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Factors Influencing the Timeliness in Completion of National Projects in Kenya: A Case of Nairobi City County Roads

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Abstract

This study aimed at finding out factors that influence timely completion of national project taking a case study of road projects in Nairobi County, Kenya. The research was guided by the following research objectives; to determine the influence of project financing on timeliness in completion of in Kenya, to examine the influence of project planning on timeliness in completion of in Kenya, to determine the influence of stakeholder engagement on timeliness in completion of in Kenya and finally to determine the influence of contractor performance on timeliness in completion of in Kenya. The study focused on how finances, project planning, stakeholder engagement and contractor performance influenced timely completion of road construction projects. The study employed descriptive research design. The study also employed stratified random sampling technique in coming up with a sample size of 50. The study relied mostly on primary data sources where questionnaires were administered and utilized as source of data. Quantitative data was coded and entered into Statistical Package for Social Scientist (SPSS) and analysed using descriptive statistics as percentages, mode and quantitative analysis using chi-square. The findings of this study will help policy makers on key issues related to project development and management with particular reference to road construction. The study found that there was a positive and significant relationship between project financing, planning, stakeholder engagement and contractor performance to timeliness completion of road projects.

The study recommended that in order to enhance timely completion of projects implementation, the policy makers in the ministry of transport and infrastructure should at issues around project financing, project planning, stakeholder engagement and contractor performance. For instance, ensuring timely disbursement of contractor payments, proper project costing, clarity of project scope, inclusivity of stakeholder in project decision making and considering the field technical and financial capacity of the contractor.

Key Words: *Project Financing, Project Planning, Stakeholder Engagement, Contractor Performance, Timely Completion of National Project*

Introduction

All around the world many construction projects face one of the biggest management problems which is delay. Delays differ from one country to another. The variation can be based on the type of construction project, involved costs as well as project circumstances (Ward, Curtis & Chapman, 1991). Delay and cost overrun are inherent part of most projects despite the much acquired knowledge in project management. The physical and economic scale of projects today is such that it is driven with the focus of bringing profits to the parent organization, and of national interest (for government projects) by the degree of success defined within the iron triangle of cost, time, and scope.

According to Aon (2012), a project refers to a series of tasks, arranged in a defined sequence or relationship that produces predefined output or effect and it always has a start and an end. He further observes at a project like a football hit from one point of the goal and aimed at achieving the objective immediately it enters the opponent's goal; adding up to a score. Aon goes further to define the other major element of projects implementation that is called Construction Project Management (CPM). He defines Construction Project Management (CPM) as an approach used in the construction industry with the aim to increase the efficiency and effectiveness in performance in the management and coordination of a project during its lifecycle. A lot of construction projects usually suffer delay and surpass the outlined contract sum (World Bank, 2014). The result of such overrun can at time lead to abandonment of a project. In essence, projects are supposed to run continuously without delays and the responsibilities to keep this in check lies squarely with the project manager and other stakeholders who are linked directly with the projects. Within the project team there should be an outlined strict mechanism discouraging parties to the project from laxity that may lead to stalling or delays (Oyewobi, *et al*., 2011).

Globally, infrastructure is an important factor in the development of a nation through its direct and indirect contributions to economic growth. According to World Bank (2014) the following three factors of infrastructure foster economic growth. First, infrastructure directly or indirectly reduces costs in the production process. Secondly, infrastructure induces structural change which influences production and consumption. Lastly, trends and infrastructure contribute to sources of income and better income levels. However, reports across the developed and Least Developed Countries (LDCs) have shown that construction projects like roads and other infrastructure have been faced with a major common problem of 'delays in delivery' (World Bank, 2014).

Construction project delivery is affected by many factors. Every investor wants to be sure of the project time and cost. This is because challenges that may affect project completion have far reaching effects ultimately on the owners' interest. Chism and Armstrong (2010) in a study carried out in the USA aver that in the current economic landscape, project owners are scaling down or eliminating capital construction projects due to lack of financing, uncertainty over costs, and concerns about potential delays that could impact the feasibility basis of projects. In a study carried out in the UK, Fapohunda and Stephenson (2010) states that in construction, conflicts exist in the projects' stated objectives with regard to the appropriateness of cost, time and quality. They also identify the

distinct knowledge management areas for project managers' efficient performance to include, among others, project time management which includes providing an effective project schedule for project delivery besides actually delivering on the schedule.

Chism and Armstrong (2010), for example, studied the construction of the proposed road network in the state of Illinois that was to be funded by the US government and the county development assembly between 1994 and 1999. They discovered that the road prolonged by 3 more years; meaning additional expenses/overrun costs, negative impact to the community and political repulsion from the Democrats. They cited two major causes of this delay as those coming from the natural environment (Hurricane Katrina, hails stones, ice caps, extreme cold weather etc.) and human caused factor (insufficiency of financial resources, change in technology, politics).

In another study, McNair (2011) referring to the Australian context of applying EPC contract advances the importance of a contractor delivering a complete facility for a guaranteed price and by a guaranteed date. He looked at the construction of feeder roads in the city of Newcastle and argued that up to 30% of the projects failed due to various reasons including; weather situations that faced the cold desert continent between 2000 to 2005, the political indifferences between the upper house and the construction industries, newly adopted technology from China, expertise demands, financial constrains due to the economic crisis of the millennium and many more. He further observed that failure to achieve this completion of roads construction usually resulted to a contractor incurring monetary liabilities.

The subject of completion of project is therefore a universal concern that affects all parties in a construction project. It is thus in the interest of the project management as an emerging profession to address all the factors that affect completion of construction projects. The contractor usually has a limited ability to claim additional money which is pegged to the circumstances where the project company has delayed the contractor or has ordered the variation of the works (McNair, 2011).

