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## EFFECT OF CONTRACT COST CONTROL ON OPERATIONAL EFFICIENCY OF COMMERCIAL STATE CORPORATIONS IN KENYA

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### ABSTRACT

Commercial state corporations are formed to offer essential goods and services to the general public. Despite government efforts to improve their effectiveness, commercial state corporations have continued to perform dismally characterized by poor resource utilization leading to massive losses, increased customer complaints and frequent bailouts by the government over defaulted loans. Some studies have associated this with poor contract cost control however the magnitude of its effect on operational efficiency has not been established. The objective of the study was to establish the extent to which contract cost control affects operational efficiency of commercial state corporations in Kenya. Descriptive Cross-sectional research design was used. The target population of this research comprised thirty-three commercial state corporations in Kenya and a census was undertaken. The study utilized primary data. A questionnaire was used to collect primary data among the thirty-three commercial state corporations in Kenya. Multiple linear regression analysis was used to examine the relationship between variables and t-statistic at 5% significance level was employed in testing hypothesis. The overall significance was tested using F-test. The study established a positive significant effect of contract cost control on operational efficiency with regression coefficient of 0.181 with a p-value of 0.006. Corporations that implement contract cost control are able to prevent cost overruns and complete contracts within the agreed budget thus providing rational utilization of resources and minimizing wastage thus increasing operational efficiency. The study recommends that to ensure effective contract cost control and guarantee that contracts are fulfilled within the set contract price, anticipated costs should be assessed and included in the budget.

**Keywords:** Contract cost control, Operational Efficiency and Commercial State Corporations

### INTRODUCTION

According to Abobakr (2018) contract cost control entails the means of determining and lowering a firm's operating costs in order to boost revenues with an aim of optimizing the use of resources to provide maximum advantage to all stakeholders involved. Commercial state corporations should carry out contract cost control so as to achieve cost savings by revealing possible sources of economy in contract implementation, thus delivering the contract within the approved budget while avoiding cost overruns (Akeem, 2017). Commercial state corporations handle high value contracts which should be delivered at a specified cost within a given deadline thus contract cost control is vital (Presidential Taskforce on Parastatal Reforms (PPTR), Mohammed & Awuondo, 2013). Control of costs for any contract is essential since any delay in completion or cost escalations may lead to cost overruns (Yegon, 2018). Thus it is vital to carry out contract cost control so as to minimize on the contract costs incurred in the contract execution and help ensure the contract is implemented for the amount agreed-upon thus providing efficient utilization of

resources (Akeem, 2017). Poor contract cost control can lead to cost overruns which necessitates channeling of more resources for contract completion and delay in completion which would in turn hamper customer service provision.

Information Communication Technology (ICT) integration was used as a moderating variable and it involves collaborative communication and the integration of telecommunication and software tools including visual and storage programs which allow different people to access, distribute, record, and manipulate information (Atieno, 2014). ICT integration can be evaluated by presence of relevant ICT infrastructure in a firm and ICT competence of the staff involved. A firm that adopts ICT in its operations will control costs effectively as compared to those that lack ICT. ICT integration provides a set of built-in monitoring tools and automates the cost management systems which help to monitor contract costs thus reducing aspects of cost overruns and ensuring rational utilization of available resources (Igwe et al., 2020). Organizations that invest in ICT could reduce their operating costs and improve service quality (Muthuri, 2014; Gakuubi, 2018).

Operational efficiency can be measured using assets turnover, capital investment yield, sales turnover and equity return (Ndolo, 2015), customer satisfaction (Akinriola, 2019), resource utilization (Khan & Shireen, 2020) and waste management (Nasra, 2014). This study measured operational efficiency in terms of customer satisfaction, resource utilization and waste management since from previous research these are the most critical aspects that entails

operational efficiency. When an organization is able to maximize outputs and minimize inputs, cut down on wastages and enhance its capacity to offer customers high-quality goods and services it is deemed to be operating efficiently.

