Electronic Procurement and Performance of Procurement Function of County Governments in Kenya.

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ABSTRACT

Implementing electronic procurement and reaping its benefits for organizations has been a top priority for the public sector. Examining electronic procurement and performance of procurement function of county government in Kenya was thus the main objective of this study. The population for this study was 47 units of devolved government in Kenya which were envisioned by new constitution of Kenya 2010. This research relied on the following specific objectives: To determine effect of electronic sourcing on performance of procurement function of county governments in Kenya. To establish effect of electronic tendering on performance of procurement function of county government in Kenya. To determine effect of electronic ordering on performance of procurement function of county government in Kenya. To establish effect of electronic payment on performance of procurement function of county government in Kenya. The study used descriptive research design to collect and interpret data on electronic procurement and performance of procurement function of county governments in Kenya. Forty-seven county governments comprised target population of this research. 250 county government employees that are directly or indirectly involved in the procurement process comprised the unit of observation of this research. The researcher used both stratified and simple random sampling technique to select 30% of the total unit of observation to come up with a sample size of 75 respondents. The research used both open and closed ended questionnaires in order to collect primary data. The study used descriptive and inferential analysis to analyse gathered data. Generally, a large number of respondents exhibited responses to indicate that electronic sourcing, electronic tendering, electronic ordering and electronic payment affect performance of procurement function of county governments in Kenya. However, the analysis also showed that a significant number of respondents had a contrary opinion too as well. All these variables had a positive and significant relationship with performance of procurement function of these devolved governments. An examination of the joint relationship by the study confirmed these findings and established that these four variables jointly accounted for 69.9% of the variability in performance of procurement function. The study recommended that county governments should scale down on traditional procurement practises if full benefits of adoption of electronic procurement is to be realized. Further, it was recommended that government and other stakeholders need to work together on incentives of electronic procurement to encourage on technology use on running day to day procurement activities.

Keywords: Electronic Procurement, Electronic Sourcing, Electronic Tendering, Electronic Ordering, Electronic Payment, Performance of Procurement Function, County Governments

1.0 INTRODUCTION

1.1 Background of the Study
Since Kenya's independence, its public procurement process has undergone reforms. Initially managed by the Ministry of Works, the Central Tender Board was later established but lacked local market capacity, leading to temporary procurement by crown agents (Farrington, 2018). In 1978, the East African community formulated procurement guidelines, leading to the abolishment of the Central Tender Board in 2001 due to identified weaknesses (Farrington, 2018). Subsequently, the Public Procurement and Disposal Act of 2005 was enacted, yet issues like secrecy, inefficiency, and corruption persisted due to manual processes (Farrington, 2018).


Kenya's adoption of electronic procurement aligns with Vision 2030's ICT goals, though hindered by infrastructure costs and talent shortages (Oke et al., 2016). Legislatively changes and electronic procurement are common in African nations like Tanzania (Sijaona, 2010). Despite improvements, Kenya's procurement system still faces challenges, including corruption (PPRA, October 2017).

Procurement performance is crucial, involving factors like profits and technological influences (Richard et al., 2016). Electronic procurement could enhance performance, though empirical evidence is lacking (Nerasimhan et al., 2019). Overall, the transition to electronic procurement signifies a pivotal shift in Kenya's public sector, aiming to address longstanding challenges and improve efficiency.

Electronic procurement has become increasingly prevalent worldwide, with significant adoption in the United States and Africa, including Tanzania (Reddick, 2014; Sijaona, 2010). In Kenya, improvements in public procurement have occurred since the mid-1990s, though challenges like corruption persisted (PPRA, October 2017). Procurement performance is vital for organizations, measured by metrics such as profits and return on investment (Richard et al., 2016). External factors like politics and technology influence procurement performance (Shider et al., 2017). Electronic procurement has the potential to integrate and improve organizational structures, though its direct influence on county governments' procurement function lacks empirical support (Nerasimhan et al., 2019).

County governments in Kenya, established by the 2010 Constitution and the County Government Act of 2012, aim for transparent and fair procurement processes (Republic of Kenya, 2014). Public procurement accounts for a significant portion of public spending, but past inefficiencies due to ethical concerns and organizational culture highlight the need for change (Kangogo & Kiptoo, 2013). To enhance procurement, elder staff members must promote positive behavioral shifts and collaborative strategies, focusing on maximizing value for consumers and improving administrative efficiency (Petersen, 2019).

