



INFLUENCE OF PROJECT PLANNING ON SUSTAINABILITY OF PUBLIC PRIVATE PARTNERSHIP PROJECTS IN NAIROBI CITY COUNTY, KENYA

Mohamed, A., & Moronge, M.

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Mohamed, A.,^{*1} & Moronge, M.²

^{*1} Msc. Candidate, School of Business, Jomo Kenyatta University of Agriculture and Technology [JKUAT], Kenya

² Ph.D, Lecturer, School of Business, Jomo Kenyatta University of Agriculture and Technology [JKUAT], Kenya

Accepted: October 28, 2019

ABSTRACT

The purpose of the study was to examine the influence of project planning on sustainability of PPP projects in Nairobi City County, Kenya. The study adopted a descriptive research design. The target population for the study was 213 from the various PPP projects. A questionnaire was used to collect primary data and consisted of both structured and open ended questions to give qualitative and quantitative data. Data was analyzed using descriptive and inferential statistics in which frequencies and percentages were used. SPSS was used to analyze the data and to determine whether the independent variables were related to the dependent variable. Data was presented in tables. Qualitative data was coded and themes relate to research questions in the study identified. The study concluded that project scope management, project time management, project cost and project quality have positive and significant influence on sustainability of PPP projects in Nairobi City County, Kenya. The study recommended that there is need to enhance project planning through effective strategic plan and clear scope definition guiding all the inputs in the projects conducted by the project managers. The study recommended that there is need to enhance project managers observed definition of activities before any project takes off. The study recommended that there should be adequate sequencing of activities that need to be performed in an order of priority. The study established that there is need to improve on the project cost management and have a defined cost plan before every project begins. There is need to determine required budget is considered mandatory before any project is initiated in project, cost well controlled. There is need to improve on the project quality management through the clear quality verification which normally guides all the inputs in the projects conducted by the project manager. They also agreed that the continuous quality improvement should be normally conducted during the implementation of every project in the county.

Key Words: Cost Management, Project Timelines, Quality Management, Public-Private Partnership

CITATION: Mohamed, A., & Moronge, M. (2019). Influence of project planning on sustainability of public private partnership projects in Nairobi City County, Kenya. *The Strategic Journal of Business & Change Management*, 6 (4), 1006 – 1020

INTRODUCTION

Project planning refers to a practical step employed in project management through which necessary documentation is generated in ensuring fruitful project end. Documentation involves the overall action necessary in defining, preparing, integrating and coordinating additional plans as indicated by (Comninos & Frigenti, 2012) in the practice of project planning management. Project cost management, project quality management; project timelines Management, project deliverables management and project evaluation management are defined by the project planning. Project planning necessitates a comprehensive analysis as well as structuring in the subsequent events to ensure sustainability of road construction projects as argued in in a guide of Project Management Institute (2013).

Kenya's Vision 2030, Kenya's Second Medium-Term Plan (MTP2) , as well as the World Bank (WB) Country Partnership Strategy (CPS) 2014-2018 Report No. 87024-KE) call for large investments in infrastructure by leveraging private sector resources through innovative Public Private Partnerships, World Bank (2017) .Kenya's growth is expected to average 6.5% over the next three years. The growth rate is anchored on the Government Transformative Agenda which is captured in 5(five) broad policies and strategies; creating a conducive business environment for job creation; investing in sectoral transformation to ensure broad based and sustainable economic growth; investing in infrastructure; investing in quality and accessible healthcare services and quality education as well as strengthening the social safety net; and consolidating gains made in devolution for better services and enhanced economic development (National Treasury, 2016).

According to the National Treasury, (Kenya PPPU, 2015), the provision of public infrastructure (including power, roads, rail, sea and airports) and services (including water, health and sanitation) is a key

mandate of governments the world over. These public goods are a fundamental prerequisite for economic growth and development. A significant share of the investment is expected from the private sector. PPPs present the most suitable option of meeting these targets, not only in attracting private capital in creation of infrastructure but also in enhancing the standards of delivery of services through greater efficiency.

Kenya's infrastructure funding gap is estimated at approximately KES.178.5 Billion (\$2.1 billion) per year. Responding to this challenge, the GOK, through the National Treasury, has made infrastructure development and public service provision through PPP a priority mechanism that can help it address this major infrastructure funding gap and achieve the benefits of successful PPP investments including: substantial private investment; transfer of significant risk to the private sector; improving access to infrastructure; creating higher quality assets with better operation and maintenance; and helping achieve better value for money (National Treasury, 2016).

