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ABSTRACT

In Kenya procurement in public sector has been dogged by; corruption, political patronage, procurement system inefficiency, non-adherence to procurement policy guidelines and lack of a genuinely open and competitive system of procurement amongst other shortcomings. The study sought to establish effect of e-procurement adoption on the performance of the public sector; a case of state corporations under the State Department for Infrastructure. The study used Transaction Cost theory that facilitates coordination of costs and transaction. Information Systems Success theory that proposes that system quality and information quality affect users' usage and satisfaction. This study used a descriptive research design and explanatory research design. The population of interest was 142 employees in the procurement departments at State Department for Infrastructure. Stratified random sampling technique was used since the population of interest was not homogeneous. The study utilised primary data. Primary data was collected using data collection instrument. The study carried out a pilot study to test reliability and validity of the data collected from 14 individuals from the target population. Data analysis was done with the use of SPSS version 23 and presented using percentages, tabulations, means and other central tendencies. This generated quantitative reports through tabulations, percentages, and measures of central tendency. The study concluded that E-Sourcing and E-Informing all had a positive effect on the performance of state corporations under the State Department for Infrastructure. The Study recommended that the management of State corporations should fully adopt E-procurement system as it was found to enhance accountability through elimination of corruption, errors and hence ensuring efficiency of procurement systems. The study recommended that State corporations should continually keep on utilizing E-sourcing system as E-sourcing system was found to enhance coordination of procurement process and hence reduces bureaucracy which enhances efficiency of organization. State corporations should fully adopt E-informing systems as the system was found to enhance innovation process thus enhancing the procurement processes in the organization.

Key Words: E-sourcing, E-informing and Performance of State Corporations

BACKGROUND OF THE STUDY

A number of public sector agencies worldwide have identified Electronic Procurement (e-procurement) as a priority e-Government agenda and have implemented or are in the process of implementing e-procurement systems. Office of Government Commerce (2013) observed that UK public sector in recent years has begun to evaluate and adopt e-procurement. The enquiry further revealed that the UK government has been driving the adoption of ecommerce across the public sector and core element of this should be eProcurement. While there is debate about how e-procurement has emerged, there is no doubt that the use of the Internet in e-procurement provides several advantages over the conventional procurement system (Koorn, 2011).

Public procurement accounts for about 20% of worldwide government expenditure. However, within some African countries this can amount to more than 70%. Achieving a reduction in public spending by as little as 1% would make a significant difference and save a large amount of taxpayer's money (Basheka & Bisangabasaija, 2010). In Nigeria, E-procurement adoption is slow, the reasons for the relatively low adoption of E-procurement in Nigeria are not farfetched. Despite initial optimism about the use of ICT to improve productivity and profitability in the Nigerian organisations, the benefits have since been localised to minute immediate administrative gains. In Nigeria, the electronic government procurement (e-GP) system has lead Nigerian public sectors to increase competition among bidders in public projects and ultimately government can better select actual bidders (Adebiyi, 2015).

According to Sijaona (2010) there are various hinderances to E-procurement adoption in the public sector in Tanzania and hence performance. The most key challenges that hinder the adoption of

e-procurement in Tanzania included; Policy and Legislative framework hence need to amend procurement act and/or regulations and other associated laws such as sale of goods act, contract act. Institutional structures hence need to establish necessary structures to implement e-procurement. Adoption of e-procurement system in some sectors has helped Tanzania improve transparency and efficiency, reduce cost, better decision- making, supplier performance monitoring and quality of service (Sijaona, 2010).

Public procurement in Kenya is largely done by state corporations under the guidance of the Public Procurement Regulatory Authority in the confines of the (2015) Public Procurement and Asset Disposal Act. Currently the systems that are being used by public sector in Kenya for e-procurement are Integrated Financial Management Information System (IFMIS). The Government of Kenya's IFMIS is an Oracle based Enterprise Resource Planning (ERP) software which is part of public sector financial management system reform. Enterprise Resources Planning (ERP) applications are large-scale computer software systems that attempt to integrate all data and processes of an organization into a unified system, housed in a centralized database which is accessed through a secure network (PPAD Act, 2015).

