

PROCUREMENT COST REDUCTION STRATEGY: IMPACT ON E-PROCUREMENT PERFORMANCE OF STATE PARASTATALS IN KENYA**Enock Musau**

ABSTRACT: *The objective of the study was to investigate the role of procurement cost reduction strategy on e-procurement performance of state Parastatals in Kenya. In doing this, the study adopted the transaction cost theory of (Bakker et al, 2008). The theory explains how the use of information technology (IT) has facilitated the reduction of coordination costs. The study used a cross-sectional survey research design. Both qualitative and quantitative research methodologies were used in the study. The population of this study comprised of the ICT and Procurement managers at all the 190 state parastatals in Kenya comprising of a total of 380 respondents. Since the population was highly heterogeneous, a cluster sampling was used to select 380 respondents from 190 state parastatals. Primary data was collected using a questionnaire covering the role of E-procurement in state corporation performance. The questionnaire contained both structured and unstructured questions. Secondary data was gathered from existing credible and recognized source. Quantitative data was analyzed by employing descriptive statistics and inferential analysis using statistical package for social science (SPSS) together with simple graphics analysis, descriptive statistics form the basis of virtually every quantitative analysis to data). Correlation analysis was used to establish the relationship between the independent and dependent variables. The positive (H1) hypothesis testing was done at 5% level of significance and SPSS was used for this purpose. The data was then presented using frequency distribution tables, bar charts and pie charts for easier understanding. Procurement performance in the state parastatals was regressed against the variable of the role cost reduction. The study established that, procurement cost reduction strategy had greater influence on e-procurement performance in state parastatals in Kenya. It also revealed that, procurement cost reduction strategy has a direct relationship with e-procurement strategy and finally improving the e-procurement performance of state parastatals in Kenya. The study recommended holding of the key success for delivering cost effective services hence e-procurement performance. And also, target cost contracting (TCC), to be accompanied by a gain-share/pain share arrangement serving as a cost incentive mechanism in state parastatals in Kenya. In line with this state corporation must view the embracement of e-procurement as a tool that will support procurement cost and processes as it generally contributes partner relationships, information sharing, and supply chain integrations as e-procurement contributes to supply chain performance.*

KEY WORDS: Cost Reduction, E-Procurement Performance

INTRODUCTION

Background Information: In a competitive and globalized business environment, corporate sectors and business houses need to be at breast with new technological developments as well as manage reduction of operational costs while meeting the organizational goals and objectives. The advent of technological invasion into the market place, have created e-markets in every business sector. This paved way for a faster connectivity between B2B and B2C exchanges. The benefits of online purchasing not only show cases of the costs of savings but also improve the way companies operate. It helps them to deal with a chosen few suppliers with better buying strategic as well as slash down the administration costs. Today's technological business world

has turned to an electronic procurement system (Kaefer & Bendoly, 2000). E-procurement has brought to prominence in recent years by the popularization and commercialization of internet. In addition to the customer oriented procurement of the internet, e-procurement is practiced through electronic markets and electronic data interchange (EDI). This creates the need for an efficient electronically enabled supply chain and value chain management (Weiss & Thurbon, 2006).

Statement of the Problem: A study by (Chan & Lu, (2004) found that organizations which adopted e- procurement strategies have reduced costs through transactional and process efficiencies and thereby promoting their procurement performance. However in Kenya a previsions study done by (Kim *et al*, 2008) on usage, obstacles and policies on e-procurement show that only 33% of state parastatals have implemented e-procurement as a strategy to improving services. The million dollar question was the use of e-procurement as a strategy to enhance or deteriorate the performance of the procurement function, but none of the existing research explores further how e-procurement strategy affects the procurement performance. This study therefore determines the role of procurement cost reduction strategy in enhancing e-procurement performance in State Parastatals in Kenya.

Objective of the Study: To evaluate the role of procurement cost reduction strategy on e-procurement performance of state Parastatals in Kenya.

Research Hypothesis: H₀₁: Procurement cost reduction strategy has no significant influence on e-procurement performance of state parastatals in Kenya.

