The International Journal of Business Management and Technology, Volume 4 Issue 3 May–June 2020
ISSN: 2581-3889

Research Article Open Access

Influence of Timeliness on Outcome Based Contracting In the Performance of Contractors in Central Region, Kenya

Julius MwangiGacheru:

Student, Master of Science in Procurement and Contract Management

Dr. Njenga Gitahi S:

Lecturer, Jomo Kenyatta University of Agriculture and Technology

Abstract:Roads are the major asset of any country and to conserve them, maintenance is essential. The study developed a multidimensional key outcome based contracting indicators of road maintenance projects by considering relevant measures of contractor performance and the factors that influence delivery success of these kinds of projects. The study was anchored on goal setting and expectancy theory. The study adopted descriptive research design and cross-sectional research design with census of the 54 respondents. Data was collected through questionnaires and interview schedule and was analyzed using descriptive and inferential statistics and thematic were applied to analyze data. Drop and pick later method was used to collect data and the respondents were given time to complete answering the items of the instrument. Preliminary analysis using the pilot test data was undertaken in Kiambu Region as it had similar characteristics with those of central region and thus ensured that the data collected would enable investigative questions to be answered. Descriptive analysis was reported using frequencies, percentages mean and standard deviation, while inferential statistics was reported by use of correlation and multiple linear regression analysis in order to establish the relationship between independent variable and the dependent variable. There existed a positive correlation between timeliness ($r = 0.478$) while regression results showed that the timeliness ($\beta = 0.731$; p value = 0.011 and t value 4.685) and thus the null hypotheses was rejected. The government through Kenya roads board should strengthen capacity and capability to boost professionalism and performance of road contractors. Moreover, similar studies can be done in other parts of the country in order to enhance the generalization of items.

Keywords: Timeliness, Outcome Based Contracting, Performance

I. INTRODUCTION

Road transport is the predominant mode of transport in Kenya which caters for over eighty percent of total national mobility needs both in urban and rural area hence an important sector of the Kenyan economy. A country's roads are only as good as its road contractors holds true in every perspective of economic progression. Road system and networks in every single country serves as a key foundation for the effective functioning of transportation and contributes in delivering a wide range of economic and social benefits. Adequate maintenance of the road infrastructure is essential to achieve and preserve those benefits.

Outcome-based contracting, also known as "Performance-Based Contracting" refers to a group of strategies for system support that instead of contracting for goods and services/labor, a contractor delivers performance outcomes as defined by performance metric(s) for a system under contract. (Sharma, Cui, Chen, Lindly 2014). Proponents of outcome-based contracting often describe it as a way to optimize public spending and ensure better outcomes for clients. Outcome based contracting as a conduit to contractor performance is considered to lead to efficiency and effectiveness, to enhance accountability and minimize corruption, and to achieve other goals of public procurement

(Ang, Groosman, &Scholten, 2015). In measuring and assessing the performance of contractors, Neely (2008) stated that measuring the performance from both effectiveness and efficiency aspect is one way of measuring. Effectiveness is commonly measured in four aspects which are cost, speed, quality and availability (Hambleton, 2005) while efficiency is often refers to value for money (Arrowsmith, 2010).

It is widely believed that Outcome based contracting offers a better solution in long term support contracts. This method of management of maintenance is meant to ensure the road network is maintained in good condition throughout its life time. Outcome based contracting is expected to guide the user in the procurement, supervision and valuation through setting service levels as outputs measured by response time and permissible tolerances. Outcome based contracting reduces maintenance costs through application of more effective and efficient technologies and work procedures, Improves control and enforcement of quality standards, No detailed specification or process description needed, contractor does not need to be an expert at how to get what they want they just need to be experts in knowing what they want flexibility in proposing solution, contractor buy-in and shared interests, surveillance: less frequent, more meaningful and allows for measurement of metrics.

