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PROJECT PLANNING PRACTICES ON THE IMPLEMENTATION PERFORMANCE OF PUBLIC BUILDING PROJECTS IN NAIROBI COUNTY

[1] Njue Wilson Mugendi, [2] Dr. Kamaara Mary

[1]Masters Student, Jomo Kenyatta University of Agriculture and Technology
[2]Lecturer, Jomo Kenyatta University of Agriculture and Technology

ABSTRACT

Public infrastructure projects are key in the delivery of services to citizens and residents of a given country. Over the years, we have experienced a number of projects being completed within the specified timeline and cost. However, some of the projects end up stalling. The stalling of projects have been witnessed in both private and public sectors globally. Although the stalling of projects is a global phenomenon in both developed and developing economies, many stalling projects have been witnessed in developing countries. Studies have revealed Kenya is losing a lot of public funds through stalled projects. This study therefore sought to examine the effect of project planning practices on the implementation performance of public building projects in Nairobi County**.** Specifically, the study sought to determine the project scope planning and communication planning practices on the implementation performance of public building projects in Nairobi County. This study used a descriptive research design. The sample size was as follows forty (40) Architects, sixty-five (65) Engineers, twenty (20) Quantity Surveys from the State Department for Public Works, fifteen (15) Accountant and Heads of Procurement and Purchasing Departments from various Ministries, and ten (10) Contractors in the ministries. Both descriptive and inferential statistics were adopted for the study. The quantitative data was analyzed by using descriptive statistics which included frequency distribution tables, mean, standard deviation, and measures of relative frequencies. The inferential statistics included correlation analysis and regression analysis. A regression model was used to establish the relationship between variables. The quantitative data was presented in various forms such as tables, graphs, and charts. A Multiple regression model was used to establish the relationship between variables. The study concludes that project scope planning had a positive and significant effect on the implementation performance of public buildings. The study also concludes that communication planning has a positive and significant effect on the implementation performance of public buildings. Based on the findings, the study recommends therefore that project scope planning be done before the implementation of the project. The study also recommends that communication planning be done before the implementation of project.

Key Words: Project Planning Practices, Scope Planning, Communication Planning, Implementation Performance of Public Building Projects In Nairobi County

Background of the Study

According to PMI (2008), a project can be defined as a set of tasks or objectives that is undertaken within a specified time (PMI, 2008). This means all projects have a time limit; that is, they have commencement and end dates. According to PMI (2008), the end of a project can either be achieved when all its set objectives are attained or terminated when its objectives are not achievable for some reasons. All projects have the beginning and end, irrespective of whether its objectives are accomplished or not. Project completion can either follow the normal sequence of activities that are aimed to achieve a specified goal, or can be terminated before the completion date (Robert and James, 2013). The project's success or failure is determined by the time management of all activities involved. Therefore, the need for project plan guides to guide on activities to be undertaken and the time frame for the same. This ensures that all activities are completed within the specified time and the project at large is also completed within the timeline. The construction industry is one of the largest industries in the world, employing millions of people (Chitkara 2005). It contributes 10% towards GDP for developed economies and more than 4% for the developing economies (Gwaya et al, 2014).

Public infrastructure projects are key in the delivery of services to citizens and its residents. The successful implementation of projects is an indicator of development in a given country (Hanachor, 2013). According to Motlhatlhedi and Nel (2019) the study of the Gross Domestic Product (GDP) of several countries globally, established that agricultural and construction sectors are the leading contributors to GDP with both with contributing to an average of ten percent. However, not all projects are completed within the set time globally. According to the Project Management Institute PMBOK guide (2015), a project is sequence of unique and related activities to be achieved at a set time, within its cost constraints and by set specifications. A stalled Project can therefore be defined as the inability of a project to be completed within its set time, cost and quality specifications (Amachree, 1988). Moreover, the project can still be considered failed, if it does not fulfill its required purpose, irrespective of being completed in time and within its cost (Nzekwe, 2015). Over the century, delays in the completion of projects have been witnessed in private and public sectors globally, both in developing and developed countries. However, the rate of incomplete building in developing countries is higher than in developed countries (Damoah, 2015). Amoatey and Ankrah (2017) indicated that other than political, economic, technical, social, or even environmental issues, project completion can be affected by uncontrolled factors such as weather conditions. Motlhatlhedi and Nel (2019) also pointed out that delays in the project schedule are delayed because of late change of scope by the client or late change of design by the engineers and insurance of drawings. The report also highlighted the main causes of delays in finishing of the project were low productivity of workers; lack of construction equipment; complexity in designs, payments delayed by the client; political intrusion, mismanagement of finances by the contractor and selection of the lowest bidder during evaluation over experienced contractors.

