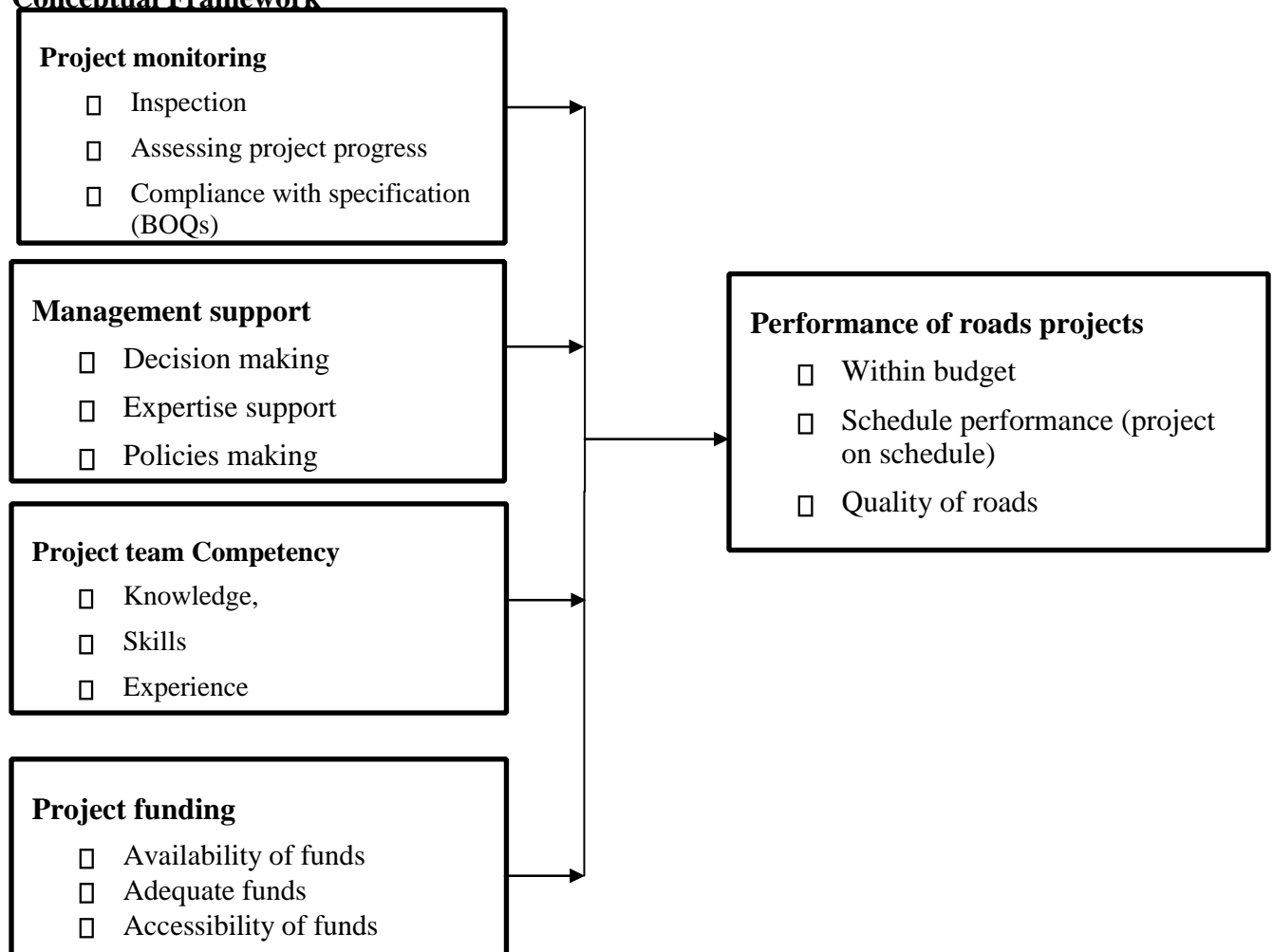
These outlines grasps that anybody positioned in the similar situation would acquire and remove the similar services, and that their efficiency would be contingent additional on how healthy they educated and practical the essential services somewhat than on any characteristic personalities (Hersey & Blanchard, 2008). Situational leadership theory embraces that any project group positioned in the project situation must study and spread over the project management skills, and their efficiency must be contingent additional on how well they educated and practical the essential skills slightly than on any characteristic personalities. Situational leadership theory emphasizes that project team members must respect and support each other towards the common goal of winning the project success.