1.2 Statement of the Problem
Kenya devolved governments were founded in 2013 and this was after enactment of new constitution of Kenya 2010. After these devolved governments were founded, their procurement process has been characterized with lack of proper direction, lack of competition and...
transparency, poor quality, poor coordination, lots of bureaucracy, delay in payments and also high levels of wastage and corruption (Dennis, 2019). When these county governments began to operate, it was predicted in an audit report produced by the public procurement regulatory authority in 2016 that prices for products and services that were tendered inside of these institutions would have been overstated by more than 60%. According to Williams et al. (2017) majority of public institutions experience yearly losses of more than KSH 500 million as a result of procurement fraud.

According to (Shirzad & Bell, 2019), electronic procurement benefits organizations by assuring an appropriate information exchange between suppliers and clients. It also promotes equality, facilitates efficient ordering, and improves the customer experience. Manual procurement systems are characterized with lot of paperwork, high procurement costs, delayed payments and low competitiveness in the procurement process. This makes procurement process only vulnerable to those who can cope with these challenges. Several county governments have implemented measures to prevent fraudulent activities in their procurement process, including tender committees, prequalification, open tendering, and pricing indexes, albeit they have only had limited success. Electronic procurement, according to several experts, has the potential to enhance openness, efficiency, and control in the procurement process. In Kenya, massive corruption in public sector have been witnessed due to mishandling of sensitive procurement information and lack of transparency in those processes. Some of these procurement scandal includes Arorr and Kimarer Dam whereby this contract was awarded to an Italian company with an over stated tender value. These led to loss of billions of tax payers’ money (PPRA, 2017).

Aloini et al. (2016) attributed success of any procurement function of an organization to the use of IT especially electronic procurement. Since devolved governments took root in Kenya, pressure has been put on them to do better and answer to their community. Because of these pressures they have been forced to adopt electronic procurement in order to achieve their core mandate to its citizens. Despite being an essential strategy and supply chain management tool, it is true and evident that there is little research from prior empirical studies linking the use of electronic procurement in enabling procurement performance, particularly among the counties. While other studies have looked at how e-Procurement affects performance (Korir, 2019; Kinoti, 2017), a majority of them have not considered in a detailed manner how the use of electronic procurement affects procurement performance within County government. Consequently, this study looked into effects of electronic procurement on the performance of procurement function of county governments in Kenya.

1.3 Objectives of the Study
The General and Specific objectives that guided the study were:

1.3.1 General Objective of the Study
Discern the effect of electronic procurement on Kenya's county governments' procurement function performance was study's main goal.

Specific Objectives
i) To determine effect of e-sourcing on performance of procurement function of county governments in Kenya
ii) To establish effect of e-tendering on performance of procurement function of county governments in Kenya
iii) To establish effect of e-ordering on performance of procurement function of county governments in Kenya
iv) To determine effect of e-payment on performance of procurement function of county governments in Kenya
Research Questions

i) Does e-sourcing have an effect on performance of procurement function of county governments in Kenya?
ii) Does e-tendering have an effect on performance of procurement function of county governments in Kenya?
iii) Does e-ordering have an effect on performance of procurement function of county governments in Kenya?
iv) Does e-payment have an effect on performance of procurement function of county governments in Kenya?

1.4 Scope of Study
Due to the size and importance of businesses, the procurement procedure varies from one organization to the next. This research aimed to examine how Kenya's county governments' procurement function perform while using electronic procurement. The study examined the effect of electronic sourcing, electronic ordering, electronic tendering, and electronic payment on the performance of procurement function of Kenyan county governments. This study probably took at least 15 weeks, to produce excellent results as well as reliable and comprehensive data. In this study, Kenyan county governments were examined.