LITERATURE REVIEW

Theoretical Framework

Transaction cost theory: The use of information technology (IT) has facilitated the reduction of coordination costs, which has been extensively documented in the literature (Bakker *et al*, 2008). For example, electronic market places, facilitated through IT, reduce the cost of searching for obtaining information about product offerings and prices (Bakker *et al*, 2008). Also, collaboration facilitated by information sharing can lower transaction costs (in particular coordination costs) as companies can thereby reduce supply chain uncertainty and thus the cost of contracting. This can be explained with an example: If a supplier is unable to accurately predict the price of its product inputs, it will be reluctant to enter into a contract, which locks it into a fixed price for an extended period of time (Arrowsmith, 2002).

Uncertainty in the context of supply chains and more specifically in manufacturing is caused by supply uncertainty, demand uncertainty, new product development uncertainty, and technology uncertainty (Koufteros, 1999). Supply uncertainty relates to unpredictable events that occur in the upstream part of the supply chain. Among the causes to supply uncertainty are shortages of materials and late deliveries. Clearly, supply uncertainty can disrupt manufacturing and have an adverse affect on sales, where distributors and retailers down the chain are also affected. Demand uncertainty can be defined as unpredictable events that occur in the downstream part of the supply chain (Koufteros, 1999). Demand uncertainty (or demand risk) can result from 23 seasonality, volatility of fads, new product adoptions, or short product life cycles (PLCs) (Johnston, 2005). Furthermore, (Choi & Krause, 2005) identify three sources

for the uncertainty of demand arising.

Another uncertainty related to manufacturing concerns new product development. New product development uncertainty can stem from unpredictable events during the process of market research, product design, and product prototyping. Finally, technology uncertainty refers to the fuzziness in the selection of a suitable technology platform (Koufteros, 1999). An example is the trade-off between a fool-proof manufacturing technology (perhaps dated), compared to a prospective technology offering better price to performance but whose viability is not certain (Klein, 2007). Furthermore, uncertainty can also arise from political (e.g. fuel crisis), natural (e.g. fire, earthquake), and social uncertainties (e.g. strikes) (Johnston, 2005).

Approaching the concept of uncertainty from the transaction cost economics (TCE) point of view might provide further insight into the value of information sharing between organizations. The concept of uncertainty is central to TCE, which assumes that individuals have bounded rationality and act opportunistically. The early transaction cost literature did not make a distinction between different forms of uncertainty. More recent literature has disaggregated the construct of uncertainty (Melville et al, 2004). For example, (Wendin, 2001). Who built on (Khalifa & Shen, 2008), distinguished between primary and behavioral (or secondary) uncertainty. Primary uncertainty refers to the underlying transaction and arises from mainly exogenous sources such as uncertainty relating to natural events, consumer preferences, regulations, and technology (Sulek et al, 2006). Primary uncertainty may lead to problems of communication, technological difficulties, and coordination problems that can as a consequence adversely impact the execution of transactions (McManus, 2002). Behavioral uncertainty refers to the risk of opportunism on transactions that are executed through incomplete contracts.

Similarly, (Sulek *et al*, 2006) classified uncertainty as primary, competitive, and supplier uncertainty. Primary uncertainty is consistent with Wendin, C. (2001) and refers to the “lack of knowledge of states of nature” (Sulek *et al*, 2006). Competitive uncertainty arises from the innocent or strategic actions of potential or actual competitors (McManus, 2002). Supplier uncertainty is essentially behavioral uncertainty and refers to possible opportunism by upstream or downstream partners. In organizational theory uncertainty is often referred to as environmental uncertainty (Trent, 2007)) and includes a number of factors such as uncertainty regarding suppliers and competitors actions, as well as uncertainty in regulations and technology, which captures both primary and behavioral uncertainty. Based on the reviewed literature, the definitions of the various types of uncertainty are not consistent. Some definitions overlap, whereas others ignore certain factors.

The presence of demand uncertainty and the lack of information sharing in the supply chain can lead to a problem known as the bullwhip effect: the amplification of demand variability as orders move up the supply chain (Featherman & Pavlov, 2003). (Johnson & Whang, 2002), provide evidence for this finding from the food industry, whereas (Nagle *et al*, 2006) report on the bullwhip effect in the automotive sector. There are four sources of the bullwhip effect:

The bullwhip effect can be alleviated through sharing demand information in the supply chain, which reduces information asymmetry and uncertainty (Lee *et al.*, 2003). Thus, limiting uncertainty through information sharing can in turn reduce companies' internal risk as companies' can optimize inventory, production, and capacity planning. Although, information sharing seems to bring with it many benefits, it can simultaneously increase transaction risk, as higher levels of business transparency can lead to opportunistic behavior. Nevertheless,

uncertainty as a factor might affect companies' incentives to share information. This also agrees with contingency theory, which states that the amount of uncertainty and rate of change in an environment affects the development of internal features in organizations (Larsson *et al*, 2008).

