INFLUENCE OF E-PROCUREMENT ON PROCUREMENT PERFORMANCE OF COUNTY GOVERNMENTS IN KENYA: CASE OF KIAMBU COUNTY GOVERNMENT

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ABSTRACT
Since the internet arrived on the scene as a supply management tool in the mid-1990s enterprises have tried to gain the benefit information technology can deliver: cost reduction, process streamlining, improved contract compliance, increased spend under management, and more. County governments play a major role in the development of the country through provision of public services and have become a strong entity in Kenya and very useful engines to promoting development. The overall objective of this study was to examine the influence of E-procurement on performance of county governments in Kenya. The independent variables that were discussed in the study are E-sourcing, E-payments, E-tendering and Electronic Data Interchange and how these variables influence procurement performance. The population of the study covered 68 personnel in county government of Kiambu County where questionnaires were used to collect data. Descriptive statistics was used in this study aided by Statistical Package for Social Sciences (SPSS) to compute percentages of respondents’ answers. The findings of the study revealed that E-sourcing, E-payments, E-tendering and Electronic Data Interchange influence procurement performance. The study results also revealed that E-sourcing, E-payments, E-tendering positively and significantly influences procurement performance while Electronic Data interchange positively but insignificantly influences procurement performance at the county government of Kiambu. The study concluded that E-payment outcomes such as convenience, security, financial risk management, transaction efficiency and compatibility leads to improvement in procurement performance of the county government of Kiambu. Further, the study concluded that improvement in various indicators of E-Tendering such as audit management facilitates, bid analysis, error management, inventory management and security analysis during tendering will all eventually lead to a significant improvement in procurement performance of the county government of Kiambu. The study recommended that in order for the county government to improve procurement performance, there is need to adopt E-payment practices to improve on convenience, security, financial risk management, transaction efficiency and compatibility during procurement. The study further recommended that the county government of Kiambu should be keen on adopting Electronic Data Interchange for the
purposes of inventory costs management, lead time management, documents management, warehouse management and improved customer service during procurement.

Key Words: E-sourcing, E-payments, E-tendering, Electronic Data Interchange, Procurement Performance

Introduction

E-procurement can be viewed as a platform that links the government and suppliers in an online environment. E-procurement creates a framework in which government agencies as buyers procure goods/services by browsing catalogues advertised by suppliers hence a one-stop Portal for public sector procurement. The long term aim of the e-procurement initiative is to use Internet technologies to bring government agencies in the country and suppliers around the world together into a virtual trading environment (Zaharah, 2007). E-procurement is a multi-buyer, multi-supplier electronic procurement domain, which allows government agencies to function as independent buying entities under a single buying organization (Darín, 2007). According to Information Technology Association of America (2014), information technology is defined as “the study, design, development, application, implementation, support or management of computer-based information systems.” The use of technology and Information Technology in particular is essential to the successful operations of the today’s organizations. Information Technology now is one of the major factors improving productivity and performance of the organizations.

Innovation is the great way to success in this digital age. The path of innovation in business means doing something different, smarter or better that will make a positive difference in terms of value, quality or productivity by using emerging or proved technologies of the world. The technology which has already proved itself in last two decades is of course the information technology (IT). It has dramatically changed the lives of the individuals and organisations. Currently online shopping, digital marketing, social networking, digital communication and cloud computing etc. are the best examples of change which came through the wave of information technology. Now accurate business planning, effective marketing, global sales, systematic management, real time monitoring, instant customer support and long term business growth cannot be achieved at the optimum level without IT (Butt, 2015). Information technology greatly enhances the performance of economy; it provides edge in solving social issues as well as making information system affordable and user friendly. Information technology has brought big change in our daily life be it education, life at home, work place, communication and even in function of government.

Organizational functioning largely depends on the nature of procurement used. It entails service and property acquisition (Ebrahim, 2010) Today procurement is viewed as important part of management that supports the strategic objectives of an organization. It performs three broad functions of, maximizing efficiency in transactions and reporting; supporting supplier involvement and contracting processes; long term value addition that can lead to bottom line improvements (Young & Green, 2011). The electronic procurement system or e-procurement as it is called involves purchase and sale of products, supplies and services through the various networking systems such as electronic data interchange and internet.

It involves connecting the suppliers and employees of the organizations into the purchasing network. Companies that embark on e-procurement buying programs will be able to aggregate purchasing across multiple departments or divisions without removing individual control, reduce rogue buying, can get the best price and quality products from a wide range of suppliers. In this 21st century, the internet and internet-based technologies are impacting business in several ways. The various internet and internet technologies that are used in procurement include e-mails for accessing and contacting clients, website technologies
designed for distributing, searching, and retrieving documents over the Internet. These new technologies are promising to save costs, to improve customer and supplier relationships, business processes and performance, and to open new business opportunities (Kingori & Ngugi, 2014)

**Statement of the Problem**

Public procurement in Kenya plays a significant role in the efficient functioning of the Government. However there has been major complains on the wastage of resources, corruption and the lack of value for money in many government procurements in county governments despite the existence of guiding laws and regulations. Although several sectors in Kenya have taken steps to reform their public procurement systems, the process is still shrouded by secrecy, inefficiency, and corruption and undercutting. In all these cases, huge amounts of resources are wasted (Odhiambo & Kamau, 2013). According to Kenyan E - Government strategy paper (2004), E - procurement was one of the medium term objectives which was to be implemented by June 2007 to enhance efficiency in delivery of public services procurement being one of them. It was estimated that 60% of the government operations will be through electronic media. According to PPOA (2010), the total value of Public Procurement in Central Government is estimated at 10% of the GDP. In 2008, Kenya’s GDP was estimated at Kshs.2,099.79 billion putting the total expenditure on procurement by the Government at around Kshs. 209.9 billion annually. It can therefore be argued that even a 10% savings due to improvements in procurement practices and controls would mean a yearly gain to the exchequer of about Kshs. 21 billion. The gains expected to accrue from a streamlined procurement system will allow the Government to invest more resources in other needy areas such as health and education and improve the quality of life of the citizens of this country, a venture that has the potential of greatly improving productivity and service delivery by public entities.