Statement of the Problem

According to Kenya Economic Report (2014) infrastructure forms the bedrock of national growth and development and plays a critical role in determining the nation's competitiveness. Vision 2030 (2007) observes that infrastructure is important in improving the livelihoods of people and security of the country. One of the goals for 2012 (Vision 2030, 2007) was improving efficiency and effectiveness of the infrastructure development process at all levels of planning, contracting and construction. In pursuit of this goal, the strategy was to strengthen institutional framework and accelerate speed of project completion. This would lead to rise in efficiency and quality of projects and increasing the pace of implementation of projects so that they are completed in specified time frames (Vision 2030, 2007).

Muriungi (2011) in his work, however, asserts that various organizations have been crying foul over the many projects whose performance fell below target and scarce resources went down the drain. The number of projects that have so far proven defunct and futile ventures in relation to their objectives is terribly alarming (Muriungi, 2011). Several studies have been undertaken on factors that influence timely completion of projects. None of the reviewed studies assessed the factors influencing the timeliness of completion of projects in Kenya, taking a case of Nairobi City County. This is the knowledge gap that the current study aimed to fill.

Objectives of the Study

i. To determine the influence of project financing on timeliness in completion of national projects in Kenya.
ii. To examine the influence of project planning on timeliness in completion of national projects in Kenya.

iii. To determine the influence of stakeholder engagement on timeliness in completion of national projects in Kenya.
iv. To determine the influence of contractor performance on timeliness in completion of national projects in Kenya.

Literature Review

Theoretical Literature Review

Agency Theory

This theory was postulated by Fama (1980). The theory focuses on the relationship between principals and agents who exercise authority on behalf of organizations (Fama & Jensen, 1983). The theory argues that principals must solve two basic tasks in choosing and controlling their agents: first, they have to select the best agents, whether employees or contractors, and create inducements for them to behave as desired. Second, they have to monitor the behaviour of their agents to ensure that they are performing as agreed (Fama, 1980). A problem arises when the parties' goals conflict or when it is difficult or expensive for the principal to verify what the agent is actually doing. Information asymmetry here introduces an adverse selection and a moral hazard problem (Fama, 1980).

The theory is relevant to the study as it informs independent variables of the study which are contractor performance and project planning regarding the operation of its projects. In government projects the principal-agency relationship exists as the public partner as the principal and the private party being the agent, and whereby the principal plans and gives expectations to the agent through which the agent performance is evaluated. If the relationship between the two parties is not well articulated, then the problems associated with the agency theory, like the information asymmetry would normally occur. The quality of the participants and the relationships among them and how it is thought out at the beginning determines the success or failure of the project timelines.

Stakeholder Theory

Stakeholder theory which was developed by Freeman (1984) begins with the assumption that values are necessarily and explicitly a part of doing business. It asks managers to articulate the shared sense of the value they create, and what brings its core stakeholders together. It also pushes managers to be clear about how they want to do business, specifically what kinds of relationships they want and need to create with their stakeholders to deliver on their purpose. Stakeholder theory reflects and directs how managers operate rather than primarily addressing management theorists and economists.

The focus of stakeholder theory is articulated in two core questions (Freeman 1994). First, it asks, what is the purpose of the firm? This encourages managers to articulate the shared sense of the value they create, and what brings its core stakeholders together. This propels the firm forward and allows it to generate outstanding performance, determined both in terms of its purpose and marketplace financial metrics. Second, stakeholder theory asks, what responsibility does management have to stakeholders?

This pushes managers to articulate how they want to do business specifically, what kinds of relationships they want and need to create with their stakeholders to deliver on their purpose. Today's economic realities underscore the fundamental reality we suggest is at the core of stakeholder theory: Economic value is created by people who voluntarily come together and cooperate to improve everyone's circumstance.

The theory informs the independent variable of the study which is stakeholder engagement in government projects. As such, managers must develop relationships, inspire their stakeholders, and create communities where everyone strives to give their best to deliver the value the organization promises.

X-Efficiency Theory

Leibenstein (1966) proposed the X-efficiency hypothesis of government projects according to which government backed public entities are inherently inefficient such that engaging private entities are necessary to reduce the sources of inefficiency in such organizations as based on a few basic postulates. Imperfect markets, incomplete labour contracts/production function, discretionary effort, rationality as a continuum, and inert areas.

First, x-efficiency theory focused on imperfect markets caused by monopoly power or asymmetric information. Second, labour contracts may completely define hours to be worked and wages to be paid but it cannot list in great detail every sequence of behaviours workers are expected to perform. Production functions are also incomplete in that the conversion of inputs into outputs is not the result of engineering blueprints. Third, workers have effort discretion. Fourth, individuals are sometimes fully rational, and sometimes less than fully rational. Individuals are thus selectively rational.

Leibenstein (1966) thought of rational behaviour as the result of the degree of calculated behaviour, rather than what amounted to a tautology, those individuals are always rational given their constraints. The relevant behaviours include realistically assessing the environment, avoiding knee-jerk reactions, learning from experience, not putting off decisions because they are difficult, being sensitive to small changes in the environment, making decisions based on costs and benefits rather than making decisions simply to please others.

The involvement of the private sector allows public entities to respond to market forces and become more competitive. This explanation is rooted in the belief that government interventions in the operations of public entities to bail them out during potential failure, introduces inefficiencies in their operations. The knowledge by a public entity that it would not be allowed to fail worsens the moral hazard among public entities. The need to avoid this hazard and improve efficiency in infrastructure provision necessitates timeliness in completion of National projects coupled with financing deliberations that support efficiency.