METHODOLOGY

Research Design: The research design constitutes the blue print for the collection, measurement and analysis of data, (Kothari, 2005). A cross-sectional survey research design was used in this study. Cross-sectional survey is a method that involves the analysis of data collected from a population, or a representative subset, at one specific point in time Orodho (2003). The choice of this design is appropriate for this study since it utilizes a questionnaire as a tool of data collection and helps to establish the behavior of employees towards embracing e-procurement in state parastatals. This is supported by (Mugenda & Mugenda, 2003) who assert that this type of design enables one to obtain information with sufficient precision so that hypothesis can be tested properly. It is also a framework that guides the collection and analysis of data. (Kothari, 2005) observes that a descriptive research design is used when data is collected to describe persons, organizational settings or phenomenon.

Population: Population refers to an entire group of persons or elements that have at least one thing in common. Population also refers to the larger group from which a sample is taken (Orodho, 2003). A population can also be defined as including all people or items with the characteristic one wish to understand. The study population of this study comprised of the ICT and Procurement managers at all the 190 state parastatals in Kenya comprising of a total of 380 respondents. Thus E-procurement strategy and its application is relevant at this level prompting the choice of the departments i.e. these group of respondents is directly involved in the implementation of E-procurement policy. A list that contains the number of all managers was sourced from the human resource department of each state corporation and directorate of state parastatals (GOK 2011) this was used as a sampling frame to identify every single element in the target population.

Sampling Frame: A sampling frame is the source material or device from which a sample is drawn. According to Orodho (2003) a sampling frame is a list of all those within population who can be sampled. The sample for this study was 190 state parastatals in Kenya. (Directorate of state parastatals, 2013).

Sample and Sampling Techniques: A sample is a set of observations drawn from a population by a defined procedure. The sample represents a subset of manageable size. Samples are collected and statistics are calculated from the samples so that one can make inferences or extrapolations from the sample to the population. The samples size of this study was 80 respondents. Since the population is highly heterogeneous, a cluster sampling was used to select 380 respondents from 190 state parastatals. Cluster sampling is a sampling technique used when "natural" but relatively homogeneous groupings are evident in a statistical population. In this technique, the total population is divided into groups (or clusters) and a simple random sample of the groups is selected. Then the required information is collected from a simple random sample of the elements within each selected group. This may be done for every element in these groups or a subsample of elements may be selected within each of these groups. A common motivation for cluster sampling is to reduce the total number of interviews and costs given the desired accuracy. Assuming a fixed sample size, the technique

gives more accurate results when most of the variation in the population is within the groups, not between them (Orodho, 2003). A simple random sampling plan where every respondent, or object or subject has chance of representation will be used in this study.

Data Collection Methods: A research permit was sought from the National Council for Science and Technology (NCST). On obtaining the research permit, the researcher sought permission from the managers to visit their parastatals. Selected state parastatals were thereafter visited by the researcher after an appointment had been made with the managers. Questionnaires and the interview schedules were administered personally by the researcher to the respondents. Adequate instruction and assurance of confidentiality was provided to all participants. Thereafter, the questionnaires were collected by the researcher after being filled.

Sample size formula

$$n = \frac{N}{1 + N(e)^2}$$

Where n=sample size

N= sample population

e=precision

Therefore the sample size will be 80

Table 1 Sample Frame

Population	Target population	Sample at precision 10%
ICT Mangers	190	40
Procurement	190	40
Total	380	80

Data Collection Instruments: According to (Mugenda & Mugenda, 2003) data collection is the means by which information is obtained from the selected subject of an investigation. The researcher collected both primary and secondary data during the researcher. Primary data was collected using a questionnaire covering the role of E-procurement in state corporation performance. The questionnaire contained both structured and unstructured questions. The open-ended questions were used to limit the respondents to given variables in which the researcher is interested, while unstructured questions were used in order to give the respondents room to express their views in a more pragmatic manner (Kothari, 2005). Secondary data was gathered from existing credible and recognized source. The data comprised of materials that are desirable, current, accurate, sufficient and relevant collected from library text books, internet and magazines and personnel file in the organization.