Akeem (2017) examined the effect of cost control and cost reduction techniques in organizational performance of companies in Nigeria. The study used purposive sampling to select a sample size of 50 respondents. A descriptive research design was used and a case study technique was employed. The study established that cost control and cost reduction techniques have a positive impact on organizational performance. This study used purposive sampling and focused on organizational performance while the current study conducted a census and focused on operational efficiency.

Ayodele et al., (2014) studied the effect of contract cost control on building projects delivery in Nigeria. The study sought to determine the effects of cost control techniques on building projects delivery. The study adopted bill of quantities, cost documenting and cost records as the cost control techniques. The study adopted descriptive research design. Both primary and secondary data was used. The study observed that the use of bill of quantities as a cost control measure, cost documenting and keeping of cost records helped in cost regulation. High costs were a result of the emergence of variations and fluctuations in the original plan. The above study used bill of quantities, cost documenting and cost records as the measures of contract cost control whilst the current study considered different measures of contract cost control which included cost budgeting, cost management system and cost documenting and assessed their effect on operational efficiency of commercial state corporations in Kenya.

An analysis of the determinants of procurement contract management on organizational productivity was done by (Ochola & Kitheka, 2019) in Kenya. It aimed to establish the significance of contract documentation, cost control, and contract monitoring for the productivity of the company. A case study research approach was applied and 70 respondents made up the sample. Structured questionnaires helped in obtaining primary data which was processed through quantitative techniques of information analysis and presented in terms of percentages and frequencies. Regression analysis was carried out using SPSS version 21. The study used cost budgeting, cost management system and performance measures as the indicators of contract cost management. The results indicated that contract cost control displayed a moderate effect on efficiency within firms. In the aforementioned study, a case study research design and sample size of 70 respondents was used for research while the current study utilized a descriptive cross sectional study approach and considered a population of 33 respondents.

Matto et al., (2021) examined the influence of procurement contract management on value for money procurement in Tanzania. The study examined the effect of contract cost control, contract time management, contract quality control and contract formation on value for money procurement. The study used cost budgeting and cost documenting as the measures of contract cost control. The study applied a cross sectional research design. Random sampling technique was used to select a sample size of 164 respondents. The study concluded that contract formation and contract quality control were significant predictors of value for money while contract cost control and contract time management were not significant aspects that predicted value for money. This study used value for money as the dependent variable and considered a sample size of 164 respondents and concluded that contract cost control did not affect value for money while the current study was carried out in all the 33 commercial state corporations in Kenya using operational efficiency as the dependent variable to check whether different results will be obtained.

Lakayisenga and Mulyungi (2018) examined the impact of cost control on the performance of commercial banks in Rwanda: a case study bank of Kigali. The study sought to determine the effect of operational costs on performance. The study utilized a descriptive research design. Primary data was collected using interviews and questionnaires. The population of this study was 305 employees of Bank of Kigali from which a representative sample size of 75 respondents was selected. The researcher concluded a significant positive correlation between operational cost control and performance of bank of Kigali. The above study was carried out among commercial banks in Rwanda, adopted a descriptive research design on a sample size of 75 respondents whereas the current study was carried out among the 33 commercial state corporations in Kenya using a descriptive cross sectional research design.

Rasheli (2016) investigated procurement contract management in Tanzanian local municipalities. The main aim was investigating the transaction costs incurred when handling procurement contracts in upper and lower level municipal governments. A multiple case study methodology and secondary data were both employed. The sample size was five local government authorities. The study observed that the lower level municipal governments incur excessive

transaction costs which is attributed to their inability to manage procurement contracts among wards. This study used secondary data, applied a case study design and the sample size was five respondents whereas in this analysis primary data was employed and a census was adopted on a population size of 33 respondents in assessing how contract cost control affects the operational efficiency of commercial state corporations in Kenya.