1.2 Statement of the problem

Road authorities worldwide face mounting problems with maintaining the serviceability of their road networks. Over the years, there has been a steady rise in the contracted element of the works with many authorities reaching the point where all maintenance activity is carried out by contractors applying traditional methods of contracting and measurement of works under the authority's supervision. Despite the importance of roads in terms of both their intrinsic value and the role they fulfill, most are poorly managed and badly maintained in the rural areas. Recently, there has been a general trend towards increasing the use of the private sector in road maintenance worldwide. The outcome based contracting can be assessed by a number of important indicators such as: cost, safety, environmental impact, and level of complaints by users. Three critical themes that cause the central region to face difficulties in road infrastructure that meet realistic standards include: timeliness and insufficient maintenance (result from underfunded maintenance, increased cost and delayed activities), low quality interventions (degree of consistency, degree of conformity to standards and realization of contract goals and objectives). There is therefore a missing link between timeliness and outcome based contracting in the performance of contractors on road maintenance which the study sought to establish.

1.3 General objective of the study

i. The study sought to investigate the influence of timeliness on outcome based contracting in the performance of contractors in central region.

1.4 Hypotheses of the study

Ho1: There is no statistically significant influence of timeliness on outcome based contracting in the performance of contractors in central region.

II. LITERATURE REVIEW

2.2 Theoretical Review

This review explored theoretical foundations and concepts of the study. It advanced the theory that guides the study, defines concepts and variables and gives dimensions of the variables. According to Kerlinger (1973), a theory is set of interrelated constructs, concepts, definitions, and propositions that present a systematic view of phenomena specifying relations among variables, with the purpose of explaining and predicting the phenomena. Theoretical perspectives that were (initially) seen relevant are used to highlight what is happening / what different viewpoint on what is happening they provide. To do so, each perspective brings forward a key problem. Like mentioned, although the (complex) environment eventually did not seem to correspond well to the conceptual framework, the key problems that are drawn from the perspectives nevertheless seem relevant. The concepts of timeliness on outcome based contracting in road assets management is anchored in the stakeholder's theory and goal setting theory.

2.2.1 Stakeholder Theory

The stakeholder Theory was originally published by Freeman (1984).This study is based on stakeholder's theory which, as a field of research, has tended to focus on planning and managing the complex array of activities required for delivering a construction project, such as a road or building. Road Construction business, as an area of study, tends to focus on scheduling and organizing the multifaceted assortment of activities necessary to complete a construction project.

Being able to manage construction stakeholder's hopes and concerns is a critical skill for managers of construction projects. Failure to tackle hopes and concerns of stakeholders in a construction project has resulted in innumerable failure of projects (Bourne & Walker, 2005) principally for the reason that stakeholders in construction have a tendency to obtain resources and ability to impede construction projects (Lim et al, 2005). Meeting the expectation of stakeholder is critical to successful execution of construction projects stakeholders include, owners of project, , consultants, subcontractors, suppliers, funding bodies, users, owners, employees and project managers. As a consequence a vigorous construction organization literature has developed on how to recognize and manage stakeholder welfare and interactions. This study used stakeholder theory to scrutinize factors influencing the client and the contractors in the performance of contractors in the road construction sector.

2.2.2 Goal -Setting Theory

Goal-setting theory as developed by Latham and Locke (1994) states that motivation and performance are higher when individuals set specific goals, when goals are difficult but accepted and when there is a feedback on performance (Armstrong, 2005). A goal is the aim of an action or task that a person consciously desires to achieve or obtain (Locke & Latham, 2002; Locke & Latham, 2006). Goal setting involves the conscious process of establishing levels of performance in order to obtain desirable outcomes. Locke and Latham (2006) further stated that "the goal setting theory was based on the premise that much of human action is purposeful, in that it is directed by conscious goals". The decision to set a goal results from dissatisfaction with current performance levels.

The theory is applied in performance contracting when heads negotiate and set targets for their respective sections. This is expected to be cascaded down at different levels of road agency hierarchies, which gives road maintenance contracts to contractors who are able to meet specific set performance goals. This study borrows from the goal setting theory in that the road agency provides to the contractors road performance targets, which they have to meet in order to be paid. If the contractors fail to maintain the roads to the expected standards then they forego the payment regardless of how much input they have made in the road construction and maintenance.

