Project planning and success of road construction projects in Siaya County, Kenya

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Abstract: The purpose of the study was to examine the influence of project planning on success of road construction projects. The study looked at the role of project planning on the success of road construction projects in Siaya County. The study was guided by Deming's Theory. A descriptive research design was used to carry out the study. The study targeted all the road construction projects implemented in the last 5 years in Siaya County. According to the County Government of Siaya there were 56 construction projects giving a total to 168 respondents. The data was collected from respondents using semi-structured questionnaires. Descriptive and regression analysis were employed to analyze the data gathered. The study found out that project planning had a statistically significant relationship with the project success in Siaya County.

Keywords: Construction, Influence, Planning, Project, Success.

Introduction

Planning is a very important part of a project regarding project success. It is a continuous process throughout the delivery of a project (Idoro, 2012). Traditional wisdom states that planning is very important and the more there is in a project, the more successful the project will be (Wang and Gibson, 2008; Dvir, Raz, and Shenhar, 2003). Numerous empirical studies of project management success factors suggested planning as one of the major contributors to project success (Murphy et al., 1974; Slevin and Pinto ,1987; Aronson, and Lechler, 2009). All the project managers are required to prepare a solid project plan and follow this plan all the way to success (Dvir, Raz and Shenhar, 2003).

Time spent on planning will reduce risk and increase project success. On the other hand, inadequate analysis and planning will lead to a failed project, (Morris, 1998; Thomas, Jacques, Adams, and Kihneman-Woote, 2008). If poor planning has led to failed projects, then perhaps billions of dollars have been lost (Sessions, 2009). Project success varies by the contract of the project, type of project and individual role of personality in project (Muller and Jugdev, 2012).

Project planning is the coordination of various activities of a project such as personnel, materials, procedures, and facilities with the view of bringing forth more effective result (Munyeki, 2011). In the last decade, project managers have experienced challenges of project teams, duration, the outcomes and materials of the projects (Wysocki, 2014). Therefore, the road construction sectors require to focus on crucial success elements, besides the 'iron triangle', in order to overcome the difficulties emerging from globalization (Toor and Ogunlana, 2005).

Most project managers will report that they employed decision milestones to project results, risk management to pre-empt undesired consequences and sequential iteration to guarantee availability of the requisite equipment but projects usually suffer from unintended time extensions, financial shortfalls and some shortfalls in quality (Meyer *et al.*, 2002). As such, researchers remain concerned in findings the most ideal approaches to manage construction projects for the best outcomes.

According to Ojiako, Johansen & Greenwood, (2008) Consultants, Project managers and Contractors in South Africa find it hard to have new customers. Besides, it yet to be understood as to what practices are required to



effectively enhance project success. Most companies in developing regions employ the 'iron triangle' indicators of duration, outcomes and means to estimate the value of a project (Ojiako, Johansen and Greenwood, 2008). Although this is done numerous projects still fall short of meeting expectations which is an indicative of potential problems in their management and quality assurance systems.

Statement of the Problem

Studies undertaken in the construction sector shows that road construction faces numerous challenges (Kenya Engineer, 2015). Many road contractors are not providing standard services, delays in completion of road projects which at times is attributed to reasons like delays in land acquisition, inadequate budgeting, delay by Kenya Power and Lighting company to remove or relocate their power lines to create room for road construction and also low capacity amongst local contractors to undertake big projects.

Unexplained or extended time delays, unbudgeted financial issues and poor quality of products are evidence of the underperformance of road contractors. Ugwa and Haupt (2007) attribute these problems to lack of proper resource control procedures and meddling by political elites. In additions, there are several factors and reasons attributed to such problems. Interestingly, most of the issues that affect construction projects can be within the control of the project manager. Therefore, as the overall person in-charge, he must always brace himself for the known and unknown dynamics of project planning and operations control.