Gichuki (2014) examined the effect of cost management strategies on the financial performance of manufacturing companies listed on the Nairobi securities exchange. This study sought to find the effects of selected strategies namely; cost of labor, cost of distribution and cost of stock and their effects on financial performance of manufacturing companies. The study used causal research design specifically multi – variance linear regression model. Study population was six out of eight manufacturing companies listed, on Nairobi security exchange. The study findings revealed that cost of labor, distribution and stock were positively related to financial performance of the manufacturing companies. This study adopted cost of labor, cost of distribution and cost of stock as the indicators of cost control while the current study used cost budgeting, cost documenting and cost management systems as measures of contract cost control in assessing its effect on operational efficiency of commercial state corporations in Kenya.

Siyanbola and Raji (2013) carried out a study on the impact of cost control on manufacturing industries profitability. The study considered budgeting as the basic tool for achieving effective cost control. Data was collected using direct interviews, observations and the use of questionnaire. A representative sample of 74 respondents was drawn from the employees of West African Portland Cement company. Pearson correlation model was used in analyzing the data and the hypothesis tested revealed that cost control had a positive effect on profitability of industries. The study further concluded that budget as a tool, can only help ensure effective cost control, when actual costs expended are compared with planned cost and the variances are analyzed to see their causes in order for the management to take corrective actions. The study observed that Cost control had a positive impact on business profitability through reduction of wastages and losses; effective utilization of materials; labor resources and other inputs in the production cycle. The above study used cost budgeting while the current study adopted cost documenting, cost management system and cost budgeting as measures of contract cost control to check whether different results would be obtained.

Malkanthi et al., (2017) analyzed the impact of cost control techniques on cost overruns in construction projects. The study sought to determine the effect of cost estimating, cost budgeting and cost controlling. A questionnaire survey was conducted to collect the data. The data collected was analyzed by converting it into quantitative values using percentage analysis and weighted score analysis. A sample size of 23 respondents was selected using random sampling method. The study findings indicated that the cost controlling practices were important in minimizing the cost overruns in order to reduce overbudget and overheads while securing anticipated profits. The above study used a sample size of 23 respondents and used cost overruns as the dependent variable while the current study was conducted in all the 33 commercial state corporations in Kenya using operational efficiency as the dependent variable to check whether different results would be obtained.

Lucy (2018) carried out a study on cost control measures on the performance of industries in Kampala District, Nakawa Division: A Case Study of Steel and Tube. The study considered having a cost management system as the measure of cost control and assessed its effect on firm performance. Exploratory research design was used. A representative sample of 130 respondents was used in the study. Primary data was collected using questionnaires and interviews. The study findings revealed that there was a positive effect of cost control on firm performance. The study further found out that the organization had a costing system in place and therefore costs incurred in the organization were systematically controlled leading to high performance of the organization. The above study used exploratory research design while the current study used a descriptive cross-sectional research design and adopted ICT integration as the moderating variable in investigating the effect of contract cost control on operational efficiency of commercial state corporations in Kenya.

A study on integrating procurement contract management practices into the achievement of value for money was conducted by (Mchopa, 2015) in Tanzania. The study considered contract cost control as a procurement contract management practice and assessed its effect on the achievement of value for money. Cost control was measured in terms of use of contract budget. A case study research design was used. Purposive sampling technique was used to pick a sample of 48 respondents. Both primary and secondary data was used and the study did not use a moderating variable. This study used both primary and secondary data and applied case study research design whereas the current study only used primary data, adopted ICT integration as a moderating variable and descriptive cross-sectional research

design to determine effect of contract cost control on operational efficiency of all commercial state corporations in Kenya.

Mwangi (2020) investigated impact of contract management techniques on how county governments performed in Kenya. The study examined the effect of contract cost control and contractor relationship management. The study adopted a descriptive survey design and chose a population of 96 respondents using random sampling. Primary data was utilized and was collected using questionnaire. The study adopted cost flexibility, cost budgeting and cost management system as the measures of contract cost control. The research showed that contract cost control impacted the performance of county governments positively. The above study adopted descriptive research methodology and concluded that cost control affected performance while in this study a census technique was used in analyzing whether different results would be obtained in determining how contract cost control affects operating efficiency of commercial state corporations in Kenya.