2.3 Timeliness of Outcome Based Contracting on Performance of Contractors.

Timeliness refers to the duration for completing a project. It is scheduled to enable the road building to be used by a date determined by the client's future plans. A project is a finite process with a definite start and end. Completion of a project on time is said to be the hallmark of the design and build industry. This confirms the fact that all projects have a limited time span and are designed to achieve a goal. Time is an essential element of every successful project. It a project is well done but not completed on the takes a big mark from the project therefore it is good for every road contractor to be able to predict the dangers and the problems the road project will go through and find the possible solutions to these problems and be able to complete road works on time.

Timeliness involve periodically, perhaps monthly, when the contractor will compare schedule progress with that shown on the project programme. The purpose is to determine whether the various activities that were planned to be active during the previous period were actually active, the extent of their progress and especially the anticipated project completion date based on progress to date (Bennett, 2003). Bennett further asserts that, the other purpose of the update is to incorporate any new information about already planned activities, to add information about new job not previously planned for. This will help to determine their impacts on other activities and on the overall project completion date.

2.4 Conceptual Framework

According to Kothari (2010) a conceptual framework is a diagrammatic representation of variables deemed important in a study. It represents the researcher's ideological position as far as the study variables are concerned. The timeliness factors incorporatedrafting and negotiation time, number of versions or negotiation iterations, contract administration time and disputes and settlement time. The performance of contractors depicted management performance (conceptual skills, human relational skills and technical skills) and technical capacity

(tactical manpower, availability of machines and quality machines). Although these two measures provide an indication of the success or failure of a project, they do not in isolation provide a balanced view of the project's performance, and their implementation in construction projects is apparent only at the end of the project.
The study was guided by the conceptual framework which is founded on the relationships as diagrammatically presented in Figure 1.

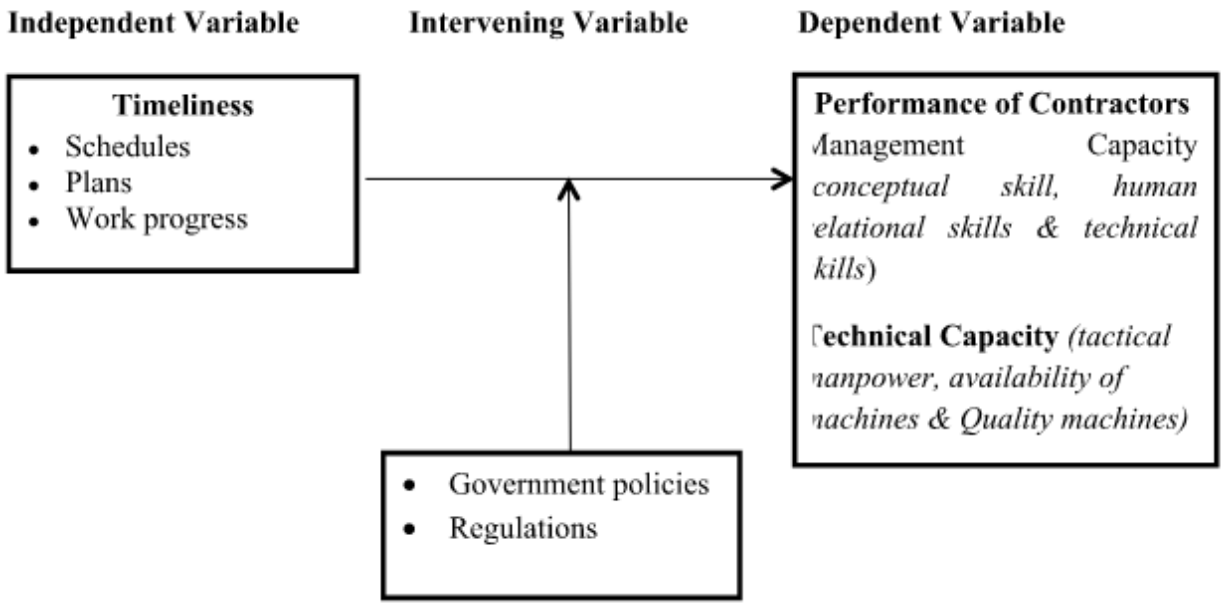

Fig.1 Conceptual framework

III. RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design

According to Kothari (2008) a research design refers to the structure, plan, and strategy of investigation conceived so as to obtain answers to research questions. Research design is hence considered as an important part of a reliable and valid research. In addition, the research design explains the purpose of the study the type of the questions being addressed, the techniques to be used, for data collections, approaches to select samples and how the data was analyzed