By encouraging interactions, at the different levels of the project, the manager will allow his team to test and sharpen their knowledge and precepts leading to appraised outcomes. Studies carried out in the past have found out that construction projects consist of a very a complex and unit composition of activities that ought to be accomplished to achieve a unique result (Karzner, 2013; Aksorn and Hadikusumo, 2008). Nonetheless, the ultimate measure of the quality of project outcomes is the savings on costs, delivery within scheduled duration, safety, budget control, and the quality of outcomes (Aksorn and Hadikusumo, 2008). Previous studies depict a picture of inconsistencies in this area in comparison to judgement. Okero (2011) attributed the problems to underfunding and political interference, other studies done have not come to the fore to address the problems. Moraa (2011) in the study was more concerned with the ministry of roads but the problem she sought to address was more widespread than the ministry.

The current study focuses on the role of project planning on performance by addressing the influence of variables on project success. Many papers have discussed project planning and risk management as a key variable in project success but no one has discussed the role of project planning on success of road construction projects. The findings of this research will help to develop role of project planning on project success. This therefore, justified the current research as it sought to bridge the gap in establishing how project planning influence success of road construction project in Siaya County.

Objectives of the Study

To determine the role of project planning on success of road construction projects in Siaya County.

Literature Review

An extensive review of the literature on project planning and success of projects was undertaken.

Deming's Theory

The study adopts this theory which is summarized as a repetitive four stage model for continuous improvement in business process management. It is also referred to as the PCDA model defined as (Plan Do Check Act), as a logical sequence. Plan is about identifying and analysing the problem, and this will include setting goals and breaking the overall system into individual processes. Do is developing solutions and implementing the solutions by establishing experimental success criteria and implementing the solution on a pilot basis. Check is evaluating results to validate the solutions designed. Act is implementing the full-scale solution while monitoring and performing continuous improvement.

According to Sokovic, Pavletic and Pipan (2010), Plan covers quality concept and objectives, statutory considerations and control of design. Do involves procurement, just in time supplies, materials handling, servicing, documentation and records, standards and standardization and compatibility. Check employs use of statistics and charts, inspection and functional testing, quality audits and reviews while Act covers managing non-conformities and improvements, total quality management and environmental system management.

This theory is applicable in this study because at the execution stage, projects encounter many factors that determine the course of projects with some factors interfering with the smooth running of execution while others enhancing. These factors originate from the internal processes of an organization or externally from the general environment. Therefore, during the execution phase, it is imperative that continuous improvement is done through repeated and continuous monitoring and control. This follows the Plan-Do-Check-Act (PDCA) cycle which is a usual definition of control. In a construction project, the project manager is required to carry out project monitoring and control in order to provide corrective measures through continuous evaluation and checking of actual against the expected progress for existence of disparities against acceptable standards.

Project Planning

Mintzberg (1994) describes planning as the effort to formalizing decision-making activities through decomposition, articulation, and rationalization. In construction, pre-project planning is defined as the phase after business planning, where a deal is initiated prior to project execution (Gibson & Gebken, 2003). Hamilton and Gibson (1996) found that the top one third of projects from a planning completeness perspective had an 82% chance of meeting those goals, whereas only 66% of projects in the lower third did (a difference of 16%). Similar results are seen for schedule and design goals. Shehu and Akintoye (2009) found in a study of construction programs that effective planning had the highest criticality index of 0.870 of all the critical success factors (CSFs) studied. The reports of high failure rates for software projects are well known (Standish Group, 2011). Some studies in this area tried to quantify how much planning should be done for software projects. Posten (1985) states that in software development projects, testing costs 43% of overall project costs for the projects studied, whereas planning and requirements accounted for only 6% of effort. He also notes that the earlier defects are identified as such in the planning or design phase, the less they cost to fix.

Müller and Turner (2001) reported a correlation between post-contract signing planning and project schedule variance. Also, Tausworthe (1980) notes the importance of the work breakdown structure (WBS) on software project success. Deephouse, Mukhopadhyay, Goldenson, and Kellner (1996) showed that project planning, was consistently associated with success more than other practices. The dependency for successful planning was 0.791 for meeting targets and 0.228 for quality.