Through the automation of public financial processes, the Integrated Financial Management Information System (IFMIS) will provide an interlinked system of internal controls providing clear audit trails and identification of the originator of all transactions (PPAD Act, 2015). A key milestone in the reformation of public procurement has been the amendment of the PPDA 2005 and regulation in 2006 and recently PPAD 2015 that has enhanced the efficiency of procurement systems in state corporations in the recent past. The aggressive reforms being implemented by the Kenyan government can be attributed to the realization by

the government of the need to continuously improve internal procurement policies and procedures (Sheilah, 2013).

E-procurement has the capacity of acting as an integrative technology that enables integration and improvement of processes between departments (Kalakota & Robinson, 2014). Presently, the State Department for Infrastructure is implementing strategies to ensure that projects are completed within the stipulated time lines to ensure that the public gets value for money. This includes adoption of E-Procurement to facilitate efficiency of the tendering process, close supervision of all ongoing projects and maintenance of existing road networks to ensure that they remain appraised on project implementation progress (GOK, 2015).

Statement of the Problem

Brown (2015) stated that implementation of e-procurement can help curb the challenges of corruption and inefficiency in the public sector which in turn enhance efficiency of operation, cost reduction and lead time reduction. Performance targets in the public sector have not been met as a result of high cost of procurements (goods, works and services) and the procurement entity is forced to seek for additional funds which may not be available and may also take a long time from treasury for approval. Also, there has been inefficiency in operation which in the long run becomes costly in terms of timeliness of project completion. Lastly lengthy lead time constitutes to non-achievement of performance target due to bureaucracy, corruption, political patronage and lack of open and genuine competitiveness (Kipyego, 2012). The solution is to adopt e-procurement (KIPPRA, 2016).

A survey done on February (2015) by national treasury showed that 30 per cent of the state corporations have partially automated procurement systems while 14 per cent had fully automated their

procurement process. In Kenya procurement in public sector has been dogged by; corruption, political patronage, procurement system inefficiency, lack of sound procurement policy guidelines and lack of a genuinely open and competitive system of procurement amongst other shortcomings (Kipyego, 2012). According to Tetra Tech International Development (TTID), nearly 80% of all cases before the Ethics and Anti-Corruption Commission (EACC) have a procurement element (TTID, 2015).

Estimates by the Treasury showed that the government losses more than Sh70 billion annually due to fraudulent manipulations in procurement process (Wanzala, 2015). The Global Competitiveness Report 2013-2014 indicates that corruption remains pervasive in procurement processes, with widespread practice of favoritism when deciding upon contracts and policies. Sound public procurement policies and practices are among the essential elements of good governance (KIPPRA, 2016). Without transparent and accountable systems, the vast resources channeled through public procurement systems run the danger of being entangled with increased corruption and misuse of funds which in turn leads to failure to meet performance targets, customer dissatisfaction and poor performance of organisations (Jeppesen, 2010).

Locally, Abdi (2012) conducted a study electronic procurement and organizational performance among commercial state corporations. The findings indicated that commercial state corporations in Kenya have adopted e-procurement but there are several functions they still perform manually. Kamotho (2014) did a study on the e-procurement and procurement performance among state corporations in Kenya. The findings indicated that e-procurement enhanced accountability, bidding, lead time, and internal processes affected procurement process in government ministries in Kenya. The

above studies have focused on different state corporations thus this study seeks to fill the gap by focusing on State Departments for Infrastructure and compare the earlier findings.

Research Objectives

The main objective of the study was to establish the effect of e-procurement adoption on the performance of the public sector; a case of state corporations under the State Department for Infrastructure. The specific objectives were;

- To assess the effect of e-sourcing on the performance of state corporations under the State Department for Infrastructure.
- To determine the effect of e-informing on the performance of state corporations under the State Department for Infrastructure.

LITERATURE REVIEW

Theoretical Review

Transaction Cost Theory

Transaction cost theory could serve as a good starting point for the analysis, which explains why certain tasks are performed by firms and others by markets (Grover, Jeong, & Segars, 2010). Transaction costs can be divided into coordination costs and transaction risk (Clemons, 2009). Coordination costs are the direct costs of integrating decisions between economic activities such as search and bargaining costs. Transaction risk is associated with the exposure to being exploited in the relationship. The use of information technology has facilitated the reduction of coordination costs, which has been extensively documented in the literature (Yoon, Guimaraes & Clevenson, 2008).