The model therefore informs the dependent variable of the study which is timeliness in completion of National projects. The theory argues that it is important to know that all service delivery mechanisms, whether they are public, private or partnership models are exposed to risks. The main difference with public-private partnerships is that a large part of their efficiency or value for money is derived from the effective identification, pricing and transfer of risk from the public sector to the private sector. The theory also informs an independent variable which is project is financing. The theory posits that the main problem faced by public authorities, is considered as the financing of necessary services to meet increasing public demands (OECD, 2007). Governments in the short-term, have to face the problem of how to handle budgets with unexpected expenses in almost every sector.

The Triangle of magic theory

The Triangle of magic theory on project management by Litke and Kunow (2004,2016) visualizes three major objectives of project management; Cost, Time and Performance that if any one of them is jeopardized, then the whole project will either fail, become costlier or delay. This theory is further advanced by Harry Sneed a pioneer in software testing technology and professor for software engineering, but adds the thin line of quality constraint in the triangle as a separate parameter. A project's quality results from how well the Contractor can balance the constraints, enabling the team to deliver the expected results within the given constraints of time, Atkinson (1999).

Conceptual Framework

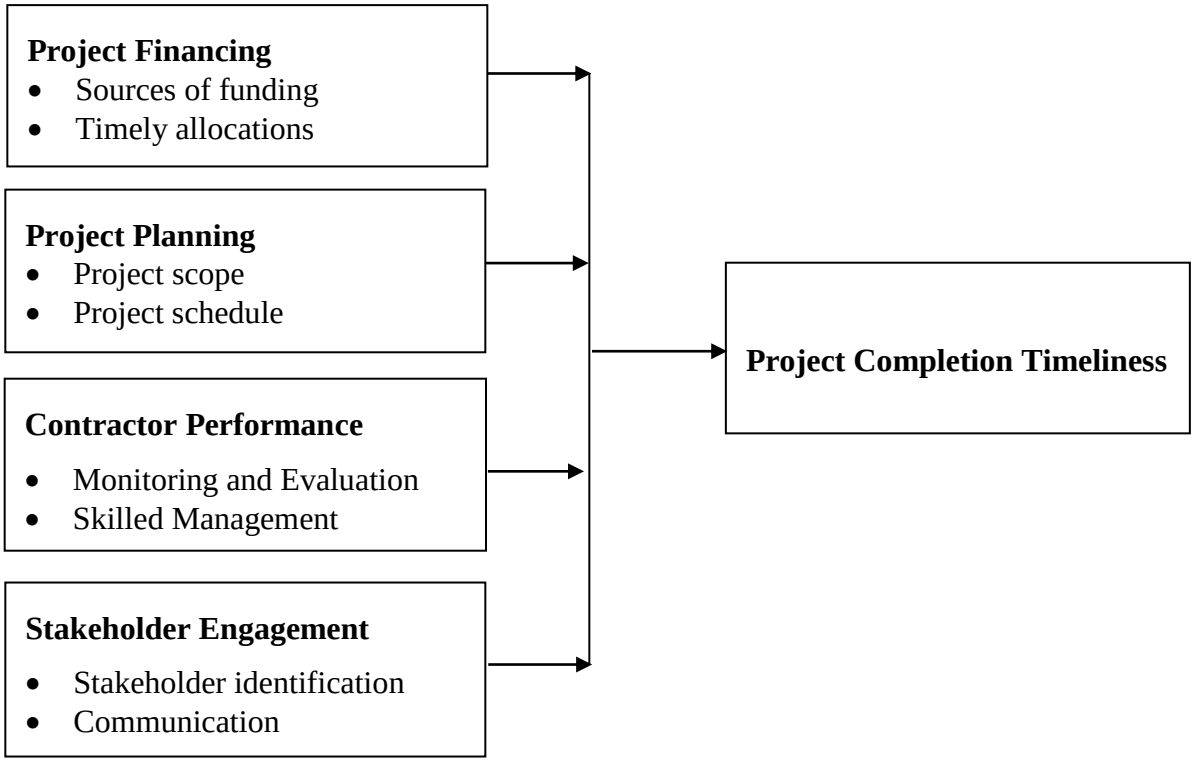

Figure 1: Conceptual Framework

Project Financing

Project financing is one of the factors that has been found to greatly impact how well contractors are able to adhere to their time schedules. In Zambia, Muya *et al.* (2013) argued that financial difficulties as well as change orders faced by contractors had a significant impact on the schedule leading to delays in many construction projects. A key factor leading to excessive overruns was the financing and payments for completed works among other variables. A project is considered successful if it is delivered on time, within budget and acceptable quality (Mbamali, 2005).

Unfortunately, most projects are never completed on time (Sabasvan & Soon, 2007). Dvapriya and Ganesan (2002) argued that poor financing arrangements, inadequate construction funding, bad cash flow and inaccessibility to formal structured finance have a heavy bearing on project smooth running leading to delayed completion of a project.

Project Planning

Planning a project is perhaps the single most important process before project implementation. The Guide to project management body of knowledge (Project management Institute, 2000) describes the project planning process and it involves;

i) *scope planning which is the development of a written scope statement*
ii) *Scope definition which subdivides the major project deliverables into smaller, more manageable components*
iii) *Activity definition identifies the specific activities that must be performed to produce the various project deliverables*
iv) *Activity sequencing identifies and documents interactivity dependencies*
v) *Activity duration estimation helps to estimate the amount of time which will be needed to complete the individual activities*
vi) *Schedule development is analyzing activity sequences, activity durations and resource requirements to produce the project schedule.*
vii) *Resource planning helps to determine what resources (people, equipment and materials) and what quantities of each should be used to perform project activities*

The forgoing process produces a project which is a coherent and consistent document to guide the successful implementation of the project. Planning will also involve putting in place robust facilitative processes line quality planning, organizational planning, staff acquisition, communication planning, risk identification and quantification, risk response and procurement panning. Road construction contracts will require the contractor to provide a project plan. The Ministry of Roads in Kenya (2012), came up with a manual for evaluation of road works which states that "In accordance with Clause14 of the Conditions of Contract Parts I and II, the Contractor shall submit a fully detailed and time related programme showing the order of procedure and method in which he proposes to carry out the Works." That notwithstanding, delays and disruptions are phenomenon observed in the implementation of road construction projects in Kenya. These delays are partly due to poor planning and project scheduling. A contract delay has adverse effects on both the owner and contractor (either in the form of lost revenues or extra expenses) and it often raises the contentious issue of delay responsibility, which may result in conflicts that frequently reach the courts (Macharia, 2016).