Statement of the Problem

Kenya's economic growth remains robust and resilient in recent years amid weakness in the global economy. The country's GDP was estimated at US\$63.4 billion as of Oct 2016 (up from US\$61.4 billion in 2014), with GDP per capita standing at US\$1,377 (up from US\$1,368 in 2014). The growth is projected at 5.9 percent in 2016 from 5.6 in 2015 and strengthening to 6.1percent by 2018. This is against the backdrop of the significant improvement in external and internal balances, such as falling oil prices; and public investment, mainly in infrastructure (energy and the standard gauge railway).Despite the growth outlook, poverty levels remain high and income distribution is uneven. The World Bank (2014) indicates that Kenyans live in poverty, and the richest 10 percent of the population receive 40 percent of the nation's income. Poverty in Kenya continues to be

closely associated with poor infrastructure (The World Bank Group, 2016).

Since enactment of the PPP Act (2013), the Kenya Government has approved 75(seventy-five) PPP Projects in various sectors in the economy by December 2015 (PPPU, 2016). Unfortunately, only Kenyatta University Hostels has achieved the development phase and 7(seven) road sector projects remain at feasibility studies stage (World Bank,2017). The success of these PPP road projects is threatened by a number of issues such as road enforcement of the toll management legal framework in the National Transport and Safety Authority Regulations (2012); public financial management framework on accounting standards for PPPs (OECD, 2012; GoK, 2016), land allocation and integration of the devolved Government in the PPP Framework.

Whereas the PPP Act (2013) provides for road concessionaire, the Act does not provide for free road alternatives in Kenya; other ways of project cost/tariff recovery; user payment modalities; County/Devolved Government role in the implementation of the PPPs projects; and stakeholder engagement at the project selection stage. Lack of proper project planning could slow if not fail the success of the PPP road projects due to stakeholder resistance and reluctance to accept the services offered by the PPP road projects. This study aimed to address how project planning can help deliver better to achieve real efficiency gains to enable the partnership grow and succeed.

Objectives of the Study

The general objective of this study was to examine the influence of project planning on sustainability of public-private partnership projects in Kenya. The specific objectives were;

- To examine the influence of cost management on sustainability of public-private partnership projects in Kenya

- To examine the influence of project timelines on sustainability of public-private partnership projects in Kenya
- To examine the influence of quality management on sustainability of public-private partnership projects in Kenya
- To examine the influence of scope management on sustainability of public-private partnership projects in Kenya

LITERATURE REVIEW

ABJ Sticky Cost Theory in Project Management

Traditional models of cost behavior usually posit a linear relation between activities and costs where in the short run, total costs equal fixed costs plus unit variable costs \times activity volume. This model implies a mechanical relation between changes in costs and contemporaneous changes in sale activity. According to Müller and Jugdev (2012) recent research has begun to focus on how managerial incentives affect the tradeoff between fixed and variable costs.

The starting point of the sticky costs theory is that many (but, not necessarily, all) costs arise as a result of deliberate resource commitment decisions made by managers (Shahu, Pundir and Ganapathy, 2012). Sudhakar (2012) opined that the concept of cost stickiness is consistent with the thought that costs arise as a result of deliberate resource commitment decisions made by managers. This means that the absolute change in selling, general, and administrative cost associated with decreased sales activity is systematically less than those associated with increased sales activity and they interpret this as evidence of overt cost management (Tabish and Jha, 2012). Verschuren et al. (2010) argue that when sales decrease, managers choose to retain slack resources to avoid resource adjustment costs such as severance payments to dismissed workers or disposal losses on equipment. When demand increases beyond available resource capacity, managers can meet the demand only if they add the required resources.

The Pareto Principle of Time Management

In 1895, Vilfredo Pareto, an Italian economist, noted that about 80% of the land in Italy was owned by about 20% of the people. As he examined his ideas he noticed that this 80/20 rule was equally valid in other ways (Wells, 2012). The idea, which is now called the Pareto principle, relates to time management because 20% of work usually generates about 80% of positive results. Zwikael and Globerson (2006) define time management as the process of determining needs, setting goals to achieve these needs, prioritising and planning tasks required to achieve these goals. Wells (2012) defines time management as behaviours that aim at achieving an effective use of time while performing certain goal-directed activities. This definition highlights the fact that the use of time is not an aim in itself but more of focusing on some goal-directed activity, such as performing a work task which is carried out in a manner that implies an effective use of time (Zwikael & Globerson, 2006).