Pilot Study: According to Mugenda, (2003) pilot test is necessary and the validity of a study. A pilot test was conducted using questionnaires administered to ICT managers and procurement managers. This constituted 10% of the 38 state parastatals firms that were registered by directorate of state corporation the for ICT managers and for procurement (10%

of 38) = 3.8 = 4 were selected using simple random sampling. In each of the ICT and the procurement managers were targeted. This constituted to respondents in each state corporation and therefore the total number of the respondents for the pilot was 4 respondents.

The pilot was undertaken to pretest data collection instrument for validity and reliability. According to (Orodho, 2003) a pilot study is necessary for testing the reliability of data collection instruments. (Cooper & Schindler, 2001) explains reliability of research as determining whether the research truly measures that which it was intended to measure or how truthful the research results are. Pilot study is thus conducted to detect weakness in design and instrumentation and to provide accurate data for selection of a sample (Young, 2009). The validity of the questionnaire was determined using construct validity method. Construct validity is the degree to which a test measures an intended hypothetical construct (Mugenda, 2003). Using a panel of experts familiar with the construct is a way in which this type of validity can be assessed; the experts can examine the items and decide what that specific item is intended to measure (Kothari, 2005).

The study used different groups of experts in the field of procurement and issued them with the questionnaires. The experts were required to assess if the questionnaires helps in establishing the role of e-procurement within state parastatals in Kenya. The coefficient of data gathered from the pilot study was computed with assistance of Statistical package of social Sciences (SPSS) version 21. A coefficient of above 0.5 was obtained and this indicated that the data collection instruments were valid (Klein & Ford, 2003). The recommendations from the procurement experts and the pilot study respondents were used to improve on data collection instruments. Data validity played an important role towards generalization of the gathered data to reflect the true characteristics of the study problem.

The reliability of the questionnaires was determined using test-retest method. A reliable measurement is one that if repeated second time gives the same as it did the first time (Mugenda & Mugenda, 2003). Test-retest reliability is a measure of reliability obtained by administering the same test twice over a period of time to a group of individuals (Mandrish & Schaffer, 2005). The scores from Time 1 and time 2 can then be correlated in order to evaluate the test for stability over time (Mandrish & Schaffer, 2005). Test-re-test reliability is the degree to which scores are consistent over time; it indicates score variation that occurs from testing session as a result of errors of measurement (Shim *et al*, 2001). The preliminary or first draft of questionnaires was given to a panel of five experts in the field of procurement. These experts were asked to review the instrument and make recommendations for improving its validity. These recommendations were then incorporated into a second draft of the instrument which was then given to a small sample of relevant professionals. This pilot sample was asked to comment on the ease with which they understood and completed the test questions. Where relevant, these comments were incorporated into a third draft of the test instrument. This third draft was constituted to the final test instrument where the open-ended questions on the survey instrument were analyzed qualitatively; that is, they were simply reported for each of the three groups of the respondents.

Reliability: The study conducted factor analysis to select a subset of variables from a larger set based on the original variables with the highest correlations with, the principal component factors. Reliability analysis was conducted using Cronbach's alpha to determine whether the data gathered on each variable had a significant relationship with the role of e-procurement

Reliability is the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable (Orodho, 2003).

(Cooper & Schindler, 2001) identify three types of reliability referred to in quantitative research, which relates to; the degree to which a measurement, given repeatedly, remains the same as the stability of a measurement over time; and the similarity of measurements within a given time period. (Mugenda, 2003) adheres to the notions that consistency with which questionnaire items are answered or individuals scores remain relatively the same can be determined through the test retest method at two different times. This attribute of the instrument is actually referred to as stability. If we are dealing with a stable measure, then the results should be similar. A high degree of stability indicates high degree of reliability, which means the results are repeatable.

