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**ABSTRACT**

*The adoption of information and communication technologies in the public tendering process has seen a great rise owing to its related benefits such as cost and time reduction, increased efficiency and effectiveness, transparency and accountability, and customer satisfaction. In Kenya, the performance of the public tendering has been a challenge and the government is working to ensure fairness in expenditure of public funds. The government has made it mandatory for tendering of all public goods, works and services to be done through online platforms to enhance and improve performance of the procurement function. However, despite these measures, the performance of the Kenyan tendering function has been characterized by massive scandals and indignity. Therefore, this paper aimed at examining the effect of e-tendering on the performance of County Government of Nairobi. The study was guided by innovation diffusion theory and transaction cost theory. It utilised the descriptive research design and explanatory design. The target population comprised 750 respondents drawn from the finance, payment and information technology department. The study sample comprised 75 respondents selected from the three departments using stratified random sampling technique. The data was collected through the administration of the questionnaires to the selected sample. The collected data was sorted and coded and analysed through descriptive statistics with an aim of summarising the data, and inferential statistics, for the purposes of establishing any association between the variables, with the help of the Statistical Package for Social Sciences (SPSS) version 21. The presentation of findings was through tables. The correlation analysis results indicated that at 95% confidence interval, E-tendering practices had positive and significant relationship with the performance in Nairobi City County Government at 0.307 and  $P = 0.041 < 0.05$ . The study recommended that the Nairobi City County pay a lot of attention in adopting and implementing various aspects of e-tendering to ensure that its activities remain improved.*

**Keywords:** County Government of Nairobi, E-tendering, Performance

## INTRODUCTION

Organizational performance denotes the improvement or change in which the executives and managers develop and run a programme which measures the current performance level of their corporation and then formulate ideas for modifying organizational behaviour as well as infrastructure to assist in achieving higher output. Organizational performance is aimed at increasing organizational efficiency and effectiveness to support and improve the ability of an entity to continuously deliver goods and/or services. Organizational performance is also targeted towards continuous improvement of an organizational efficacy by engaging in the goals setting processes as well as objectives in a continuous cycle. Orori (2011) and Njoroge (2010) posited that organizational performance can be determined through customer satisfaction surveys to obtain qualitative information about the performance from the customers' viewpoint.

Sababu (2007) noted that formal strategic management systems impacted on the organizational performance. Ongore and K' Obonyo (2011) among other authors stated that internal integration of various activities taken by an organization enhance economic performance. E-tendering is the strategy that organisations have adopted as an integrative technology for processes integration and improvement between departments (Mose, Njihia, & Magutu, 2013). Malela, (2010) concurred that e-tendering positively affected the firm's performance, though no empirical evidence has confirmed the position.

The arrival and introduction of the internet into the business arena has acted as a channel for radical changes in the operations and nature of the tendering function in an organization. Gardenal (2010) argued that the Information Technologies have totally altered organizations' and governments' way of running their businesses. Most

organisations and governments also spend a good proportion of their money in tendering various products and offering services. To cut on the total costs spent on the tendering process, information technologies have been adopted in the form of e-tendering. Although the opportunities for its improvement seem to flourish, the adoption of the electronic technologies by both private and public sector organizations remain guarded (Malela, 2010).

Nairobi City County is among the 47 counties in Kenya, as created by 2010 constitution of Kenya from the defunct Nairobi City Council. It operates in accordance with the auspices of the Urban and City Areas Act, and the Devolved Government Act among other hoist Acts (Lundu & Shale, 2015). It is mandated to provide various services to its residents including those that were hitherto offered by the national government and also the defunct City Council.