The research project used both qualitative and quantitative research. The study adopted descriptive research design since it is a scientific method which involves describing and observing the behaviour of a subject without influencing it. Descriptive research was used in this study to collect the data as well as employing comparative and correlation methods for the purpose of analyses. Descriptive research can include other multiple variables for analysis. Therefore this design is appropriate for this study which extensively employed methods of multiple regression analysis. In addition, the main purpose of this study was to describe, explain, and validate findings. The descriptive research helped to organize the findings in order to fit them with explanations and test or validate those explanations.

Additionally the reason as to why descriptive survey research design was used is because the researcher did not manipulate variables and also the used questionnaire which was one of the instruments to use for data collection.The study also adopted cross-sectional research design which is a research that is used to find the happening in a group at a given time (Nabi and Holden, 2008).The design was ideal for the study since it reported the phenomena according to the objectives of the study.

3.2 Population of the study

According to Zikmund, Babin, Carr, and Griffin (2012), a population refers to a collection of all items in any field of inquiry where a sample is drawn and is also known as the universe. Hyndman (2008) refer to population as the

aggregate or totality of those conforming to a set of specifications. This study used two types of population, target population and accessible population. The target population referred to the unit of observation, that is the entire group of people or objects of interest that the study wished to investigate (Sekaran, 2010). Mugenda (2003) defines target population as the entire group of individuals, items, objects or things with common observable attributes that specifically fit for being sources of data required to address the research problem. The population of this study comprised of all the 18 roads contracting Firms and their personnel from procurement, finance and engineering departments (who were involved in outcome based contracting) from the Central Region of Kenya. This comprised all the contractors undertaking works in road class B (National Trunk Roads **-** B1, B3, B8. e.g. Provincial headquarters), class C (Primary Roads **-** C107, C111, C115. e.g. District headquarters), class D (Secondary Roads. e.g. divisional headquarters**)** and class E (Any link to a minor centre). Mugenda and Mugenda (2003) explained that the target population should have observable characteristics to which the study intend to generalize the result of the study.

3.3 Sampling Techniques

A census is an attempt to list all elements in a group and to measure one or more characteristics of those elements. A census can provide detailed information on all or most elements in the population, thereby enabling totals for rare population groups or small geographic areas. The staff from procurement, finance and engineering departments comprising of 54 respondents were purposively selected to articulate issues in the study as they had the conceptual view of their respective organizations (Elbanna and Child, 2007). A supervising engineer from Kenya Roads Board was identified as a key informant for purposes of uncovering information about issue pertaining outcome based contracting. Key informants are those whose social positions in a research setting give them specialist knowledge about other people, processes or happenings that is more extensive, detailed or privileged than ordinary people, and who are therefore particularly valuable sources of information to a researcher.

3.4Data Collection instrument

The main research instruments used in this study were questionnaires (for the contractors) which were close-ended and an interview schedule from one key informant (Supervising engineer from the Kenya Road Board) and qualitative aspects presented thematically. An interview is a useful way to gather data on a variety of issues or phenomena as 'it allows the researcher to understand the meanings that people hold for their everyday activities' Information obtained from questionnaires is free from bias and researchers influence and are therefore accurate and valid. Questionnaires are effective data collection instruments that allow respondents to give much of their opinions concerning the researched problem (Creswell, 2003). Questions were designed with alternative answers expressed in a Likert scale-style having the following variables; “strongly disagree,” “disagree”, “neutral”, “agree”, “Strongly agree”. Likert- type scales utilized the item analysis approach where a particular item was evaluated between respondents whose total score is high and those whose score is low. The items or statements that best meet this sort of discrimination was included in the final instrument (Kothari, 2009).

3.5 Data Collection Procedure

Kombo and Tromp (2009) explain that data collection is the process of gathering information to provide or verify some facts. Drop and pick later method was used to collect data and the respondents given enough time to complete answering the items of the instrument. The procedure is appropriate, as high response rate is expected (Fraenkel&Wallen, 2006). The method of data collection was determined by research design adopted; descriptive research using cross-sectional design. Descriptive research used questionnaires as instruments to collect information and this is what the study applied. To help facilitate the process, an identification letters introducing the researcher was obtained from the university to ease the data collection process. The researcher also obtained a letter of authorization and a permit from the National Commission for Science, Technology and Innovation (NACOSTI).