2.0 LITERATURE REVIEW

2.1 Theoretical Framework
The theoretical literature review encompassed the Theory of Planned Behavior, Technology Adoption Model, and Innovation Diffusion Theory, all applied to electronic procurement in organizations. The Theory of Planned Behavior suggests that attitudes, subjective norms, and perceived behavioral control influenced behavioral intentions (Azien, 2001). In the context of electronic payment, it has been suggested by Wanjiru & Abdala (2015) that perceptions of opportunity and resources influenced purchasing intentions. The Technology Adoption Model emphasized perceived utility and ease of use as factors influencing technology acceptance (Davis, 1989). The application of electronic sourcing and tendering suggested cost reduction and improved customer service (Davilla et al., 2017). Innovation Diffusion Theory identified trialability, relative advantage, compatibility, complexity, and observability as determinants of innovation adoption (Rogers, 1995). The benefits of electronic procurement, such as reduced costs and improved efficiency, were found to align with this theory (Aberdeen Group, 2011). In the study, these theories were used to analyze the impact of electronic ordering on the procurement function of Kenyan county governments, considering factors like compatibility and perceived risk (Bagozzi & Lee, 1999). Overall, these theories provided frameworks for understanding and predicting the adoption and impact of electronic procurement practices.

2.2 Conceptual framework
The association between the dependent variable and independent variables was conceptualized graphically to create the conceptual framework Kishor et al. (2014). The effect of electronic procurement on Kenya's county governments' procurement function performance was the study's key area of interest. The study covered electronic sourcing, electronic tendering, electronic ordering, and electronic payment as specific objectives. The diagram below diagrammatically represents relationship between study’s dependent and independent variables.
Figure. 1: Conceptual Framework; Source: Researcher (2023)

2.3. Review of Study Variables

Electronic procurement practices, including sourcing, ordering, tendering, and payment, have become integral to modern procurement strategies. Electronic sourcing involves web-based systems to generate and compare supplier data, enhancing standardization and automation (Garran, 2009; Ngai & Rai, 2019). Benefits include prequalifying suppliers and reducing process time and costs through electronic auctions (Lancioni et al., 2014; Pressuti, 2017). Electronic ordering, encompassing e-cataloguing and automated processes, lowers inventory, minimizes costs, and enhances supplier performance (Subramaniam & Shaw, 2019; Chesire et al., 2018). Electronic tendering, facilitated by e-notices, improves visibility, compliance, and cost savings (Fasli, 2007; Davilla & Gupta, 2017). Efficiency gains are observed through e-selection, as seen in a UN study (United Nations, 2011). Electronic awarding increases supplier participation and reduces costs (Berlin, 2016). Electronic payment, utilizing systems like internet banking and smart cards, offers convenient, secure, and efficient transactions, benefiting both buyers and sellers (Dennis, 2019;
This trend is particularly evident in developed nations, while developing countries like Kenya are also embracing electronic payment systems for their benefits in cost savings and efficiency (Landon & Traver, 2019; Sumanjeet, 2019).

2.4 Empirical Literature Review
This section discusses past studies according to the context of this study. The section reviews literature on the effect of electronic procurement on Kenya's county governments' procurement function performance: a case of Geothermal Development Company, Kenya. Electronic procurement practices, including sourcing, ordering, tendering, and payment, have transformative effects on organizational processes and performance. Studies such as Kassim et al. (2013), Garran (2009), and Wyld (2014) emphasize the cost-saving benefits of electronic sourcing, which streamlines procurement processes and enhances supplier relationships. Similarly, electronic ordering, as highlighted by Hawking et al. (2014), Ghazaly (2018), and Lewis (2014), reduces procurement costs, promotes revenue growth, and saves time. Vaidya & Callender (2018) stress the importance of factors like supplier integration and employee training for successful electronic ordering adoption. Electronic tendering, according to Fasli (2016) and Dawson et al. (2016), enhances transparency, integrity, and competition in procurement processes, leading to improved decision-making and market intelligence. Vaidya et al. (2016) further emphasize the benefits of electronic tendering in reducing procurement time and errors while enhancing communication. Regarding electronic payment, Wahid (2016), Consortium for Global Electronic Commerce (2016), and Singh & Punia (2019) underscore its convenience, efficiency, and global reach, leading to improved organizational value, customer service, and cost reduction. These studies collectively highlight the significant advantages of adopting electronic procurement practices in enhancing organizational efficiency and performance across various sectors and countries.