The tendering process in the Nairobi City County Government is guided by the Public Procurement and Disposal (PPDA) Act of 2005, the 2006 Tendering regulations and the County Government Tendering Regulation (Public Procurement Oversight Authority, 2007). The Public Procurement Oversight Authority (PPOA), an oversight body that was established in 2005, is mandated with the tasks of overseeing the tendering process of goods and services to ensure transparency and fairness. Its main responsibilities are to ensure that during the tendering of services and goods, the provisions established in the PPDA Act are abided by, monitor the tendering process and reporting of its function, ensure that the public is initiated in the tendering policy and finally to assist in the operation and implementation of the public tendering system (Public Procurement Oversight Authority, 2007).

## Statement of the Problem

In Kenya, the performance of the public tendering has been a serious problem and the government is working to ensure fairness in expenditure of public funds (Muhia & Afande, 2015). The tendering of all public works, goods as well as services has been made compulsory by the government to be executed through online platforms to enhance and improve performance of the tendering function. However, despite these measures, Muriithi, Waiganjo and Chepngetich (2016) and Barngetuny and Kimutai (2015) pointed out that the performance of the Kenyan public tendering functions are characterized by indignity and massive scandals. Gichio (2014) also noted that despite the adoption and use of the e-tendering system in the public procurement, the Kenyan public entities were buying at 60% above the prevailing market prices.

## Objectives of the Study

The objective of this study was to examine the effect of e-tendering on the performance in County Government of Nairobi.

## LITERATURE REVIEW

### Theoretical Review

#### Innovation Diffusion Theory

The theory traces back to 1962 and was proposed by Rogers. It asserts that innovation is a process whose aim is to improve economic development (Rotich & Okello, 2015). According to this theory, innovation is an idea, which is perceived to be new by individuals and may be covering all the technological, scientific, organizational and financial as well as the commercial activities necessary to create, implement, and market improved products or processes. According to Chepkwony (2015) the innovation theory brings on board four basic elements namely the innovation, communication process, the time and the social system. The

innovation element puts attention on the ability to create and foster more efficient and better measures of doing things.

Rotich and Okello (2015) and Robinson (2009) noted that this theory groups innovation adopters into five categories: innovators which comprise individuals who are the first to try the innovation; early adopters, whose composition are the persons who represent opinion leaders; early majority individuals, who are the people wanting to have a tangible evidence that the innovation works prior to adopting it; late majority who are the skeptical persons who only adopt the innovation after the majority and laggards have tried it. The authors add that the adoption rate of innovative strategies can be considered in terms of: relative advantage to the organization, trial-ability of the new mechanisms, compatibility, complexity, and observability to the stakeholders. Communication, which lays, creates and shares information relating to innovative strategies in the organization also affects their rate of adoption. The third element, time, refers to the duration taken in the innovation-decision process. Finally, the social context of the new technology influences the adoption of innovative activities in the business processes.

Diffusion of innovation strategies calls for an evolution as well as reinvention of products and people to make them perform better (Robinson, 2009). The concepts in this theory fit in this study as it brings understanding of the innovation process. As proposed by Pani (2007), the assimilation of e-tendering initiatives by an entity is entirely an issue of technology diffusion and the adoption of procurement innovation. Therefore, an organization will adopt the e-tendering as an innovation based on the relative advantages and the risks involved. In particular and as earlier stated, this theory fits this study because Nairobi City County would mostly consider the relative advantage, compatibility, complexity and transparency in making the decision

as to the adoption of the e-tendering technologies in its procurement function.

### **Transaction Cost Theory**

According to Coase (the founder of this theory), as cited in Chepkwony (2015), the Transaction cost theory is relevant in explaining and understanding why certain tasks are executed by firms while others are performed by markets. The transaction cost theory offers an explanation on why companies exist, and why they expand or source activities out to the external environment. The transaction cost theory asserts that organisations work to reduce the costs of exchanging resources with the environment, and minimize the bureaucratic costs of exchanges within them.

Organisations are, therefore, weighing the costs of exchanging resources with the environment against the bureaucratic costs of performing activities in-house (Business Mate, 2010). The transaction cost denotes the costs involved in offering goods or services through the market rather than having it provided from within the firm. Specifically, these costs are those related to bargaining and decision costs; search and information costs; and policing and enforcement costs (Watkins, 2016; Cordella, 2001).