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 (Hannon, 2014). Hannon (2014) classified uncertainty as primary, competitive, and supplier uncertainty. This theory supports the objective of e-sourcing on the performance of public sector in Kenya by identifying and selecting opportunities to reduce spend using knowledge of the external markets hence transaction cost theory could serve as a good starting point for the coordination of costs and transaction.

Information Systems Success Theory

The use of ICT is a key component that a government utilizes in the development process to stimulate the economy, lowering the digital gap, modernizing the public sector, and improving government performance as it is evident now in the use of IFMIS. Information systems success theory proposes that system quality and information quality affect users' usage and satisfaction with information systems, further determining organizational performance (DeLone & McLean, 2011). The new model argues that system quality, information quality and service quality affect usage and user satisfaction, further affecting net benefits such as increased knowledge sharing and lower costs (DeLone & McLean, 2011).

Wixom and Watson (2009) note that information quality and system quality affect data warehousing software users' satisfaction, perceived usefulness, and perceived ease of use and usage behavior. Rai, Lang and Welker (2012) proposed that both system quality and information quality affect social networking users' satisfaction and sense of community. This theory supports the effect of e-informing on performance of state corporations in Kenya since use of ICT is a key component that a government utilizes in the development process and facilitates the purchase of goods and services from a number of known or unknown suppliers

electronically thus enhancing organization performance.

Conceptual Framework

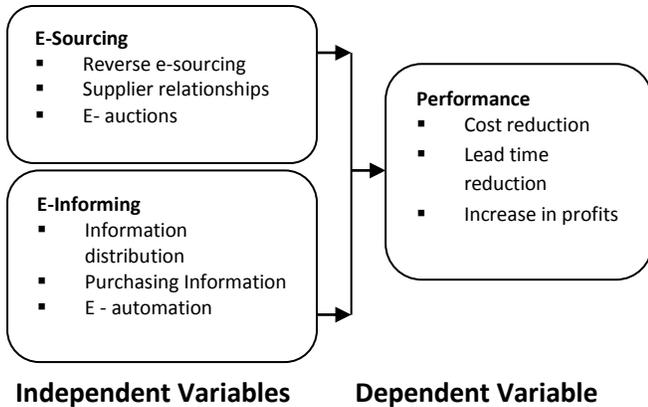


Figure 1: Conceptual Framework

E-Sourcing

E-Sourcing facilitates the full life cycle of procurement by analyzing how a company spends their money on those assets. This includes identifying and selecting opportunities to reduce spend using knowledge of the external markets and the company's needs, and negotiating, managing, and monitoring contracts for goods. E-Sourcing is simply performing most, if not all, of this process electronically, consolidating proposals, quotes, and bids from various suppliers in one central information hub for ease of comparison (Lysons & Farrington, 2015).

E-Informing

E-Informing is a technology that facilitates the purchase of goods and services from a number of known or unknown suppliers electronically thus enhancing organisation performance. Narasimhan and Kim (2012) purchase accounts for the majority of organizational spending. As such, the advent of web-based electronic procurement has been heralded as a 'revolution' because of its potential to reduce the total cost of acquisition. The e-procurement revolution is expected to enhance the

status and influence of the purchasing function within organizations (Liker & Choi, 2014). Mollah and Licker (2011) conclude that 'organizational characteristics and organizational influences' are significant motivators to the use of e-procurement and E-Informing influence performance.

Performance

Any good e-procurement software system today is designed to greatly reduce the time and effort required to complete purchasing transactions by eliminating traditional paper chain of requisitions, approvals, receiving and payment reconciliation (Berger & Zeng, 2006). One of the most important and beneficial effects of an e-procurement framework is that it makes considered decisions on purchases, discount requirements and supplier partnerships (Bensaou & Venkatraman, 2006). Organizations which do not have performance means in their processes, procedures, and plans experience lower performance and higher customer dissatisfaction and employee turnover (Andersen & Christensen, 2005). Measuring the performance of the purchasing function yields benefits to organizations such as cost reduction, enhanced profitability, assumed supplies, quality improvements and competitive advantage as noted by (Basheka & Bisangabasaija, 2010).