(Klein & Ford, 2003) detects a problem with the test-retest method which can make the instrument, to a certain degree, unreliable. She explains that test-retest method may sensitize the respondent to the subject matter, and hence influence the response given. Similarly, (Cooper & Schindler, 2001) note that when respondents answer a set of test items, the scores obtained represent only a limited sample of behavior. As a result, the scores may change due to some characteristic of the respondent, which may lead to errors of measurement. These kinds of errors reduced the accuracy and consistency of the instrument and the test scores. Hence, it is the researchers' responsibility to assure high consistency and accuracy of the tests and scores (Kothari, 2005). To measure the reliability of the gathered data, Cronbach's alpha was applied. Cronbach's alpha is a coefficient of internal consistency.

Table 2 Internal consistency- Cronbach's alpha

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent(high stakes testing)
$0.7 \leq \alpha < 0.9$	Good (low stake testing)
$0.6 \leq \alpha < 0.7$	Acceptable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

However, greater number of items in the test can artificially inflate the value of alpha and a sample with a narrow range can deflate it, so this rule of thumb should be used with caution.

Data Analysis and Presentation: This study is expected to produce both quantitative and qualitative data to explain the role of e-procurement strategy exhaustively. Once the questionnaires were received they were coded and edited for completeness and consistency. Quantitative data was analyzed by employing descriptive statistics and inferential analysis using statistical package for social science (SPSS). This technique gives simple summaries about the sample data and present quantitative descriptions in a manageable form, (Orodho, 2003). Together with simple graphics analysis, descriptive statistics form the basis of virtually every quantitative analysis to data, (Kothari, 2005). Correlation analysis to establish the relationship between the independent and dependent variables was employed. The purpose of doing correlation was to allow the study to make a prediction on how a variable deviates from the normal. The positive (H1) hypothesis testing was done at 5% level of significance and SPSS

was used for this purpose. The data was then presented using frequency distribution tables, bar charts and pie charts for easier understanding.

Simple Regression Analysis Model: E-procurement performance in the state parastatals was regressed against cost reduction. The equation will be expressed as follows:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Y = E-Procurement performance

β_0 = Constant (Co-efficient of intercept)

X_1 = Procurement cost reduction strategy

ε = Error Term

B_1 = Regression co-efficient of Inventory optimization.

FINDINGS AND DISCUSSIONS

Construct Procurement Cost Reduction strategy: Procurement cost reduction strategy, entails companies expanding forward to respond to opportunities for new markets, expanded backward towards international suppliers for lower costs and or higher technology. The increasing global interdependencies and the accelerating pace of change demanded more flexible and adoptive organizations. Any good procurement policies and in addition to automation is designed to greatly reduce time and efforts required to completing purchasing transactions by eliminating traditional paper chain of requisition, approvals, receiving and payments reconciliation (Subramani, 2004).

Research studies have pointed out the cost of materials in a typical organization setting or construction project can take up around 65 percent of the total construction costs (Puschmann & Alt, 2005). In order to minimize cost of procurement of goods, services and works in state parastatals, procurement managers and planners should not only strive to reduce the wastage and reworks but they shall also cut down on the costs pertinent to the logistics of materials especially those which are of bulky nature (Parasuraman, 2000) which in this case improves procurement performance of state parastatals in Kenya. The study asked the respondents to indicate the extent to which procurement cost reduction strategy factors affected procurement performance in state parastatals in Kenya. The procurement cost reduction strategy factors that were dealt with included; E-procurement, electronic data interchange (EDI), transaction costs, and good governance and control application.

The analyzed results are presented in table 3, 1.4 percent of the respondents indicated that e-government had no influence on procurement performance in state parastatals, 1.5 percent of the respondents indicated that at a small extent, e-government had influence on procurement performance in procurement cost reduction strategy in state parastatals in Kenya, 3.6 percent of the respondents indicated at a moderate extent, e-government had influence on procurement performance in state parastatals in Kenya while 0.6 percent of the respondents indicated that at a very large extent, e-government had influence on procurement cost reduction strategy in state parastatals in Kenya. Similarly 46.8 percent of the respondents at a very large extent, e-government influenced procurement performance in State Corporation in Kenya.

On electronic data interchange which is a drive towards a highly execution of electronic data interchange (EDI) in the logistics field and supply chain management warrants closer scrutiny of the common expectation that a more advanced EDI implementation leads to significantly higher benefits for all participation firms in the network. 2.5 percent of the respondents stated that electronic data interchange (EDI) did not influence procurement performance at a large extent in state parastatals in Kenya, 3.6 percent of the respondents stated that electronic data interchange (EDI) influenced procurement performance a small extent in state parastatals in Kenya, 5.8 percent of the respondents stated that electronic data interchange (EDI) influenced procurement performance to a moderate extent in state parastatals in Kenya. 76.53 percent of the respondents stated that electronic data interchange (EDI) influence procurement performance to a large extent in state parastatals in Kenya.