The transaction costs are largely attributed to the uncertainties' and complexities that characterises the economic systems, and which could be brought about by the environmental, human behaviour and unpredictable events. The disparity in the distribution of the requisite information among the players affects their efficiency and consequently the transaction costs. The active use of the information and communication has greatly contributed to the reduction of transactions costs (Toyama, 2007). Cordella (2001) and Toyama (2007) noted that the adoption and use of the information technology in

business processes can result in the reduction of transaction costs.

This has been supported by the information technology, which has made it easy for more information to be available to the decision makers. Consequently, the information challenges that frustrate market efficiency are fixed. Most notably, the information technology has communication effects by increasing information flow per unit of time; electronic integration effect through easier linkages between the buyer and the seller; and electronic brokerage effect, where the contracting processes among the buyers and sellers become more efficient and effective.

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.

This theory, therefore, fits this study and relates to the application of information technology in the tendering function and its performance. There is no doubt that the use of information technology has facilitated the reduction of coordination costs (Chepkwony, 2015). Therefore, this theory suits this study because the County Government of Nairobi would choose to employ the IT in its tendering process for efficiency, effectiveness and transparency.

## Empirical Review

Adopting an efficient public e-tendering system improves the performance of the procuring entity and also at the national level. It assist the policy makers to have an insightful understanding of how various policy goals interact and the impact they have on the overall performance of the e-tendering system. It also enables the parliament and government to improve the quality of decisions made and to adopt constructive long-term actions that will be more effective in developing the public e-tendering systems, and create stronger incentives to improve the policy of e-tendering systems. It will help them to set appropriate priorities for reforms in the area of public e-tendering, and to monitor the progress of set objectives; and provide valuable information on the assessment of the public expenditure system (Hardy and Williams, 2011).

The justification of e-tendering is mainly based on the followed there economic factor: reduction of off-contract expenditures through the use of technologies to increase the users awareness of the available contract facilities by making it easier for them to order; leveraging tendering power through the use of technology to support the identification of aggregation opportunities and facilitate the aggregation of users requirements that are within and across organizations; reduce the cost of transaction through the use of technology that automate processes that are currently paper based, where they are streamlined and standardized. The financial benefits achieved from the implementation of the strategies recommended are also significant (Plant and Valle, 2008).

E-tendering solution is also viewed as ways of addressing many requirements in the public sector organizations. It is evident that the more the tendering activities are supported through the internet technology, the easier it will be for the e-tendering to be developed and implemented.

Boudijilda and Pannetto (2013) noted that the infrastructure of e-tendering and its procedures can be facilitated by the achievement of the principles of transparency and accountability which are required in the public offices as the enhancement process of efficiency, flexibility and effectiveness in the process of tendering. E-tendering has the potentiality of promoting the operation efficiency in the public sector tendering and providing a significant cost saving.

A report By United Nation's Department of Economic and Social Affairs on "E-Procurement: Towards Transparency and Efficiency in the Public Service Delivery" found that e-tendering, which has the capability of covering advertisement and distribution of tenders documents, submission of bids and suppliers registration, has also helped the government to save over \$6 Million annually by outsourcing manual duplication and distributing physical bid documents (Department of Economic Social Affairs, 2011).

The Department also noted that through the e-government procurement, corruption is eradicated because it offers traceability for audits, enhance data analysis for corruption detection, and facilitate transparency through e-disclosure of bidding results. However, cautioned that e-procurement does not offer a guarantee of eliminating corruption. If poorly implemented, e-government procurement may leave room for new types of corruption and abuses such as unauthorised access to the bidding documents and manipulating them. The UN Department of Economic and Social Affairs (2011)'s study appreciated the mediating roles played regulations and policies. Hence, the current found these moderating variables useful, and will therefore be adopted.