Time management is not controlling every seconds of life, but it is showing new ways through which people can use the time properly to improve their lives (Wells, 2012). Thus, by focusing on the vital few (the critical 20%) rather than the trivial many (the remaining 80%), one can get far more accomplished. The 80/20 Rule is therefore a shortcut that helps to manage our affairs and focus our energies since the ability to choose the important tasks is the key to success (Ward and Daniel, 2013).

Deming's Theory

William Edwards Deming is well known for founding the Deming's theory of Total Quality Management, which rests upon fourteen points of management. He also identified the system of profound knowledge; the Shewart Cycle (Plan-Do-Check-Act), the ratio of Quality is equal to the result of work efforts over the total costs. This ratio explains that if a company is to

focus on costs, the problem is that costs rise while quality deteriorates (Brighthub, 2013). Edwards emphasized on the management as a key player in proper delivery of quality. He made it clear that poor management leads to a quality crisis. This also focuses more on the human resource capacity in the organization. If the management has poor quality skills, there will be a quality crisis. In a bid to eliminate some of these managerial mistakes, he came up with Fourteen Points that are applicable in any organization regardless of the type or the size. Therefore, these points are very applicable even in the construction industry (Deming, 1986).

These Deming's Fourteen Points of Quality were: creation of constancy of purpose geared towards improvement of products and services, adoption of the new philosophy that does not condone commonly accepted mistakes or defective workmanship, ceasing dependence on mass inspection to emphasize on required statistical evidence, end the practice of awarding business on the basis of price only, constantly identify problems and continually improve on the system, make training on the job compulsory, use modern supervisory methods and demonstrate leadership, eliminate fear to foster worker effectiveness, emphasize on freedom between departments, eliminate targets and slogans for the workers, remove any working standards that describe numerical quotas, dispose of barriers denying workers the right of pride of workmanship, invest in a vigorous educational and retraining programs and develop a structure and culture in the company that will enable achievement of quality (Deming, 1986). This theory shades light on the human resource capacity, which is one of the independent variables in this research. The Deming's Fourteen Points of Quality emphasize more on workmanship, skills and training and development of the workers. All these are aspects related to the human resource capacity.