2.5 Critique of existing Literature
The existing literature provides valuable insights into the impact of electronic procurement systems on organizational performance globally, with a focus on the private sector in developed countries. Studies like Tassabehji et al. (2011) and Dawson et al. (2016) underscore the need to validate findings in third-world countries like Kenya, where electronic procurement could significantly enhance effectiveness and efficiency. However, there is a research gap regarding the application of electronic procurement practices in the context of Kenyan county governments, which are service-driven rather than profit-oriented. While various studies have explored electronic procurement elements such as tendering, awarding, and payment (Garran, 2009; Walker et al., 2018; CGEC, 2016), none have focused on Kenyan county governments. Furthermore, existing research often neglects the relationship between electronic procurement and procurement performance specifically in devolved governments like those in Kenya. Studies like Vaidya et al. (2016) and Soundry (2016) have examined organizational performance but not procurement function performance in devolved governments. Therefore, there is a critical need for research that evaluates the impact of electronic procurement on the procurement function performance of Kenyan county governments to address these gaps and enhance understanding in this area.

2.6 Research Gap
Research on electronic procurement highlighted its potential to streamline operations, reduce maverick purchases, and lower transaction costs (Ngeno & Omwenga, 2010). However, existing studies predominantly focus on electronic procurement in profit-driven organizations in developed countries, leaving a gap in understanding its impact on service-oriented entities like Kenyan county governments (Kassim et al., 2013; Walker et al., 2018). Additionally, research lacks a Kenyan context, particularly in the context of the new devolved government system established in 2010 (Garran, 2009). Thus, there is a need for studies exploring electronic procurement’s effects on
3.0 RESEARCH METHODOLOGY

The methodology section outlines the research design, target population, sampling frame, sample size determination, sampling technique, data collection instruments, pilot study, and data analysis. The research design utilized a descriptive approach to investigate the impact of e-procurement on Kenya's county governments' procurement function (Cooper & Schindler, 2013). Forty-seven county governments constituted the population, while a stratified and simple random sampling method selected five counties and 75 respondents (Mugenda & Mugenda, 2012; Kothari, 2014). Questionnaires, combining open and closed-ended questions, were the primary data collection tool, supported by secondary sources like legal documents (Mugenda & Mugenda, 2019). A pilot test ensured validity and reliability, while data processing involved thematic and descriptive analyses using SPSS and Microsoft Excel (Mugenda & Mugenda, 2019; Kothari, 2014). ANOVA and regression models tested significance and relationships among variables (Mugenda & Mugenda, 2019).

4.0 RESEARCH FINDINGS AND DISCUSSIONS

4.1 Response Rate

The study targeted 75 respondents and out of the 75 questionnaires issued, a total of 60 respondents filled and returned their questionnaires giving a response rate of 80% and a non-response rate therefore was 20%. The 20% non-response rate included those questionnaires which were returned unfilled and those not returned. According to Mugenda and Mugenda (2019) a response rate of over 60% is considered adequate for descriptive research. The response rate is presented on Table 4.1.

Table 0.1 Response Rate

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>60</td>
<td>80%</td>
</tr>
<tr>
<td>Non response</td>
<td>15</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>100%</td>
</tr>
</tbody>
</table>

4.2 Descriptive Statistics

Table The study sought to determine extent to which the respondents understood electronic procurement and performance of procurement function of county governments in Kenya. A list of four factors was presented to the respondents and they were required to tick the extent to which they agreed with the statements. The statements were rated between 1 and 5 where 1-strongly disagree, 2-disagree, 3-neutral, 4-agree and 5-strongly agree.

4.2.1 Electronic Sourcing

The study sought to establish effect of electronic sourcing on performance of procurement function of county government in Kenya. The findings are presented in table 4.2.