According to (PPOA, 2013) most of the procurement processes in public sector were still manual with the internet only being used for e-mails and web browsing. The government emphasized on the use of E - procurement platform in March 2015 to help in solving this problem and in helping the county to achieve efficiency in the utilization of public resources. However, little research attention has been done to introduce the use of E – procurement in most government offices. Claims on massive losses of public resources through procurements as well as irregular award of government tenders still persist especially in county governments in Kenya. According to corruption perception index (2016) Kenya is ranked 145th out of 176 with the least corrupt countries at the top. Corruption remains a serious obstacle to effective governance. The World Bank estimates that 25 percent of Africa’s GDP is lost to corruption every year. According to a report by Transparency International (2014), the Kenya government loses about one-third of the national budget annually to corruption. The report also asserts that 80 percent of all corruption cases before the Ethics and Anticorruption Commission have a procurement element. Taking a percentage of an awarded tender, or inflating project costs, is the commonest means of dipping into government coffers. Further there have been no comprehensive studies to assess the usage of E-procurement in county governments and its influence on procurement performance. If well utilized, information technology would enhance efficiency in utilization of funds, shorten lead times, accountability and efficiency in the delivery of public services. This study therefore sought to assess the influence of E-procurement on procurement performance in county governments in Kenya.
Objectives of the Study
1. To determine the influence of E-sourcing on procurement performance in County Governments in Kenya.
2. To determine the influence of E-payments on procurement performance in County Governments in Kenya.
3. To establish the influence of E-tendering on procurement performance in County Governments in Kenya.
4. To analyse the influence of Electronic Data Interchange on procurement performance in County Governments in Kenya.

Literature Review
Theoretical Review
Resource Based Theory
The quest for Information Technology has long been a central tenet of the field of procurement and supply chain management (Pressutti, 2003). Within this field, resource-based theory (RBT) has emerged as a promising new framework for analysing the sources and sustainability of Information Technology (Baily, 2008). According to RBT, Information Technology - measured as economic rent (Caridi et al, 2004) - derives from strategic resources. Such Information Technology is sustainable to the extent that the resources on which it is based are valuable, rare, inimitable, and non-substitutable (Bales & Fearon, 2006). Further, RBT rests on the premises that resources controlled by firms are heterogeneous and relatively immobile (Pearcy&Guinipero, 2008).

The imperfect mobility of resources (including inimitability and non-substitutability) is due to a variety of isolation mechanisms (Roth, 2001) which include co-specialization of assets (Teo& Benbasat, 2003) unique historical conditions (Berger & Calabrese, 2005), causal ambiguity (Liao et al, 2007), social complexity (Barnes et al, 2002), and tacit knowledge and skills (Puschmann & Alt, 2005). Firms often derive Information Technology from resources (New knowledge and capabilities). Information Technology derived from such resources might be sustained because other firms which attempt to duplicate them do not have the necessary organizational knowledge, the learning capability, or the time required to accumulate them. In adoption of E-sourcing strategy as one form of E-procurement the government must ensure that the system to be adopted is unique, valuable, difficult to imitate and non-substitutable as explained by Resource Based Theory. This will make the government achieve its mandate of excellent procurement performance and sustainable competitive advantage in the long run.

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

Limiting uncertainty through information sharing can in turn reduce companies' internal risk as companies' can optimize inventory, production, and capacity planning. Although,
information sharing seems to bring with it many benefits, it can simultaneously increase transaction risk, as higher levels of business transparency can lead to opportunistic behaviour. Nevertheless, uncertainty as a factor might affect companies' incentives to share information. This also agrees with contingency theory, which states that the amount of uncertainty and rate of change in an environment affects the development of internal features in organizations (Larsson et al., 2008). Electronic Data Interchange concept or strategy can be adopted by county governments using the transaction cost theory. EDI helps in management of this costs from time of ordering the goods and services to the time the goods are delivered and paid for.

**Adaptive Structuration Theory**

Based on Structuration theory, the study intends to determine the influence of E-procurement on procurement performance. Structuration theory was first proposed by Anthony Giddens in his Constitution of Society in 1984, which was an attempt to reconcile social systems and the micro/macro perspectives of organizational structure. DeSanctis and Poole (1994) borrowed from Giddens in order to propose AST and the rise of group decision support systems. AST provides the model whereby the interaction between advancing information technologies, social structures, and human interaction is described, and which focuses on the social structures, rules, and resources provided by information technologies as the basis for human activity.