Delay in projects have recurring phenomenon, according to Chan and Kumaraswamy (1996) seven eight per cent (78%) of the projects surveyed in Australia in 1960s were completed beyond their time line, while 70% of the projects in Hong Kong were delayed. A study in Germany revealed that Berlin Brandenburg Airport was scheduled to be open in the year 2011 but delayed until 2020. According to Yilmaz, (2020) the initial cost of the project in the year 2006 was 2.83 billion euros but was later completed in 2020 at a cost of about 7.8 billion euros. The study revealed that the stalled project was as result of a number of factors which include: inaccuracy of budget estimation that resulted in cost variation of the project, political influence and changes in design. Garden Bridge in London has since stalled. London’s cross rail which was scheduled to be open in December 2018 was rescheduled to 2022.

Kosher (2016) revealed that only 25 percent of the projects in Ethiopia were timely completed on the initial targeted completion date. The report indicated that the main factors that caused the delayed completion of the projects in Ethiopia were; - the inability of the contractor to fund the projects, an increase in the cost of materials, poor resource management and delays in payment of contractors by the client. Further, the construction of phase 2 of the Toshka New Valley project in Egypt amount to amounting to $ 90 billion has since stalled (Ramegowda, 2019). At least 25% of projects executed under the local government of Ghana set up to fail due to schedule overruns (Buertey et al., 2014). According to Kikwasi (2012) on the causes of delay in completion of construction projects in Tanzania, only 30% of the projects were completed within the, and 70% time overrun

The studies revealed that despite the successful completion of a number of public building projects, some of them have since turned into white elephant. The report by the Government Auditor General (2016/2017) revealed that the Kenya government has lost Kshs. 2,545,113,970 on stalled public projects. According to the Auditor General (2021), seven (7) of Kenya Medical Training College projects had stalled at different levels of completion. Another report by the auditor general for national government ministries, departments and agencies (2020/2021) revealed that eighteen (18) projects with a contract sum of Kshs. 1,797,912,745 had stalled. The report indicated that there wasn't a satisfactory explanation provided for the stalling works or delay in the project's completion. According to the report by the national assembly on the stalled project of Kenya Medical Training College Taveta campus (November 2021). The construction of the campus was initiated in year, 2007 and was to be funded by KMTC and Taveta National Government Constituency Development Funds, but the project has since stalled with Kshs 9,712,002 paid to the contractor. The research indicated that the feasibility had been done for each project and findings indicated that the projects were feasible. According to Ramegowda (2019) the causes of delay in the completion of public infrastructure projects was as follow ; lack of adequate fund, inaccurate costing and misappropriation of fund, ignorance, and political intrusion, communication failure, impropriate method of hiring the contractors, change of initial scope, and social and cultural believes. This study investigate the effect of project planning practices on the implementation performance of public building projects in Nairobi County**.** Benjamin Franklin said, "If you fail to plan, you plan to fail." Therefore, project planning is critical to the success of any project.

Problem Statement

According to PMI (2008), the end of a project can either be achieved when all its set objectives are attained or terminated when its objectives are not achievable for some reason. All projects have a beginning and end, irrespective of whether their objectives are accomplished or not. Project completion can either follow the normal sequence of activities that are aimed to achieve a specified goal, or can be terminated before the completion time (Robert and James, 2013).According to Amachree, (1988) inability of a project to be completed within its set time, cost and quality specifications is termed a stalled project.

Stalling of infrastructures is a global occurrence that is not only affecting the construction industry but also the economy of the country (Sambasivan & Soon, 2007). Faradi & El-Sayegh, (2006) found out that delay involves multiple complex issues, all of which are invariably of critical importance to the parties of the construction contract. According to Braimah (2008) incompletion of any project is instigated by actions or failure of stakeholders to act, or even the act of creator.

The auditor general report (2020-2021) indicated that the government of Kenya has lost Ksh 77,448,736,445 on uncompleted projects. The report also indicates that the government is continually incurring a lot of expenditure on projects that have either stalled or remained

incomplete long after their completion dates ended. The report highlighted that some of the projects are attracting penalties due to delayed in payments.