One of key logical advantages of electronic transaction management is that it frees tendering staff for tendering evaluation and contract

management roles. Furthermore, management information can be extracted from the e-tendering system using standard reporting software. The transparent management information provided by e-tendering also permits the monitoring of compliance with service level agreements and measurement of many other elements of supplier performance (Boudijilda & Pannetto, 2013). Through a multiple regression analysis, Kamotho (2014) found that among the e-procurement variables under consideration, e-tendering had the least effect on the procurement performance. In contrast, Chepkwony (2015)'s study established that e-tendering had positive and significant correlation with the supply chain performance. Therefore, owing to these differing results, the current study also considered the effect of e-tendering on the performance of Nairobi City County. In addition, Kamotho (2014) recommended that further studies be carried out to retest the factor loading in different public entities, which the current study will be addressing.

## METHODOLOGY

The study used a descriptive survey design and explanatory design. A descriptive survey study describes the natural phenomenon occurring with the data in question (Zainal, 2007). Population refers to an entire group of persons or elements that have at least one thing in common (Hair, Wolfinbarger, Money, Samouel, & Page, 2015). The population of this study was 750 individuals drawn from the County's payment department, finance and ICT personnel because they are the people directly involved in the implementation of E-tendering policy. Questionnaires were used to gather information from the samples. The following regression equation was adopted:

$$Y = \alpha + \beta_1 E_1 + \varepsilon \dots\dots\dots (1)$$

Where;

Y= procurement performance

$\alpha$  is Alpha = Constant

$\beta_1$  = Beta for the variable

$E_1$  = e- tendering

$\varepsilon$  = error term

## FINDINGS AND DISCUSSION

### Descriptive Statistics

**Table 1: Response rate**

Section	Target respondents	Successful	Response rate (%)
Finance	50	41	82.00
Procurement	15	11	73.33
ICT	10	7	70.00
<b>Total</b>	75	59	78.67

**Source: Field data (2017)**

Overall, the researcher had administered 75 questionnaires to 50, 15 and 10 respondents in the finance, procurement and information technology department respectively. Out of these 75 questionnaires, 59 were completely filled up and

collected. As shown in table 1, finance had a response rate of 82%, procurement had 73.33% and ICT had 70%. As noted by Bebbie (2004) that a response rate of 70% and above was very good, the researcher was satisfied with this 78.67%.

**Table 2: E-Tendering activities that affect performance**

Description	Response Rate Scale of 1-5					Mean	Std. Deviation
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree		
Suppliers post bids electronically	1.7	5.1	8.5	78	6.8	3.7797	.78932
Tender specifications and documents sent online	0	5.1	6.8	72.9	15.3	3.9831	.65631
Tender responses received electronically	0	6.8	5.1	84.7	3.4	3.8475	.58172
Public issued with tender notices electronically	0	0	3.4	79.7	16.9	4.1356	.43381
Aggregate						3.9365	0.6153

**Source: Field data (2017)**

Results in Table 2 showed that all respondents agreed that E-Tendering practices involved suppliers posting their bids electronically, tender specification and documents sent online, receipt of tender responses electronically, and tender notices conveyed to the public electronically as represented by means of 3.78, 3.98, 3.85 and 4.14 respectively. The standards deviation results in Table 2 indicated there was no deviation on the respondents' responses regarding the presence of the E-Tendering practices listed above in the Nairobi City County. On aggregate, a mean of 3.937 agreed that the performance in Nairobi City County did was higher in the presence of e-tendering. This was supported by a standard deviation of 0.615 that

indicated higher agreement levels on the effect of e-tendering on the performance.

**Inferential Statistics**

This study conducted inferential statistics with a focus on the correlation analysis and regression analysis using SPSS version 21 to establish the relationship between the study variables. While the correlational analysis was useful in establishing the strength and the significance of the relationship between E-tendering practices and performance of Nairobi City County Government, regression analysis was useful in establishing the effect of the former on the latter.