Kipkemoi and Makori (2021) examined the influence of procurement contract management practices on operational efficiency of state corporations in Kenya. The study sought to investigate the effect of contract cost control, contract quality management and contract time management on operational efficiency. The study adopted descriptive research design. The target population comprised of head of departments in state corporations in Kenya which totals to 162. This study was a census survey of all 162 state corporations in Kenya. Primary data was collected using questionnaires. The response rate of the study was 80%. The study conducted a correlation analysis to establish the strength of the relationship between the independent and the dependent variable and positive and significant relationships were established. The study found that procurement contract management had a positive effect on operational efficiency where the relationship between contract cost control and operational efficiency was significant. The above study was conducted in all the state corporations and used a population size of 162 respondents. Based on the above study a methodological gap was identified. Thus, the current research sought to address this gap by using representative sample of 33 respondents and focusing only on commercial state corporations.

Yegon (2018) examined the determinants of procurement contract management in selected commercial state corporations in the county of Nakuru. The main objective of the study was to determine how contract requirements compliance, contract monitoring, cost management, and contract documentation affected procurement contract management. The study adopted a descriptive research methodology and the representative sample was 10 state corporations. Primary data was used and was collected using questionnaires. Regression analysis was used to evaluate the collected data obtained in the research. The study employed budgetary control, cost control, and cost management system as the indicators of cost management. The study found that there was a moderate impact of cost management on contract management. The above study was restricted to 10 corporations in Nakuru County however, the present study assessed all of Kenya's commercial parastatals. In the current research different indicators of contract cost control namely cost budgeting, cost documenting and cost management system were used in exploring the effect of contract cost control on operational efficiency.

While past studies have not used a moderator in variable linkage, this study conceptualized that the effect of contract cost control on operational efficiency could differ for firms with different level of ICT integration and hence use of ICT would bridge a significant gap in literature. Therefore, this research established the effect of contract cost control on operational efficiency and the moderating effect of ICT to this relationship.

### **Objective of the Study**

The objective of the study was to determine the effect of contract cost control on operational efficiency of commercial state corporations in Kenya

*H<sub>0</sub><sub>1</sub>: There is no statistically significant relationship between contract cost control and operational efficiency of commercial state corporations in Kenya*

### **METHODOLOGY**

The study adopted descriptive cross sectional research design since it facilitated in choosing and grouping of the components and features of object. The study covered all the 33 commercial state corporations in Kenya. Census technique was used since the population was small. Primary data was collected using a questionnaire. Descriptive and Inferential statistics were used to analyze data. Simple and Multiple linear regression analyses were then conducted

using SPSS software version 28.0 in order to address the study objective. Assumption of linear regression model of multicollinearity, homoscedasticity, normality and autocorrelation were tested before analyzing the data.

## RESULTS AND DISCUSSIONS

### Contract Cost Control and Operational Efficiency

Contract cost control was measured in terms of terms of heads of procurement function views which were based on a five point Likert scale ranging from 1-strongly agree to 5- strongly disagree. Selected statements captured contract cost control indicators based on the literature reviewed. The respondents were requested to indicate the extent at which they agreed or disagreed with the listed statements under contract cost control.

Table 1: Descriptive Statistics

Descriptive Statistics	N	Min	Max	Mean	Std.Dev
The process of budget development ensures non value adding costs are eliminated	33	2.00	3.00	2.214	.414
The organization has a cost management system	33	1.00	3.00	1.929	.375
The organization performs cost budgeting to ensure predefined costs are maintained	33	1.00	3.00	2.000	.381
Budgets are used as a monitoring tool	33	1.00	2.00	1.964	.187
Anticipated costs are estimated and incorporated into the budget	33	2.00	5.00	1.365	.705
Cost Documenting is carried out throughout the contract implementation process	33	1.00	4.00	2.268	.863
Composit mean and standard deviation				1.957	0.488
Valid N(listwise)	33				

Source: Primary Data, (2022)