### **Resource Dependency Theory**

Resource dependency theory originates from two papers published by Hans Singer, and Raul Prebisch (1949). They observed that the terms of trade for underdeveloped countries relative to the developed countries had deteriorated over time. The underdeveloped countries were able to purchase fewer manufactured goods from the developed countries in exchange for a given quantity of their raw materials exports (Jeffrey, 2012). In resource dependency theory, the developed nations actively keep developing nations in a subservient position, often through economic force by instituting sanctions, or by proscribing free trade policies attached to loans granted by the World Bank or International Monetary Fund (Sunkel, 1966). Resource dependency theory also posits that the degree of dependency increases as time goes on. Wealthy countries are able to use their wealth to further influence developing nations into adopting policies that increase the wealth of the wealthy nations, even at their own expense. At the same time, they are able to protect themselves from being turned on by the developing nations, making their system more and more secure as

time passes. Capital continues to migrate from the developing nations to the developed nations, causing the developing nations to experience lack of wealth, which forces them to take out larger loans from the developed nations, further indebting them (Amin, 1976). The resource dependency theory is in line with the financial strategy objective such as funding resource. An organization needs to ensure that it has adequate funding resources for its operations, because adequate funding resources ensure that the organization is able to implement successful project.

### Conceptual Framework



**Independent Variables**

**Dependent Variable**

**Figure 1: Conceptual Framework**

## **Empirical Review**

### **Project Monitoring**

A study in South Africa (Hanson et al., 2003) reveals that conflict, poor workmanship, lack of a proper monitoring system and incompetence of contractors are among the factors affecting project performance. According to the United Nations Relief and Works Agency (UNRWA, 2006), there is no exception in Palestine as many local construction projects report poor performance due to: unavailability of materials; excessive amendments of design and drawings; poor coordination among participants, ineffective monitoring and feedback, and lack of project leadership skills and regional conflicts. Monitoring system therefore provides the necessary feedback for economic development and policy interventions. This area has not received the much needed attention. A study by Edward Njenga (2013), On Factors Influencing performance of Monitoring of Development Projects, found that monitoring budget, stakeholders participation, monitoring plan, source of funding (donor) and training in monitoring had a positive relation with the probability of implementing monitoring which was significant at 95% confidence level. However, monitoring guidelines were found to have no effect on implementation of monitoring. Based on the results the study concluded that performance of Monitoring is important in providing the feedback mechanism of economic development interventions.

Taut (2007) studied self-evaluation capacity building in a large international development organization, indicate low organizational readiness for learning from evaluation. Moreover interviewees similarly described a lack of open, transparent, and critical intra-organizational dialogue and a lack of formal structures and processes to encourage reflection and learning as an organizational habit. At the same time, there was rather high awareness of the potential for evaluation to be used as a tool for learning and demand voiced for such evaluations.

### **Management Support**

Management is defined as the function that coordinates the efforts of persons to achieve objectives and aims by consuming existing possessions proficiently and successfully that comprises development, establishing, recruitment, important or guiding, and supervisory of business to accomplish the goal or target (Khurana 2010). Management support is one of the prime factors for achieving the project success. In absence of management support, the project managers despite having excellent skills may fail at any stage of the project (Meredith & Mantel, 2010). Kandelousi, Ooi and Abdollahi (2011) mentioned that management support can be viewed in several forms, for instance, helping teams in dealing with hurdles, exhibiting commitment to the work and encouraging the subordinates. Moreover, management support results in availability of in time financial, human and other physical resources required for the successful execution of projects and more importantly, it also refers to the delegation of necessary power to project leaders and project

teams. Therefore, management support is important recommendation for achieving the project success (Lin, 2010).