A realistic project plan contributes to efficiency in project control and delivery. However, for a project plan to be an efficient tool in implementation, it must be free from deficiencies (Bramble and Callahan, 2000). There must be a clear link between the timing of the activities and the availability of relevant resources. This begs the question, is the project plans provided in contracts deficient in some planning aspects or are they produced just for the purpose of tendering?.

Stakeholder Engagement

A project stakeholder is anyone who has an interest in the project. Dagmar (2001) enlists stakeholders to include lending institutions, banks, bond holders, local communities, governments, media, creditors and debtors, employees, suppliers and other strategic partners. Cecilie (2008) states that for there to be a successful stakeholder involvement in the change management process, to a high extent, then five factors need to be in place. They include: stakeholder early awareness of norms, awareness of diversity within the different organizational units, manager availability, early role clarification and constructive conflict.

In the Lessons of Experience, IFC (September, 2006) in the BTC pipeline project, it was reported as a lesson learned that "one way to help satisfy stakeholder concerns and promote transparency is to involve project affected stakeholders in monitoring and implementation of the projects. Such participation and flow of information generated through this process encourages stakeholders to take a greater degree of responsibility for the project and

to feel empowered that they can do something practical to address issues that affect their lives". Verzuh (1999) concludes that many projects fail to involve one or more critically important stakeholders during project definition and planning. The resulting problems are easily predictable with project requirement conflicts, project rework and sometimes direr consequences which may include lawsuits or hefty fines.

Contractor Performance

Work performance of contractors is very important due to its correlation with completion timelines. There are three elements of contractor performance that influence delays in construction projects implementation; skilled manpower, organization structure, client support and monetary strength of the contractor that ensures sufficient and consistent cash flow for the implementation (Abbasnejad & Moud, 2013). In projects the availability or unavailability of resources will often have influence on the project. One of these resources is human resource. This is the most important project resource. Human resources are usually classified by the skills they bring to the project (Larson & Gray, 2011). Use of unqualified human resource will result in poor performance. Contractors' experience is a variable that affect adherence to timely completion of projects. A contractor is the one who carries out the actual construction; the contractor who has been awarded the tender starts by identifying the best plan, allocating both manpower and required resources, linking the legal partners and above all delivering within the assumed times.

Oglesby, Parker and Howell (2009) argue that, Contractors are selected on the basis of price, experience in undertaking particular types of construction project and their reputation or track record in producing high quality work within budget and on time. In most cases there is a trade-off between price, experience and track record but the desire to accept the lowest tender does not always lead to a project that is completed within time and budget. In Kenya, only 20.8 per cent of the projects were implemented on time and budget, while 79.2 per cent exhibited some form of failure, this was attributed to insufficient Contractor implementing capacity (Seboru, 2006). Therefore, there is a good reason to be concerned about the experience in the planning and implementation of such projects.

Empirical Literature Review

A study by Hussin and Omran (2011) on 120 selected contractors in Kenya and Malaysia found out that, 80% of the respondents indicated that experience with rating "high" is a significant factor to adherence to cost estimates and time in the construction industry. At pre-qualification stage, the study established that contractors past experience in similar assignments and environment coupled with the entire team is among the parameters used in qualifying the contractors invited to bid for works. The study established that aspects of contractor's experience that affect adherence to cost and time estimates to a great extent or quantum are poor distribution of labour, poor site management, technical and managerial skills. Oraro (2012) study established that the relationship between contractors' experience and adherence to time estimates was very significant, at 0.05 level of significance. This is in agreement to Gakuu and Kidombo (2013) observation which attested that in contracts where the contractors' experience is questionable, there is a strong likelihood of cost escalations.

Mwilu (2017) in his study of construction projects in Kenya found that programs of work are an important tool in management of projects. The results of poorly planned projects are poor execution of project and time overruns that may also affect the eventual project costs. Msafiri (2015), in his study on factors causing delays in both construction projects in Kenya using a survey on consultant found out that the overall causes of delay are; delayed payment by the client, slow decision making and bureaucracy in client organization, inadequate planning and rain. Ruwa (2013) in her study of the influence of stakeholder participation on performance on donor funded projects: A case study of Kinango Integrated Food Security and Livelihood Project concluded that stakeholder participation is

instrumental in having better designed projects, ensuring benefits reach the intended beneficiaries and that effectiveness in terms of cost and time is assured. Stakeholder engagement also aims at reducing incidences of corruption and ensuring equitable distribution of project benefits.

In a study carried out by Odondo, *et. al* (2008) on stakeholder participation in the project cycle and performance of End Child Marriage project in Homa-Bay County Kenya, they reported in an evaluation carried out by plan international that the sustainability and performance of community developments projects was poor. This was greatly attributed to weak participation of stakeholders. They therefore recommended the need to strengthen stakeholder participation in project formulation as this would lead to improved performance. Owolabi *et al.* (2014) studied the causes and effects of delay on project construction delivery time in Nigeria. They stated that seven out of ten projects in Nigeria suffered delays in their execution. The results of the study indicated that the following were the five major causes of delay: Lack of funds to finance the project to completion; Changes in drawings; Lack of effective communication among the parties involved; lack of adequate information from consultants; and slow decision making.