According to Munano (2012) on factors that influence the timeliness of project completion for public sector in Kenya .The completion time for the sampled projects was at a mean of 209.8% with the projects at an average of 87.54% of completion. In his Budget Policy statement (2021), the treasury secretary pointed out the government is in view of cancelling a third of the stalled project as measures to raise the GDP. There are empirical research on causes of incomplete county projects. The study therefore seeks to investigate the project planning practices on the implementation performance of public building projects in Nairobi County.

Objective

Investigate the effect of project planning practices on the implementation performance of public building projects in the county of Nairobi over the last ten years.

Specific objective

i. To determine the effect of scope planning on the implementation performance of public building projects in Nairobi County.

ii. To examine the effect of communication planning on the implementation performance of public building projects in Nairobi County

Theoretical Review

General Systems Theory

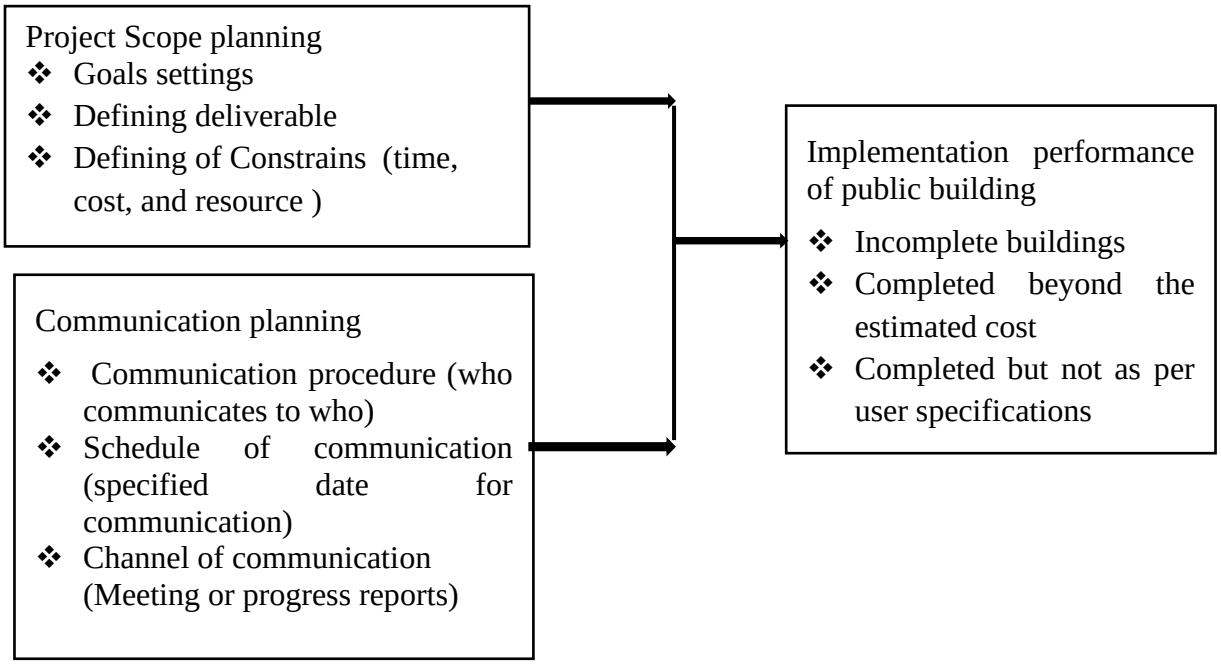
Bertalanffy Ludwig Von (1971) a system is a collection of parts unified to achieve all objectives. This means that when one part of the system is removed, the nature of the whole system changes. A project can also be regarded as a system with inputs, processes, and output, (Murithi, 2017). The success of the project totally depends collaboration with other parts. According Memo (2013) indicates the failure of different parties to a project to work seamlessly leads to infighting that eventually derail the completion of a project.

Transaction Cost Theory

Transaction cost theory (TCT) looks at the transaction as a basic unit of measure, mainly focusing on resources, effort, or cost involved for two parties to complete an exchange (Williamson, 1981). Transaction costs are considered as the costs outside the cost of the good or service required between two entities (Sarkis et al., 2011). The objective is to make best use of transaction performance and minimize costs. TCT also explains the need for evaluating ‘make versus buy’ decisions (Geyskens, Steenkamp, & Kumar, 2006; Hazen et al., 2016). In this research, the theory is deemed relevant because it explains the need for procurement planning.

Conceptual frameworks

A conceptual framework shows the connection between the independent and dependent variables. The independent variable are Project Scope and communication planning while dependent variable is the implementation performance of public building projects in Nairobi County.