AST a viable approach in studying how E-procurement influence performance in the county governments because it examines the change from distinct perspectives. Adaptive Structuration Theory (AST) is relevant to today's procurement practice due to the expanding influence that advancing technologies have had with regard to the human-computer interaction aspect of AST and its implications on socio-biologically inspired Structuration in security software applications (Ramakrishna 2005). AST theory presents specific advances in information technology that are driving organizational changes in the areas of business alignment, IT planning, and development that show how AST is being used as a driving force of effective management within organizations. The study will use the theory to investigate how complexity of the procurement operations is influenced by Information Technology (Ramakrishna 2005).

**Innovation Diffusion Theory**

Innovation diffusion theory was proposed by Rogers (1962). The theory presents that innovation is a process aimed to improve economic development. According to innovation diffusion theory, innovation is defined as an idea perceived as new by individuals. Andreanna and Swaminathan (2007) defined innovation as “all the scientific, technological, organizational, financial, and commercial activities necessary to create, implement, and market new or improved products or processes Innovation theory brings on board four important elements”. The first element is innovation that puts attention on the ability to come up with more efficient and better ways of doing things. This theory categorize adopters of innovation into five categories; innovators, individuals who want to be the first to try the innovation, Early Adopters, people who represent opinion leaders, Early Majority individuals who need to see evidence that the innovation works before they can adopt it, Late Majority, sceptical individuals who only adopts an innovation after it has been tried by the majority and Laggards, individuals who are very sceptical of change and are the hardest group to involve in the innovation process.

According to innovation theory, rate of adoption of innovative strategies can be looked at in terms of; relative advantage given to the organization, compatibility, complexity, trial-ability of the new strategies and observability to the stakeholders within the social system. The second factor is communication that lays information and creating and sharing information relating to innovative initiatives in the organization. The third element is time that considers
the duration involved in the innovation-decision process. The last element is the social context of the new systems (Rogers, 1997). Diffusion of innovation strategies requires evolution and reinvention of products and people so that they are able to perform better (Les Robinson, 2009).

Conceptual Framework

E-sourcing
- Transaction Costs management
- Supplier Relationships
- Compliance

E-payments
- Convenience
- Security
- Financial risks

E-tendering
- Audit management
- Bid Analysis
- Error rate

Electronic Data Interchange
- Inventory costs management
- Lead time management
- Documents management

Procurement Performance
- Lead time
- Costs
- Quality
- Transparency
- Flexibility

Independent variables
Conceptual framework
E-sourcing
E-Sourcing is defined by Aberdeen (2007) as use of internet and other related services as a decision support tool to detect, evaluate, negotiate and build up supplier and customer relationships that will effectively and efficiently aid supply chain and procurement processes. Objective of e-sourcing is to cost effectively identify vendors, goods and works that can be bought at the best lowest total cost and at the same time achieving organization objectives. It assists organizations to enhance knowledge and train other members of staff in the entity, on the use of proven sourcing methods. E-sourcing can lead to process efficiencies of reduced overheads, reduced lead time and can allow buyers through the internet technology to identify across spatial boundaries a set of new suppliers for a certain category of requirements (Aberdeen, 2007). According to Boer (2002) increased flexibility in decision making and lower prices are benefits that can be exhibited from the practice of e-sourcing.

E-payments
Electronic Payment is a financial exchange that takes place online between buyers and sellers. The content of this exchange is usually some form of digital financial instrument (such as encrypted credit card numbers, electronic cheques or digital cash) that is backed by a bank or an intermediary (Ingenico, 2012). Retail payments between customers and businesses are distinguished from wholesale payments between banks by their much higher transaction volume and much lower average value. E-Payment system is secure. There should be no threat to the user credit card number, smart card or other personal detail, payment can be carried out without involvement of third party. It makes E payment at any time through the internet directly to the transfer settlement and form E-business environment (Hossein, 2002).
Over the past decade, the Internet has evolved from a specific resource for IT pros and computer geeks to a daily destination for people all over the world. Technology has inarguably made our lives easier. Recent years have seen an explosive growth in the online retail arena. Many people are just as willing to order a movie from Netflix as they are to stop by their local Blockbuster or Hollywood Video. One of the biggest technological innovations is in the area of banking, finance and commerce – the Electronic Payments. Electronic Payments or e-payments refer to the technological breakthrough that enables us to perform financial transactions electronically (Keck, 2010). E-payments have several advantages, which were never available through the traditional modes of payment. Some of the most important are: Privacy, Integrity, Compatibility, Good transaction efficiency, Acceptability, Convenience, Mobility, Low financial risk and Anonymity (Fayad, 2014).

**E-tendering**

Tendering is a purchasing process that involves the invitation of potential suppliers to make an offer to a firm specifying the price at which they are willing to sell and terms and conditions for sale. Which on acceptance by the buyer, is deemed to be the foundation of the agreement. The standard procurement procedures are required by firms in every stage of its procurement cycle. This includes supplier selection, negotiating of the contract, placement and payment of orders. The procedures are essential in controlling expenditure, ensuring accuracy in approvals and reducing overpayments. For approval of items costing higher than a specified price, tasks are best separated and senior managers need to be involved in order to enhance procurement performance (Lysons, 2006).

E-Tendering System (or Electronic Tendering System) facilitates the complete tendering process from the advertising of the requirement through to the placing of the contract. This includes the exchange of all relevant documents in electronic format. E-Tendering can help organisations of all sizes to make their procurement more efficient and effective. Selecting a platform to run your tender process online helps to streamline procurement and, more importantly, save money. E-tendering benefits government by, managing suppliers bids online, automation of the e-tendering process, gain full audit trail and process intelligence, reduce costs and run sustainable; environmentally sustainable tenders, reduces time to procure by approximately 30%.