According to a study conducted in Saudi Arabia, Assaf and Al-Hejji (2006), to ascertain the cause of delay in construction projects from the project's owner, consultant and contractor perspectives, it was found that for both the consultant and contractor, financing was a common factor that led to delays. In their report, delay in progress payments by owner was a key factor stated by contractors as well as consultants.

Research Methodology

This study employed a cross sectional descriptive survey design. The target population of this study was the project teams, including Engineers, Consultants and Contractors from the three agencies and county government implementing road construction projects in Nairobi. The agencies are Kenya National Highways Authority (KeNHA), Kenya Rural Roads Authority (KeRRA), Kenya Urban Roads Authority (KURA) and the Nairobi County Government (NCG). The engineers from the county and the three agencies represented the client and were supposed to have been involved in management and supervision during the construction stages of the project. They were also required to have experience in road construction works. The consultants were consulting engineering firms that had dealt with design and construction of roads in Nairobi. Contractors were road construction firms contracted by the road agencies and Nairobi County to carry out the implementation of the road construction projects in Nairobi. In total, 50 officers representing both the private sector and the public sector partners formed the target population.

Table 1: Target Population

Category	**No of respondents**
Kenya Rural Roads Authority	10
Kenya Urban Roads Authority	10
Kenya National Highways Authority	10
Nairobi County Government	10
Contractors	5
Consultants	5
Total	**50**

The study used purposive sampling technique in coming up with a sample size of 50 respondents. According to Mugenda and Mugenda (2003), purposive sampling allows a researcher to use the cases that have the required information and knowledge in the area of study. The study made use of primary forms of data. The questionnaire was in a likert scale format. The Likert measures the level of agreement or disagreement. Likert scale is good in measuring perception, attitude, values and behaviour Upagade & Shende (2012). The data was collected from the respondents through questionnaires which were sent through emails. Before using the questionnaire, a pilot study was conducted in order to establish the validity and reliability of data collection instruments. The questionnaire was pre-tested on a pilot set of 4 respondents for comprehension, logic and relevance. This represented 8% percent of the target population. The rule of the thumb suggests that 5% to 10% of the target sample should constitute the pilot test (Cooper & Schindler, 2011).

Reliability analysis was used to assess internal consistency among the variables of study. The reliability of the study measures was assessed by computing Cronbach's Alpha coefficient for all items in the questionnaire and the overall assessment was given (Sekaran & Bougie, 2010). All items that returned a Cronbach's alpha coefficient of 0.7 or more were considered reliable. Table 2 indicates the results of the pilot study.

Table 2: Pilot Test Results

Variables	Cronbach's alpha	Number of Items	Comment
Project Financing	0.812	8	Reliable
Project Planning	0.724	10	Reliable
Stakeholder Engagement	0.784	6	Reliable
Contractor Performance	0.810	4	Reliable
Timeliness in Completion	0.816	3	Reliable

In addition, content validity of the questionnaire was assessed. Experts in project management, the supervisor and experts in road engineers were given the questionnaire to give their opinion on its suitability to capture what it was intended. Their reviews were incorporated in the questionnaire. The collected data was analyzed using descriptive statistics such as percentages and mode. In addition, the study adopted Chi-square analysis to determine the influence of each of the factors on timeliness in completion of national projects. Adoption of Chi-square analysis was suitable since the data collected was categorical in nature which could not be analysed through other inferential methods. Statistical Package for Social Sciences version 24 was adopted.

Research Findings and Discussion

Descriptive Results

This section presents the finding on descriptive analysis conducted by the study. These included analysis of the Likert scale questions based on the mode. This provided a clear picture of the rating of the questions per variable.

Project Financing

The first objective of the study was to determine the influence of project financing on timeliness in completion of national projects in Kenya. Four point Likert scale questions on the frequency various financing practices was established and presented in Table 3 and 4.

The rating on frequency was on a scale of 1 to 4 where 1 = rarely, 2 = Sometimes, 3 = Often, 4= Always. The findings in Table 3 indicate that delays in disbursement of contractor payments sometimes happen as shown by the most occurring value of 2 (Mode = 2) and supported by a percentage response of 42%. The findings also showed that poor project cost estimation rarely happens as shown by the most occurring value of 1 (Mode = 1) and supported by a percentage response of 38%. It was also revealed that delay in land acquisition and statutory permits sometimes happens since this was the most occurring response (Mode = 2) and supported by a percentage of 36%. Delay in receiving feedback on contractual matters sometimes happened as supported by a percentage value of 50% and mode of 2.

Table 3: Descriptive Statistics on Frequency of Project Financing

Statement	Rarely (1)	Sometimes (2)	Often (3)	Always (4)	Mode
Delays in disbursement of contractor payments	16.00%	42.00%	28.00%	14.00%	2
Poor project cost estimation	38.00%	38.00%	16.00%	8.00%	1
Delay in land acquisition and statutory permits	14.00%	36.00%	24.00%	26.00%	2
Delay in receiving feedback on contractual matters	30.00%	50.00%	16.00%	4.00%	2

The study also sought to establish the severity of the specific project financing factors on timeliness in completion national projects. A scale of 1 to 4 where 1 = little, 2 = Moderate, 3 = Great and 4 = Extreme was adopted as shown in Table 4. The findings revealed that the severity of delays in disbursement of contractor payments was great as shown by a percentage of 42% and most frequent response of 3 (Mode = 3). It was also shown that the severity of poor project cost estimation on timeliness in completion of national projects was also great (Mode = 3) and percentage number of 36%. It was revealed that severity in delay in land acquisition and statutory permits on timeliness in completion of national projects was also great was extreme since this was the most occurring response (Mode = 4) supported by a percentage response of 50%. The findings also indicated that the severity of delay in receiving feedback on contractual matters was moderate as shown by the most occurring response of 2 and percentage response of 48%.