As shown in Table 1 the study sought to determine whether budgets eliminated value adding costs where an average of 2.214 and standard deviation of 0.414 with responses ranging from 2-3 was seen. This implied that respondents agreed that budgets eliminated value adding costs. On cost management system and cost budgeting, responses ranged from 1 - 3 with variable mean of 1.929 and 2.00 and variable spread of 0.375 and 0.381 respectively. This indicated that the organizations had a cost management system and cost budgeting was done to ensure procurement contracts are completed within the budget. On whether budgets are used as a monitoring tool an average of 1.964 and deviation from the mean of 0.187 with responses ranging from 1-2. This showed that respondents agreed that budgets were used to monitor the costs of the contract.

On whether anticipated costs are incorporated into the budget. The item mean was 1.365 and standard deviation of 0.705 with responses ranging from 2-5 which showed that the respondents generally agreed that in the budget preparation process anticipated costs were included and incorporated in budgets. Cost documenting had a mean of 2.268 and a standard deviation of 0.863 with responses ranging from 1-4 implying that respondents agreed that costs incurred in the contract implementation process were recorded. The overall mean of 1.957 and standard deviation of 0.488 showing that respondents agreed that contract cost control was implemented in commercial state corporations.

### Pearson Correlation between the Study Variables

Correlation determines the direction of a relationship between any two variables. Correlation was presented in Table 2.

Table 32: Pearson Correlation between Study Variables

Variables	Operational Efficiency	Contract Cost Control
Operational Efficiency	1	0.322
Contract Cost Control	0.322	1

Contract cost control and operational efficiency had a correlation coefficient of 0.322 with a p-value of  $0.015 < 0.05$  thus indicating a statistically significant positive relationship between contract cost control and operational efficiency. This implies that an increase in a unit of contract cost control would result to a statistically significant increase in operational efficiency. This is because contract cost control would minimize on the contract costs incurred in the contract execution and help ensure the contract is implemented for the amount agreed-upon thus providing efficient

utilization of resources. Contract cost control ensures that all cost expenditures are done in accordance with the budget thus eliminating unnecessary expenditures that would lead to more resource use than budgeted

### Multiple Linear Regression

This study determined the significance of contract cost control on operational efficiency. A multiple linear regression was used to examine the relationship between contract cost control and operational efficiency. A multiple linear regression was represented in Table 3.

Table 33: Coefficients Estimates of Contract Cost Control on Operational Efficiency

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.098	0.387		2.835	0.007
Contract Cost Control	0.181	0.063	0.340	2.858	0.006

R<sup>2</sup>=0.246

Results in Table 3 above shows the regression coefficients of contract cost control was 0.181 with a p-value of 0.006 < 0.05 hence contract cost control had a positive and statistically significant effect on operational efficiency. The R-squared obtained was 0.246. The R-squared indicates that 24.6% of operational efficiency fluctuations may be attributed to the independent variable contract cost control, whereas 75.4% of operational efficiency variations can be attributed to random error term or other factors not included in the model. This means that a unit increase in contract cost control would result to 0.181 units increase in operational efficiency holding other factors constant. Therefore, the null hypothesis was rejected and this implied that there is a statistically significant relationship between contract cost control and operational efficiency. The findings of this study shows that heads of procurement function agreed that budgets were developed and monitored to prevent cost overrun and this ensured that the contract was delivered within the agreed budget thus minimizing on the contract costs incurred thereby providing efficient utilization of resources leading to a rise in operational efficiency.

These results agree with (Ayodele *et al.*, 2014) who stated that cost management methods contributed to cost regulation leading to delivery of building projects within the set budget and that high costs were as a result of deviations and fluctuations with the original budget. The findings also concurred with those of (Mwangi, 2020) who concluded that contract cost control impacted the performance of Kenyan county governments positively. Therefore, commercial state corporations should develop policies to ensure contract cost control is carried out for all contracts. These findings concur with transaction cost theory where contract cost control protects organization from opportunistic suppliers who could give them inflated cost charges that would increase their cost of operations and hinder their ultimate goal of achieving operational efficiency.