Table 0.2 Electronic sourcing

<table>
<thead>
<tr>
<th>Statements/Items</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>S. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) To what extent has electronic bidding adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>4.271</td>
<td>2.223</td>
</tr>
<tr>
<td>b) To what extent has electronic tracking adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.01</td>
<td>1.103</td>
</tr>
<tr>
<td>c) To what extent has electronic contracting adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.279</td>
<td>1.218</td>
</tr>
<tr>
<td>d) To what extent has electronic auction adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.812</td>
<td>1.959</td>
</tr>
<tr>
<td>e) To what extent has electronic RFX adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>2.981</td>
<td>0.786</td>
</tr>
</tbody>
</table>
From the table 4.2 above; there were 5 variables and the respondents answered questions relating to electronic sourcing and gave their opinions. The opinion of to what extent has electronic bidding adopted in your county government had mean of 4.271 and S.D of 2.223. To what extent has electronic tracking adopted in your county government had mean of 3.010 and S.D of 1.103. To what extent has electronic contracting adopted in your county government had mean of 3.279 and S.D of 1.218. To what extent has electronic auction adopted in county government had mean of 3.812 and S.D of 1.959. To what extent has electronic RFX adopted in your county government had mean of 2.981 and S.D of 0.786. The average mean of the 5 variables was 3.4706 which showed that electronic sourcing had been moderately adopted among county governments in Kenya. This finding coincided with (Sheng, 2017), who carried out research on the success and failure of E-government projects in developing countries: a case study of Zambia. He came into a conclusion that E-government systems and particularly electronic sourcing largely had been adopted among public entities in Zambia and its significantly affected performance of procurement function. According to (Audu, 2018), who conducted study on technology adoption in Democratic Republic of Congo. An empirical study investigating factors that influence online shopping adoption, he argued that electronic sourcing does not significantly affect organizational performance of public entities in DRC.

### 4.2.2 Electronic Tendering

The study sought to establish how electronic tendering affects performance of procurement function of county government. The findings are illustrated in table 4.3

<table>
<thead>
<tr>
<th>Table 0.3 Electronic tendering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statements/Items</td>
</tr>
<tr>
<td>a) To what extent has electronic notices adopted in your county government</td>
</tr>
<tr>
<td>b) To what extent has electronic mailing adopted in your county government</td>
</tr>
<tr>
<td>c) To what extent has electronic selection adopted in your county government</td>
</tr>
<tr>
<td>d) To what extent has electronic awarding adopted in your county government</td>
</tr>
<tr>
<td>e) To what extent has electronic evaluation adopted in your county government</td>
</tr>
</tbody>
</table>

The results in table 4.3 above; indicated that to what extent has electronic notices adopted in your county government had mean of 3.275 and Standard Deviation of 3.275. To what extent has electronic mailing adopted in your county government had mean of 3.367 and a Standard Deviation of 1.291. To what extent has electronic selection adopted in your county government had mean of 3.641 and S.D of 1.563. To what extent has electronic awarding adopted in your county government had mean of 2.937 and S.D of 1.192. To what extent has electronic evaluation adopted in your county government had mean of 4.391 and S.D of 1.975. On average, the mean response of the 5 variables was 3.5222, these results revealed that electronic tendering had highly been integrated and adopted in most Kenya’s county governments. These results are consistent with the findings of (Berlin, 2016) which established that various public companies have adopted a wide range of online tendering practices that includes electronic selection, electronic awarding and electronic mailing for their procurement processes. (Corina, 2017) carried out research on the role of the electronic procurement in the purchasing process. The study revealed out that there is no direct correlation between performance of procurement function and adoption of electronic
tendering in the procurement process.

4.2.3 Electronic Ordering

By answering these questions, the researcher sought to find out how electronic ordering affects performance of procurement function in county governments in Kenya. The findings are tabulated in Table 4.4.

**Table 0.4 Electronic Ordering**

<table>
<thead>
<tr>
<th>Statements/Items</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>S. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) To what extent has electronic requisition adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.295</td>
<td>1.891</td>
</tr>
<tr>
<td>b) To what extent has electronic receipts adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.732</td>
<td>1.693</td>
</tr>
<tr>
<td>c) To what extent has electronic order processing adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.391</td>
<td>1.110</td>
</tr>
<tr>
<td>d) To what extent has electronic authorization adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>2.978</td>
<td>0.786</td>
</tr>
<tr>
<td>e) To what extent has electronic cataloguing adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.081</td>
<td>1.028</td>
</tr>
</tbody>
</table>