Table 4: Descriptive Statistics on Severity of Project Financing on Timeliness

Statement	Little (1)	Moderate (2)	Great (3)	Extreme (4)	Mode
Delays in disbursement of contractor payments	4.00%	20.00%	42.00%	34.00%	3
Poor project cost estimation	20.00%	26.00%	36.00%	18.00%	3
Delay in land acquisition and statutory permits	12.00%	16.00%	22.00%	50.00%	4
Delay in receiving feedback on contractual matters	20.00%	48.00%	28.00%	4.00%	2

Project Planning

The second objective of the study was to examine the influence of project planning on timeliness in completion of national projects in Kenya. A Four point likert scale questionnaire on the frequency and severity of various planning practices was established and presented in Table 5 and 6. The rating on frequency was on a scale of 1 to 4 where 1 = rarely, 2 = Sometimes, 3 = Often, 4= Always. The findings in Table 5 indicated that unclear understanding of the project scope in the bidding document rarely happens as supported by a mode of 1 and percentage response of 60%. It was also established that there was a neutral point of view in regard to insufficient information on utility facilities e.g. water lines, sewage and power which was revealed to either often or always happen as shown by a mode of 3 and percentage response of 28% in each case.

Errors in project design sometimes happened as shown by the most occurring response of 2 (Mode = 2) and percentage of 42%. The findings also showed that change in organizational strategy prioritizing other projects rarely happened (Mode = 1). The findings were also supported by a response rate of 48%. In regard to change in scope of the project, it was revealed that it often happens as this was the most occurring response (Mode = 3) supported by a response rate of 42%.

Table 5: Descriptive Statistics on Frequency of Project Financing

Statement	Rarely (1)	Sometimes (2)	Often (3)	Always (4)	Mode
Unclear understanding of the project scope in the bidding document.	60.00%	20.00%	16.00%	4.00%	1
Insufficient information on utility facilities e.g. water lines, sewage and power	18.00%	26.00%	28.00%	28.00%	3
Errors in project design	42.00%	46.00%	12.00%	0.00%	2
Change in organizational strategy prioritizing other projects	48.00%	32.00%	20.00%	0.00%	1
Change in scope of the project	20.00%	22.00%	42.00%	16.00%	3

The study also sought to establish the severity of the specific project planning factors on timeliness in completion national projects. A scale of 1 to 4 where 1 = little, 2 = Moderate, 3 = Great and 4 = Extreme was adopted as shown in Table 6. The findings indicated that the severity of unclear understanding of the project scope in the bidding document on timelines of completion of national projects is great as supported by the most occurring response (Mode = 3) and a percentage response of 38%.

It was also indicated that the severity of insufficient information on utility facilities e.g. water lines, sewage and power on timelines of completion of national projects is great as supported by the most occurring response (Mode = 3) and a percentage response of 34%. The study findings also revealed that errors in project design had moderate severity on timelines of completion of national projects as supported by the most occurring response (Mode = 2) and a percentage response of 38%. Change in organizational strategy prioritizing other projects similarly had moderate severity on timelines of completion of national projects as supported by the most occurring response (Mode = 2) and a percentage response of 50%. It was also indicated that change in scope of the project had great

severity on timelines of completion of national projects as supported by the most occurring response (Mode = 3) and a percentage response of 30%.

Table 6: Descriptive Statistics on Severity of Project Planning on Timeliness

Statement	Little (1)	Moderate (2)	Great (3)	Extreme (4)	Mode
Unclear understanding of the project scope in the bidding document.	26.00%	28.00%	38.00%	8.00%	3
Insufficient information on utility facilities e.g. water lines, sewage and power	10.00%	26.00%	34.00%	30.00%	3
Errors in project design	14.00%	38.00%	24.00%	24.00%	2
Change in organizational strategy prioritizing other projects	20.00%	50.00%	16.00%	14.00%	2
Change in scope of the project	16.00%	28.00%	30.00%	26.00%	3

Stakeholder Engagement

The third objective of the study was to determine the influence of stakeholder engagement on timeliness in completion of national projects in Kenya. A Four point Likert scale questions on the frequency and severity of various stakeholder engagement practices was established and presented in Table 7 and 8. The rating on frequency was on a scale of 1 to 4 where 1 = rarely, 2 = Sometimes, 3 = Often, 4= Always as shown in Table 7. The findings indicated that the problem of inadequate stakeholder identification rarely happened as shown by the most occurring response (Mode = 1) and supported by a response of 48%; the problem of insufficient stakeholder inclusivity in project decision making sometimes occurred as shown by the most occurring response (Mode = 2) and supported by a response of 40% while the problem of resistance from stakeholders equally occurred sometimes as shown by the most occurring response (Mode = 2) and supported by a response of 44%.

Table 7: Descriptive Statistics on Frequency of Stakeholder Engagement

Statement	Rarely (1)	Sometimes (2)	Often (3)	Always (4)	Mode
Inadequate stakeholder identification	48.00%	40.00%	12.00%	0.00%	1
Insufficient stakeholder inclusivity in project decision making	36.00%	40.00%	20.00%	4.00%	2
Resistance from stakeholders	22.00%	44.00%	30.00%	4.00%	2

The study also sought to establish the severity of the specific stakeholder engagement factors on timeliness in completion national projects. A scale of 1 to 4 where 1 = little, 2 = Moderate, 3 = Great and 4 = Extreme was adopted as shown in Table 8. It was established that the severity of inadequate stakeholder identification on timeliness of completion of national projects was moderate as supported by the most occurring response (Mode = 2) and a percentage of 50%. It was also shown that insufficient stakeholder inclusivity in project decision making had moderate severity on timeliness of completion of national projects as supported by the most occurring response (Mode = 2) and a percentage of 38%. The findings also indicated that resistance from stakeholders had a moderate severity on timeliness of completion of national projects as supported by the most occurring response

(Mode = 2) and a percentage of 44%.