**Electronic Data Interchange**

Electronic data interchange (EDI) is the computer-to-computer exchange of business documents between companies. EDI replaces the faxing and mailing of paper documents. The EDI process provides many benefits. Computer-to-computer exchange of information is much less expensive than handling paper documents. Studies have shown that manually processing a paper-based order can cost $70 or more while processing an EDI order costs less than one dollar. Other benefits are much less labour time is required, fewer errors occur because computer systems process the documents rather than processing by hand, and business transactions flow faster. Most large companies have implemented an EDI program. Yet only a few have fully exploited the business benefits to be gained by B2B e-commerce technologies. Many companies implemented EDI with a subset of trading partners or business processes. In recent years there has been a spike in interest among companies that are considering renewed investment in EDI programs (GXS white paper, 2011)

Faster transactions support reduction in inventory levels, better use of warehouse space, fewer out-of-stock occurrences and lower freight costs through fewer emergency expedites. Paper purchase orders can take up to 10 days from the time the buyer prepares the order to when the supplier ships it. EDI orders can take as little as one day. One drawback is that companies must ensure that they have the resources in place to make an EDI program work;
however, the need for buying and hiring these resources or outsourcing them may be offset by the increased efficiency that EDI provides (Aberdeen Group, 2009).

**Procurement Performance**

The concept of procurement performance has existed from as early as 1930s. Since then, attention from procurement practitioners, agencies and researchers has grown on the concept. While some scholars define procurement performance as a product of transparency, efficiency and effectiveness (Expert Group Meeting, 2001), others consider it as a function of flexibility and enhanced effectiveness and efficiency of the procurement functions (Garran, 2005). USAID came up with indicators that can be used to measure procurement performance. Such indicators include: price variance, contract utilization, materials expiration management, supplier performance, procurement cycle time, payment processing time, emergency procurement, procurement cost, transparent tendering, staff training and transparent price information (USAID, 2013).

Procurement performance is a measure of identifying the extent to which the procurement function is able to reach the objectives and goals with minimum costs (Van Weele, 2002). Van Weele (2002) noted that there are two main aspects of the procurement performance: effectiveness and efficiency. Procurement effectiveness as defined by Van Weele (2002) is the extent to which the previously stated goals and objectives are being met. It refers to the relationship between actual and planned performance of any human activity. Additionally, he explains that procurement efficiency is the relationship between planned and actual resources required to realize the established goals and objectives and their related activities, referring to the planned and actual costs. As a result, supplier performance is the most important procurement performance driver.

In a broad-spectrum, procurement performance pertains obedience with necessities of both internal and external audits rather than in the context of the general efficiency of procurement. Performance monitoring is limited, since objectives, targets and metrics are generally not established in most cases. This leads to a lack of focus on improving the performance of procurement activities (Qualls and Shaw, 2010). Measuring the performance of the Procurement function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage (Batenburg & Versendaal, 2006).

**Research Methodology**

The study used descriptive research design. Population of the study was Kiambu County government. The population covered all the 10 ministries in Kiambu County government under the County. This is because the ministries in the county government were in position to provide the relevant data concerning the influence of E-procurement on procurement performance. The respondents were 28 procurement personnel, 14 ICT personnel, 16 Finance personnel, 10 logistics personnel. A census was conducted on all the respondents. The study used both primary and secondary data. A questionnaire was the main primary data collection instrument while a secondary data collection template was used to collect secondary data. Both descriptive and inferential statistics were used to achieve the objectives. The following multiple regression model was adopted: \[ Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + \epsilon \], where \( Y \) = procurement performance, \( B_0 \) = Constant (Co-efficient of intercept), \( X_1 \) = E-sourcing, \( X_2 \) = Online Payments, \( X_3 \) = E-tendering, \( X_4 \) = Electronic Data Interchange, \( \epsilon \) = Error Term and \( B_1 \) … \( B_4 \) = Regression co-efficient of four variables.

**Results**
A total of 68 questionnaires were administered to the respondents. Of these, a total of 55 questionnaires were duly filled and returned. This represents an overall response rate of 73.13% that is in accordance with the suggestions of Baruch (2009) who argued that response rates of above 50% is appropriate for analysis.

**Respondents Characteristics**

**Table 1 Respondent Demographic Information**

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent’s Academic Qualification</td>
<td>Certificate</td>
<td>16.4%</td>
</tr>
<tr>
<td></td>
<td>Diploma</td>
<td>21.8%</td>
</tr>
<tr>
<td></td>
<td>Undergraduate</td>
<td>47.3%</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>14.5%</td>
</tr>
<tr>
<td>Respondent’s work experience</td>
<td>Below 2 years</td>
<td>16.4%</td>
</tr>
<tr>
<td></td>
<td>2-3 years</td>
<td>32.7%</td>
</tr>
<tr>
<td></td>
<td>3-5 years</td>
<td>50.9%</td>
</tr>
</tbody>
</table>

**Descriptive Findings and Analysis**

The findings of the study on E-sourcing reveal that majority of the study respondents as indicated by 40.00% and mean of 4.09 agreed to a large extent that transaction costs influence procurement performance with a further 38.2% of the study respondents agreeing to a large extent that with this statement. A further 14.5% of the study respondents agreed to a moderate extent that transaction costs influence procurement performance with only 7.3% of the study respondents agreeing with this statement to a small extent. Notably, none of the study respondents disagreed that transaction costs influence procurement performance. With regard to Supplier relationships, majority of the study respondents as indicated by 80.00% agreed to greater extent that supplier relationships influence procurement performance with a further 20.00% of the study respondents agreeing to a moderate extent that supplier relationships influence procurement performance. Particularly again, none of the study respondents disagreed that supplier relationships influence procurement performance at the county government of Kiambu.