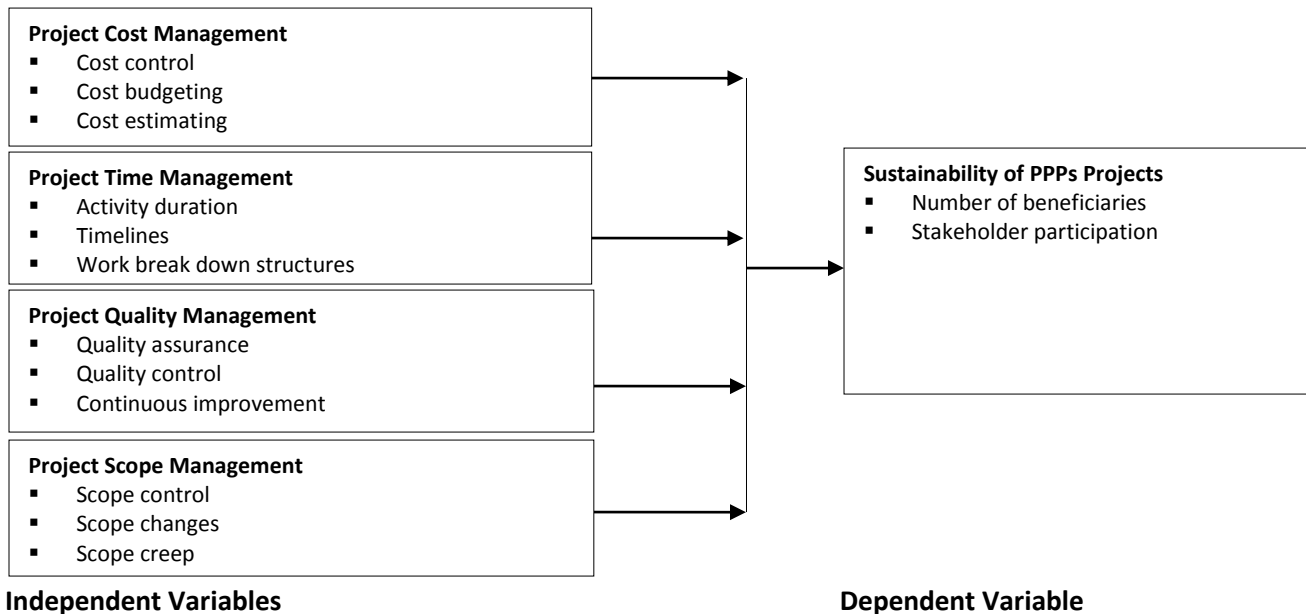


Figure 1: Conceptual Framework

Empirical Review

Mburu (2017) study sought to examine the influence of project planning on sustainability of road construction projects in Kenya. The study sought to find out how project cost management, project quality management, project timeliness management, project deliverables management and project evaluation management affects sustainability of road construction projects. The study used descriptive research design. The study results indicated that lack of sustainability of road construction projects in Kenya should be addressed through outlining the project planning management techniques.

Njau and Ogolla (2017) investigated factors influencing project scope performance at KNYS. The specific objectives for the study included: To determine how project manager competency in scope management influence project performance at KNYS projects; to examine how scope change influenced project performance at KNYS projects; to investigate the use of work breakdown structure in determining project scope performance at KNYS projects and to examine how stakeholder management influences project scope performance at KNYS projects. Hypothesis testing conducted at

95% confidence level confirmed that project manager competency and stakeholder management had insignificant influence of on Project Scope Performance, however use of WBS and scope change had significant influence on project scope performance.

Pretorius (2016) study focused on the effect of scope definition on public building projects that are implemented by project implementing agencies (PIAs) in Malawi. The research sought to investigate the relationship between the level of scope definition and the corresponding performance of infrastructure projects. The study demonstrated the correlation between the level of project scope definition and the success of infrastructure projects. The research concluded that there is a significant direct correlation between scope definition and the corresponding performance of the sampled infrastructure projects in Malawi’s PIAs. Projects that were well-defined tended to exhibit good project performance indicators, while those that were poorly-defined tended to exhibit poor project performance indicators.

Ogunberu, Akintelu and Olaposi (2018) study examined the application of project scope management practices on project success employed by telecommunication organization in the

implementation of Information and Communication Technology (ICT) projects. It was concluded that the project success criteria of the firms were generally satisfactory and very satisfactory with the implementation of project scope management practices.

Nibyza (2015) analyzed the scope change management as a tool for project success in Rwanda. The study covered projects that were implemented in Akazi Kanoze. The purpose of this study is to find out if the changes in project scope would lead to success of the project in term of delivering quality results. The population of this study was 30 employees working in the area of projects operations and management. The study has used a census sampling technique. The research found out that changes in project activities provoke the changes in project cost, time and quality of the product/service of the project. The study indicated that when activities are changes without changing project cost or time; it increases the risk of not completing the project on time as well risk of not having enough resources.

Mckinsey & company conducted a study on large scale IT projects with the University of Oxford (2012). The outcome of the study was that on an average, large IT projects exceeded their budgets by 45% and their schedules by 7%, while delivering 56% less value than predicted. The main cause of failure was that due to poor quality planning the users and stakeholders didnot participated in the daily or weekly project activities. According to a Gartner survey (2012), the most common reasons or causes of project failure were functionality issues, the completion of the project being substantially late and quality issues. According to Wrike statistics (2015), projects meet 68% of their quality standards when organizations use a project management methodology and a smaller percentage without any methodology. Moreover, project success is measured 15% additional when organizations produce high-quality deliverables.

Irefin (2013) sought to establish the effect of project management on the performance of a construction firm in Nigeria using Blackstone Construction Industry as a study area. A survey research design was adopted and copies of questionnaire were administered on 40 top and middle management staff of the company, using simple random and judgmental sampling techniques. The data collected were analyzed using descriptive statistics and chi-square statistical analysis. The questionnaire was validated using content validity. The reliability of the questionnaire was confirmed by determining the correlation coefficient of the data collected at two different periods. The study discovered that project quality planning has significant relationship with business success; project quality has significant relationship with technical success and it was therefore recommended among others that measures should be taken to ensure that project management skills and strategies are adequately considered in the planning and execution of construction projects.