Empirical Review

E – Sourcing and Performance

Kaufmann and Carter (2014) conducted a study on the role of e –sourcing and performance of many large companies in the US and Europe. The study adopted descriptive survey design and both correlation and multiple regressions were employed to determine relationship between the variables. It was established that many firms use reverse e-sourcing and that supply managers expect continued expansion in the future. In reverse e-sourcing, suppliers compete dynamically, in real-time, for a buyer's business and typically bid down

the price of an item to be purchased. Using the internet, suppliers submit multiple electronic bids during a fixed time period, often 30 minutes or less.

E-sourcing can reduce purchase prices, save time, streamline the bidding process, and enable suppliers from anywhere in the world to compete for a buyer's business. Munezero (2015) conducted a study on e-sourcing and performance of public corporations in Rwanda Revenue Authority. The research adopted a descriptive research design where the population of interest were employees of Rwanda revenue Authority. It was established that e-sourcing can reduce purchase prices e-sourcing can be an effective tool if risks are carefully assessed and e-auctions are used judiciously. Also, e-sourcing enables suppliers from anywhere in the world to compete for a buyer's business and hence enhances performance of organisations.

Kamotho (2014) conducted a study in Kenya to examine the role of e-sourcing and procurement performance among state corporations in Kenya. A sample of 42 state corporations was taken out of this sampling frame. Data was collected through questionnaires. Analysis of the data was done using frequency and percentage tables. Findings indicated a strong positive relationship between e-sourcing and performance. E-sourcing was used through identifying new suppliers using internet technology and that most corporations have adopted this practice to a large extent.

E – Informing and Performance

Kennedy and Deeter-Schmelz (2014) on the role of e-informing on organisation performance in Turkey used deductive qualitative data analysis procedure to analyse the primary data collected through unstructured interviews. A multivariate regression model was applied. It was established that e-informing helps companies better understand a potential supplier's culture by improving transparency and providing a clearer framework for

how an organization is going to market with their goods or services.

Chemoiywo (2014) study on the role of e-informing on the supply chain performance in state corporations in Kenya used descriptive research design. Primary data was collected from Procurement Officers using questionnaires. Data analysis was done using measures of dispersion and measures of central tendency. The findings established that the high rating for communication is a good indicator of performance since communication is a critical element that ensures compliance in a procurement system. Further, quick and regular communication ensures an organization is able to communicate with the supplier and customer in real time and finds amicable resolutions to any arising concerns.

Kamotho (2014) conducted a study in Kenya to examine the role of e-informing and procurement performance among state corporations in Kenya. A sample of 42 state corporations was taken out of this sampling frame. Data was collected through questionnaires. Analysis of the data was done using frequency and percentage tables. Findings indicated a strong positive relationship between e-informing and performance. E-informing was used through gathering and distributing purchasing information both from and to internal and external parties using Internet technology and that most corporations have adopted this practice to a large extent.

RESEARCH METHODOLOGY

This study used both descriptive research and explanatory research design to establish the effect of e-procurement adoption on the performance of public corporations in Kenya with specific reference to State Department for Infrastructure. The populations of interest were 142 employees in the procurement departments at State Department for Infrastructure. The sampling frame was the

employees in the procurement departments at the 3 State Departments for Infrastructure which are Kenya National Highways Authority, Kenya Urban Roads Authority and Kenya Rural Roads Authority. Stratified random sampling technique was used since the population of interest was not homogeneous and could be subdivided into groups or strata to obtain a representative sample. For quantitative data collection an appropriate sample size was computed to achieve the true proportion at 95% confidence level. To calculate the sample size of the adolescents, the study used the Yamane's formula (1967).