Independent variable **Dependent variable**

Project Scope Planning

Scope planning involves defining boundaries and deliverables. Scope helps not only with the defining project boundaries, but also in identifying who will be responsible for the certain task (Malsam, 2019). Scope changes have a significant impact on projects cost and schedules. Changes that occur during later stages of project have much effect on the project cost as opposed to earlier one. Nevertheless, changes in any given project is inevitable, but they should be controlled. Unmanaged changes can have big impact on your project, which may result to not meeting deadlines and budget overruns. Any additional work will require more funds and resource and perhaps time. Poor estimates in the planning phase account for 39% and 41% is resulted due to changes in scope (Grimshaw, 2014).

Communication Planning

Communication planning is the strategic process of outlining how information will be shared within an organization or between stakeholders. It involves identifying the target audience, defining key messages, selecting appropriate channels and tools for dissemination, and determining the timing and frequency of communication (Sarkis *et al*., 2011). In any organization, establishing a clear communication procedure is crucial for ensuring that information flows effectively among all stakeholders. Typically, this involves defining who communicates to whom. For example, senior management may communicate strategic goals and updates to department heads, who then relay relevant information to their teams. This hierarchical approach helps maintain clarity and ensures that everyone receives pertinent information tailored to their roles. Additionally, it's important to incorporate feedback mechanisms, allowing employees at all levels to share their insights and concerns, fostering a two-way dialogue that enhances understanding and collaboration (Geyskens, Steenkamp, & Kumar, 2006).

Creating a schedule of communication is vital for maintaining consistency and ensuring that stakeholders are informed in a timely manner. This schedule should specify dates for regular updates, such as weekly progress reports, monthly team meetings, or quarterly reviews. By establishing a routine, organizations can set expectations for when information will be shared,

which helps reduce uncertainty and enhances accountability. Furthermore, a well-defined schedule allows for better planning on the part of all stakeholders, ensuring they are prepared to engage in discussions and contribute to decision-making processes (Hazen *et al*., 2016).

The choice of communication channels significantly impacts how effectively information is conveyed and received. Common channels include meetings, progress reports, emails, and digital collaboration tools. For instance, face-to-face meetings can foster deeper discussions and immediate feedback, while progress reports provide structured, written updates that can be referenced later. Utilizing a mix of channels ensures that communication is both comprehensive and accessible, catering to different preferences and needs among stakeholders. By selecting the most appropriate channels for various types of communication, organizations can enhance clarity, engagement, and overall effectiveness in their information-sharing efforts (Sarkis *et al*., 2011).

METHODOLOGY

Research Design

This study employs a descriptive research design. Descriptive research describes the whole process comprising the organization of data, presentation, and analysis and interpreting the data. It focuses on explaining the relationship between the dependent and independent variables. In this study, the descriptive design describes the relationship between the dependent variable (implementation performance of public building projects), and independent variables (project scope planning and communication planning).

Target Population

The target population here is the Engineers, Architects, and Quantities Surveyors of the State Department for Public Works, Procurement officers, and contractors. The target population constituted a total of 150, composed of Engineers, Architect, Quantities Surveyor, procurement officers and contractors in the ministries

Sample frame

In this study, the sample frame is project managers of public building projects, project teams, and project procurement officers.

Sample and Sampling Technique

Radom sampling technique was employed when selecting a sample size of 150 respondents drawn from stakeholders who were identified to have been involved in the identified implementation of public building infrastructures. The cluster will involve Contractors, Engineers, Architects, Quantity Surveys and Accountants. The sample as follows ten (10) Contractors, forty (40) Architects from the Department for Public Works, sixty-five (65) Engineers from the State Department for Public Works, twenty (20) Quantity Surveys from the State Department for Public works, fifteen (15) Accountant and Heads of Procurement and Purchasing Departments from various Ministries. The total percentage sample size was 25 of the population this is considered a reasonable and fair representation of the population.

Research Instruments

The research adopted questionnaires as the data collection tool. The questionnaire was divided into subheads that entail the, general instruction, personal information of the respondents, and the main body. Piloting was first done in order to assess the legitimacy, clearness, objectivity and dependability of the instruments.

Pilot Test of Questionnaires.