3.6 Piloting

According to Cooper and Schindler (2011) pilot test is conducted to detect weaknesses in design, instrumentation and to provide alternate data for selection of probability sample. Pilot tests help the researcher to determine whether the proposals in the collection of data are applicable including the time taken to complete each tool (Mugenda and Mugenda, 2012). Neuman (2009) recommends 10% of the sample size to be used for piloting. The study used 5 questionnaires that were administered in Kiambu region because it had almost similar characteristics with those of the Central region and thus ensured that the data collected enabled investigative questions to be answered. The piloting tested the degree of accuracy of the instrument used to collect the data prior to the beginning of the full study to establish the respondents understanding of the questions and to solicit feedback for improvement of the

instruments. After the piloting, the tools were modified in terms of content, wording, layout, length, format and instructions that might not have been clear. In addition, it enabled the researcher to obtain some assessment of the questions' validity and the likely reliability of the data that would be collected.

3.7.1 Validity of the Questionnaire

Validity is the extent to which a test measures what it actually wishes to measure (Cooper and Schindler, 2003). The study used content validity measurement. It was concerned with the relevance and representativeness of items such as individual questions in a questionnaire to the intended setting (Jackson, 2012). It is a measure of the degree to which data collected using a particular instrument represents a specific domain of indicators or content of a particular concept (Mugenda and Mugenda, 2003). The data collection instrument adequately covered the topics that have been defined as the relevant dimensions. This was determined through a careful definition of the topic, the items to be scaled and scales to be used. The measurement therefore, involved the degree to which the content of the items adequately represents the universe of all relevant items under study. It is directly applicable without using the statistical procedure.

Construct validity was used to measure the validity of instruments. The construct validity of a test assessed the extent to which a measuring instrument accurately measures a theoretical construct or trait that it is designed to measure. One means of establishing construct validity is by correlating performance on the test for which construct validity has already been determined (Patton, 2002). A validity coefficient is computed by correlating data obtained from different tools that measure the same construct or other closely related constructs.

3.7.2 Reliability of the Questionnaire

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials (Mugenda&Mugenda, 2003). A measure is reliable to the degree that it supplies consistent results and as such reliability is a necessary contributor to validity, but it is not a sufficient condition for validity. Reliability is concerned with estimates of the degree to which a measurement is free of random or unstable error. Reliable instruments can be used with confidence that transient and situational factors are not interfering. Reliable instruments are robust. They work well at different times under different conditions (Neuman, 2009). The study used internal consistency reliability (Cooper & Schindler, 2006). This approach used only one administration of an instrument or test to assess the internal consistency or homogeneity among the items. It indicated the homogeneity of the test (Mugenda, 2008). A co-efficient correlation of 0.7 and above was deemed acceptable (Neuman, 2009).

3.8 Data Analysis and Presentation

The process of data analysis essentially aims at drawing empirically-based conclusions derived from the interpretations of the data generated. Data analysis also entails managing the data. After returning the questionnaires, the raw data was cleaned, edited, coded and tabulated in line with the study objectives (Zikmund, Babin, Carr and Griffin, 2013). Quantitative techniques were used to analyse the survey data for inferential statistics and trends, and qualitative techniques will be analysed by use of content analysis presented in a prose form to analyse the interview data. The findings from the two data sets were then compared and discussed for convergence as well as possible explication of additional observations from the survey that are beyond its scope. Descriptive statistics was used for the simple reason of giving the researcher sufficient time to describe the distribution measurements using only some indices (Rumsey, 2012).

The use of inferential analysis was based on Pearson correlation and regression method (multiple regression analysis) and it analyzed the data by the use of the Statistical Package for Social Sciences (SPSS). Pearson correlation examined the strength and relation among the dependent and independent variables. Multiple regressions on the other hand was used to ascertain the relationships involving the independent and dependent variables in the study. The regression formula which was used is presented below;

Basic Multiple Regression Model $Y= \alpha + \beta_1 x_{1+} \varepsilon$

Where:

Y = performance of contractors; (dependent variable)

α = Constant;

$x_{1=}$ Timeliness; (independent variable i)

β_1= Regression corresponding coefficients mediating effect included in Y by each X value.