For the reasons, the projects without support of top management rarely survive (Meredith and Mantel, 2010). According to Schultz and Slevin (2009), management support for projects, project manager, sufficient resources or indeed for any implementation is of great importance in distinguishing between their ultimate success and failure. Project management is seen as not only dependent on top management for authority, direction, and support, but as ultimately the conduit for implementing top management's plans for the organization or product (Beck, 2006, Manley, 2004).

### **Project Team**

Project team is a characteristic of the construction industry where construction projects are delivered by various professionals as a team. These professionals include architects, contractors, material suppliers, specialists and others like government planners and engineers (Chow *et al.*, 2005; Winch, 2009; Spatz, 2000). Extensive research has been carried out on the relationship between components of effective teams and project success. Clear goals are major elements of project success (Dinsomore and Cooke-Davies, 2006; Rad and Levin, 2006). Parker (2008) further added that scope of the work is brought off in a much better way when goals are apparently defined and substantially understood and thus prospects of project and team success is increased. It has been established that knowledgeable team manager leads to project success through convincing people of the need to change and to motivate them to work together for accomplishing project objectives in difficult work environments (Keller, 1992; Anantatmula, 2010; Juli, 2010). Moreover, clear, understandable and matching employees to their areas of expertise lead to project success (Pratt, 2010; Camilleri, 2011). Gido and Clements (2011) concluded that the characteristics of effective teams include high degree of cooperation, trust, open, timely effective communication and ethical behavior. These characteristics are important factors for project success. Project team performance improved when decisions are made unanimously (Bettenhausen, 1991; Jackson *et al.*, 2003).

Hartenian (2003) suggested that teams with cooperative behavior are more likely to achieve their set goals properly. It was concluded that teams who are trained in solving conflicts and showed good performance in settling conflicts, agreeing on goals and planning adequately. Project team members should be selected based on the skills and expertise relevant to scope of work. According to Beale and Freeman (1991), the skills and expertise of key team members like client representative, leader of the designing team and the construction team leader are needed to be emphasized as to enhance team effectiveness.

## **Project Funding**

Pace (1990) stated that it is important to allocate required funds for each construction project. It is important that partners consider the resources needed for timely completion of projects and agree on a practical arrangement to finance the associated activities. Such arrangements should be documented at the beginning of the program to enable partners to transfer necessary funds in accordance with the procedure which could take considerable time and effort. Feuerstein (1986) argued that funding ensure effective, quality construction projects.

It is critical to set aside adequate financial resources at the planning stage. The required financial resources for timely completion of construction projects should be considered within the overall costs of delivering the agreed results and not dedicated for the function.

## **RESEARCH METHODOLOGY**

The study adopted a descriptive research design. The study's target population comprised of 36 project management team of KeNHA, 30 Monitoring Officers of KeNHA, 24 Project Engineers (PEs), 44 financial officers and auditors, 40 Consultants and Contractors in the entire structure of KeNHA totalling to 174. The study adopted a stratified random sampling technique in extracting a sample of 87 respondents. The study used both primary and secondary data where primary data was collected using questionnaires while secondary data was obtained from published reports. SPSS software was used for the analysis and results of the analysis presented by use of tables and figures. Inferential statistics was used to establish the association between independent variables and dependent variable. Performance of road projects was regressed against four variables of Project Management Practices (project monitoring, management support, project team competency and project funding). The regression model is as follows;

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

Where; Y: Performance of roads projects,  $X_1$ : project monitoring,  $X_2$ : management support,  $X_3$ : Project team,  $X_4$ : Project funding,  $\beta_0$ : y-intercept (constant),  $e$ : Error term and  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ , and  $\beta_4$  are the variable coefficients.

