The Strategic
JOURNAL OfBusiness & Change
MANAGEMENT

ISSN 2312-9492 (Online), ISSN 2414-8970 (Print)



www.strategicjournals.com

Volume 12, Issue 2, Article 029

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Vol. 12, Iss.2, pp 519 – 526, April 29, 2025. www.strategicjournals.com, © Strategic Journals

ADOPTING CRITICAL BUDGETING PROCEDURES AS A DIMENSION OF COST MANAGEMENT FOR SUCCESSFUL IMPLEMENTATION OF POWER SUBSTATION PROJECTS IN NAIROBI METROPOLITAN

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Accepted: April 14, 2025

DOI: http://dx.doi.org/10.61426/sjbcm.v12i2.3225

ABSTRACT

Project implementation more often than not meet management related issues among them being cost management challenges leading to cost overruns and delays in project completion. It has been argued that close to 47% of projects fail in Nairobi City County alone in Kenya. This failure is often attributed to poor cost management among other governance issues. This paper highlight some of the practices adopted in budgeting procedures as an aspect of cost management and its contribution to the successful implementation of substation power projects in Kenya. The paper aims to uncover the relationship between budgeting and successful implementation of substation power projects within Nairobi Metropolitan in Kenya. The key budget procedures of budget estimation, budget plans, budget schedules and adherence to budget activities as well as setting aside adequate budgetary allocation for projects. The data from 54 power substation projects in Nairobi metropolitan were used to bring out the findings discussed in this paper. From the findings, budgeting procedures contributes significantly to project implementation with a regression coefficient of 0.485. The paper concludes that budgets are critical aspect cost of management. The paper recommends more emphasis to be made in creating budget plans, adhering to budget allocations and creating budget baselines for cost management. Future researchers can include budget deficits and other resources in project implementation for a wide range of projects as well as increasing the scope.

Key Words: Budgeting, Cost management, Power Substations, Metropolitan

CITATION: Ngeta, T. M., & Nkirina S. P. (2025). Adopting critical budgeting procedures as a dimension of cost management for successful implementation of power substation projects in Nairobi Metropolitan. *The Strategic Journal of Business & Change Management*, 12 (2), 519 – 526. <u>http://dx.doi.org/10.61426/sjbcm.v12i2.3225</u>

INTRODUCTION

Despite significant investments in Nairobi's power infrastructure, the implementation of substation power projects has faced notable challenges, leading to delays and inefficiencies. Power customers and businesses continue to experience unreliable powers supply with outages averaging 8.5 hours per month. As of June 2024, Kenya Power reported 2,202 delayed projects valued at approximately Ksh 2.7 billion. Some of these projects had been pending for over 15 years, affecting thousands of customers who had already paid connection fees. According to been KETRACO, some projects have not commissioned due to lack of funds for project completion. Projects have been affected by budget cuts and financial constraints due to delayed completion time. Many power projects are yet to be commissioned due to delayed completion rates and cost overruns affecting successful implementation. Projects by Kenya Electricity Transmission Company which includes Nairobi 220kv Ring project, Olkaria project, Lessos Power transmission system improvement project are yet to be completed due to failure to meet budget timelines which indicated a gap in implementation of electricity power expansion projects in Kenya

Research indicates that, Nairobi County has constantly reported a failure rate of 47% in projects due to cost overruns. Although power projects play a critical role in economic growth and development, they face delays in completion and high cost overruns (Amusan, Dolapo & Joshua, 2021). Cost factors such as planning and budgeting influence performance of projects (Munim, & Schramm, 2022). According to Flyvbjerg, et al. (2023), projects are globally estimated to have 86% probability of experiencing cost escalation. This paper addresses the relationship between budget procedures and successful implementation of power substation projects in Nairobi metropolitan. This premised on the notion that budget procedures play a critical role in ensuring, adequate allocation of funds, budget estimates as well working within maintaining baselines for future references to show

deviations.

Problem and Focus

Projects in the energy sector conspicuously lag behind in Kenya due to many factors among them cost management practices. Despite much investment and policy interventions in the energy sector, gaps still exist in terms of delayed completion rate, stalled or abandoned projects. Power substations contribute to the government mandate of ensuring power access to its citizens at affordable and reliable rates. Their importance in distribution and management of services to citizens cannot be overemphasized.

It's because of the importance placed on this aspect of power distribution that the government of Kenya through Kenya electricity generating company KENGEN and Kenya power and lighting company run continuous projects through the power substations. Unfortunately, these projects have continued to experience challenges which relate to cost management among other governance issues. This paper brings out the role of adopting critical budgeting procedures in managing costs and eventually enhancing power substation projects' success rate. The paper seeks to answer the following question:

> What is the relationship between budgeting and successful implementation of substation power projects within Nairobi Metropolitan in Kenya?