ε = Error term

3.8.1 Diagnostic Tests

Diagnostic checks and tests was done to test for statistical problems and to ensure compliance with the Linear Regression Model assumptions. This was done to avoid parameter estimates being biased, inefficient and inconsistent (Gujarati, 2003). Diagnostic tests included multi-collinearity through Variance Inflation Factor (VIF). This study also checked for the problem of Multicollinearity, which is present if there are high correlations between some of the independent variables (Burns,2000). Multicollinearity was examined using collinearity diagnostics. Multicollinearity is defined as statistical phenomenon in which two or more predictor variables in a model are highly correlated (Gujarat & Porter, 2009).

IV. FINDINGS AND DISCUSSIONS

4.1 Response Rate

The response rate is basically the percentage of persons who responded to the survey. This rate is calculated by dividing the number of respondents (actual sample size) by the total eligible number of respondents (required sample size). The goal in any survey is to obtain the highest response rate possible; however, that may not always be the case. Monitoring the actual response rate is really important because if the response rate decreases, the degree of non-response bias (distortion of results due to un-representation) will increase.

Table.1 Response Rate

No. of Respondents targeted	No. of usable questionnaires returned	Response Rate (%)
54	42	77

From the data collected, out of the 54 questionnaires administered, 49 were returned but upon sorting and cleaning, only 42 were well filled and thus usable, which represented 77% response rate. This response rate is considered quite satisfactory to make conclusions for the study. Mugenda and Mugenda (2003) observed that a 50% response rate is adequate, 60% good and above, while 70% rated very good. This collaborates with Bailey (2000) assertion that a response rate of 50% is adequate, while a response rate greater than 70% is very good. This implies that based on this assertion, the response rate in this case of 77% is therefore very good. The recorded high response rate can be attributed to the data collection procedures, where the researcher pre-notified the potential participants of the intended survey, utilized a self-administered questionnaire and where the respondents completed and these were picked shortly after and made follow up calls to clarify queries as well as prompt the respondents to fill the questionnaires.

4.2 Reliability

The term *reliability* generally refers to the consistency of a measure. It is the degree to which an assessment tool such as a questionnaire produces stable and consistent results (Borg & Gall, 2003; Gliem&Gliem 2003). The study used the Cronbach's alpha coefficient to assess the consistency of Likert-items in the questionnaires. A high coefficient indicates that the items are consistently measuring the same underlying construct. Cronbach Alpha is a reliable coefficient that shows how well response items are positively related to one another (Sekaran, 2013). George and Mallery (2003) provide the following rules of thumb: "_ > 0.9 – Excellent, _ > 0.8 – Good, _ > 0.7 – Acceptable, _ > 0.6 – Questionable, _ > 0.5 – Poor, and _ < 0.5 – Unacceptable". Table 2 shows the results of Cronbach's coefficient tests of reliability on the study Likert scale items.

Table. 2: Cronbach's Alpha Reliability Test Results

Variable	Reliability Cronbach's Alpha	Remark
Timeliness	0.801	Good

As observed in Table 2, the Cronbach coefficient values for timeliness were found to be greater than 0.7 which indicate acceptable and good scales respectively. The study revealed a high level of internal consistency with alpha coefficient of the items being 0.801. As such, the responses collected using the questionnaires were accepted as good, consistent and reliable for the study.

4.3 Diagnostic Tests

Diagnostic tests undertaken were multi-collinearity through the Variance Inflation Factor. This was done to avoid parameter estimates being biased, inefficient and inconsistent.