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

Where n is the sample size, N is the population size, and e is the level of precision (0.05).

$$\begin{aligned} n &= 142 / 1 + 142(0.05)^2 \\ &= 142 / 1 + 142(0.0025) \\ &= 142 / 1.355 \\ &= 105 \end{aligned}$$

A random sample from each stratum was then taken in a number proportional to the population proportion to come up with 105 respondents. The study utilised primary data in form of questionnaires. Questionnaires provide a relatively cheap, quick and efficient way of obtaining large amounts of information from a large sample of people. Open-ended questions were used in this study to allow respondents to answer questions in their own words. Closed-ended questions require the respondent to choose from among a given set of responses (Mugenda & Mugenda, 2008). The study carried out a pilot study to test reliability and validity of the questionnaire and a pilot group of 14 individuals from the target population. Cronbach's alpha methodology, which is based on internal consistency, was used to test reliability of the data. Content validity which was employed by this study is a measure of the degree to which data collected

using a particular instrument represents a specific domain or content of a particular concept.

Data collected was both quantitative and qualitative in nature. The descriptive statistical tools helped the researcher to describe the data and determine the extent used. Analysis was done quantitatively and qualitatively by use of descriptive statistics. These included frequency distributions, tables, percentages, mean mode, median etc. In addition, advance statistical techniques (inferential statistics) was considered. Data analysis was done with the use of SPSS and Microsoft excel and presented using percentages, tabulations, means and other central tendencies. This generated quantitative reports through tabulations, percentages, and measures of central tendency. Tables were used to summarize responses for further analysis and facilitate comparison.

FINDINGS AND DISCUSSION

The study targeted a sample size of 105 respondents from which 90 filled in and returned the questionnaires making a response rate of 85.7%. A response rate of 85.7% was thus achieved which is regarded as satisfactory for the analysis and computation of the data. Reliability was calculated with the help of Statistical Package for Social Sciences (SPSS). All the Cronbach's alphas values were higher than the recommended threshold of 0.7.

Effects of E-Sourcing on Performance of State Corporation

It was agreed that; E- auctioning can enhance effectiveness of the procurement process at State Departments for Infrastructure (mean = 4.40, std deviation =0.22). E-sourcing can enhance quick and regular communication with the supplier and customer in real time (mean = 4.19, std deviation =0.33). Reverse e sourcing can help enhance the efficiency of the procurement process at State Departments for Infrastructure (mean = 4.25, std

deviation =0.51). E-sourcing can reduce purchase prices at State Departments for Infrastructure (mean =4.15, std deviation = 0.47) and that E-sourcing can enable suppliers at State Departments for Infrastructure to compete for a buyer's business (mean = 4.08, std deviation = 0.49). The study also revealed that E-sourcing can be an effective tool if risks are carefully assessed (mean = 3.84, std deviation = 0.15). The above findings concur with the research by Munezero (2015) who found out that there was a strong positive correlation between E-sourcing and supply chain performance.

Risks of e-sourcing included damaging supplier relationships (mean =3.75, std deviation = 0.74), E sourcing can enhance supplier relationships and hence effectiveness of the procurement process at State Departments for Infrastructure (mean = 3.74, std deviation = 0.58). The findings are in line with the research by Kaufmann and Carter (2014) that e-sourcing can reduce purchase prices and that e-sourcing can be an effective tool if risks are carefully assessed and e-auctions are used carefully.

Table 1: Effects of E-Sourcing on Performance of State Corporation

Statement	Not at all	Less extent	Moderate extent	Great extent	Very great extent	Mean	Std Deviation
Reverse e sourcing can help enhance the efficiency of the procurement process at State Departments for Infrastructure	0%	5%	10%	29%	56%	4.25	0.51
E sourcing can enhance supplier relationships and hence effectiveness of the procurement process at State Departments for Infrastructure	8%	6%	15%	50%	21%	3.74	0.58
E auctioning can enhance effectiveness of the procurement process at State Departments for Infrastructure	0%	5%	10%	54%	31%	4.40	0.22
E-sourcing can reduce purchase prices at State Departments for Infrastructure	1%	3%	7%	59%	30%	4.15	0.47
E-sourcing can be an effective tool if risks are carefully assessed at State Departments for Infrastructure	3%	10%	9%	60%	18%	3.84	0.15
Risks of e-sourcing include damaging supplier relationships	0%	4%	2%	57%	37%	3.75	0.74
E-sourcing can enable suppliers at State Departments for Infrastructure to compete for a buyer's business	1%	3%	5%	80%	11%	4.08	0.49
E-sourcing can enhance quick and regular communication with the supplier and customer in real time	0%	7%	8%	49%	36%	4.19	0.33