LITERATURE AND THEORETICAL REVIEW

Cost budgeting is the process of developing cost estimates for project implementation. It involves developing work activities for project management to ensure proper funds allocation (Yeri, 2022). The theory of budgeting emphasizes the need for setting a fixed budget and allocating funds to work schedules. Therefore, project managers should have well-developed schedules to ensure accurate cost budgeting. It is a critical process in project management since it ensures project activities are allocated sufficient funds for project implementation success.

According to Andreas and Johanseb (2022) cost budgeting is essential in project management since thebudget has a significant influence on all decisions made during project planning and project implementation. In addition, the budget affects the goals of the project hence, determines the project scope and timeline. A budget determines whether project objectives are attainable which will determine the performance of projects in the long run. Therefore, when conducting cost budgeting, project managers should ensure that the budget is consistent with the project quality and scope. According to Nor et al. (2022) cost budgeting should consider factors such as the expected project

Budgeting Procedures

- Cost estimation
- Cost baselines
- Budgeting techniques
- Adequate Fund allocation
- Clear Activity Cost Schedules

Independent Variable Figure: 1. Conceptual Framework

From the conceptual framework, its assumed that the budgeting procedures adopted by project team, will have an influence on the successful completion of power substation projects. This paper delves into uncovering how the various dimensions of budgeting procedures contribute individually and together to the success of projects.

METHODOLOGY

This paper builds on findings from a census survey design study conducted in the Nairobi metropolitan involving a population of 54 power substation projects managed by Kenya power and lighting company, Kenya electricity generating company and Kenya Electricity Transmission Co. Ltd. According to the Ministry of Energy and Petroleum there are 54 substation projects within power Nairobi Metropolitan. Project managers provided data on the budgeting procedures in their projects. Data was collected using semi- structured questionnaires that were administered by the researcher. Data was deliverables to ensure the project does not underperform.

The paper uses the theory budgeting to anchor its proposition. The theory of budgeting has gained acceptance in academic discourse as a framework of interpreting socio-economic and political dimensions of budget making process by governments. Budgeting provides the planners and project managers the opportunity to make appropriate resource allocation decisions, monitor performance and effectiveness as well make future considerations for sustainability and progress in all aspects of the organisation.



Dependent Variable

analyzed using SPSS version 28 and presented using descriptive and inferential statistics. Means, standard deviations, percentages and charts are used to present the findings. To uncover relationships, correlations and regression analysis was undertaken.

FINDINGS AND DISCUSSIONS

This paper uncovers how adopting different budgeting procedures stands to build cost management systems that in turn lead to more successful projects and contribute to good citizen services.

Descriptive Findings Analysis

This part provides the results of the descriptive analysis carried out by the study consisting percentages, means and standard deviations. The section brings out the various aspects of the study variables as seen from the target group's perspective.

Budgeting Procedures

The findings show that respondents were neutral on whether projects have accurate cost estimates as seen by a mean score of 3.31 and a standard deviation of 1.39. This points to the perennial budget overstatement practices we find in public funds management. Inaccurate costs estimates make budget plans ineffective even though they are made. The same trend is seen with projects having project schedules in place to guide budgets. In essence if project activities are not clearly tied to budgets, they lose the grip in performance. However, its seen that project schedules were aligned to budget allocations as is shown by a mean score of 3.98 and a standard deviation of 0.90 which reflect a consensus among the respondents. This somehow contradicts the expectation since if there were no clear project schedules against budget, there is definitely a likelihood of creating confusion in the project implementation hence deterring completion rate.

Furthermore, respondents were also neutral on whether projects have strict adherence to set budgets and on whether project work activities are outlined with expected costs. This is a critical pointer to the lack of procedural concern to budgeting issues that create good principles of project performance. If budgets are not adhered to and costs are not well aligned to the project activities, loopholes open for misappropriation of project funds and hence derail the completion of projects. However, its encouraging to see that respondents strongly agreed that project managers allocate adequate funds to work activities. This is supported by a mean of 3.88 (std. dv = 0.91). The respondents also agreed that adherence to budgets increased project success as seen by a mean of 3.84 (std. dv = 0.94). The findings discussed are shown in table 1 below.

Table 1: Bu	dgeting P	rocedures Ado	opted in	Power	Substations
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Statements	Mean	Std Dev
Projects have accurate costestimates	3.31	1.39
Projects have clear project schedules	3.43	1.53
Project schedules are adhered to during project implementation	3.98	0.90
Projects have strictadherence to set budget	3.24	1.41
Project work activities are outlined with expected costs	3.38	1.17
Project managers allocateadequate funds to work activities	3.88	0.91
Adherence to budgets increasedproject success	3.84	0.94
Average	3.58	1.18

From the findings above its evident that the respondents underscored the value of adhering to budget in ensuring project success rate.