In addition, majority of the study respondents as indicated by 85.5% agreed to a larger extent that Compliance influences procurement performance at the county government of Kiambu with a further 14.5% of the study respondents agreeing to a large extent that Compliance influences procurement performance and none of the study respondents disagreeing with this statement. This is also supported by the mean value of 4.85 and a low standard deviation value of 0.36 revealing low variation in responses on the statement. Further, majority of the study respondents as indicated by 41.8% and mean of 3.25 agreed to a moderate extent that risk management influences procurement performance at the county government of Kiambu, with a further 14.5% of the study respondents agreeing to a greater extent with this statement. However, 10.9% of the study respondents did not agree at all that risk management influences procurement performance at the county government of Kiambu with a further 7.3% of the study respondents only agreeing to a small extent that risk management influences procurement performance at the county government of Kiambu. The standard
deviation value of 1.14 indicated a relatively high variation in the responses on whether risk management influences procurement performance at the county government of Kiambu.

On the last statement on E-Sourcing, majority of the study respondents as indicated by 32.7% and a mean value of 3.07 agreed to a large extent that Efficiency influences procurement performance at the county government of Kiambu with a further 10.9% of the study respondents agreeing to a larger extent with this statement and 23.6% of the study respondents agreeing to a moderate extent that Efficiency influences procurement performance while only 18.2% of the study respondents agreeing to a small extent with this statement. However, 14.5% of the respondents did not agree at all that Efficiency influences procurement performance at the county government of Kiambu. The standard deviation value of 1.25 indicated a relatively high variation in the responses on this statement. Overall, majority of the study respondents as indicated by mean value of 3.97 on the statements on E-sourcing agreed to a large extent that E-sourcing influences procurement performance in the County Government of Kiambu with the relatively low standard deviation value of 0.89 indicating low variation in respondents’ responses on statements regarding E-sourcing.

Accordingly, the findings of the study are consistent with the argument by Lewis (2004) that e-sourcing can be used as a tool to reduce process time, generate procurement savings and to drive incremental revenues as well as the findings of Kimutai and Ismael (2016) who noted that Strategic e-sourcing creates value by lowering cost, streamlining processes and enabling development of new businesses.

Table 2 E-sourcing

<table>
<thead>
<tr>
<th>Statements</th>
<th>Not at all</th>
<th>Small extent</th>
<th>To a moderate extent</th>
<th>Large extent</th>
<th>To a greater extent</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transaction costs influence procurement performance</td>
<td>0.00%</td>
<td>7.30%</td>
<td>14.50%</td>
<td>40.00%</td>
<td>38.20%</td>
<td>4.09</td>
<td>0.91</td>
</tr>
<tr>
<td>Supplier relationships influences procurement performance</td>
<td>0.00%</td>
<td>0.00%</td>
<td>20.00%</td>
<td>0.00%</td>
<td>80.00%</td>
<td>4.60</td>
<td>0.81</td>
</tr>
<tr>
<td>Compliance influences procurement performance</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>14.50%</td>
<td>85.50%</td>
<td>4.85</td>
<td>0.36</td>
</tr>
<tr>
<td>Risk management influences procurement performance</td>
<td>10.90%</td>
<td>7.30%</td>
<td>41.80%</td>
<td>25.50%</td>
<td>14.50%</td>
<td>3.25</td>
<td>1.14</td>
</tr>
<tr>
<td>Efficiency influences procurement performance</td>
<td>14.50%</td>
<td>18.20%</td>
<td>23.60%</td>
<td>32.70%</td>
<td>10.90%</td>
<td>3.07</td>
<td>1.25</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.97</td>
<td></td>
<td>0.89</td>
</tr>
</tbody>
</table>

E-payments

The findings of the study reveal that majority of the respondents as indicated by 38.2% and mean value of 3.71 agreed to a greater extent that Convenience aids in procurement performance at the county government of Kiambu with a further 25.5% of the study respondents also agreeing to a large extent with this statement and 14.5% of the study respondents agreeing to moderate extent that Convenience aids in procurement performance at the county government of Kiambu. Only 12.7% of the study respondents agreed to a small extent that Convenience aids in procurement performance at the county government of Kiambu. However 9.1% of the study respondents did not agree with this statement. The standard deviation value of 1.34 indicated a high variation in the responses on this statement.
The results on security revealed that majority of the study respondents, 50.9% and mean value 3.65 agreed to a greater extent that Security is key to procurement performance at the county government of Kiambu with a further 20.0% of the study respondents agreeing to moderate extent with this statement and only 21.8% of the study respondents agreeing to a small extent that Security is key to procurement performance at the county government of Kiambu. However, 7.3% of the study respondents did not agree at all that Security is key to procurement performance at the county government of Kiambu.