Project Success

Project success is defined four levels as project efficiency, impact on the customer, business success and preparing for the future (Shenhar, Dvir, Levy, and Maltz,2001). While the measure of project success has focused on tangibles in the past, current thinking is that ultimately, project success can best be judged by the judgment of the primary sponsor. Cooke-Davies (2002) makes a similar point; therefore, we will refer to project efficiency as meeting cost, time and quality goals while project success is meeting wider business and enterprise goals. Zwikael and Globerson (2006), however, state that efficiency and success are often correlated as do Dvir, Raz, and Shenhar (2003).

Relationship between Project Planning and Project Success

Success on a project implies that specific desires for a given member are met, whether proprietor, organizer, designer, temporary worker, or administrator. The accompanying are some different definitions of "project success" in general: Project success is alluded as having results much superior to anything expected as far as cost, calendar, quality, security, and member fulfillment (Ashley et al., 1987). A project is viewed as successful on the off chance that it meets the specialized execution specification or potentially mission to be performed (de Wit, 1988). Success for a given project member as how much project objectives and desires are met. They included that these objectives and desires may incorporate specialized, financial, instructive, social, and expert angles. (Sanvido

et al., 1992). Numerous exact reviews demonstrate the positive effect of project anticipating project success (Murphy et al., 1974; Rothwell et al., 1974).

Various specialists have explored extend possibilities that impact of anticipating project success (Zwikael et al. 2014). Planning and determination of the ideal project lifecycle for the project being embraced can significantly affect the success of that project (Rahrovani, Chan, & Pinsonneault, 2014). Project planning is the process of deciding ideal strategies, arrangement and timing of project exercises, and obliged assets to boost the possibility for a successful projects. Planning viability can be conceptualized as the degree to which a project accomplishes its arranged targets. (Galvin, Gibbs, Sullivan & Williams, 2014). Choices taken amid the planning procedure have been found to affect the plausible result of a project (Arditi, 1985; Clayton, 1989; Syal et al., 1992). Project Planning can be utilized to devise new items, administrations, inside operations, or hierarchical strategies (Nutt, 1982; Nutt, 1983). Most creators concur that a project is an interesting attempt, an extraordinary undertaking that has not been done some time recently. Subsequently, it is extremely troublesome or even difficult to know exactly at the underlying planning stage what are required to be done to finish the project and what are their cost and length parameters (Andersen, 1996).

Thomas, et al. (2008) state that even the most effective team cannot overcome a poor project plan and projects started down the wrong path can lead to the most spectacular project failures. Morris (1998) similarly argued that "The decisions made at the early definition stages set the strategic framework.... get it wrong here and the project will be wrong for a long time". Munns and Bjeirmi (1996) state that for a project that is flawed from the start, successful execution may matter only to the project team, while the wider organization will see the project as a failure. Blomquist, Hällgren, Nilsson, and Söderholm (2010) state "Plans are a cornerstone of any project; consequently, planning is a dominant activity within a project context." This is a recurring theme: planning is inherently important to project success or one could argue project management would not exist.

Pinto and Prescott (1988) found that a schedule or plan had a correlation of 0.47 with project success, while detailed technical tasks had a correlation of 0.57 and mission definition a correlation of 0.70. Pinto and Prescott (1990) again found that planning factors dominate throughout the project life cycle. Planning was found to have the greatest impact on the following success factors: "Perceived value of the project" ($R^2=0.35$) and "Client satisfaction" ($R^2=0.39$). The coefficient of determination R^2 provides a measure of how well future outcomes are likely to be predicted by a model. Shenhar (2001) notes better planning is the norm in high and super-high technology projects. This was found to apply consistently to the deliverables normally produced in the planning phase. Dvir and Lechler (2004) found quality of planning had a +0.35 impact on R^2 for efficiency and a +0.39 impact on R^2 for customer satisfaction. Dvir, Raz, and Shenhar (2003), in a rigorous paper noted the correlation between aspects of the planning phase and project success. Zwikael and Globerson (2006) noted the following "organizations, which scored the highest on project success, also obtained the highest score on quality of planning."