Leong et al., (2014) sought to establish the seven existing and new performance indicators to measure the effectiveness of quality management system (QMS) maintenance and practices in construction industry. This research was carried out with a questionnaire based on QMS variables which are extracted from literature review and project performance indicators which are established from project management's theory. Data collected was analyzed using correlation and regression analysis. The findings indicate that client satisfaction and time variance have positive and significant relationship with project control as element of QMS while other project performance indicators do not show significant results.

Saeed and Hassan (2017) study empirically examined the extent to which Total Quality Management (TQM) and project performance are correlated and the effects of TQM on project performance. In this study,

a TQM framework is developed according to a comprehensive literature review. This framework demonstrates the relationship between TQM and construction project performance through examining the effects of nine TQM constructs on three element levels of project performance. The proposed model and hypotheses were tested by using data collected from Yemen construction firms. The survey covered 40 companies chosen from construction sector (30% of sample size). 29 questionnaires were returned. The response rate was 72.5 %, normal for such research). The results of this aforementioned model support the proposed hypothesis (TQM has positive effects on TQM process for improving construction project performance.

METHODOLOGY

This study adopted a descriptive research design. The study's population was the Public Private Partnerships Infrastructure Projects in Kenya. The unit of analysis was the PPP infrastructure projects. The unit of observation was accounting officers of a contracting authority (public entities) and 5(five) project personnel that consisted of manager, financial, technical (engineer), procurement and legal as appointed by the contracting authority. The study population of 71 projects represented the whole population of the PPPs projects as at 2019. This study collected both primary and secondary data. Quantitative data obtained was analysed by the use of both descriptive and inferential statistics using Statistical Package for Social Sciences (SPSS version 21).

RESULTS

Project Scope Management

The first specific objective of this study was to determine the influence of project scope management on sustainability of PPP projects in Nairobi City County, Kenya. The respondents were requested to point out their agreement level on various statements relating to the project scope management and sustainability of PPP projects in Nairobi City County, Kenya. A five point Likert scale was used during the study where 5 symbolizes Strongly agree, 4 symbolizes Agree, 3 symbolizes Neutral, 2 symbolizes Disagree and 1 symbolized Strongly disagree. The results were presented in Table 1. With a mean of 4.034 (std. dv= 0.392) the respondents agreed the project managers normally planned for scope before the project is initiated. They also agreed that the strategic plan is well applicable in project activities as shown by a mean of 3.940 (std. dv = 0.529). In addition, they agreed that the clear scope definition normally guided all the inputs in the projects conducted by the project managers as shown by a mean of 3.897 (std. dv = 0.498). Besides that, they agreed that the scope verification was normally conducted during the implementation of every project in the county as shown by a mean of 3.965 (std. dv = 0.507). With a mean of 3.316 (std. dv = 0.413) they agreed that the scope control is one of the key factors considered before implementation of any project as shown by a mean of 3.965 (std. dv = 0.413).

Table 1: Project Scope Management Statistics

	1	2	3	4	5	Mean	Std.
The project managers normally plan for scope before the project is initiated	0.0	0.0	6.0	84.6	9.4	4.034	.392
Clear scope definition normally guides all the inputs in the projects conducted by the projects.	0.0	4.3	4.3	84.6	6.8	3.940	.529
Scope verification is normally conducted during the implementation of every project in the county	0.0	3.4	7.7	84.6	4.3	3.897	.498

We can manage all types of services required by clients within the shortest time possible	0.9	1.7	4.3	86.3	6.8	3.965	.507
Scope Control is one of the key factors considered before implementation of any project	0.0	5.4	3.7	78.6	4.3	3.897	.498
A clear Work Breakdown Structure is normally used in the planning of the project activities	0.0	0.0	88.9	8.5	2.6	3.136	.413

Project Time Management

The second specific objective of this study was to determine the influence of project time management on sustainability of PPP projects in Nairobi City County, Kenya. The respondents were requested to point out their agreement level on various statements relating to the project time management and sustainability of PPP projects in Nairobi City County, Kenya. A five point Likert scale was used during the study where 5 symbolizes Strongly agree, 4 symbolizes Agree, 3 symbolizes Neutral, 2 symbolizes Disagree and 1 symbolized Strongly disagree. With a mean of 3.982 (std. dv = 0.414) the respondents agreed that the project managers observed definition of activities before any project takes off. The respondents also agreed that sequencing of activities

is normally conducted for all the projects and activities so that they are performed in an order of priority as shown by a mean of 3.923 (std. dv = 0.457).