Successful Implementation of Power Substation Projects

This section shows the data on the success of substation projects. From the findings the implementation of projects is faced by challenges as can be seen from figure 2 whereby almost 65% of the power substations projects are either stalled or abandoned. This means only 35% of project get successfully completed in terms of delivering the

project as per expectations and within schedule. This finding agrees with the finding on budgeting procedures where most of the respondents were neutral on most parameters. This implies that lack of adopting proper budgeting procedures could lead to the poor performance of the substation projects in Nairobi metropolitan. The figure below shows these findings for the years 2020 to 2024 which is basically five -year span. It's important to note also that these are estimates and that the situation could be different and also could be caused by other extraneous factors aside from budget related factors.



Figure 2: Percentage of Completed, Stalled, Abandoned Projects

If projects are stalled, the citizens miss on services and also it directly translates into missed opportunities for development and also contributes wastage of scarce resources.

A look at the extent to which budgetary procedures influence project implementation revealed that budget to a large extent influence project implementation representing over 80% of the responses compared to other dimensions of cost management. This clearly shows that if project managers do not pay attention to budgeting, cost management becomes elusive and hence affects project implementation in the long run.

The figure 3 below shows these findings.





The descriptive statistics points to a situation where success of projects is dependent to a large extent on proper budgeting procedures which will contribute to adherence to schedules and quality of projects. The contrary is also true whereby projects have a high likelihood of stalling, or even being abandoned all together because of missed milestones largely accounted for by poor cost management among them being poor budgeting procedures.

Inferential Statistics

This part of the paper gives inferential statistics showing the association of the variables and their significance in influencing each other.

Correlation Analysis

Table 2: Correlation Analysis

The paper gives findings on the relationship between budgeting procedures and project implementation. It shows that the independent variable has a positive relationship with the dependent variable.

		Budgeting	Successful Implementation
Budgeting	Pearson Correlation Sig. (2-tailed)	1	
Successful			
Implementation	Pearson Correlation	.441**	1
	Sig. (2-tailed)	0.000	
	Ν	42	42
** Correlation is signif	icant at the 0.01 level (2-ta	iled).	

The correlations show that budgeting has a significant positive relationship with successful implementation of projects with a correlation coefficient of 0.441 coefficient. The findings of the study are consistent with the findings of a study by Solomon and Berhanu, (2021) who found that resource planning, cost estimating, cost budget and cost control has significant association with the overall success of the project management. In essence adopting proper budgeting procedures stands to benefit project success.

Regression Analysis

To put the relationship between budgeting and successful implementation of the substation projects into perspective, a regression model was used. From the findings of a simple linear regression model, budgeting procedures contribute to successful implementation of projects hence building proper budgeting procedures is a good foundation for future success. Table 3 below shows that budgeting accounted for approximately 55% of the changes in the dependent variable. This means that if we start our projects with proper systems in place and allocate adequate resources as well as monitoring, the project will have a high chance of success. These findings are in line with what other researchers have recorded. For example, Frimpong and Oluwoye (2022), concluded that cost estimation, cost budget and cost control has significant association with the overall success of the project management. Schönbeck, Löfsjögård and Ansell (2020) also concludes that cost reporting was crucial to respond to potential risks, scope changes and enhance adherence to budgets.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.781 ^ª	.679	.557	.16621

a. Predictors: (Constant), Budgeting,

The simple regression model shows that budgeting significantly influenced project implementation for the Nairobi metropolitan substation projects to a moderate extent meaning that other variables are critical in ensuring success of such projects in order to attain optimum benefit for the citizen. Table 4 below gives the regression model.

Model	Variables	В	Std. Error	т	Sig.
1	(Constant)	0.841	0.258	2.037	0.002
	Budgeting	0.485	0.113	3.239	0.000
Dependent Variable: Successful Implementation					

Table 4: Simple Regression Model coefficient

From the findings, budgeting only contributed to 0. 485 of the changes in the dependent variable. This shows although budgeting had a statistical positive influence on the success of projects, it is not sufficient to assure the project implementation success and that other factors and systems ought to be involved. These findings are consistent with other researches for example, findings of Wauters and Vanhoucke (2020).

CONCLUSION AND RECOMMENDATIONS

From the discussions and findings presented, the paper concludes that adopting appropriate budgeting procedures, stands to improve to a great extent the successful implementation of projects. In a situation where most government projects face challenges of being abandoned or delaying beyond the schedule it critical to have proper systems from the onset. This paper found budge estimates, schedules and adequate allocation of funds to be of great importance. It concludes that budgeting is a corner stone of project success.

The paper recommends that project managers have no much options but to embark on proper budgeting procedures and ensure cost estimations are within the scope of the project. Therefore, to avoid stalled and abandoned project the funds must be properly budgeted for and allocated to the right activities.

Future researchers can target wider range of projects in the energy sector to paint a clearer picture. Projects that are not directly tied to the government may be studied with a view of having a comparative picture. The scope of this research was very limited to only Nairobi metropolitan, future researches can take a regional view.

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