What appears to be clear is that activities which we define as part of the planning phase, such as requirements definition, scope definition, and technical analyses are important to project success (Shenhar et al., 2002) as Eisenhower is said to have stated: "In preparing for battle I have always found that plans are useless, but planning is indispensable." (Blomquist et al., 2010). However, it is clear that the activities that occur prior to execution and along with planning are important to project success (Dvir et al., 2003).

Conceptual Framework

It gives relationship between the study variables, the main focus of this research was to explore the factors that affect project success in the construction industry, focusing specifically on Siaya County. Project success shall be considered as the dependent variable in the study whereas the independent variable is project planning.

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Independent Variables

Project Planning

- Mission and Vision
- Project Schedules
- Project Plan Documents

Dependent Variable

- **Success of Project**
- Completed in time
- Quality expected
- Completed within the budget

Research Methodology

Research Design

Descriptive research design was used to examine how project planning, are relevant to the success of road construction projects in the study area. Descriptive survey research designs are utilized in preparatory and exploratory investigations to enable the inquirer to collect and process data to clarify on issues (Orodho, 2003). Mugenda and Mugenda (2003) argue that the objective of descriptive studies is to examine and recount prevailing situations and are helpful in demonstrating, elucidating or uncovering those situations.

Target Population

According Mugenda and Mugenda (2003) define target population as the all universe a researcher wishes to draw conclusion. The research targeted all construction roads projects in the county of Siaya. According to the Siaya County Government, 56 road construction projects have been implemented so far since inception of the devolved unit which were categorized into 3 strata namely; gravel 27, murram 16 and Tarmac 13.

Sampling Design

A sample design is a strategy for drawing a sample from a definite population (Kothari 2004). The researcher used stratified random sampling technique. The respondents were staff within the Siaya County Government, working in the road constructions sector. A sample of 168 respondents were drawn across the 3 categorise of the road construction project namely; Gravelling, Marram and Tarmac.

Type of road	No. of projects	Sampled Size	
Gravelling	27	81	
Murram	16	48	
Tarmac	13	39	
Total	56	168	

Table 1: sample size

Source: Siaya County Government, 2022

Data Collection Instrument

Semi-structured questionnaires were used in this study to collect primary data from respondents. The questionnaire was selected because it enabled the researcher to be consistent in asking questions and data yielded was easy to analyse. The questionnaires were formulated according to study objectives in a systematic procedure.

Data Collection Procedures

The researcher visited Siaya County office in charge of county roads to seek for authorization to carry out research. The study used the drop and pick method in the data collection. The researcher made two visits to the respondents; during first visit the researcher distributed the questionnaires to the respondents and made arrangements with them on the convenient time to collect the completed questionnaires. In the second visit the researcher shall collect the filled questionnaires. To ensure that all the questionnaire items are answered, each

respondent's questionnaire was cross-check and where items that had been left out, the respondents requested to respond to them. The filled questionnaires were then be collected for data analysis.

Pilot Study

Pilot study refers to a small-scale replica and rehearsal of the main study. The pilot study assisted in determining the suitability and ease of use of the research instruments and the operational aspects of administering the questionnaires. In this study the purpose of a pilot test was to discover possible weaknesses, inadequacies, ambiguities and problems in any aspect of the research process. A pilot-test was conducted in Kisumu County where 16 questionnaires was issued out representing 10% of the population (Maiyaki & Mokhtar, 2011).

Validity of Research Instruments

According to Walliman (2017), validity refers to the degree to which the instrument measures what it is supposed to be measuring. The researcher focused on content validity, which refers to the accuracy with which an instrument measures the factors under study. Therefore, content validity was concerned with how accurately the questions asked tends to elicit the information being sought. The research instrument was tested for content validity by giving the questionnaire to the supervisors, and to engineer's staff experienced in the road constructions in the private sector.