### Test of the Moderating Effect

Information Communication Technology Integration was hypothesized as moderating variable. When a moderating variable is introduced, the direction or strength of the link between the two variables is altered. The test of significance of moderating variable is summarized in Table 4

Table 34: Model Summary

Model	Coefficients	Std error	t-statistic	p-value
<b>Model 1</b>				
(Constant)	1.204	0.428	2.813	0.007
ICT	0.143	0.117	1.224	0.226
CCC	0.388	0.174	2.225	0.030
<b>Model 2</b>				
(Constant)	11.531	4.486	2.570	0.013
ICT	-4.522	2.021	-2.237	0.030
CCC	-4.831	2.264	-2.134	0.038
ICT*CCC	2.358	1.020	2.312	0.025

R<sup>2</sup> for model 1 = 0.108

$R^2_{\text{formodel2}}=0.191$

The results in Table 4 above show that model 1 is significant at 5% significance level without the interaction effect that it had a t-statistic of 2.813 and a p-value of 0.007<0.005. Model 2 had a t-statistic of 2.570 and a p-value of 0.013<0.05 also significant at 5% significance level. Model 2 accounts for more variance in the interaction between ICT integration and contract cost control. The R squared change had a p-value of 0.011<0.005 indicating that there is potentially significant moderation of ICT integration on the relationship between contract cost control and operational efficiency. The effect of the interaction between contract cost control and ICT integration is positive. This implies that an increase in contract cost control will lead to a rise in operational efficiency. Therefore, the effect of contract cost control on operational efficiency of commercial state corporations depends on ICT integration. Conversely the effect of ICT integration on operational efficiency of commercial state corporations is dependent on contract cost control.

Table 5: Summary of Regression Model

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F change	Sig change	F
1	0.329	0.108	0.075	3.218	0.048	
2	0.437	0.191	0.145	4.102	0.011	

The results in table 5 above indicate that ICT integration alters the relationship between contract cost control and operational efficiency.

The regression equation for the two models are:

$$\text{Model 1 Operational Efficiency} = 1.204 + 0.143\text{ICT} + 0.388\text{CCC}$$

$$\text{Model 2 Operational Efficiency} = 11.531 - 4.522\text{ICT} - 4.831\text{CCC} + 2.358\text{ICT} * \text{CCC}$$

The adjusted R<sup>2</sup> of the model without moderation was 0.075 whereas the adjusted R<sup>2</sup> of the model with interaction effect between contract cost control and ICT integration was 0.145 signifying there is an increase in the adjusted R<sup>2</sup>. This implies that ICT integration adds a predictive value to the model. Therefore, ICT integration had a positive effect on the relationship between contract cost control and operational efficiency. This implies that an increase in ICT integration will result to a positive effect of contract cost control on operational efficiency.

## DISCUSSION

Contract cost control was noted to exert positive and statistically significant influence on operational efficiency of commercial state corporations in Kenya where it had a coefficient of 0.181 and a p-value of 0.006 at 5% significance level. This concurs with transaction cost theory where contract cost control protects organization from opportunistic suppliers who could give them inflated cost charges that would increase their cost of operations and hinder their ultimate goal of achieving operational efficiency.

## CONCLUSION

Contract cost control had a positive and statistically significant effect on operational efficiency hence the null hypothesis that contract cost control has no statistically significant effect on operational efficiency of commercial state corporations was rejected at 95% degree of confidence. This may be attributed to the fact that when commercial state corporations carry out contract cost control they are able to keep track of their expenditure. Contract cost control ensures that contracts are executed within the approved budget thus ensuring resources are well utilized and wastage minimized thus affecting operational efficiency.

## RECOMMENDATIONS

Commercial state corporations should develop budgets for all their contracts and regularly monitor their cost management system to avoid cost overruns. To ensure effective contract cost control and guarantee that contracts are fulfilled within the set contract price, anticipated costs should be assessed and included in the budgets of all commercial state corporations. The commercial state corporations should integrate ICT in their operations and leverage on new technology to reduce operating costs.

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