Moreover, the respondents agreed that activity duration is normally estimated during the planning process to ascertain time required for every task as shown by a mean of 2.974 (std. dv = 0.358). With a mean of 2.025 (std. dv = 0.403) they agreed that the activity resources estimation is usually a key item in schedule management of project activities. Besides that, they agreed that the schedule is normally developed prior to any project activity by the project managers as shown by a mean of 3.974 (std. dv = 0.306).

Table 2: Project Time Management Statistics

Statement	1	2	3	4	5	Mean	Std.
The project managers observes definition of activities before any project takes off.	0.0	0.0	9.4	82.9	7.7	3.982	.414
Sequencing of activities is normally conducted for all the projects and activities so that they are performed in an order of priority.	0.0	2.6	6.8	86.3	4.3	3.923	.457
Activity duration is normally estimated during the planning process to ascertain time required for every task	0.0	7.7	87.2	5.1	0.0	2.974	.358
Activity resources estimation is usually a key item in schedule management of project activities.	4.3	91.5	1.7	2.6	0.0	2.025	.403
The schedule is normally developed prior to any project activity by the county government	0.0	0.0	6.0	90.6	3.4	3.974	.306

Project Cost Management

The third specific objective of this study was to determine the influence of project cost management on sustainability of PPP projects in Nairobi City County, Kenya. The respondents were requested to point out their agreement level on various

statements relating to the project cost management and sustainability of PPP projects in Nairobi City County, Kenya. A five point Likert scale was used during the study where 5 symbolizes Strongly agree, 4 symbolizes Agree, 3 symbolizes Neutral, 2 symbolizes Disagree and 1 symbolized Strongly disagree.

The results were as shown in Table 3. With a mean of 2.000 (std. dv = 0.321) the respondents disagreed that the project managers defines cost plan before every project begins Moreover, they also agreed that determination of the required budget is considered mandatory before any project is initiated in county as shown by a mean of 4.017 (std. dv = 0.435). In

addition, they agreed that there was a department set aside to ensure that project costs are controlled as shown by a mean of 3.008 (std. dv = 0.293). However, financing of projects is normally secured before the beginning of every project in the county as shown by a mean of 3.034 (std. dv = 0.369).

Table 3: Project Cost Management Statistics

Statement	1	2	3	4	5	Mean	Std.
The project managers defines cost plan before every project begins	5.1	89.7	5.1	0.0	0.0	2.000	.321
Determination of the required budget is considered mandatory before any project is initiated in county	0.0	1.7	3.4	86.3	8.5	4.017	.435
There is a department set aside to ensure that project costs are controlled	2.6	3.4	84.6	9.4	0.0	3.008	.482
Financing of projects is normally secured before the beginning of every project in the county.	0.0	4.3	91.5	4.3	0.0	3.000	.293
The duties assigned to us are well defined and clear to us	0.0	5.1	86.3	8.5	0.0	3.034	.369

Project Quality Management

The fourth specific objective of this study was to examine the influence of project quality management on sustainability of PPP projects in Nairobi City County, Kenya. The respondents were requested to point out their agreement level on various statements relating to the project quality management and sustainability of PPP projects in Nairobi City County, Kenya. A five point Likert scale was used during the study where 5 symbolizes Strongly agree, 4 symbolizes Agree, 3 symbolizes Neutral, 2 symbolizes Disagree and 1 symbolized Strongly disagree.