## **RESULTS**

The study administered 87 questionnaires and 78 questionnaires were filled and returned. This represented a response rate of 89.6%.



**Table 1: Demographic Characteristics of Respondents**

Demographic Characteristic	Category	Percentage
<b>Experience</b>	0-5 years	10%
	6-10 years	40%
	11-15 years	35%
	16-20 years	15%
	Over 20 years	0%
<b>Work Experience</b>	Certificate	10%
	Diploma	30%
	Undergraduate	51%
	Master and above	9%

### Descriptive Findings and Analysis Project Monitoring

The first objective of the study was to assess the influence of project monitoring on performance of roads projects at Kenya national highways authority. The respondents were presented with statements that concerned the level of agreement with the statements that relate to the influence of project monitoring on performance of roads projects at Kenya national highways authority where they were required to tick the one that best described their opinion. They were to rate the statements on a 5 point likert scale where 1=strongly disagree, 2= disagree, 3=neutral, 4=Agree and 5= strongly agree. The findings of the study are displayed in table 2. According to the findings, the respondents indicated that number of monitoring staff influences performance roads projects at Kenya national highways authority as presented with a mean score of 4.61 and a standard deviation of 0.958. The findings further indicated that Skilled monitoring staff in KeNHA projects influences performance of roads projects at Kenya national highways authority. This statement was supported by respondents with a mean score of 4.52 and a standard deviation of 1.908.

Further, the analysis of findings indicated with a mean score of 4.02 and a standard deviation of 1.142 that remuneration of monitoring staff influences significantly monitoring of roads Projects. The study also revealed that Projects monitoring provide managers and stakeholders with continuous feedback on implementation, interim and terminal evaluations as indicated by respondents with a mean score of 4.42 and a standard deviation of 1.054. The study are in line with the study by Hanson et al., (2003) who found that conflict, poor workmanship, lack of a proper monitoring system and incompetence of contractors are among the factors affecting project performance. From the findings, it can be deduced that projects monitoring therefore provides the necessary feedback for economic development projects and policy interventions. It is hence undoubtedly that Kenya national highways authority use of projects monitoring system as a determinant of successful project management practices on performance of roads projects.

**Table 2: Descriptive Statistics on Project Monitoring**

Statements	Mean	Standard Deviation
Number of monitoring staff influences performance roads projects at Kenya national highways authority	4.61	0.958
Skilled monitoring staff in KeNHA projects influences performance of roads projects at Kenya national highways authority.	4.52	1.098
Remuneration of monitoring staff influences significantly monitoring of roads Projects	4.02	1.142
Projects monitoring provide managers and stakeholders with continuous feedback on implementation, interim and terminal evaluations.	4.42	1.054
<b>Average</b>	<b>4.39</b>	<b>1.063</b>

### Management support

The respondents were presented with questions and statements in order to seek answers to the second research objective on to find out the influence of management support on performance roads projects at Kenya national highways authority. They were to rate the statements on a 5 point likert scale where 1=strongly disagree, 2= disagree, 3=neutral, 4=Agree and 5= strongly agree. The findings of the study presented in table 3 revealed that the respondents indicated that Project managers are responsible for project deliverables as presented with a mean score of 3.81 and a standard deviation of 1.938. The findings further indicated that top management support allocates valuable organizational resources to ensure performance of roads projects. This statement was supported by respondents with a mean score of 3.78 and a standard deviation of 1.891. Further, the analysis of findings indicated with a mean score of 4.12 and a standard deviation of 2.042 that Management support is positively related to successful project management practices on performance of roads projects. The study also revealed that the management team are in charge of making decision and implementation of policies for the implementation of roads project.as indicated by respondents with a mean score of 4.20 and a standard deviation of 2.051. The findings of the study are indicated in table 4.4. Finally the study found out that top management plays an essential role in facilitating in implementation of road projects with a mean score of 4.22 and a standard deviation of 2.072 respectively. The study is in line with the study by Meredith and Mantel, (2010) who found that Management support is one of the prime factors for achieving the project success. In absence of management support, the project managers despite having excellent skills may fail at any stage of the project.