The results in Table 4.4 indicated that the respondents rated electronic ordering variables as follows: to what extent has electronic requisition adopted in your county government had mean (M = 3.295) and a Standard Deviation (SD = 1.891). To what extent has electronic receipts adopted in your county government had mean (M = 3.732) and a Standard Deviation (SD = 1.693). To what extent has electronic order processing adopted in your county government had mean (M = 3.391) and a Standard Deviation (SD = 1.110). To what extent has electronic authorization adopted in your county government had mean (M = 2.978) and a Standard Deviation (SD = 0.786). To what extent has electronic cataloguing adopted in your county government had a mean (M = 3.081) and a Standard Deviation (SD = 1.028). The average mean of the 5 underlying factors was 3.294 which showed that electronic ordering had been adopted to high extent among county governments in Kenya. The findings concurred with World Bank (2014) report which pointed out that the most significant key performance indicator of any procurement function by public institutions is electronic ordering system. Also, the report pointed out that public institutions have adopted various electronic ordering practices such as electronic requisitions, electronic receipts, and electronic inspection in order to reduce transaction costs. According to (Kituzi, 2016), who conducted research on the influence of e-procurement on organizational performance, the case of Kenya association of manufacturer firms in Nairobi. The study argued that electronic ordering does not significantly affect organizational performance of these manufacturing firms in Nairobi.

4.2.4 Electronic Payment

The study sought to determine how electronic payment affects performance of county government in Kenya. The findings are illustrated in Table 4.5.

**Table 0.5 Electronic Payment**

<table>
<thead>
<tr>
<th>Statements/Items</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>S. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) To what extent has electronic cards adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.265</td>
<td>1.075</td>
</tr>
<tr>
<td>b) To what extent has personal computer payments adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.165</td>
<td>0.971</td>
</tr>
<tr>
<td>c) To what extent has mobile payments adopted in your county government</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.675</td>
<td>1.675</td>
</tr>
<tr>
<td>d) To what extent has internet payment adopted in</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.333</td>
<td>1.098</td>
</tr>
</tbody>
</table>
e) To what extent has electronic fund transfer adopted in your county government 60 1 5 2.975 1.025

Results in table 4.5 showed that electronic payment variables were rated as follows; to what extent has electronic cards adopted in your county government had mean (M = 3.265) and a Standard Deviation (SD = 1.075). To what extent has personal computer payment adopted in your county government had mean (M = 3.165) and a Standard Deviation (SD = 0.971). To what extent has mobile payment adopted in your county government had mean (M = 3.675) and a Standard Deviation (SD = 1.675). To what extent has internet payments adopted in your county government had mean of 3.333 and S.D of 1.098. To what extent has electronic fund transfer adopted in your county government had a mean (M = 2.975) and a Standard Deviation (SD = 1.025). The average mean of the 5 variables ranged from 2.975 to 3.675, this showed that electronic payment had been moderately adopted in county governments. These results obtained were consistent with the findings as revealed by Croom & Brandon-jones (2013), who pointed out that electronic payment is one of core component of electronic procurement which has been used by organization to perform online payment transactions and therefore both public and private institutions should be encouraged to adopt electronic payment since it significantly affects performance of procurement function as a unit. (Nganga, 2017) carried out study on the impact of e-procurement on operational performance of parastatals in the ministry of energy in Kenya. The study revealed that there was no direct relationship between performance of these parastatals in the ministry of energy and adoption of electronic payment in the procurement process.

4.2.5 Effect of Electronic procurement on Procurement Performance

When organization adopts various electronic procurement practices, they are obliged to aid from those practices. The study sought to establish how respondents perceived potential benefits that would come up with various electronic procurement practices in county government in Kenya. The respondents were requested to state the level of their agreement/disagreement with the 5 variables. The variables were rated 1-Extremely low 2-Low 3-Average 4-High 5-Extremely high. The results were analyzed through mean score and standard deviation. The mean score analysis and standard deviation of the results are illustrated in table 4.14

<table>
<thead>
<tr>
<th>Statements/Items</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>S. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) County government procurement cost are in the last 5 years</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.641</td>
<td>1.563</td>
</tr>
<tr>
<td>b) County government procurement lead time are in the last 5 years</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>4.729</td>
<td>2.712</td>
</tr>
<tr>
<td>c) County government procurement productivity are in the last 5 years</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>4.004</td>
<td>2.168</td>
</tr>
<tr>
<td>d) County government procurement inventory management are in the last 5 years</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.876</td>
<td>1.968</td>
</tr>
<tr>
<td>e) County government customer service delivery are in the last 5 years</td>
<td>60</td>
<td>1</td>
<td>5</td>
<td>3.091</td>
<td>1.206</td>
</tr>
</tbody>
</table>