On transaction cost theory perspective 1.4 percent of the respondents stated that transaction cost could serve as a good starting point for analysis of State Corporation's procurement performance at a very large extent. 2.6 percent of the respondents stated the use of information technology has facilitated the reduction of coordination cost to which in addition facilitated information sharing and lower transaction cost hence procurement performance in state parastatals in Kenya while 84.3 percent of the respondents stated that making transaction cost the basic unit of analysis, expressly identified alternative market and internal mode of contracting hence with respect to the critical dimensions with respect to which transactions differed (Wendin, 2001).

According to World Bank the term 'good governance is broadly defined as a manner in which power is exercised in the management and utilization of a country's economic and social resources for national development. Good governance encompasses political legitimacy, accountability, transparency, openness and the rule of law. Governance is the process, the function and power of government. It is the exercise of the executive, legislative and judicial power for the public and state leadership by the political elective and administrative – statutory organs/ bodies and therefore depended on a set of norms and values based on democracy" (Lysons & Gillingham, 2003). Application of good governance enhances ethical behavior, meeting public expectations regarding the mission and the function of organizations, complying with the constitution and the law, foster efficiency and effectiveness and preventing failures and disasters (Williams & Hardy, 2006).

On governance processes, 0.7 percent of the respondents indicated that good governance processes did not influence good procurement performance in state parastatals in Kenya, while 4.0 percent of the respondents indicated at a small extent, that a good governance processes influenced procurement performance in state parastatals in Kenya, 38.9 percent and 32.74 percent of the respondents indicated to a large extent and moderate extent respectively that proper good governance processes influenced procurement performance in state parastatals in Kenya and 22.3 percent of the respondents indicated to a very large extent, that good governance policies influenced procurement performance of state parastatals in Kenya.

On internet control application of the internet to traditional business and administrative activities has introduced considerable digitization and process automation (Tatsis et al, 2006). One key area of development from is search perspective is the use of and application of electronic(s) surveys, based on internet technology. The application of e-surveys can bring many benefits including extremely low marginal cost, automation of processes, and the ability to collect and manage very large samples, 2.2 percent of the respondents indicated that internet control application did not influence procurement performance practices in state parastatals in

Kenya, 23.7 percent of the respondents indicated that internet control application affected digitization and automation of process systems to a small extent and influenced procurement performance in state parastatals in Kenya, 53.68 percent of the respondents indicated that at a moderate extent digitization and automation application of process systems influenced procurement performance in state parastatals in Kenya, 18.3 percent of the respondents indicated that to a large extent internet control application services influenced procurement performance in state parastatals in Kenya to a very large extent.

Table 3 Procurement cost reduction strategy

Procurement cost reduction strategy	Not at small all extent		Moderate large extent		Very large	Total
E-government	2.5	4.6	0.8	48.7	43.4	100
Electronic data interchange	2.7	4.3	6.2		21.1	100
			65.7			
Transaction costs	3.8	5.6	4.5		20.2	100
			65.9			
Good governance	4.7	5.9	7.0		37.8	100
			44.6			
Internet control application	4.2	3.7	16.3	51.7	24.1	100
Average	3.58	4.82	6.96	59.32	29.32	100

Inferential Analysis

Correlation Analysis: Correlation is a term that refers to the strength of a relationship between two variables. A strong or high correlation means that two or more variables have a strong relationship with each other while a weak or low, correlation means that the variables are hardly related. Correlation coefficient can range from -1.00 to +1.00. The value of -1.00 represents a perfect negative correlation while a value of +1.00 represents a perfect positive correlation. A value of 0.00 means that there is no relationship between variables being tested (Orodho, 2003). The most widely used types of correlation coefficient are the Pearson R which is also referred to as linear or product-moment correlation. This analysis assumes that the two variables being analyzed are measured on at least interval scales. The coefficient is calculated by taking the covariance of the two variables and dividing it by the product of their standard deviations. A value of +1.00 implies that the relationship between two variables X and Y is perfectly linear, with all data points lying on a line for which Y increases and X increases. Conversely a negative value implies that all data points lie on a line for which Y decreases as X increases (Orodho, 2003). In this study pearson correlation is carried out to determine how the research variables related to each other. Pearson's correlation reflects the degree of linear relationships between two variables. It ranges from +1 to -1. A correlation of +1 means there is a perfect positive linear relationship between variables (Young, 2009).

