

Influence of E-Tendering Process on Procurement Performance in Geothermal Development Company in Nakuru, Kenya

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Abstract: Companies are under constant pressure to grow profitably in an increasingly competitive and rapidly changing business environment. Globalization and technology shifts require organization to reengineer their operations if they are to maintain competitiveness. To ensure customer satisfaction and customer loyalty, organizations have to work with their suppliers as well as the customers to ensure delivery of desired goods just in time. E-procurement, enabled by advance in ICTs, has been promoted as one way of improving procurement efficiency and effectiveness. As such, this study investigated the influence of e-tendering on procurement performance in Geo-thermal Development Company in Kenya. A descriptive research design was adopted in this study. The target population of this study was the procurement and logistics department's staff in GDC Nakuru region which was 170 in total. Multi-stage sampling method was used where 97 respondents were selected as the study respondents. This study relied on primary data collected by use of questionnaires. The instrument was tested for validity and reliability where Cronbach's alpha was used to test the reliability of the instrument. The alpha values for all the variables were above 0.8 well above the recommended threshold of 0.7. Thus the instruments were deemed reliable for data collection in the study. Data collected was analyzed using Statistical Package for Social Sciences (SPSS). Findings were presented in form of descriptive statistics and inferential statistics and presented in tables accompanied with relevant discussion. The study established that e-tendering had positive significant relationship with procurement performance in geothermal development company and therefore concluded that it has a significant influence on procurement performance. Regression analysis indicated that e-tendering did not have a significant contribution on the variation in procurement performance in geothermal development company. Hence, to enhance procurement performance, e-tendering is not a major consideration. Therefore it was recommended that the company embark on a drive to make use of E-tendering, in its operations in order to improve on its procurement performance.

Keywords: E-Tendering, E-Procurement, Procurement Perform

I. Introduction

E-procurement has been promoted as one way of improving procurement efficiency and effectiveness (Musau, 2015). Through e-procurement, an organization is able to directly or indirectly buy the raw materials at a relatively lower price. It also enhances and strengthens transparency and the level of competitive positioning of the firm (Kenneth & Bricu, 2012). According to Wojciech and Zahir (2010), modern business state that for any business firm to succeed they must embrace and incorporate Information Technology into day-to-day running of the enterprise. This reason coupled with many other positive effects has prompted many companies both locally and all over the world to adapt and implement IT in its procurement process and overall running of the business. 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.

Research shows that E-tendering results in reduced lead time, supply cost, and transparency. 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, B2C and B2G exchanges (Alsac, 2017). Major reforms in the procurement system in Kenya started with the establishment of the legal framework within which public procurement could be carried out. The first review of the procurement system was undertaken in 1999 and established a number of issues contributing to poor procurement performance among state corporations. These issues included: lack of uniform procurement system and standard procurement policy; lack of sanctions or penalties against persons who breached the regulations in the supplies manual, there was lack of transparency and accountability in the procurement process thus contributing to huge losses of public funds (Mambo, 2015; Malela, 2010). Public sector management nowadays is faced with an increasing demand for transparency, efficiency and effectiveness in service quality (Ancarani, 2008). As the East African Community (EAC) member states prepare to improve their procurement systems by adopting the e-procurement platform, the element of having legislative structures that will monitor and allow for an effective implementation of the systems is still an impediment to its success Mango and Kihara (2017). Recently, the East African community converged in Nairobi to discuss the challenges and opportunities arising from this new system that is expected to promote transparency and ensure efficiency during procurement transactions (Republic of Kenya, 2010).

During tendering the interested parties or companies offer to build, sell goods or render services for consideration in response to an invitation to do so. Generally, the whole essence of tendering procedure according to Eriksson and Westerberg (2011) is to select a suitable contractor at a time appropriate to the circumstances and to obtain from him at the appropriate time, an acceptable tender or offer upon which a contract can be let. Tendering is one of vital procurement components where technology use can enhance its effectiveness. Tendering enables the procurement professionals to take control over the elements of tendering ensuring improved and secure access to tender information (Davila & Gupta, 2012; Henriksen et al., 2014). According to Gathima and Njoroge (2018) a lot of attention needs to be paid in adopting and implementing various aspects of e-tendering to ensure that its activities remain improved. An exploration by (Waka, 2016) on E-tendering adoption as well as procurement performance of oil marketing firms in Kenya shows that most of the firms in Kenya still applied the traditional tendering method to a large degree. However, there existed a significant relationship between e-tendering and procurement performance. A firm's decision to adopt and implement a particular ICT is affected by a variety of factors. In consolidating prior studies examining innovation, (Aboelmaged, 2010) classified variables that potentially influence ICT adoption and implementation into five broad categories: individual, task and innovation related, organizational and environmental characteristics.