Further, the findings also revealed that majority of the study respondents, 65.5%, mean value 4.25 agreed to a large extent that financial risk management helps in procurement performance at the County Government of Kiambu, with a further 14.5% of the study respondents also agreeing to a large extent that Financial risk management helps in procurement performance at the County Government Of Kiambu. Only 5.5% and 9.10% of the study respondents agreed to a moderate extent and small extent respectively regarding financial risk management and procurement performance at the county government of Kiambu. However, 5.5% of the study respondents did not agree that financial risk management helps in procurement performance at the County Government of Kiambu. The findings also showed that majority of the study respondents as indicated by 32.7% and mean value of 3.45 agreed to a large extent that transaction efficiency assists in procurement performance, with the standard variation value of 1.34 indicating a high variation in responses regarding this statement. On the same note, the findings also showed that majority of the study respondents, 47.3% and mean value of 3.56 agreed to a large extent that compatibility aids in procurement performance at the county government of Kiambu. On overall therefore, the results of the study indicated that majority of the respondents as indicated by mean value of 3.73 agreed to a large extent that E-Payments influence procurement performance at the County Government of Kiambu. The standard deviation value of 1.07 indicated a high variation in the responses on statements regarding E-Payments. This finding is consistent with the claim by MacGregor (2011) that online transactions allow businesses to expand the customer base through the penetration into global markets due to enhanced access to information on an international scale. He further argued that through online transactions, small businesses can improve most aspects of their operations and in turn improve their internal efficiency.

**Table 3 E-payments**

<table>
<thead>
<tr>
<th>Statements</th>
<th>Not at all</th>
<th>at Small extent</th>
<th>To a moderate extent</th>
<th>Large extent</th>
<th>To a greater extent</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience aids in procurement performance</td>
<td>9.10%</td>
<td>12.70%</td>
<td>14.50%</td>
<td>25.50%</td>
<td>38.20%</td>
<td>3.71</td>
<td>1.34</td>
</tr>
<tr>
<td>Security is key to procurement performance</td>
<td>7.30%</td>
<td>21.80%</td>
<td>20.00%</td>
<td>0.00%</td>
<td>50.90%</td>
<td>3.65</td>
<td>1.47</td>
</tr>
<tr>
<td>Financial risk management helps in procurement performance</td>
<td>5.50%</td>
<td>9.10%</td>
<td>5.50%</td>
<td>14.50%</td>
<td>65.50%</td>
<td>4.25</td>
<td>1.24</td>
</tr>
<tr>
<td>Transaction efficiency assists in procurement performance</td>
<td>9.10%</td>
<td>16.40%</td>
<td>27.30%</td>
<td>14.50%</td>
<td>32.70%</td>
<td>3.45</td>
<td>1.34</td>
</tr>
<tr>
<td>Compatibility aids in procurement performance</td>
<td>9.10%</td>
<td>1.80%</td>
<td>27.30%</td>
<td>47.30%</td>
<td>14.50%</td>
<td>3.56</td>
<td>1.07</td>
</tr>
</tbody>
</table>

**Average**

|           | 3.73 | 1.29 |

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E-Tendering

The findings of the study on financial restructuring strategy reveal that majority of the respondents as indicated by 32.7% and mean value of 3.56 agreed to a large extent that audit management facilitates procurement performance at the County Government of Kiambu with a further 30.9% of the study respondents also agreeing to a greater extent with this statement and only 9.1% of the study respondents agreed to a small extent that audit management facilitates procurement performance at the County Government of Kiambu. However, 14.5% of the study respondents did not agree at all that audit management facilitates procurement performance at the County Government of Kiambu. Further, the results revealed that majority of the study respondents, 43.6% mean value 3.76 agreed to greater extent that bid analysis is vital in procurement performance at the County Government of Kiambu, with a further 14.5% of the study respondents also agreeing to a large extent that bid analysis is vital in procurement performance. However, 10.9% of the study respondents did not agree that bid analysis is vital in procurement performance.

The results on error management revealed that majority of the study respondents, 54.5%, mean value 4.22 agreed to a greater extent that error management is instrumental in procurement performance at the county government of Kiambu with a further 27.3% of the study respondents also agreeing to this statement to a large extent. However, an equal percent of the study respondents, 7.3%, agreed to a moderate and small extent that Error Management is instrumental in procurement performance with only 3.7% of the study respondents disagreeing to this statement. Further, majority of the study respondents, 56.4% and mean value 3.42 agreed to a large extent that Inventory Management is key to procurement performance. On the same note, majority of the study respondents, 32.7% and mean value of 3.56 agreed to a larger extent that Security analysis during tendering is vital in procurement performance with only 7.3% of the study respondents disagreeing with this statement. Overall, the results of the study revealed that majority of the study respondents as indicated by mean value of 3.71 on statements regarding E-Tendering agreed to a large extent that E-Tendering does influence procurement performance at the county Government of Kiambu. The standard deviation value of 1.28 indicated a high variation in the responses on statement regarding E-tendering. This finding is consistent with the argument by Oyediran and Akintola, (2011) that e-tendering is a veritable tool for increasing productivity and empowering procurement professionals to take better control of the tendering process. The average responses are as indicated in Table 4.