According to Abbott & Bordens (2008) a pilot study is a small-scale version of the study used to establish procedures, materials, and parameters to be used in the full study. According to Cooper &Schindler (2010), a pilot study is conducted to detect weaknesses in design and instrumentation and to provide proxy data for the selection of the probability sample. It helps the searcher to determine whether there were flaws, limitations, or other weaknesses within the data collection tool and make necessary revisions before the implementation of the study. According to Mugenda and Mugenda (2013) the pretest sample ranges from 1%-10% depending on the sample size, in this pre-testing there were 8 respondents in the population. This was around 5.33% of the population. The respondents were randomly selected since statistical conditions were not required in the pilot study.

Data Analysis and Presentation.

The data collected was analyzed using Statistical Package for Social Sciences (SPSS) Version 26. Both descriptive and inferential statistics were used for the data analysis. The descriptive statistics was used to analyze the quantitative data, which included frequency distribution tables, standard deviation, and mean. On the other side, inferential statistics included correlation analysis and regression analysis. The study used a regression model to determine the relationship between independent and dependent variables. The quantitative data was presented in various forms such as graphs tables, and charts. The dependent variable was regressed against the four independent variables; Resource planning, Project Procurement planning, Project Scope planning, and communication planning.

The multiple regression model was as follows:

$\mathbf{Y= \beta_0 +\beta_1 X_1+ \beta_2 X_2+ Ɛ}$

Y- Implementation performance of public building (Dependent variable)

$\mathbf{\beta_0}$ **=**Constant (coefficient of intercept)

$\mathbf{X_1}$ **=** Project Scope planning

$\mathbf{X_2}$ **=** Communication planning

Ɛ=Error term

$\mathbf{B_1}$**-** $\mathbf{\beta_2}$ = Regression coefficient of four variables.

DATA ANALYSIS AND PRESENTATION

Descriptive Statistics

Project Scope Planning and Implementation performance of public buildings

The first objective of the study was to determine the effect of scope planning on on the implementation performance of public building projects in Nairobi County. The respondents were requested to respond on the various question regarding to Project Scope planning in regards to stalled public buildings infrastructure in Kenya. The results were as tabulated in the Table below

Table 1.1: Project Scope Planning and on the implementation performance of public buildings

	1	2	3	4	5	Mean	Std. Deviation
Scope planning and implementation performance of public building	34.3	49.83	7.27	6.96	1.67	1.92	0.7307
The project goals were set during initial planning stage	37.6	46.5	5.9	5	5	1.94	1.043
The project deliverables were defined in the project planning stage	38.6	54.4	4	3	0	1.72	0.683
The time, cost, and resource constrain were defined at the planning stage	26.7	48.5	11.9	12.9	0	2.11	0.952
Aggregate						**1.92**	**0.8522**

The respondents agreed that the project scope planning influenced the implementation performance of public buildings, this is shown by a mean of 1.92 and (std. dv = 0.7307). The respondents agreed that project goals were set during the initial planning stage, this was indicated by a mean of 1.94 and (std. dv =1.043). The respondents also agreed that project deliverables were defined during the planning stage. This was supported by a mean of 1.72 (std. dv = 0.683). The respondents even further agreed time, cost, and resource constraints had been defined at the planning stage. This was supported by a mean of with a mean of 2.11 (std. dv = 0.952).

Communication planning and implementation performance of public buildings

The second objective of the study was to determine the effect of communication planning on the implementation performance of public buildings. The respondents were requested to respond to various questions regarding to communication planning and implementation performance of public buildings. The results were as tabulated in Table 4.2 below

Table 4.2: Communication planning and implementation performance of public buildings

	1	2	3	4	5	Mean	Std. Deviation
Communication planning and implementation performance of public buildings	21.67	49.67	13.67	14.67	0.33	2.22	0.672
There were Communication procedures (who to send and who to receive the information)	33	49	12	5	1	1.92	0.861
There was a schedule of communication (specified date for sending and receiving information)	7	38	20	35	0	2.83	0.995
There were communication channels defined before the commencement of project (the channel either Meeting or just written reports)	25	62	9	4	0	1.92	0.706
Aggregate						**2.22**	**0.809**

The respondents agreed that communication planning influenced the implementation performance of public buildings. This is shown by a mean of 2.22 and (std. dv = 0.672). The respondents agreed that there were communication procedures (who to send and who to receive

the information), this was supported by a mean 1.92 and (std. dv =0.861). The respondents also agreed that there was a schedule of communication (specified date for sending and receiving information). This was supported by a mean of 2.83 (std. dv = 0.995). The respondents further agreed that there were communication channels defined before the commencement of the project (the channel either meeting or just written reports). This was supported by a mean of with a mean of 1.92 (std. dv = 0.706).