**Table 3: Descriptive Statistics on Management support**

Statements	Mean	Standard Deviation
Project managers are responsible for project deliverables	3.81	1.938
Top management support allocates valuable organizational resources to ensure performance of roads projects.	3.78	1.891
Management support is positively related to successful project management practices on performance of roads projects	4.12	2.042
The management teams are in charge of making decision an implementation of policies for the implementation of roads project.	4.20	2.051
Top management plays an essential role in facilitating in implementation of road projects.	4.22	2.072
<b>Average</b>	<b>4.026</b>	<b>1.998</b>

### Project Team Competency

The respondents were presented with questions and statements in order to seek answers to the third research objective on to establish how Project team competency influence performance of roads projects at Kenya national highways authority. They were to rate the statements on a 5 point likert scale where 1=strongly disagree, 2= disagree, 3=neutral, 4=Agree and 5= strongly agree. The findings of the study presented in table 4 revealed that the respondents indicated that project team should have the skill, knowledge, and possess a personality necessary to bring the project to realization as presented with a mean score of 3.83 and a standard deviation of 0.936. The findings further indicated that Project team is mostly important aspect in an organization it reduces conflict and builds cohesiveness among the individuals. This statement was supported by respondents with a mean score of 3.70 and a standard deviation of 0.821. Further, the analysis of findings indicated with a mean score of 3.32 and a standard deviation of 0.612 that Project team work analyzed include spirit of de corps, team trust and recognition which are positively related to performance roads projects. The study also revealed that the Project team organization has contributed to timely completion of low cost road project as indicated by respondents with a mean score of 4.20 and a standard deviation of 2.051. The findings of the study are indicated in table 4.5. Finally the study found out that top management plays an essential role in facilitating in implementation of road projects with a mean score of 3.27 and a standard deviation of 0.451 respectively. The study are in line with the study by Hartenian (2003) who suggested that teams with competency are more likely to achieve their set goals properly. It was concluded that teams who are trained in solving conflicts and showed good performance in settling conflicts, agreeing on goals and planning adequately.

Project team members should be selected based on the skills and expertise relevant to scope of work.

**Table 4: Descriptive Statistics on Project Team Competency**

Statements	Mean	Standard Deviation
Project team should have the skill, knowledge, and possess a personality necessary to bring the project to realization	3.83	0.936
Project team is mostly important aspect in an organization it reduces conflict and builds cohesiveness among the individuals.	3.70	0.821
Project team work analyzed include spirit of de corps, team trust and recognition which are positively related to performance roads projects	3.32	0.612
Project team organization has contributed to timely completion of low cost road project	3.27	0.451
<b>Average</b>	<b>3.53</b>	<b>0.705</b>

### Project Funding

The respondents were presented with questions and statements in order to seek answers to the fourth research objective on to determine the influence of Project funding on performance of roads projects at Kenya national highways authority. They were to rate the statements on a 5 point likert scale where 1=strongly disagree, 2= disagree, 3=neutral, 4=Agree and 5= strongly agree. The findings of the study presented in table 5 revealed that the respondents indicated that Funds play a crucial role in implementing and financing of road projects as presented with a mean score of 2.93 and a standard deviation of 0.830. The findings further indicated that adequate funded road projects are completed on time and limited costs are involved. This statement was supported by respondents with a mean score of 3.10 and a standard deviation of 0.961. Further, the analysis of findings indicated with a mean score of 3.12 and a standard deviation of 0.972 that poorly funded road project are more likely to delay in completion time this expose huge cost.