**Table 4 E-Tendering**

<table>
<thead>
<tr>
<th>Statements</th>
<th>Not at all</th>
<th>at Small extent</th>
<th>To a moderate extent</th>
<th>Large extent</th>
<th>To a greater extent</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit management facilitates procurement performance</td>
<td>14.50%</td>
<td>9.10%</td>
<td>12.70%</td>
<td>32.70%</td>
<td>30.90%</td>
<td>3.56</td>
<td>1.40</td>
</tr>
<tr>
<td>Bid Analysis is vital in procurement performance</td>
<td>10.90%</td>
<td>3.60%</td>
<td>27.30%</td>
<td>14.50%</td>
<td>43.60%</td>
<td>3.76</td>
<td>1.35</td>
</tr>
<tr>
<td>Error Management is instrumental in procurement performance</td>
<td>3.60%</td>
<td>7.30%</td>
<td>7.30%</td>
<td>27.30%</td>
<td>54.50%</td>
<td>4.22</td>
<td>1.10</td>
</tr>
<tr>
<td>Inventory Management is key to procurement performance</td>
<td>10.90%</td>
<td>14.50%</td>
<td>7.30%</td>
<td>56.40%</td>
<td>10.90%</td>
<td>3.42</td>
<td>1.20</td>
</tr>
<tr>
<td>Security analysis during tendering is vital in procurement performance</td>
<td>7.30%</td>
<td>21.80%</td>
<td>10.90%</td>
<td>27.30%</td>
<td>32.70%</td>
<td>3.56</td>
<td>1.34</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>3.71</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>1.28</strong></td>
</tr>
</tbody>
</table>
Electronic Data Interchange

The findings of the study regarding statements on Electronic Data Interchange revealed that majority of the respondents as shown by 49.1% and mean value of 3.6 agreed to a large extent that inventory costs are essential in procurement performance at the county government of Kiambu with a further 20.0% of the study respondents also agreeing with this statement to a greater extent. The findings also revealed that majority of the study respondents, 80.00%, mean value 4.6, agreed to a greater extent that Lead time management is useful in procurement performance at the county government of Kiambu with the remaining 20.0% also agreeing to a moderate extent that Lead time management is useful in procurement performance at the county government of Kiambu. None of the study respondents disagree with this statement. The standard deviation value of 0.81 revealed a low variation in the responses on this statement.

Further, the findings revealed that majority of the study respondents, 78.2% and mean value 4.78, agreed to a greater extent that documents management has assisted in procurement performance at the county government of Kiambu with a further 21.8% of the study respondents also agreeing to a large extent with this statement. None of the study respondents disagreed with the statement that Documents Management has assisted in procurement performance. The standard deviation value of 0.42 indicated a low variation in responses on this statement. On the same note, the findings also revealed that majority of the study respondents, 56.4% agreed to a larger extent that warehouse management has helped in procurement performance at the county government of Kiambu with a further 43.6% of the study respondents also agreeing to a large extent that warehouse management has helped in procurement performance. None of the study respondents disagreed with this statement while the standard deviation value of 0.5 indicated a relatively low variation in the responses.

On overall, the findings of the study therefore revealed that majority of the study respondents, mean 4.38 agreed to a greater extent that electronic data interchange influences procurement performance at the County Government of Kiambu. The standard deviation value of 0.75 indicated a low variation in the responses on the various statements on electronic data interchange. This finding is consistent with the claim by Kimani and Shale (2015) that electronic data interchange(EDI) will not only reduce the costs associated with filing but also reduce paper work, unnecessary time wastage during retrieval of document and also boost productivity of employees.

Table 5: Electronic Data Interchange

<table>
<thead>
<tr>
<th>Statements</th>
<th>Not at all</th>
<th>Small extent</th>
<th>To a moderate extent</th>
<th>To a large extent</th>
<th>To a greater extent</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory costs are essential in procurement performance</td>
<td>7.30%</td>
<td>14.50%</td>
<td>9.10%</td>
<td>49.10%</td>
<td>20.00%</td>
<td>3.60</td>
<td>1.18</td>
</tr>
<tr>
<td>Lead time management is useful in procurement performance</td>
<td>0.00%</td>
<td>0.00%</td>
<td>20.00%</td>
<td>0.00%</td>
<td>80.00%</td>
<td>4.60</td>
<td>0.81</td>
</tr>
<tr>
<td>Documents Management has assisted in procurement performance</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>21.80%</td>
<td>78.20%</td>
<td>4.78</td>
<td>0.42</td>
</tr>
<tr>
<td>Warehouse Management has helped in procurement performance</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>43.60%</td>
<td>56.40%</td>
<td>4.56</td>
<td>0.50</td>
</tr>
<tr>
<td>Improved customer service enhances procurement performance</td>
<td>0.00%</td>
<td>0.00%</td>
<td>21.80%</td>
<td>21.80%</td>
<td>56.40%</td>
<td>4.35</td>
<td>0.82</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.38</td>
<td>0.75</td>
</tr>
</tbody>
</table>
Procurement Performance

The findings of the study revealed that majority of the respondents, 80.0% and mean value 4.6 agreed to a greater extent that quality products and services are delivered to the county government of Kiambu with a further 20.0% of the respondents also agreeing to a moderate extent that quality products and services are delivered to the county government of Kiambu. None of the study respondents disputed the fact that quality products and services are delivered to the county government of Kiambu. Further, the study findings revealed that all the study respondents agreed to a larger extent that transparency is greatly enhanced during procurement at the county government of Kiambu.