4.3.1 Multicollinearity Test

Multicollinearity refers to predictors that are correlated with other predictors in multiple regression analysis. Multicollinearity is present when the model has multiple factors that are correlated not just to the response variable, but also to each other. Multicollinearity increases the standard errors of the coefficients. This means that one variable can be linearly predicted from the others (Cohen, 1988). In regression, an increase in Multicollinearity leads to an increase in the standard errors. In the presence of high Multicollinearity, confidence intervals for coefficients tend to be very wide and t-statistics tend to be very small. It will be harder to reject the null hypothesis when Multicollinearity is present since the coefficients will have to be larger in order to be statistically significant. Pearson product moment correlation was used to measure the strength or degree of the relationship between variables. The closer the coefficient is to +/-1, the closer it is to perfect linear relationship and therefore a higher degree of relationship (Cohen, 1988). High correlation poses the threat of Multicollinearity.

To further examine whether Multicollinearity might be present, the VIF (Variance Inflation Factor) for independent variables were computed. Table 4.14 reports the mean VIF for all the variables which is 1.334 and no single VIF value is higher than 1.53, which is well below the generally accepted value of 10 and this is consistent with (Cohen et al., 2003), who says that VIF >10 indicate the presence of high collinearity implying the variable is a linear function of another variable in the same model. The VIF values in this case suggest that problems of Multicollinearity are unlikely to occur. Results show that the variables are not highly correlated thus acceptable for the study.

4.7 Inferential Statistics

This section presents correlation and multiple regression analysis results to evaluate the relationship between independent variable and the dependent variable (Performance of Contractors). Correlation analysis was used to measure the strength of the relationship between the independent variables while regression analysis established significance relationship of each of the variables on influence of road construction projects.

4.7.1 Correlation Analysis

A correlation coefficient is a coefficient that illustrates a quantitative measure of some type of correlation and dependence, meaning statistical relationships between two or more random variables or observed data values (Mugenda&Mugenda 2009). According to Cohen (1988) interpretation of correlation coefficients, 0.00 to 0.01 shows no correlation; 0.02 to 0.09 indicates very weak correlation; 0.1 to 0.29 shows weak correlation; 0.30 to 0.49 means moderately weak correlation; 0.5 to 0.69 shows moderately strong correlation; 0.70 to 0.89 shows strong correlation; 0.90 to 0.98 indicates very strong correlation while 0.99 to 1.00 shows almost perfect correlation. However, some moderate correlation between the independent variables is necessary for regression analysis since they are measuring the same dimension of the study hence they are expected to be related to some extent (Field, 2009).

Table 3 Summary of Correlations

Construct		Timeliness	Performance of Contractors
Timeliness	Pearson Correlation	1	
	Sig. (2-tailed)		
Performance of contractors	Pearson Correlation	.478	1
	Sig. (2-tailed)	.043	

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

To compute the correlation (strength) between the study variable and their findings the researcher used the Karl Pearson's coefficient of correlation (r). From the findings as shown, it was clear that there was a positive correlation between timeliness and performance of contractors as shown by a correlation figure of 0.478. This notwithstanding,

all the factors had a significant p-value ($p<0.05$) at 95% confidence level. The findings indicate that there is a strong correlation between timeliness of outcome based contracting and performance of contractors on road maintenance.

4.7.2 Regression Analysis

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (road contractors' performance) that was explained by timeliness. Multiple regression analysis was used to determine combined effects of the independent variables on the dependent variable. The tests of hypothesis using t-values were carried out at 95 percent significant level $p<0.05$, $p<0.01$, and $p<0.1$.

Decisions were made whether to reject or accept a hypothesis based on the p-values. Where $p\geq0.05$ the study failed to reject the hypotheses and where $p\leq0.05$, the study rejected the hypotheses at 5% level of significance. Interpretations of results and subsequent discussions also considered coefficients of determinations (R^2), F-Statistic values and beta values. R^2 indicated the change in dependent variable that is explained by change in the independent variable. The findings are presented in various sections of this chapter along research objectives and corresponding hypotheses.

Table 4 Multiple Linear Regression Analysis Model Summary

Model	R	R Squared	Adjusted R Square	Std of Error Estimate
1	0.889[a]	0.790	0.736	0.91487

a. Predictor : Performance of Contractors

b. Predictor: (constant) Timeliness,

Adjusted R squared is coefficient of determination which illustrates the variation in the dependent variable as a result of changes in the independent variable. The three independent variables that were studied, explain only 73.6% of the road contractors'' performance represented by the adjusted R^2. This therefore means that other factors not studied in this research contribute 26.4% of the road contractor's performance. Therefore, further research should be conducted to investigate the other factors (26.4%) that influence performance of road contractors.