Table 8: Descriptive Statistics on Level of Stakeholder Engagement on Timeliness

Statement	Little (1)	Moderate (2)	Great (3)	Extreme (4)	Mode
Inadequate stakeholder identification	22.00%	50.00%	24.00%	4.00%	2
Insufficient stakeholder inclusivity in project decision making	22.00%	38.00%	34.00%	6.00%	2
Resistance from stakeholders	8.00%	44.00%	24.00%	24.00%	2

Contractor Performance

The forth objective of the study was to determine the influence of contractor performance on timeliness in completion of national projects in Kenya. A Four point likert scale questions on the frequency and severity of various contractor performance practices was established and presented in Table 9 and 10. The rating on frequency was on a scale of 1 to 4 where 1 = rarely, 2 = Sometimes, 3 = Often, 4= Always as shown in Table 9.

The findings indicated that inadequate field technical capacity on the side of the contractor sometimes happen based on the most occurring response (Mode = 2) and supported by a response rate of 42%. Contractor cash flow management problems on the other hand often happen as supported by the most occurring response (Mode = 3) and percentage response of 40%.

Table 9: Descriptive Statistics on Frequency of Contractor Performance

Statement	Rarely (1)	Sometimes (2)	Often (3)	Always (4)	Mode
Inadequate field technical capacity on the side of the contractor	22.00%	42.00%	22.00%	14.00%	2
Contractor cash flow management problems	4.00%	32.00%	40.00%	24.00%	3

The study also sought to establish the severity of the specific contractor performance issues on timeliness in completion national projects. A scale of 1 to 4 where 1 = little, 2 = Moderate, 3 = Great and 4 = Extreme was adopted as shown in Table 10. It was indicated that inadequate field technical capacity on the side of the contractor had a great severity on the timeliness in completion national projects as shown by the most occurring response (Mode = 3) and percentage response of 48%. The severity of contractor cash flow management problems on the timeliness in completion national projects was extreme as shown by the most occurring response (Mode = 4) and percentage response of 54%.

Table 10: Descriptive Statistics on Severity of Contractor Performance on Timeliness

Statement	Little (1)	Moderate (2)	Great (3)	Extreme (4)	Mode
Inadequate field technical capacity on the side of the contractor	4.00%	16.00%	48.00%	32.00%	3
Contractor cash flow management problems	2.00%	12.00%	32.00%	54.00%	4

Timeliness in Completion of National Projects

The respondents rated statements on timeliness in completion of National projects in their respective organizations using a scale of 1-5, where 1- Strongly Disagree, 2- Disagree, 3-neutral, 4- Agree, 5- Strongly Agree. The findings presented in Table 11 indicated that the respondents agreed that their organization meets timeliness in project design in National projects as shown by the most occurring response (Mode = 4), meets timeliness in project implementation in National projects as shown by the most occurring response (Mode = 4) and also meets timeliness in project handover and acceptance in National projects as shown by the most occurring response (Mode = 4). These findings were also supported by percentage responses of 56%, 40% and 40% respectively.

Table 11: Descriptive Statistics on Timeliness in Completion of National Projects

Statement	Strongly Disagree (1)	Dis Agree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Mode
Your organization meets timeliness in project design in National projects	10.00%	2.00%	16.00%	56.00%	16.00%	4
Your organization meets timeliness in project implementation in National projects	8.00%	22.0%	20.00%	40.00%	10.00%	4
Your organization meets timeliness in project handover and acceptance in National projects	8.00%	14.0%	28.00%	40.00%	10.00%	4

Chi-Square Analysis

In order to achieve the research objectives that is to determine the influence of project financing on timeliness in completion of national projects in Kenya ; to examine the influence of project planning on timeliness in completion of national projects in Kenya ; to determine the influence of stakeholder engagement on timeliness in completion of national projects in Kenya and to determine the influence of contractor performance on timeliness in completion of national projects in Kenya, inferential analysis was conducted. Based on the type of data collected using the Likert scale, that is nominal data, Chi-square analysis was suitable.

Joshi, Kale, Chandel and Pal (2015) indicated that categorical data can well be analysed through Chi-square analysis.

Influence of Project Financing on timeliness in completion of national projects in Kenya

The study tested the influence of project financing on timeliness in project design, project implementation and project handover and acceptance in National projects using a Chi-square analysis. The findings presented in Table 12 indicated that project financing has a significant influence on timeliness in project design ($\chi = 5.357$, Sig < 0.05) as well as timeliness in project handover and acceptance ($\chi = 7.219$, Sig < 0.05). The influence of project financing on timeliness in project implementation was however not significant ($\chi = 1.691$, Sig > 0.05).

The findings are consistent with the findings of a study by Muya *et al*. (2013) which found that financial difficulties as well as change orders faced by contractors had a significant impact on the schedule leading to delays in many construction projects. The findings are also consistent with the findings of a study by Assaf and Al-Hejji (2006) to ascertain the cause of delay in construction projects from the project's owner, consultant and contractor perspectives and found that for both the consultant and contractor, financing was a common factor that led to delays.

Table 12: Influence of Project Financing on Timeliness in Completion of National Projects

	χ	**P-Value**
Project Financing and Timeliness in Project Design	5.357	0.021
Project Financing and Timeliness in Project Implementation	1.691	0.193
Project Financing and Timeliness in Project Handover and Acceptance	7.219	0.007

Influence of Project Planning on timeliness in completion of national projects in Kenya

The study also tested the influence of project planning on timeliness in project design, project implementation and project handover and acceptance in National projects using a Chi-square analysis. The findings presented in Table 13 indicated that project planning has a significant influence on timeliness in project handover and acceptance ($\chi = 8.420$, sig < 0.05). The influence of project planning on timeliness in project design was not significant ($\chi = 2.904$, Sig > 0.05). Furthermore, the influence of project planning on Timeliness in Project implementation was not significant ($\chi = 0.936$, Sig > 0.05).