Reliability of Research Instruments

Reliability relates to the precision and accuracy of the instrument (Collis and Hussey, 2009). Reliability is the test of credibility, accuracy, and consistency of the data collected using research instruments and the results presented. In this study, reliability was determined by use of a pilot study and internal consistency technique. Test items was given to the pilot group to give suggestions for amendment (Sifuna, 2014). The test of reliability was calculated using the SPSS (Statistical Package for Social Science). Reliability was determined using Cronbach Alpha. The Cronbach's alpha coefficient values ranges between 0 and 1 (De Vaus, 2002). Higher alpha coefficient values mean that scales are more reliable. As a rule of thumb, acceptable alpha should be at least 0.70 or above (Hair et al., 2007).

Data Analysis and Presentation

The study's data recorded was coded and edited by help of SPSS. The descriptive statistics technique, namely frequencies, means and standard deviations were applied in describing the data. The study's percentage and frequency distributions were attained from the gathered data. The gathered data was then analysed by the use of linear regressions approach. The approach was to aid in evaluating and understanding the connection between the two study variables.

The general formula of multiple Regression: $Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 \epsilon$ Where: Y = Implementation of Construction projects X1=Project Planning X2 = Technical Capacity X3 = Commitment of Stakeholder X4= Communication system $\beta 0$ = Constant Term; $\beta 1, \beta 2, \beta 3$, = Beta coefficients; ϵ = Error Term.

Diagnostic Test

Diagnostic test are those tests and checks done to test for statistical problems. In order to check for normality, the values for symmetry and Kurtosis between -2 and 2 are considered acceptable in order to prove a normal distribution (George & Mallery, 2010). The study carried out the skewness and Kurtosis which were analysed and presented in the table below Multicollinearity is a measure of the existence of strong correlation between

independent variables. The aim of the correlation test was to identify the association between organization framework and project implementation.

Research Findings

Response rate

As per the sample size, the researcher distributed a total of 168 questionnaires to the respondents. However, out of the 168 questionnaires that were distributed, only 150 were duly filled and received back. This means that the response rate was 89.28%. According to Mugenda and Mugenda (2003), a response rate of 70% and above is excellent for data analysis and drawing conclusions of a descriptive study. Therefore, this study's response rate of 89.28% (150) was excellent hence enough to carry out analysis and make a conclusion. It is also representative of the target population hence the findings could be generalized.

Demographic information of the respondents

Demographic information of the respondents assisted the researcher to understand the critical issues that could have affected respondent's answers, interests and perceptions. It also help the researcher to carry out comparisons of responses and it's variation between the sub-sets. Helped the researcher to know the factors that could have influenced the respondent's answers, interests and opinions. The researcher considered age, marital status, gender, level of education, experience of service, position at work and period worked on current position. The distribution of gender was 74% male and female comprising 26% indicating a fair involvement of both genders.

Age of the respondent

The study endeavour to investigate the age distribution of the participants. The findings show a number of the participants were aged between 20-30 years 40 (26.67%). Those aged between 31-40 years were 39 (32.67), while those aged 41-50 years were 25 (16.67%) and 51-60 years were 20 (13.33) and those above 60 years were 16(10.67%). The findings show that a bigger percentage of the respondents were below 40 years of age which is in conformity with national policies in sub Saharan Africa countries (Blum, 2007)

Level of education of the respondent

The study sought to find out the education levels of the participants. The findings indicate that majority of the participants 58(38.67%) had attained bachelor's degree level of education followed by those who had diploma level of education 45 (30%). Moreover, 25(16.67%) of the participants attained masters level of education while 18(12%) attained secondary level and 4(2.67%) attained PhD. This depicts a picture of an enlightened respondents who are well informed hence adequate enough to drum up research findings.