Correlation Analysis

The study used Pearson correlation analysis to obtain the strength of correlation between the dependent variable (implementation performance of public projects) and independent variables (project scope planning and communication planning). The result is shown in the table 4.3 below.

Table 4.3: Correlation Coefficients

		implementation performance of public buildings	**Project Scope planning**	**Communication planning**
Implementation performance infrastructures	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	100		
Project Scope planning	Pearson Correlation	0.621**	1	
	Sig. (2-tailed)	0.000		
	N	100	100	
Communication planning	Pearson Correlation	0.544**	0.320**	1
	Sig. (2-tailed)	0.000	0.001	
	N	100	100	100

The results shown a very strong relationship between Project Scope planning and the implementation performance of public buildings (r = 0.621**, Sig. =0.000). Moreover the relationship was significant because the Sig value 0.000 was less than 0.05 (significant level).

The finding established that there was a strong relationship between communication planning and the implementation performance of public buildings (r =.544**, Sig. = 0.000). The relationship was also considered significant because the Sig value 0.000 was less than 0.05 (significant level).

Regression Analysis

Multiply regression analysis was used to evaluate the relationship between independent variables (project scope planning and communication planning) and the dependent variable (implementation performance of public buildings).

Model Summary

The model summary indicate the coefficients of determination, that is, the degree to which change in the dependent variable may be affected by variations in the Independent variables. The results were presented in table.

Table 4.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.782	0.612	0.595	0.29661

a. Predictors: (Constant), project scope planning and communication planning

The model explains the variation in the dependent variable and independent variables. The Adjusted R Square =0.595 was for relationship between independent variables and the dependent

variable in this study. This implies that 59.5 % of the changes in the dependent variable (implementation performance of public buildings) could be explained by independent variables (project scope planning and communication planning). The 40.5 % of implementation performance of public buildings couldn't be explained by the research. The coefficient of correlation value(R) of 0.782 indicates that there was a positive strong correlation between independent and dependent variables.

Analysis of Variance

The analysis was found out the overall significance. The results is as shown in the table below

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.171	2	6.586	76.58	0.000
	Residual	8.358	97	0.086		
	Total	21.529	99			

a. Dependent Variable: implementation performance of public buildings
b. Predictors: (Constant), project scope planning and communication planning

The ANOVA was used to establish the fitness of model for the data. The F critical value was 2.46 at a 5% significance level while F calculated value was 37.427 at significance value was 0.000, because the F-calculated was greater than the F-critical and the Sig. value of 0.000 was less than 0.05, the model was appropriate for the data. The results established that the independent variables (project scope planning and communication planning) are good predictors of the dependent valuable (implementation performance of public buildings).

Regression Coefficients

The coefficients of independent variables are stipulated below. The coefficients

Indicate the proportion change of the dependent variable because of the change in the independent variables.

Table 4.5: Analysis of Variance

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.438	0.116		3.791	0.000
	Scope planning	0.133	0.082	0.201	1.633	0.010
	Communication Planning	0.077	0.087	0.085	0.893	0.374

a. Dependent Variable: Implementation performance of public buildings

The regression model was as follows:

$Y = 0.438+0.133X_1 + 0.077X_2 + \varepsilon$

Based on the results, Scope planning had a significant influence on the implementation performance of public buildings $\beta_1=0.133$, Sig = 0.010). The relationship between the variable was significant since the Sig was less than the significant level of 0.05.

Findings also established that Communication planning had an effect on the implementation performance of public buildings $\beta_4=0.077$, Sig = 0.374). Though there was a relation between the

variables the relationship was considered not significant because the value Sig was greater than the significant level of 0.05.

Conclusions

The study concludes that project scope planning had a positive and significant effect on the implementation performance of public buildings. Findings shown that goal setting, definition of deliverables, time, cost, and resource constraints influenced the implementation performance of public buildings.

The study also concludes that communication planning has a positive and significant effect on the implementation performance of public buildings. Findings revealed that communication channels, schedule of communication and communication procedures influence the implementation performance of public buildings.

Recommendations

The study found that project scope planning has a positive and significant effect on the implementation performance of public buildings. The project scope should be used to estimate the project's cost to ensure the projects are completed within the estimated cost and time. This study recommends therefore that project scope planning be done before the implementation of the project.

The study found that project communication planning has a positive and significant influence on the implementation performance of public buildings. Communication plays a critical role in the implementation project. The study therefore recommends that communication planning be done before the implementation of project.

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