The results were as shown in Table 4. With a mean of 3.880 (std. dv = 0.527) the respondents agreed that

the project manager normally plan for quality before the project is initiated as shown by a mean of 3.914 (std. dv = 0.465). Moreover, they agreed that the clear quality verification normally guides all the inputs in the projects conducted by the project manager as shown by a mean of 3.940 (std. dv = 0.354). They also agreed that the continuous quality improvement is normally conducted during the implementation of every project in the county as shown by a mean of 4.017 (std. dv = 0.321).The respondent agreed that quality control is one of the key factors considered before implementation of any project as shown by a mean of 3.982 (std. dv = 0.556). Projects quality standards and requirements are well defined and approved before completion of projects shown by a mean of 4.017 (std. dv = 0.321).

Table 4: Project Quality Management Descriptive Statistics

Statement	1	2	3	4	5	Mean	Std.
The project manager normally plan for quality before the project is initiated	0.0	5.1	5.1	86.3	3.4	3.880	.527
Clear quality verification normally guides all the inputs in the projects conducted by the project manager.	0.0	3.4	5.1	88.0	3.4	3.914	.465
Continuous quality improvement is normally conducted during the implementation of every project in the county	0.0	0.0	9.4	87.2	3.4	3.940	.354

Quality control is one of the key factors considered before implementation of any project	0.0	0.0	4.3	89.7	6.0	4.017	.321
Projects quality standards and requirements are well defined and approved before completion of projects	0.0	3.4	6.0	79.5	11.1	3.982	.556

Sustainability of PPP Projects

The study examined the various aspects of sustainability of PPP projects in Nairobi City County, Kenya. The respondents were requested to point out their agreement level on various statements relating to the project quality management and sustainability of PPP projects in Nairobi City County, Kenya. A five point Likert scale was used during the study where 5 symbolizes Strongly agree, 4 symbolizes Agree, 3 symbolizes Neutral, 2 symbolizes Disagree and 1 symbolized Strongly disagree.

The results were as shown in Table 5. With a mean of 3.880 (std. dv = 0.527) the respondents agreed that more than fifty percent (50 percent) of the intended

beneficiaries using/ benefiting from the project outcome as shown by a mean of 3.914 (std. dv = 0.465). Moreover, they agreed that the facilities were still operational as shown by a mean of 3.940 (std. dv = 0.354). They also agreed that there was the evidence of the existence of desirable project outcome as shown by a mean of 4.017 (std. dv = 0.321).The respondent agreed that the beneficiaries or users were involved in decisions regarding the management of project outcome as shown by a mean of 3.982 (std. dv = 0.556). There was a national policy statement that clearly defined respective responsibilities of all stakeholders regarding project sustainability shown by a mean of 4.017 (std. dv = 0.321).

Table 5: Sustainability of PPP Projects Descriptive Statistics

Statement	1	2	3	4	5	Mean	Std.
More than fifty percent (50 percent) of the intended beneficiaries using/ benefiting from the project outcome	0.0	5.1	5.1	86.3	3.4	3.880	.527
The facilities are still operational	0.0	3.4	5.1	88.0	3.4	3.914	.465
There is the evidence of the existence of desirable project outcome	0.0	0.0	9.4	87.2	3.4	3.940	.354
The beneficiaries or users are involved in decisions regarding the management of project outcome	0.0	0.0	4.3	89.7	6.0	4.017	.321
There a national policy statement that clearly defines respective responsibilities of all stakeholders regarding project sustainability	0.0	3.4	6.0	79.5	11.1	3.982	.556

Regression Analysis

The study established that the correlation coefficient was 0.835. This indicated that there existed a positive and significant relationship between the independent variables and dependent variable. The R square in this study was 0.697. This implied that 69.70% of the variation in the dependent variable could be accounted by the independent variables (Project

scope, time, cost and quality management). The remaining 30.30% are other factors the study recommends for further investigation which sustainability of PPP projects in the study area. Therefore, the set of the independent variables need to be considered to enhance sustainability of PPP projects in Nairobi City County, Kenya.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.835	.697	.656	.476

The ANOVA was used to determine whether the model was a good fit for the data. As shown in Table 4.11, the F calculated (25.333) was greater than F

critical (2.4472). This implied that the model is a good fit for the data and it could be used to predict the influence of project planning on sustainability of PPP projects in Nairobi City County.

Table 7: Analysis of Variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	24.308	4	6.077	99.460	.000
	Residual	10.568	173	0.061		
	Total	34.876	177			

As shown in Table 7, project scope management has positive and significant influence on sustainability of PPP projects in Nairobi City County. ($\beta = 0.793$, p-value = 0.000). The association was significant since the p-value (0.000) was less than (0.05), which is the significant level of this study. This implied that a unit improvement in project scope management leads to improvement in sustainability of PPP projects in Nairobi City County.