Years of experience

The researcher wanted to establish the level of experience of the participants. The findings show that majority of the participants 37 (24.67%) had worked for between 1-5 years in the respective areas followed by those who had worked for between 6-10 years 33(22%), 30(20%) worked between 21-25 years, 26(17.33%) worked between 11-15 years while 24 (16%) of the participants had worked for 16-20 years. The findings show that the participants were knowledgeable enough to provide required information

Descriptive Analysis.

Project Planning and success of the road construction project.

The objective of the study was to find out the influence of project planning on success of road construction project. To achieve the objective, the researcher listed a number of statements corresponding to the effect of project planning and success of road construction projects in Siaya county and asked the respondents to rate the statements using a likert scale of 1 – 5 whereby 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and

5=Strongly Agree. The study findings were as shown in Table 2.

Statement	Ν	Mean	Std. Deviation
The organization has in place a good mission and vision statement	150	4.4167	1.96184
Proper planning tools are in place in the organization The project team in the organization understands the project objectives	150 150	3.3833 4.2667	1.69837 1.84104
Average	150	4.0222	1.83375

Table 2: Project planning and success of the road construction project

Source: Siaya County Government, 2022

The research sought to establish the influence of project planning on the success of a project. The findings are captured in Table 2 indicates that the organisation had in place a good mission and vision statement which had the highest mean at 4.4167 clearly signifying a very strong agreement and a standard deviation of 1.96184. Study by Germuerden and Lechler (2009), found out that project managers have the authority of planning, which also concurred with the findings of Okero (2011), who concluded that there was an increase in unfinished infrastructural projects owing to inadequate planning, therefore, the findings demonstrated that organisations should adopt very clear planning processes so as to be relevant in the construction sector.

Project success

There are several ways in which project planning can affect success of road construction in the County of Siaya. The researcher sought to establish ways in which project planning employed by various projects had contributed to success of road project. To achieve this, a statement was listed and respondents were asked to indicate the extent to which they agreed or disagreed with the statement. Findings were as shown in Table 3.

Table 3: Project Success

Practices for ensuring success	Ν	Mean	Std. Deviation
Preparation of mission and vision, project schedules and project plans documentation assist achievement of project success.	150	4.3167	1.14228

Source: Siaya County Government, 2022

From the finding in Table 3 it is evident that project planning affect project success in many ways. For instance, employees of Siaya county projects who participated in this study generally agreed (Mean score of 3.5<mean>4.4) that project success is best achieved through preparation of mission and vision, project schedules and project plans documentation.

From the study findings the values of mean, standard deviation are 4.3167 and 1.14228 respectively. These have established that the project planning employed by various organisations in Siaya County are very crucial for success of road construction in Siaya County. This also agreed with the work done by Muchungu (2012) who concluded that a project success would always be determined by the degree to which the set target are met to the satisfaction of the customers and stakeholders therefore, efficient project planning processes are in dire need which calls for the use of advance management system

Inferential Statistics

The researcher adopted the use of inferential statistics to enable the study get a general view of the population sample in relation to the general form. In the study there was a use of Regression coefficient analysis, variances to explore the impact of project planning and success of road construction projects in Siaya County. This was to get a very wide scope on the influence of the independent and dependent variables.

Correlation Analysis

The Pearson correlation matrix was used to determine correlation between the independent variable.

Table 4: Correlation

		Project planning	Project success
Project planning	Pearson Correlation	1	.651**
	Sig. (2-tailed)		.000
	Ν	150	150

Source: Siaya County Government, 2022

As shown on Table 4 the p-value for project planning was found to be 0.000 which is less than the significant level of 0.05, (p<0.05). The result indicated that Pearson Correlation coefficient (r-value) is .651, which depicts a strong positive relationship between project planning and project success.

Regression analysis

The researcher also conducted a multiple regression analysis so as to point out the relationship between the independent variable; project planning and the dependent variables; success of road construction projects in Siaya County. Statistical package for social sciences (SPSS) software was used to code, enter and compute the measurements of the multiple regressions for the research.