**Table 3: Relationship between E-tendering and performance in Nairobi City County Government**

		County Performance	E- tendering
Spearman's rho	County Performance	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
E-tendering		Correlation Coefficient	.307
		Sig. (2-tailed)	.041

\*. Correlation is significant at the 0.05 level (2-tailed). N=59

**Source: Field data (2017)**

Table 3 showed the correlation between E-tendering practices and performance in Nairobi City County Government. It was observed that at 95%

confidence interval, E-tendering practices had positive and significant relationship with the procurement performance in Nairobi City County Government at 0.307 and  $P = 0.041 < 0.05$ .

**Table 4: Regression results of E- tendering and performance in Nairobi City County Government**

Goodness of fit	Test statistics	P-value		
R Square	.701			
F-statistics	247.096	.000		
Dependent Variable: County Performance Predictors: (Constant), E-Tendering				
	Coefficients	T-statistics	P-value	Beta
(Constant)	0.866	4.461	.000	
E-tendering	.776	15.719	.000	.843

**Source: Field data (2017)**

Table 4 indicated that the  $R^2$  was 0.701, indicating that e-tendering accounted for 70.1% of the variability in the tendering performance in Nairobi City County, while the rest was explained by factors not included in the model. The F-statistics value was 247.096 and P was  $0.000 < 0.05$  implying that E-tendering is significant in explaining the variations in the procurement performance in Nairobi City County Government at 5% significance level.

A simple linear regression model can be written from the regression coefficients as:  $Y = 0.866 + 0.776E_1 + \epsilon$ . The E-tendering coefficient was positive and significant at 0.866 and P value =  $0.000 < 0.05$ . The beta values of 0.866 mean that for every 0.866 units of use of E-tendering practices, lead to a corresponding 1 unit increase in the procurement performance in Nairobi City County implying that there was a positive and significant relationship. These findings concurred with those of Chepkwony (2015) that E-tendering had a positive and significant relationship with performance. However, these findings contradict those by Kamotho (2014) who found that e-tendering had the least effect on the procurement performance.

#### CONCLUSION AND RECOMMENDATIONS

In Kenya, the performance of the public procurement has been poor and the government is working to ensure fairness in expenditure of public funds. The government has made it mandatory for e-procurement of all public goods, works and services to be purchased through online platforms to enhance and improve performance of the procurement function. However, despite these measures the performance of the Kenyan public procurement function has been characterized by massive scandals and indignity. Therefore, the current study sought to establish the effect of E-tendering practices on the procurement performance in the Nairobi City County.

The study established that E-tendering practices at the Nairobi City Government involved suppliers posting their bids electronically, tender specification and documents sent online, receipt of tender responses electronically, and tender notices conveyed to the public electronically with means of 3.78, 3.98, 3.85 and 4.14 respectively. On average, a mean of 3.937 agreed that the performance in Nairobi City County do is higher in the presence of e-tendering. This was supported by a standard deviation of 0.615 that indicates higher agreement

levels on the effect of e-tendering on the performance. Further findings showed that E-Tendering practices had positive and significant relationship with the performance in Nairobi City County Government at 0.307 and  $0.041 < 0.05$ .

### Conclusion

Organizational performance is aimed at increasing organizational efficiency and effectiveness to support and improve the organisation's ability to deliver goods and /or services. The researcher aimed at establishing the effect of E- tendering practices on the procurement performance in the Nairobi City County. The study concluded that e-tendering practices adopted by the Nairobi City County Government such as suppliers posting their

bids electronically, tender specification and documents sent online, receipt of tender responses electronically, and tender notices conveyed to the public electronically had positive and significant relationship with the performance.

### Recommendations and Suggestions for Further Studies

Based on the findings and conclusions of this study, Nairobi City County Government should review and improve its e-tendering practices to make its performance not only remain positive and significant, but also improve it. It was recommended that a similar study be carried out in other counties in Kenya for comparative purposes.

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