Moreover, the results revealed that project time management has positive and significant influence on sustainability of PPP projects in Nairobi City County. ($\beta = 0.765$, p-value = 0.000). The relationship was considered significant since the p value (0.001) was less than (0.05) which is the significant level of this study. This implied that a unit improvement in project time management leads to improvement on sustainability of PPP projects in Nairobi City County.

Further, the results revealed that project cost management has a positive and significant effect on sustainability of PPP projects in Nairobi City County. ($\beta = 0.723$, p-value = 0.003). Since the p-value (0.003) was less than the significant level of 0.05, the relationship was considered as significant. This implied that a unit improvement in project costs management lead to improvement on sustainability of PPP projects in Nairobi City County. Furthermore, the study established that project quality management has positive and significant effect on sustainability of PPP projects in Nairobi City County ($\beta = 0.712$, p-value = 0.000). Since the p-value was less than 0.05, the association was considered significant. This implied that a unit improvement in project quality management leads to improvement on sustainability of PPP projects in Nairobi City County.

Table 8: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	5.345	.546		7.554	.000
	Project Scope Mgt.	.793	.187	.765	4.561	.000
	Project Time Mgt.	.765	.211	.689	3.872	.000
	Project Cost Mgt.	.723	.203	.643	3.866	.000
	Project Quality Mgt.	.712	.237	.621	3.172	.000

CONCLUSION

The study concluded that project scope management has positive and significant influence on sustainability

of PPP projects in Nairobi City County, Kenya. The study also established that scope control, scope changes and scope creep have significant influence on

sustainability of PPP projects in Nairobi City County, Kenya. Further, the study established that lack of project scope management led to poor stakeholder satisfaction, cost and time overruns of the projects.

The study concluded that project time management has positive and significant influence on sustainability of PPP projects in Nairobi City County, Kenya. The study also established that activity duration, timeliness and work break down structure have significant influence on sustainability of PPP projects in Nairobi City County, Kenya. Further, the study established that lack of project time management led to poor sustainability of the projects.

The study concluded that project cost management has positive and significant influence on sustainability of PPP projects in Nairobi City County, Kenya. The study also established that cost control, cost budgeting and cost estimating have significant influence on sustainability of PPP projects in Nairobi City County, Kenya. Further, the study established that lack of project cost management led to poor sustainability of the projects.

The study concluded that project quality management has positive and significant influence on sustainability of PPP projects in Nairobi City County, Kenya. The study also established that quality assurance, quality control and quality continuous improvement have significant influence on sustainability of PPP projects in Nairobi City County, Kenya. Further, the study established that lack of project quality management led to poor sustainability of the projects.

RECOMMENDATION

The study recommended that there is need to enhance project planning through effective strategic plan and clear scope definition normally guided all the inputs in the projects conducted by the project managers. Besides that, there is need to improve on the scope verification normally conducted during the implementation of every project. The scope control is

one of the key factors which also need to be considered before implementation of any project.

The study recommended that there is need to enhance project managers observed definition of activities before any project takes off. The study recommends that there should be adequate sequencing of activities that need to be performed in an order of priority. There is need for improvement on the activity resources estimation on the schedule management of project activities.

The study established that there is need to improve on the project cost management and have a defined cost plan before every project begins. There is need to determine required budget is considered mandatory before any project is initiated in project, cost well controlled. There is also need to have improvement on the financing of projects which is normally secured before the beginning of every project in the managers.

There is need to improve on the project quality management through the clear quality verification which normally guides all the inputs in the projects conducted by the project manager. They also agreed that the continuous quality improvement should be normally conducted during the implementation of every project in the county.

Recommendations for Further Studies

The current research focused on influence of project planning on the sustainability of PPPs projects in Nairobi County, Kenya. Therefore, the study recommends that further studies to be carried out on the effects project planning in projects in other counties in Kenya. Moreover, the study established that 78.6% of the variation in the dependent variable (sustainability of PPPs projects) could be explained by the independent variables (project scope management, project cost management, project time management and project quality management), thus, the study recommends that further studies should be

conducted to assess other factors affecting sustainability of PPPs projects.

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