II. Statement of the problem

Geothermal energy was identified as one of the pillars and enablers of vision 2030 (Moinkett, 2015). Therefore, it is paramount that the organizations enhance efficiency in their performance for them to achieve their goals. However, the organization has been lagging behind in adopting e-solutions in their operations. It is until January 2019 that the organization advertised for a tender for supply and installation of an e-board management system (BMS) with a web interface (GDC Records 2019). As evidenced in their tender advertisements, most of their tender application and communications are done manually through hardcopies thus no ICT application and feedback processes. According to Nyongesa and Wagoki (2015), GDC has continuously spent large sums of money and time on its tendering processes and supplier evaluation exercises in the recent past. This has compromised the achievement of the organization's objectives especially with regard to the reduction of total procurement cost and lead-times in procurement processes. Munyao and Moronge (2018) examined the influence of e-procurement on the performance of procurement in public universities in Kenya. Whereas e-tendering adoption has been shown to have an impact on procurement performance, state corporations have still been recording poor performance in procurement performance. Nonetheless, studies have not addressed how e-tendering implementation influences procurement performance especially in Geothermal Development Company. Hence, this study examined the influence of e-tendering on procurement performance in Geothermal Development Company in Kenya.

III. General objective of the study

The objective of this study was to examine the influence of e-tendering on procurement performance in Geothermal Development Company in Kenya.

IV. Review of Literature

This study was anchored on transaction cost theory, Actor Network Theory and Business to Business Model. Public procurement is a function with intense information of the government that satisfies need for systems, goods, works, and services in an effective way at the same time obliging to principles of transparency, accountability and proper governance. It has become evident that it is easier to handle procurement process supported by internet

technology reducing cost, slow, inefficient and data storage and poor retrieval. Mahdillou and Akbary (2014) noted that the adoption of e-tendering was associated with transactional benefits. The e-tendering simplifies any transaction process. The entire tendering process from the raising of requisition to online payment has been supported through the e-payment system. The electronic processing of tendering activities has been associated with great time saving and improved efficiency because of the electronic enabled relationships with suppliers, elimination of trivial activities, greater data accuracy, and facilitating supplier performance improvements. According to Rotich and Okello (2015) who studied the relationship between the electronic procurement and the level of output in the county government's performance, the conclusion made was that county governments must make use of e-procurement in any stage of the cycle to result into better performance. Following reports that emerged citing poor performance of Rwandan public institutions which was mostly been attributed to ineffective and inappropriate running of the public finance during procurement processes, Harelimana (2018) sought to assess the impact of electronic procurement on the performance of public institutions in Rwanda. The results showed that e-procurement in terms of electronic bidding, electronic supplier registration, electronic billing and electronic payment is significantly related to the performance.

United Nations in 2011 did an assessment of E-Tendering and revealed that e-tendering enabled federal government save over six million dollars by outsourcing the manual duplication and distribution documents. They showed that e-notices, e-selection and e-awarding were key determinant in implementation of e-procurement success in the procurement operations.

During tendering the interested parties or companies offer to build, sell goods or render services for consideration in response to an invitation to do so. Generally, the whole essence of tendering procedure according to Eriksson and Westerberg (2011) is to select a suitable contractor at a time appropriate to the circumstances and to obtain from him at the appropriate time, an acceptable tender or offer upon which a contract can be let. In their discussion of competitive purchasing strategies required for the twenty first century, Morosan & Jeong, (2008) stated that firms must maximize the use of internet based technologies (including e-tendering) in every aspect of the business, linking across all members of the supply chain, increasing the speed of information transfer and reducing non-value adding tasks.

V. Research Methodology

The study employed a descriptive research design in its approach. Goundar (2012) states that descriptive research design is important in carrying out both explanatory and preliminary studies as it permits researchers in collecting information, summarizing and interpreting with the view of clarifying the information. While Mugenda and Mugenda (2012) on the other hand give the purpose of descriptive research as determining and reporting the way things are. Target population in statistics is the specific population about which, information is desired (Kabir, 2016). The target population was drawn from the total number of employees working in procurement and logistics departments in GDC Nakuru region. The sample size for the study was 97 respondents drawn from the procurement and logistics officers. Primary data was collected by use of questionnaires as the main data collection instrument. The collected data was analyzed using quantitative techniques. Data was analyzed using descriptive statistics and inferential statistics. The statistical package for social sciences (SPSS) version 24 was used for data analysis. Statistics in terms of frequency, percentages, mean and standard deviation were generated to reveal the distribution trends in the variables under study. Regression and correlation analysis were used to make statistical inferences. The regression equation fitted was as follows;

Basic Multiple Regression Model $Y = \alpha + \beta_1 X_1 + \mu$

Where;

Y = Procurement performance

α = Constant

X_1 = E-tendering

β_1 = Regression corresponding coefficients mediating effect included in Y by each X value.