The findings are consistent with the findings of a study by Mwilu (2017) which indicated that poorly planned projects lead to time overruns that may also affect the eventual project costs. The findings also agree with the findings of Macharia (2016) who noted that lack of adequate planning at the early stages of the project impacts on timely completion of construction projects and cost overruns.

Table 13: Influence of Project Planning on Timeliness in Completion of National Projects

	χ	**P-Value**
Project Planning and Timeliness in Project Design	2.904	0.088
Project Planning and Timeliness in Project Implementation	0.936	0.333
Project Planning and Timeliness in Project Handover and Acceptance	8.42	0.004

Influence of Stakeholder Engagement on timeliness in completion of national projects in Kenya

The study also tested the influence of stakeholder engagement on timeliness in project design, project implementation and project handover and acceptance in National projects using a Chi-square analysis. The findings presented in Table 14 indicated that stakeholder engagement does not have a significant influence on timeliness in project handover and acceptance ($\chi = 0.739$, sig > 0.05); timeliness in project design ($\chi = 0.082$, Sig > 0.05) nor timeliness in Project implementation ($\chi = 0.082$, Sig > 0.05).

The findings are inconsistent with the findings of Odondo, *et. al* (2008) which indicated that an improvement in stakeholder engagement lead to an improved in project performance in terms of time and cost. The findings are also inconsistent with the findings of a study by Ruwa (2013) which indicated that stakeholder participation is instrumental in having better designed projects, ensuring benefits reach the intended beneficiaries and that effectiveness in terms of cost and time is assured.

Table 14: Influence of Stakeholder Engagement on Timeliness in Completion of National Projects

	χ	P-Value
Stakeholder Engagement and Timeliness in Project Design	0.739	0.39
Stakeholder Engagement and Timeliness in Project Implementation	0.082	0.774
Stakeholder Engagement and Timeliness in Project Handover and Acceptance	0.082	0.774

Influence of Contractor Performance on timeliness in completion of national projects in Kenya

The study also tested the influence of contractor performance on timeliness in project design, project implementation and project handover and acceptance in National projects using a Chi-square analysis. The findings presented in Table 15 indicated that contractor performance has a significant influence on timeliness in project handover and acceptance ($\chi = 7.483$, sig < 0.05); timeliness in project design ($\chi = 15.705$, Sig < 0.05) as well as timeliness in Project implementation ($\chi = 6.349$, Sig < 0.05).

The findings are consistent with that of Hussin and Omran (2011) who established that various aspects of contractor's experience affect adherence to cost and time estimates to a great extent. The findings are also consistent with the findings of a study by Oraro (2012) which established that the relationship between contractors' experience and adherence to time estimates was very significant.

Table 15: Influence of Stakeholder Engagement on Timeliness in Completion of National Projects

	χ	P-Value
Contractor Performance and Timeliness in Project Design	7.483	0.006
Contractor Performance and Timeliness in Project Implementation	15.705	0.000
Contractor Performance and Timeliness in Project Handover and Acceptance	6.349	0.012

Conclusions

The study concludes that project financing practices such as delays in disbursement of contractor payments, poor project cost estimation, delays in land acquisition and statutory permits and delay in receiving feedback on contractual matters adversely affects timeliness in completion of national projects significantly. The study also

concludes that project planning practices such as unclear understanding of the project scope, insufficient information on utility facilities e.g. water lines, sewage and power, errors in project design, changes in organizational strategy prioritizing other projects and changes in scope of the project has a significant influence on timeliness in project handover and acceptance but not timeliness in project design and timeliness in project implementation.

Another conclusion based on the study findings is that inadequate stakeholder identification; insufficient stakeholder inclusivity in project decision making and resistance from stakeholders does not have a significant influence on timeliness in project handover and acceptance, timeliness in project design nor timeliness in project implementation. Based on the findings, the study also concludes that practices such as inadequate field technical capacity on the side of the contractor and contractor cash flow management problems has a significant influence on timeliness in project handover and acceptance, timeliness in project design as well as timeliness in project implementation.

Recommendations for Policy

The study recommends that to enhance timely project implementation, the policy makers in the Ministry of Transport and Infrastructure should consider relooking at the project financing, planning, stakeholder engagement and contractor performance issues. Specifically, there is a need to fix issues related to project financing such as delays in disbursement of contractor payments, poor project cost estimation and delays in land acquisition and statutory permits.

The policy makers at the Ministry of Transport and Infrastructure should consider fixing project planning issues related to clarity of project scope, information on utility facilities, accuracy of the project design, changes in organizational strategy prioritizing other projects and changes in scope of the project. This would in turn improve project delivery timeliness.

The study also recommends that to improve the timeliness in project delivery, the policy makers at the Ministry of Transport and Infrastructure should improve stakeholder engagement and manage conflicts related to inadequate stakeholder identification, insufficient stakeholder inclusivity in project decision making and resistance.

Lastly, the study recommends that policy makers at the Ministry of Transport and Infrastructure should consider contractor performance when awarding tenders for national projects. Among the factors to be considered is the field technical capacity of the contractor and cash flow management practices so that it doesn't adversely affect timeliness in delivery along the way. Similar recommendations can be adopted by other stakeholders and policy makers in the public sector.

Areas for Further Research

The study was limited to 4 factors which influence timeliness in completion of national projects in Kenya. Other studies can be conducted to establish the influence of other factors on timeliness of completion of projects other than the four factors. Other studies can also consider focusing on the influence of the four factors on not just the time of delivery of national projects, but also on other project performance indicators such as cost overruns.

Conflict of Interest

No potential conflict of interest was recorded by the Authors

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