Effects of E-Informing on Performance of State Corporations

E-automation can enhance transparency and efficiency of identification of products (mean = 4.41, std deviation = 0.37) and that E- information facilitate the purchase of goods and services from known or unknown suppliers (mean = 4.38, std deviation = 0.26). E- informing has the potential to enhance information distribution at State Departments for Infrastructure (mean = 4.05, std deviation = 0.47). The above findings concur with the research by Kennedy and Deeter-Schmelz (2014) that e- informing helps state corporations better understand a potential supplier's culture by improving transparency and providing a clearer framework for how an organization is going to market with their goods or services.

Electronic informing adoption has the potential to enhance quality of purchasing information (mean = 3.99, std deviation = 0.22) and can enhance the

status and influence the purchasing function within State Departments for Infrastructure (mean = 3.77, std deviation = 0.14). The findings are in line with the study findings by Kamotho (2014) that e- informing was used through gathering and distributing purchasing information both from and to internal and external parties using Internet technology and that most corporations have adopted this practice to a large extent. It was revealed that E-informing at facilitates effective communication and enables organizations to decentralize operational procurement processes and centralize strategic procurement processes and that E-informing enhances performance of state corporations. The findings support Chemoiywo (2014) that the high rating for communication is a good indicator of performance since communication is a critical element that ensures compliance in a procurement system.

Table 2: Effects of E-Informing on Performance of State Corporations

Statement	Not at all	Less extent	Moderate extent	Great extent	Very great extent	Mean	Std Deviation
Electronic informing adoption has the potential to enhance information distribution at State Departments for Infrastructure	5%	3%	14%	47%	31%	4.05	0.47
Electronic informing adoption has the potential to enhance quality of purchasing information at State Departments for Infrastructure	0%	2%	10%	44%	44%	3.99	0.22
E-automation adoption can enhance transparency and efficiency of identification of products at State Departments for Infrastructure	2%	8%	6%	60%	24%	4.41	0.37
E-informing adoption can enhance the status and influence the purchasing function within State Departments for Infrastructure	0%	4%	5%	57%	34%	3.77	0.14
E- information facilitate the purchase of goods and services from known or unknown suppliers at State Departments for Infrastructure	1%	6%	3%	50%	40%	4.38	0.26

Inferential Statistics

Correlation Analysis

The Pearson product moment correlation coefficient was used to test the direction and magnitude of the relationship between the dependent and independent variables at 95% confidence level. The study found a strong positive correlation between performance of State Corporations under the State Department for Infrastructure and E-Sourcing, as shown by correlation factor of 0.825. This strong relationship was found to be statistically significant as the significant value was 0.000 which was less than 0.05. Kamotho (2014) earlier noted that there was a

strong positive relationship between e- sourcing and performance through identifying new suppliers using internet technology. The study also found a strong positive correlation between performance of State Corporations under the State Department for Infrastructure and E-Informing as shown by correlation coefficient of 0.744, the significant value was 0.012 which was less than 0.05. Kennedy and Deeter-Schmelz (2014) established there was a positive relationship between E-Informing and performance as it helped companies better understand a potential supplier’s culture by improving transparency.

Table 3: Correlation Analysis

		Performance of State Corporations (Y)	E-Sourcing (X1)	E-Informing (X2)
Performance of State Corporations (Y)	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	90		
E-Sourcing (X1)	Pearson Correlation	.825**	1	
	Sig. (2-tailed)	.004		
	N	90	90	
E-Informing (X2)	Pearson Correlation	.744**	.237	1
	Sig. (2-tailed)	.012	.021	
	N	90	90	90

Model Summary

From the findings the value of R squared (Coefficient of determination) was 0.661 an indication that there was variation of 66.1 percent on performance of state corporations under the State Department for Infrastructure were due to

changes in E-Sourcing and E-Informing at 95 percent confidence interval. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above is notable that there exists a strong positive relationship between the study variables as shown by 0.813.