Results of Diagnostic Test

Table 5: Results of Normality Diagnostic Test

Descriptive				
		Statistic	Std Error	Conclusion
Road Project Implementation	Skewness	-0.125	0.0980	Normally Distributed
	Kurtosis	0.186	0.839	
Project planning	Skewness	-0.147	0.098	Normally Distribution
	Kurtosis	0.411	0.609	

Source: Siaya County Government, 2022

The above results illustrate that the variables are distributed normally with skewness and kurtosis values ranging between -2 and +2.0 The statistical implication is that the study variables namely-: project planning, are normally distributed and concurred with (Montgomery 2001), who found out that if any of the values exceeds 5 or 10, it implies that the associated regression coefficients are poorly estimated because of multicollinearity.

Table 6: Results of Multicollinearity Test

Coefficients				
Model	Collinearity Statistics			
	Tolerance	VIF		
Project planning	.609	1.642		
Dependence Variable: Road Project Success				

Source: Siaya County Government, 2022

Table 6 shows that the VIF for Project planning is 1.642. The results therefore, shows that the variables have a VIF that is less than 10 and tolerance value more than 0.1 ruling out the possibility of multicollinearity. Therefore, the implications of the results obtained was that there was no multicollinearity arising amongst the various variables and therefore its scope in the model can be tolerated.

Regression Coefficient

The researcher did Regression analysis in order to establish the linkage between organization framework and project implementation. The results were as presented table 4.12 below.

Table 7: Regression Coefficients

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		В	Std. Error	Beta		
1	(Constant)	.572	.291		1.970	.051
	Project planning	.082	.071	.067	1.150	.252
a. Dependent Variable: Project success						

Source: Siaya County Government, 2022

Coefficient of independent variables (project planning) and the dependent variable (success of road project in Siaya County) are presented in table 7 above.

The variables have p=values of less than 0.05 demonstrating that all of the independent variable is statistically significant. As per the SPSS generated table above, regression equation;

$Y = .572 + .082X_1 + \epsilon$

Where: Y is the road project success in Siaya County, B0 is a constant, $\beta 1$ is the Beta coefficient of the independent variables, X_1 is the independent variable.

whereas ε is the error term. Regression investigation holds that if the independent variable (project planning) was held constant, Road project success in Siaya County would be at .572. Project planning has a strong and positive effect on the success of the Road project in Siaya County by a factor of .082. This outcome concurred by a study conducted by Njiru (2018), who recommended that top management from manufacturing Companies should ensure that proper planning is performed as per the set standards of the project so as to lead and give impetus to the employees for better project implementation.

The purpose of the study was to establishing the effect of project planning on success of road construction projects in the County of Siaya. The study was under one specific variable project planning. These findings demonstrated that project planning, has a positive influence on the success of road construction, which improves overall performance of projects in Siaya County. This was confirmed by results from a correlation analysis conducted that indicated there was a strong positive and significant relationship between project planning and success of road construction projects. On the objective of the study the respondents generally agreed that various organizations have in place a good mission and vision statement, proper planning tools are in place in their organizations.

Conclusion

The study found out that the Siaya county road project implementation agencies have not fully been embracing project planning, thus the delays and poor road construction project implementation. Planning could assist the contractors in achieving success in road construction project across Siaya County. This has been corroborated by the results from a coefficient of determination conducted which indicated that there is a strong positive significant relationship between planning and success of road construction in Siaya County.

The study concluded that project planning can play a key role in the success of road construction in the County of Siaya.

Recommendation

The study recommends that project planning is very significant in enhancing the success of road construction projects in Siaya County.

Suggestion for further research

Based on the study findings from the results obtained another study should be conducted in other parts of the country to establish whether there is a disconnect between the study variables.

Similar study can also be carried in other sectors rather than road constructions like Dam construction, house construction among others to link it with findings in the road construction project that this study has focused on.

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