From the findings in table 4.6 above, the respondents recognized all statements on the potential benefits of electronic procurement on performance of procurement department. The statement of county government procurement cost is in the last 5 years had a mean (M = 3.641) and a Standard Deviation (SD = 1.563). The statement of county government procurement lead time is in the last 5 years had a mean (M = 4.729) and a Standard Deviation (SD = 2.712). The statement of county government procurement productivity is in the last 5 years had a mean (M = 4.004) and a Standard Deviation (SD = 2.168) on the performance of procurement department.
Deviation (SD = 2.168). The statement of county government procurement inventory management in the last 5 years had a mean (M = 3.876) and a Standard Deviation (SD = 1.968). The statement of county government customer service delivery is in the last 5 years had a mean (M = 3.091) and a Standard Deviation (SD = 1.206). The above finding confirms performance of procurement function in terms of reduction in procurement costs, and procurement lead times, improvement in procurement productivity, improvement in procurement inventory management, and improvement in customer service delivery. These benefits can be moderately attributed to electronic procurement implementation in this county governments. These findings confirm (Auditor General Report, 2017) which reported poor procurement performance in various county government due to use of traditional procurement methods. Quesada et al (2016), conducted a study on the impact of e-procurement on procurement practices and performance. The study revealed that electronic procurement affects procurement practices and performance to a lesser extent.

4.3 Inferential Analysis
4.3.1 Regression Analysis
Additionally, a regression analysis was conducted in which the researcher sought to find out whether there existed a significant relationship between electronic sourcing, electronic tendering, electronic payment, electronic ordering and performance of procurement function in county government in Kenya. The findings are discussed below.

4.3.1.1 Model Summary
The researcher used model summary table to report the strength of the relationship between the model of the study and the dependent variable. Under model summary table, when the multiple correlation coefficient R is large it indicates strong relationship between the model and the independent variable. Multiple correlation coefficient R, is the linear correlation between the observed variable and model predicted values of the independent variable. The findings are tabulated in table 4.7.

Table 4.7 Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.836</td>
<td>0.699</td>
<td>0.619</td>
<td>0.6541</td>
</tr>
</tbody>
</table>

The regression results shows that the value R was 0.836. This value shows the correlation between the joint independent variables i.e. electronic sourcing, electronic tendering, electronic payment, and electronic ordering and the dependent variable (procurement performance) is positive. The value of R square was 0.699. This value explains the percentage of variation in the dependent variable that is explained by the independent variables. The value of adjusted R square was 0.619. From the findings, 69.9% of changes in performance of procurement function in county government was attributed to the four independent variables in the study. It’s very clear that these four independent variables affect significantly performance of procurement function of county government in Kenya given the unexplained variable is only 30.1%. The above finding is consisted with a report of KPMG, (2014) which stated that the use of electronic procurement by business institutions yields procurement cost savings of not less than 30%.

4.3.1.2 ANOVA
The researcher used analysis of variance to establish differences between the study findings from three or more unrelated samples of groups. The findings are presented in table 4.8.
ANOVA is used to illustrate whether the model of the study can predict performance of procurement function of county governments using the four independent variables. The F statistics (F=44.33) was significant at 95% confidence level (sig. F<0.05) with a p-value of 0.001. This means that the model of the study had a predictive power i.e., there exists statistically significant relationship between electronic sourcing, electronic tendering, electronic payment and electronic ordering and, performance of procurement function of county governments in Kenya.

4.3.1.3 Coefficient of multiple regression analysis

The study used coefficient of multiple regression analysis to explain the proportion of changes in the study dependent variable that can be explained by the multiple regression model based on the independent variable. The findings are illustrated in table 4.