Table 4: Regression analysis Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.813	.661	.604	.017

ANOVA Analysis

The study established the regression model had a significance level of 0.1% which is an indication that the data was ideal for making a conclusion on the population parameters as the value of significance (p-value) was less than 5%. The F calculated value

was greater than the F critical value (11.4152>3.10) an indication that e-Sourcing and e-Informing affected performance of state corporations under the State Department for Infrastructure. The P value for the F-test of overall significance test was 0.002 which was less than the significance level of 0.05 thus the model was fit.

Table 5: ANOVA Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	16.826	2	8.413	11.415	.002 ^b
Residual	64.119	87	0.737		
Total	80.945	89			

Critical value = 3.10

Beta Coefficients

$$Y = 0.343 + 0.441X_1 + 0.436X_2$$

It was revealed that holding e-sourcing and e-informing to a constant zero, the performance of state corporations under the State Department for Infrastructure would be at 0.343. A unit increase in e-sourcing would enhance the performance of state corporations under the State Department for

Infrastructure by a factor of 0.441. A unit increase in e-informing would enhance the performance of state corporations under the State Department for Infrastructure by factors of 0.436. All the variables were significant as their significant value was less than (p<0.05).

Table 6: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.343	0.063		5.444	.000
1 E-Sourcing	.441	.142	.443	3.106	.012
E-Informing	.436	.097	.317	4.495	.001

CONCLUSIONS AND RECOMMENDATIONS

The study concludes that e-sourcing influenced the performance of State corporations significantly. The study concludes that participating in e-sourcing provided a means to better understand competition and creates competitive intelligence; e-sourcing provides a means to leverage new technology for working with a potential buyer in the future thus

the study concludes that E-sourcing had a positive influence on the procurement performance at State corporations.

The study concludes that e-informing influenced the performance of State corporations significantly. Electronic procurement has the potential to reduce the total cost of acquisition, E-informing at state corporations facilitates effective communication within an organization and theretofore the study

concludes that E-Informing enhanced the procurement performance at State corporations.

Recommendations of the Study

The study recommended that state corporations should continually keep on utilizing e-sourcing system as it was found to enhance coordination of procurement process and hence reduces bureaucracy which enhances efficiency of organization. Through the state department for infrastructure implementing e sourcing in its procurement will be able to reduce purchase prices, enhance quick and regular communication with the supplier and customer in real time.

State corporations should fully adopt e-informing systems through adoption of relevant technology as the system was found to enhance innovation

process thus enhancing the procurement processes in the organization. The procurement process was made efficient through enhancing quality of purchasing information and thus enhancing the status and influence the purchasing function within State Departments for Infrastructure.

Suggestions for further Studies

The study sought to determine the effect of e-procurement adoption on the performance of the public sector, the study recommends that a similar study needs to be done on effects of competitive bidding on procurement process at the State corporations, there is also need to assess on effect of budgeting on procurement process at the State corporations and finally there is need to assess on effects of procurement ethics on procurement process at the State corporations.

REFERENCES

- Abdi K. A. (2012). *Electronic procurement and organizational performance among commercial state corporations*. University of Nairobi.
- Adebiyi, M. (2015). Development partners and governance of public procurement in Nigeria: enhancing democracy in the administration of aid. *International law and politics Journal*, 37(4), 829-868.
- Andersen, P.H., & Christensen, P.R. (2005). "Bridges over troubled water: suppliers as connective nodes in global supply networks", *Journal of Business Research*, Vol. 58, pp. 1261-85.
- Basheka, B. C., & Bisangabasaija, E. (2010). Determinants of unethical public procurement in local government systems of Uganda: a case study. *Int. J. Procurement Management Journal*, 3(1), 91–104.
- Bensaou, M., & Venkatraman, N. (2006). "Interorganizational relationships and information technology: a conceptual synthesis and research framework", *European Journal of Information Systems*, Vol. 5, pp. 84-91.
- Berger P. D., & Zeng A. Z. (2016). Single Versus Multiple Sourcing in the Presence of Risks. *Journal of Operational Research Society*, vol. 57, no. 3, pp. 250-261.
- Brown, D. (2015). Electronic Government and Public Administration: *International Review of Administration Sciences*. 71(2), 241 – 254.