The study also revealed that the Sources of fund for road projects include loans, donations, grants among others as indicated by respondents with a mean score of 3.21 and a standard deviation of 0.991. The study are in line with the study by Feuerstein (1986) who argued that funding ensure effective, quality construction projects. It is critical to set aside adequate financial resources at the planning stage. The required financial resources for timely completion of construction projects should be considered within the overall costs of delivering the agreed results and not dedicated for the function.

**Table 5: Descriptive Statistics on Project funding**

Statements	Mean	Std Dev
Funds play a crucial role in implementing and financing of road projects	2.93	0.830
Adequate funded road projects are completed on time and limited costs are involved	3.10	0.961
Poorly funded road project are more likely to delay in completion time this expose huge cost	3.12	0.972
Sources of fund for road projects include loans, donations, grants among others	3.21	0.991
<b>Average</b>	<b>3.09</b>	<b>0.936</b>

### Performance of Roads Projects at KeNHA

The study sought to determine the extent to which key factors notably Cost of compliance to regulators requirements, Quality and availability of regulator documentation, the completion on time, completion within the budget, the project meeting the set quality, durability and Performance of Roads Projects at Kenya National Highways Authority. Respondents were provide with statements on performance of road projects and they were to rate the statements on a 5 point likert scale where 1=strongly disagree, 2= disagree, 3=neutral, 4=Agree and 5= strongly agree. The findings of the study presented in table 6 revealed that the respondents were in agreement with the statement that Cost of compliance to regulators requirements influence performance of Roads Projects at Kenya National Highways, which had had a mean score of 8.523, Quality and availability of regulator documentation had a mean score of 8.309, the completion on time had a mean score of 8.642. Completion within the budget had a mean score of 8.333, the project meeting the set quality and durability had a mean score of 8.234, These findings were in line with those of Davies (2013) who found out that Performance is about how well something can be done and to measure project performance in terms of time, cost, quality and client satisfaction.

**Table 6: Descriptive Statistics on Performance of Roads Projects**



**Table 6: Descriptive Statistics on Performance of Roads Projects**

Statements	Mean	Std. Deviation
Cost of compliance to regulators requirements	8.523	.10404
Quality and availability of regulator documentation	8.309	.10152
The completion on time	8.642	.10176
Completion within the budget	8.713	.10215
The project meeting the set quality, durability	8.823	.10146
<b>Average</b>	<b>8.4920</b>	<b>0.10911</b>

### Regression Analysis

The linear regression analysis models was used to show the linear relationship between the dependent variable which is performance of roads projects at Kenya National Highways Authority and the independent variables which are project monitoring, management support, project team competency and Project funding. The coefficient of determination  $R^2$  and correlation coefficient ( $r$ ) show the degree of association between the Variables and performance of roads projects at Kenya National Highways Authority. The results of the linear regression indicate that  $R^2=.985$  and  $R=.955$  this is an indication that there is a strong relationship between project monitoring, management support, project team competency and Project funding, and the performance of roads projects at Kenya National Highways Authority. The four independent variables that were studied, explain 98.5% of variance in Performance of road projects as represented by the  $R^2$ .

**Table 7: Model Summary**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.955	.985	.867	.691

a. Predictors: (Constant), project monitoring, management support, project team competency and Project funding

b. Dependent Variable: Performance of road projects

ANOVA results as presented in table 8 indicates that P value = 0.000 which is less than 5%. This shows that the overall model is significant. It further implies that project monitoring, management

support, project team competency and Project funding have a significant effect on the performance of roads projects at Kenya national highways authority.