Table 0.2 Coefficient of multiple regression analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficient</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>0.956</td>
<td>0.367</td>
<td>3.276</td>
<td>0.003</td>
</tr>
<tr>
<td>Electronic Sourcing</td>
<td>0.872</td>
<td>0.247</td>
<td>0.426</td>
<td>3.581</td>
</tr>
<tr>
<td>Electronic Tendering</td>
<td>0.851</td>
<td>0.352</td>
<td>0.965</td>
<td>3.742</td>
</tr>
<tr>
<td>Electronic Payment</td>
<td>0.811</td>
<td>0.344</td>
<td>0.843</td>
<td>3.482</td>
</tr>
<tr>
<td>Electronic Ordering</td>
<td>0.044</td>
<td>0.261</td>
<td>0.526</td>
<td>1.672</td>
</tr>
</tbody>
</table>

From the regression findings, the substitution of the equation

\[ Y = b_0+b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \varepsilon \]

becomes

\[ Y = 0.956+0.872X_1+0.851X_2+0.811X_3+0.044X_4 \]

where;

- b0 is constant
- Y is performance of procurement function
- X1- electronic sourcing
- X2- electronic tendering
- X3- electronic payment
- X4- electronic ordering
- \( \varepsilon \) is error term at 95% level of confidence

As the findings shown in the above table holding other factors constant the performance of procurement function of the county government would be 0.956. In addition, when other factors are constant an increase in electronic sourcing would lead to a unit increase in the performance of procurement by 0.872. The p-value was 0.002 which is less than 0.05 thus the relationship was significant. Consequently, the results also established that when other factors are held constant an
increase in electronic tendering would lead to a unit increase in the performance of procurement function by 0.851. Additionally, since the p-value is 0.001 the relationship between the variables is significant. Also, the study found out that if all other independent variables are assumed to be constant a unit increase in electronic payment would lead to a unit increase in performance of procurement function by 0.811. The p-value was 0.002 which is less than 0.05 thus the relationship was significant. The study found out that assuming all other factors are held constant a unit increase in electronic ordering would lead to a unit increase in performance of procurement function by 0.044. The p-value was 0.001 which is less than 0.05 thus the relationship was significant. The B coefficients indicate the relative importance of each independent variable in respect to performance of procurement function of county governments in Kenya. Electronic sourcing (0.872) was most important followed by electronic tendering (0.851) followed by electronic payment (0.811) and then electronic ordering (0.044). Finally, based on the results the t-value as obtained is (t=3.276), with p-value (p<0.05), which illustrates that the model obtained is fit and can be used to predict future values relevant for the analysis.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the Study

5.2 Conclusion of the Study
The study explored the impact of electronic procurement practices on the performance of procurement functions within Kenya's county governments. It found that the adoption of electronic sourcing, including e-auction and e-tracking, significantly enhances procurement performance. Similarly, the implementation of electronic tendering, encompassing e-notices and e-awarding, leads to notable improvements in procurement function performance. Additionally, electronic ordering techniques positively affect procurement function performance when applied in county governments. The study highlighted that these practices collectively explain a significant portion of the variance in procurement function performance. However, while electronic payment methods like mobile payments and electronic funds transfers contribute positively, their impact is not statistically significant. Overall, the findings underscore the importance of electronic procurement practices in enhancing the efficiency and effectiveness of procurement functions within Kenya's county governments.

5.3 Recommendations of the Study
The study delved into how various electronic procurement practices influence the performance of procurement functions within Kenya's county governments. It found that electronic sourcing significantly enhances procurement performance, suggesting that county governments should prioritize investments in platforms like e-auction and e-tracking. Similarly, electronic tendering positively impacts procurement function performance, emphasizing the need for county management to adopt practices such as e-notices and e-awarding for efficiency and transparency gains. Additionally, electronic ordering significantly affects procurement function performance, underscoring the importance of integrating practices like e-requisition and e-cataloguing into daily processes. However, while electronic payment methods positively influence procurement function performance, their impact is not statistically significant. Nonetheless, the study recommends adopting practices like e-cards and internet payments to optimize cost savings and overall
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performance within county government procurement. Overall, the findings highlight the transformative potential of electronic procurement practices in enhancing efficiency and accountability within Kenya's county governments.

5.4 Areas for further Research

This study examined electronic procurement and performance of procurement function of county government in Kenya. The variables chosen were organization specific variables and may not be the only variables that affect performance of procurement function due to implementation of electronic procurement. It is recommended that further research could be conducted to establish whether there are more variables affecting performance of procurement function due to implementation of electronic procurement in public institutions. This was informed by the low explanatory power of the selected independent variables on the change in dependent variable in the study. Further, there is need to conduct a study outside county governments in the public sector, for instance a company and compare the outcomes with those ones that were found in a county government.

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