Table 4 correlation analysis for Construct procurement cost reduction strategy

		E-procurement performance	Procurement cost Reduction strategy
E-procurement Performance	Pearson Correlation Sig. (2-tailed) N	1 0.0001 63	3.82 63
Procurement cost reduction strategy	Pearson Correlation Sig. (2-tailed) N	3.82 0.0001 63	63

**Correlation is significant at
the 0.01 level (2-tailed)**

Correlation analysis for procurement cost reduction strategy: A correlation analysis for the construct procurement cost reduction strategy was conducted to find out how procurement cost reduction strategy correlated with procurement performance. Table 4 above shows that the Pearson correlation coefficient was 3.822904 a clear indication that procurement cost reduction strategy has a positive correlation with e-procurement performance (p-values >0.05). (Roth 1999).

Regression analysis for construct procurement cost reduction strategy: Table 5 presents the regression model the regression model of procurement cost reduction strategy with a coefficient of determination of $R^2 = .195$ and $R = .442$ at 0.05 significance level. The coefficient of determination indicates that 19.5 % of the variation on e-procurement performance is influenced by procurement cost reduction strategy. This shows that there exists a positive relationship between procurement cost reduction strategies on e-procurement performance.

Table 5 Model Summary

Model Summary			
Model R	R Square	Adjusted R Square	Std Error of the Estimate
.442	.195	.190	0.9362
Predictors : (constant)	Procurement cost	reduction	strategy

ANOVA for construct Procurement cost reduction strategy: The results of Analysis of variance (ANOVA) for regression coefficients are shown in Table 6. The analysis results revealed that the significance of F statistics is 0.00 which is less than 0.05. This implies that

there is a significant relationship between procurement cost reduction strategy and e-procurement performance. E-procurement adoption is justified only when the perceived benefit is large enough to cover the cost. The high cost of initial investment associated with the required infrastructure and training of personnel, quantifying the return on investment often becomes a barrier to state parastatals (Locke and Latham, 2002).

Table 6 ANOVA for construct procurement cost reduction strategy

	Model sum of squares	Df	Mean of Square	F	Sig
Regression	18.605	1	18.605	8.5	.0001
Residual	465.814	135	3.450		
Total	484.419	136			

Predictors: (constant) procurement cost reduction strategy

Dependent variable: E- procurement performance

CONCLUSIONS AND RECOMMENDATIONS

The study sought to find out the extent to which procurement cost reduction strategy affected procurement performance in state parastatals in Kenya. From the findings the respondents indicated that procurement cost reduction strategy had greater influence on procurement performance in state parastatals in Kenya. The result also revealed that procurement cost reduction strategy has a direct relationship with e-procurement strategy and finally improving the procurement performance of state parastatals in Kenya. Supplier management, pooling of purchase requisitions and procurement-oriented product development are tasks that are typically assigned to strategic procurement. Prior to e-procurement, strategic procurement often had to deal with administrative routine work as well, such as individual transactions, converting purchase requests into purchase orders or ensuring the correct allocation of invoices received and therefore, the use of e-procurement technologies in procurement is aimed at realizing faster and more efficient operational procurement processes hence reducing procurement costs and thereby enhancing procurement performance. On procurement cost reduction strategy methods, the research recommends holding the key success for delivering cost effective services hence procurement performance. Strong concerns have thus been raised within the state parastatals for adopting alternative integrated procurement cost reduction strategies to supersede the traditional cost approach with the concomitant problems of fragmented working relationship between parties in the supply chain. It is recommended that target cost contracting (TCC), to be accompanied by a gain-share/pain share arrangement serving as a cost incentive mechanism in state parastatals in Kenya. In line with this state corporation must view the embracement of e-procurement as a tool that will support procurement cost and processes as it generally contributes partner relationships, information sharing, and supply chain integrations as e-procurement contributes to supply chain performance.

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