**Table 8: ANOVA**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	494.594	16	123.648	362.058	.000 <sup>b</sup>
Residual	28.687	144	.342		
Total	523.281	160			

The researcher conducted a multiple regression analysis so as to determine the relationship between Y and the four variables. According to results presented in table 9, taking all factors into account (project monitoring, management support, Project team competency and Project funding) constant at zero, performance of roads projects at Kenya national highways authority had 2.962. The data findings analyzed also show that taking all other independent variables at zero, a unit increase in project monitoring led to a 0.873 increase in performance of roads projects at Kenya national highways authority; a unit increase in management support led to a 0.581 increase in performance of roads projects at Kenya national highways authority, a unit increase in Project team competency led to a 0.713 increase in performance of roads projects at Kenya national highways authority and a unit increase in Project funding led to a 0.289 increase in performance of roads projects at Kenya national highways authority. This infers that project monitoring contribute more to the performance of roads projects at Kenya national highways authority followed by Project team competency, Management support and Project funding respectively.

**Table 9: Multiple Regression Analysis**

	Unstandardized Coefficients	Standardized Coefficients		
	B	Beta	T	Sig.
(Constant)	2.962		0.168	0.867
project monitoring	0.873	0.071	12.296	0.056
Management support	0.581	0.008	72.625	0.004

Project team competency	0.713	0.213	3.347	0
Project funding	0.289	0.233	1.204	0.001

a. Dependent Variable: Performance of roads projects at Kenya national highways authority

The optimal regression model becomes;

**Performance of Roads Projects at Kenya National Highways Authority = 2.962 + 0.873(Project Monitoring) + 0.581(Management Support ) + 0.713 (Project Team Competency)+ 0.289(Project Funding)**

## CONCLUSIONS AND RECOMMENDATION

### Conclusions

The study found out that there is very poor management of monitoring Information. The inadequacy of the management of information system was characterized by poor means of monitoring of data storage, poor data processing, poor means of dissemination of monitoring information. Basically the practice of monitoring of road projects in Kenya national highways authority is not adequate to assess the performance of road projects. This is due to factors such as low or no participation of relevant monitoring and evaluation agents, poor allocation monitoring budgets, poor capacity building on monitoring of roads projects. In view of the findings of this study the following conclusions are deduced; management support related factors demonstrated strong influence in timely completion of road construction projects in Kenya national highways authority; The determinants perceived as most influential in promoting timely completion in road construction projects can lead to better performance within the road construction industry and they are likely to minimize time and cost overruns and improve the quality of deliverables.

Project team competency which entails the contractor's decision making capabilities, the contractor's management skills and contractor's experience influence the performance of road construction projects to a very large extent. To improve project competencies the contractors should go for training regularly. This training and development programs are useful to road contractors in sharpening their skills and expertise and contributing towards performance of road projects.

The study concluded that Project Funds greatly influence towards road Project Completion. From the findings it was indicated that majority of the respondents agreed that project funding influences road projects Completion in Kenya national highways authority.

## **Recommendations**

The researcher recommends that monitoring personnel should be hired, well remunerated and well trained so as to achieve the target of monitoring. The people to be hired must be in any case be well trained and have experience in high standard roads project. Also they can contract bodies like World Bank to have them the best expatriates for the project monitoring. The people to be hired must be in any case be well trained and have experience in high standard roads monitoring. Also they can contract bodies like World Bank to help them with the best expatriates for the Monitoring. Management should provide the necessary support to both technical and operational staff in the road construction activities for effective achievement of goals. Specific emphasis should be on the need to accord supportive work conditions to all project participants. Highly qualified and experienced management support with a relevant experience and technical skills should be hired to implement road projects. This will enable the Kenya government get value for their money, achieve on-time projects completion and save huge costs.

The project team competency in terms of the experience of the contractors should be scrutinized, their track records be well understood and proper procedures of testing these contractor's experience be checked. This can be done by experts from other parts that have had success in the rate at which projects success has been witnessed. The Kenya National Highways Authority should ensure budgetary allocation with a 100% absorption rate and enhance adequate utilization of funds set aside for implementation of road projects. Thus, the Kenya National Highways Authority can facilitate road project activities and contribute towards performance of roads project.

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