μ = Random or error term

VI. Findings and analysis

This section presents a discussion of the research findings on influence of e-tendering on procurement performance in geothermal development company in Kenya. The findings were in form of both descriptive and inferential statistics. With the researcher administering 97 questionnaires, a total of 75 questionnaires were properly filled and returned which represented an overall successful response rate of 77.3%.

6.1 E-Tendering Descriptive Statistics

The study sought respondents’ views regarding e-tendering in Geothermal Development Company in Nakuru, Kenya. Percentages means and standard deviations were computed and presented as shown in the Table 6.1.

Table 6.1 : Descriptive Statistics on E-Tendering

	SA (%)	A (%)	U (%)	D (%)	SD (%)	Mean	Std. Dev
There is e-tendering in our company	0	13.3	9.3	68.0	9.3	2.27	.811
Short listing of tenders in our company is done by e-tendering system	0	12.0	9.3	72.0	6.7	2.27	.759
In our firm there is an online competitive bidding and sourcing process	0	14.7	10.7	57.3	17.3	2.23	.909
Our company has managed to speed up procurement process through the help of e-tendering	2.7	6.7	6.7	65.3	18.7	2.09	.873
We avail tender documents online	2.7	6.7	13.3	48.0	29.3	2.05	.971
Valid N (listwise)	75						

Results from the descriptive statistics established that respondents disagreed with the statement that there is e-tendering in their company. 68% of the respondents disagreed while 9.3% of them strongly disagreed recording a mean of 2.27 and a standard deviation of 0.811. These findings negated the findings by Osir (2016) who had reported that state corporations had adopted e-tendering among other electronic services in order to enhance their procurement performance. Further, Waka (2016) further established that most firms still adopted the traditional methods of tendering to a large degree.

Respondents further disagreed that short listing of tenders in their company is done by e-tendering system. 78.7% of the respondents strongly and/or disagreed registering a mean of 2.27 and a standard deviation of 0.759. This further confirmed Waka’s (2016) findings that firms have stuck with traditional tendering methods. Respondents disagreed that (M=2.23, SD=0.909) in their firm there is an online competitive bidding and sourcing process where 57.3% of the respondents disagreed while 17.3% of them strongly disagreed. 65.3% and 18.7% of the respondents disagreed and strongly disagreed respectively that their company has managed to speed up procurement process through the help of e-tendering. This statement had a mean of 2.09 and a standard deviation of 0.873. Majority of the respondents comprising of 77.3 % strongly and/or disagreed that they avail tender document online. All the responses had standard deviation values less than one (1.0) demonstrating cohesion in respondents views regarding e-tendering in Geo-thermal Development Company in Nakuru.

6.2 Procurement Performance Descriptive Statistics

The study finally sought to establish respondents’ views regarding procurement performance in Nakuru, Kenya. The percentages, means and standard deviations were established in this regard. The findings from the analysis were as presented in Table 6.2.

Table 6.2: Descriptive Statistics on Procurement Performance

	SA (%)	A (%)	U (%)	D (%)	SD (%)	Mean	Std. Dev
There is reduced paper work during procurement process as a result of e-tendering	10.7	4.0	2.7	78.7	4.0	2.39	1.025
The tendering cycle period in our company has been shortened as a result of e-procurement	4.0	4.0	10.7	64.0	17.3	2.13	.890
Our company has experienced reduced transaction costs as a result of e-tendering	2.7	5.3	12.0	72.0	8.0	2.21	.793
Transparency in the procurement process in our company has been enhanced as a result of e-tendering	5.3	4.0	16.0	61.3	13.3	2.24	.970
In our company, e-tendering has promoted quality supply of services and goods	2.7	9.3	10.7	58.7	18.7	2.20	.930
Valid N (listwise)	75						

Majority of the respondents comprising of 82.7% of the respondents strongly and/or disagreed that there is reduced paper work during procurement process as a result of e-tendering. This aspect had a mean of 2.39 and a standard deviation of 1.025. Further respondents disagreed that the tendering cycle period in their company has been shortened as a result of e-tendering. 64.0% of the respondents disagreed while 17.3% of them strongly disagreed registering a mean of 2.13 and a standard deviation of 0.890. Results showed that 80.0% of the respondents strongly and/or disagreed that their company has experienced reduced transaction costs as a result of e-tendering. This assertion had a mean of 2.21 and a standard deviation of 0.793. They also disagreed that transparency in the procurement process in our company has been enhanced as a result of e-tendering. 61.3% and 13.3% of the respondents strongly and/or disagreed registering a mean of 2.24 and a standard deviation of 0.970.