4.7.3 ANOVA Model Summary

Analysis of variance (ANOVA) is a collection of statistical models used to analyze the differences among group means and their associated procedures (such as "variation" among and between groups), developed by statistician and evolutionary (Orodho, 2004). There was a statistically significant correlation between outcome based contracting and performance of contractors contracting on road maintenance in central region, $F=3.814$, $p< .001$. This indicates that the overall regression model was significant. This implies that there was a linear dependence of timeliness on outcome based contracting and performance of contractors contracting on road maintenance.

4.7.4 Multiple Regressions

Multiple regression analysis was conducted as to determine the relationship between road contractor's performances.

Table 5: Multiple Linear Regression Results

	Unstandardized Coefficients		Standardized coefficients	t	Sig	Collinearity statistics'	
	B	Std Error	Beta			Tolerance	VIF
(Constant)	1.308	1.342		0.974	0.057	0.58	1.49
Timeliness	0.731	0.156	0.210	4.685	0.011	0.65	1.23

a. Dependent variable: Performance of Contractors

The study from findings of the regression model above established that taking the independent variables into account notably; (X_1) timeliness will be 1.308 influences of performance of contractors at a significance level of .004 which means the study variable had a high positive significance.

$Y = \beta 0 + B_1X_1 + e,$
$Y = 1.308 + X_1. 0.731$

Y is the dependent variable (Performance of contractors); (X_1) timeliness. The results presented also shows that taking timeliness at zero, a unit increase in timeliness leads to a 0.731 increase in performance of contractors; From the inferences findings it can be concluded that timeliness influences performance of contractors.

4.8 Hypotheses Testing

Ho1: There is no statistically significant influence of timeliness on outcome based contracting in the performance of contractors in central region, Kenya. Regression results showed that the timeliness does significantly influence performance of contractors on road maintenance (β =0.731; p value = 0.011 and t value 4.685) and thus the null hypothesis was rejected. The implication of this is that timely completion of road project is a factor of contractor's abilities that are listed in the bid proposal and the subsequent evaluation stages.The timeframe to respond in different aspect of the project is required with sensitive aspects such as payment response, delivery of materials, and site instruction by resident engineer to the contractor, decision making by the project.

V. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion of the Study

The main finding of this review is that there is a severe lack of evidence for policy-makers to draw on timeliness when constructing outcome-based contracts. The studies that have been done are not comparable, and largely fail to isolate contracting variables, so it is difficult to identify cause and effect. Also, there is evidence that a strong focus on certain outcomes or outputs may work against achieving other (sometimes more important) outcomes.

As well as a lack of capacity for designing and implementing outcome-based contracts, there appears to be an inadequate investment of time and skill spent rigorously thinking through the intended and unintended consequences of new contracts. This may be partly due to the additional time the outcome-based contracting process requires, and the pressure that puts on policy-makers. Policy-makers are not always open to the input of those outside government, or may not be willing or able to adequately consider it. In employment services, for example, many of the problems arising were predicted by external organisations, but dismissed during the contracting process.

5.2 Recommendations of the Study

5.2.1 Recommendations for policy and Theory

The government through Kenya roads board should strengthen capacity and capability to boost professionalism and performance of road contractors. These measures could include strengthening their capacity, improve monitoring and putting in relevant legislations and regulations to facilitate timely adoption performance related road contracting.

5.2.2 Recommendations for Contractors

The findings of the current study have several implications to the contractors involved in the implementation of public sector construction projects The findings of KPIs imply that public sector construction projects can be evaluated on the basis of six KPIs namely cost, time, quality, site disputes, safety and environmental impact. The positive and negative relationships among the KPIs give important insights to the managers to the fact that when performance on one KPI improves, the performance on the other KPIs might improve or deteriorate.

5.3 Suggestions for Further Studies

Future researchers could advance the current road construction project performance of contractors evaluation scale and test its applicability within the context of other constituencies in different regions in Kenya. Similarly, longitudinal analyses of outcomes would allow for understanding of the permanence of the performance of the contractors, which would inform the understanding of timeliness of different road constructions on the strength of outcome-based contracts.

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