- Chemoiywo P. K. (2014). *Public procurement procedures and supply chain performance in state corporations in Kenya*. MBA Project, University of Nairobi.
- Clemons, E.K. (2009). The impact of information technology on the organization of economic activity: The “move to the middle” hypothesis. *Journal of Management Information Systems*, 10 (2), 9–35.
- DeLone, W.H., & McLean, E.R. (2011). Information systems success: The quest for the dependent variable. *Information Systems Research Journal*, 3 (1), 60–95.
- Grover, G., Jeong, S.R. & Segars, A.H. (2010). Information systems effectiveness: The construct space and patterns of application. *Information & Management Journal*, (31) 4, 177–191.
- Hannon, D. (2014). "Online buying gathers steam, one buyer at a time", *Journal of Purchasing Management*, 133 (16), 40-53.
- Jeppesen R. 2010. *Accountability in public procurement transparency and the role of civil society*. United Nations Procurement Capacity Development Centre.
- Kalakota, R., & Robinson, M. (2001). *E-Business Journal*. 2nd Edition, Addison Wesley, pp. 310.
- Kamotho, D. K. (2014). E-procurement and procurement performance among state corporations in Kenya. *Journal of Supply Chain Management*, 23 (4), 43-54.
- Kaufmann, L. & Carter, C. (2014). "Deciding on the mode of negotiation: to auction or not to auction electronically", *Journal of Supply Chain Management*, 40 (2), 15-26.
- Kennedy, S., & Deeter-Schmelz, A. (2014). "The role of e- informing on organisation performance in Turkey", *International Journal of Physical Distribution & Logistics Management*, 33(8):720-34.
- Kenya Institute for Public Policy Research and Analysis (KIPPRA) (2016).
- Kipyego, F.W. (2012). *Factors Influencing the Implementation of E-Procurement Among Firms Listed on the Nairobi Stock Exchange in Kenya*. MBA Project, University of Nairobi.
- Koorn, R. (2001). *E-Procurement and Online Marketplaces Journal*. Amsterdam, The Netherlands: Compact.
- Liker, J.K. & Choi, T.Y. (2014). “Building deep supplier relationships”, *Harvard Business Review*, Vol. 82 No. 12, pp. 104-13.
- Lysons, K., & Farrington, B. (2015). *Purchasing and Supply Chain Management*, 7th ed, Pearson Education Ltd.
- Mollah, A. & Licker, P.S. (2011). “E-commerce Systems Success: An attempt to extend and respecify the DeLone and McLean Model of IS success”, *Journal of Electronic Commerce Research* 2(4):131-141.
- Mugenda, O. & Mugenda, B. (2008). *Research Methods. Quantitative and Qualitative*. Nairobi: Acts Press Publishers.
- Munzero, H. (2015). E-Procurement and Performance of Public Corporations in Rwanda Case of Rwanda Revenue Authority, *Journal of Operations Management*, 12(6):23-67.

- Narasimhan, R. & Kim, S. (2002). "Effect of supply chain integration on the relationship between diversification and performance: evidence from Japanese and Korean firms", *Journal of Operations Management*, 20(3):303-23.
- Public Procurement Oversight Authority (2015). Assessment of the Procurement System in Kenya. Public Procurement Oversight Authority.
- Rai, A., Lang, S.S., & Welker, R.B. (2012). Assessing the validity of IS success models: An empirical test and theoretical analysis. *Information Systems Research*, 13, 1 50–69.
- Sheilah, K. (2013). E-procurement and procurement performance of supermarkets in Nairobi.
- Sijaona. A. I. (2010). Public procurement in Tanzania. Confronting the challenges and opportunities. *Journal of public administration and policy research*, 2(6), 103-111.
- Tetra Tech International Development (2015). A report on the Ethics and Anti-Corruption Commission.
- Wanzala, J. (2015). Treasury extends online tenders to parastatals. Standard Group, Nairobi.
- Yoon, Y., Guimaraes, T., & Clevenson, A. (2008). Exploring expert systems success factors for business process reengineering. *Journal of Engineering and Technology Management*, 15, 2/3, 179–199.