Finally, 58.7% of the respondents disagreed while 18.7% of them strongly disagreed that in their company, e-tendering has promoted quality supply of services and goods. This aspect had a mean of 2.20 and a standard deviation of 0.930.

6.3 Correlation Analysis

The study sought to examine whether there existed any significant relationship between e-tendering and procurement process. The composite mean score for e-tendering process were correlated with composite mean scores for procurement performance. Pearson product moment correlation coefficient was used to establish the relationship. Findings from the analysis were as presented in Table 6.3.

Table 6.3: Correlations between E-Tendering on Procurement Performance

		E-Tendering
Procurement Performance	Pearson Correlation	.405**
	Sig. (2-tailed)	.000
	N	75

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

Results from the table indicated that there was an average positive significant ($r=.405$, $p=.000$) relationship between e-tendering process and procurement performance. This meant that e-tendering process significantly influence procurement performance in Geothermal Development Company in Kenya. As such, e-tendering was found to have significant role in determining procurement performance in geothermal Development Company. The findings agreed with Gathima and Njoroge (2018) as well as Waka (2016) whose study’s also established the existence of a positive significant relationship between e-tendering and procurement performance.

6.4 Regression Analysis

The study performed regression analysis to aid in testing the research hypotheses and fit the regression model. The analysis of variance gave the following findings in Table 6.4.

Table 6.4: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.514	4	6.128	30.716	.000 ^b
	Residual	13.966	70	.200		
	Total	38.480	74			

a. Dependent Variable: Procurement Performance

b. Predictor: (Constant) E-Tendering

The analysis yielded an F-value of 30.716 with a p-value of 0.000 which was significant at $p<.05$ level of significance. Therefore the study observed e-tendering had a significant influence on procurement performance in Geothermal Development Company. The findings supported findings by Munyao and Moronge (2018) who established that the components of e-procurement including e-tendering, e-ordering, and e-sourcing had a significant influence on procurement performance. Kioko and Mwangangi (2017) in their study established that procurement performance of parastatals can be improved by e-sourcing, e-informing, e-payment and e-tendering. Findings from the model coefficients were as shown hereafter.

Table 6.5: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.264	.206		1.283	.204
	E-Tendering	-.213	.107	-.210	-1.987	.051

a. Dependent Variable: Procurement Performance

From the coefficient model, the autonomous value of procurement performance with all other factors held constant was 0.264 with a t-value of 1.283 that was insignificant at p<0.05 level of significance. In addition, a unit change in e-tendering would result to a negative change in procurement performance by a factor of 0.213 units. The t-value (-1.987) for e-tendering was found to be insignificant at p<.05 indicating that e-tendering was not significant in determining procurement performance in GDC. The findings were contrary to Osir (2016) study findings which established that e-tendering had a significant influence on procurement performance of state corporations in Kenya and further confirmed Waka’s (2016) findings that firms have stuck with traditional tendering methods. Based on the model coefficients, the following regression model was fitted.

$$Y = 0.264 - 0.213X_1$$

Where:

Y representing Procurement Performance

X₁ Stands for E-Tendering

VII. Conclusion

From the findings, the following conclusions were depicted in regard to e-tendering and procurement performance. Despite the importance of e-tendering, the study concluded that Geothermal Development Company had not adopted its usage and therefore was still using the traditional and manual methods of tendering. Most of the respondents denied its utilization in the company. Further the study observed that e-tendering does not play a significant role in determining the efficiency of procurement performance. It was noted that e-tendering negatively affects procurement performance in the company. As such the study concluded that e-tendering has no significant influence on procurement performance.

VIII. Recommendations of the Study

Based on the study findings, the study proposed various recommendations for consideration by management of the company as well as operational recommendations. Firstly the study recommended that the management in geothermal development company should adopt and implement e-tendering in the company. The company should set up online systems that create interfaces for both suppliers and procurement department and encourage suppliers to place their tenders online. Enhancing e-tendering would go a long way in improving procurement performance. The study takes cognizance that GDC is just one of the government institutions and therefore not a sufficient representation of the state of procurement performance in government institutions. Therefore, the study recommended that similar studies be done in other government institutions to enable the generalization of findings. The study recommends that future scholars examine other factors that may have a bearing on procurement performance.

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