The findings also revealed that majority of the study respondents, 70.90% and mean value 4.67, agreed to a larger extent that Flexibility is highly enhanced during procurement at the county government of Kiambu with key areas accorded priority. A further 25.9% of the study respondents also agreed to a large extent that Flexibility is highly enhanced during procurement with none of the respondents disputing this claim. The standard deviation value of 0.55 also indicated low variation in responses on this statement. On the same note, the results of the study revealed that majority of the respondents, 40.0% and mean value 3.49 agreed to a large extent that there is reduced procurement costs incurred during procurement at the county government of Kiambu and a further 30.9% of the respondents agreed to a moderate extent. However, 20.0% of the study respondents disagreed with this statement. The findings also showed that majority of the study respondents, 85.5% and mean value 4.07, agreed to a large extent that Transparent price information during procurement is delivered on time at the county government of Kiambu with a further 10.9% of the study respondents also agreeing to a greater extent that transparent price information on procurement is delivered on time. None of the study respondents disagreed with this statement. On average. The findings revealed that majority of the respondents, mean value 4.37, agreed to a larger extent that procurement performance had improved in the previous financial year in terms of delivery of quality products and services, transparency during procurement, reduced costs, flexibility and delivery of transparent price information during procurement.

Table 6 Procurement Performance

<table>
<thead>
<tr>
<th>Statements</th>
<th>Small extent</th>
<th>To a moderate extent</th>
<th>Large extent</th>
<th>To a greater extent</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality products and services are delivered</td>
<td>0.00%</td>
<td>20.00%</td>
<td>0.00%</td>
<td>80.00%</td>
<td>4.60</td>
<td>0.81</td>
</tr>
<tr>
<td>Transparency is greatly enhanced during procurement</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>100.00%</td>
<td>5.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Flexibility is highly enhanced during procurement</td>
<td>0.00%</td>
<td>3.60%</td>
<td>25.50%</td>
<td>70.90%</td>
<td>4.67</td>
<td>0.55</td>
</tr>
<tr>
<td>Reduced procurement cost</td>
<td>20.00%</td>
<td>30.90%</td>
<td>9.10%</td>
<td>40.00%</td>
<td>3.49</td>
<td>1.51</td>
</tr>
<tr>
<td>Transparent price information during sourcing is delivered on time</td>
<td>0.00%</td>
<td>3.60%</td>
<td>85.50%</td>
<td>10.90%</td>
<td>4.07</td>
<td>0.38</td>
</tr>
<tr>
<td>Average</td>
<td><strong>4.37</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>0.65</strong></td>
</tr>
</tbody>
</table>
Correlation analysis

The study findings on correlation are as presented in Table 7.

### Table 7 Correlation Analysis

<table>
<thead>
<tr>
<th>Correlations</th>
<th>E-sourcing</th>
<th>E-payments</th>
<th>E-tendering</th>
<th>Electronic data interchange</th>
<th>Procurement performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-sourcing</td>
<td>Pearson Correlation 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed) 0.743</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-payments</td>
<td>Pearson Correlation 0.045</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed) 0.743</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-tendering</td>
<td>Pearson Correlation 0.045</td>
<td>-0.066</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed) 0.744</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic data interchange</td>
<td>Pearson Correlation 0.12</td>
<td>-0.039</td>
<td>.330*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed) 0.384</td>
<td>0.778</td>
<td>0.014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procurement performance</td>
<td>Pearson Correlation .505**</td>
<td>.407**</td>
<td>.335*</td>
<td>0.174</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed) 0.000</td>
<td>0.002</td>
<td>0.013</td>
<td>0.203</td>
<td></td>
</tr>
</tbody>
</table>

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

*Correlation is significant at the 0.05 level (2-tailed).**

The study findings revealed a positive and significant relationship between E-sourcing and procurement performance of the county government of Kiambu (R = 0.505, Sig <0.05). This therefore implies that an improvement in various indicators of E-sourcing such as reduction of transaction costs during sourcing, enhancing supplier relationships, Compliance to E-sourcing requirements, enforcing risk management strategies and enhancing efficiency during E-sourcing will significantly improve procurement performance in the county government of Kiambu. This finding is consistent with the argument of Lewis (2004) that e-sourcing can be used as a tool to reduce process time, generate procurement savings and to drive incremental revenues as well as the findings of Kimutai and Ismael (2016) who noted that Strategic e-sourcing creates value by lowering cost, streamlining processes and enabling development of new businesses.

The correlation results also revealed that E-payments and procurement performance are positively and significantly related (R = 0.407, Sig <0.05). This implies that an improvement in E-payment practices such as convenience, security, financial risk management, transaction efficiency and compatibility will improve procurement performance of the county government of Kiambu. This result is consistent with the argument of MacGregor (2011) that
Online transactions allow businesses to expand the customer base through the penetration into global markets due to enhanced access to information on an international scale. He further argued that through online transactions, small businesses can improve most aspects of their operations and in turn improve their internal efficiency.

Further, the correlation results indicated that E-Tendering had a positive and significant association with procurement performance the county government of Kiambu (R = 0.335, Sig <0.05). This also implies that an improvement in various indicators of E-Tendering such as audit management facilitates, bid analysis, error management, inventory management and security analysis during tendering will all eventually lead to a significant improvement in procurement performance of the county government of Kiambu. The findings are consistent with the argument of Oyediran and Akintola, (2011) that e-tendering is a veritable tool for increasing productivity and empowering procurement professionals to take better control of the tendering process.

Finally, the correlation results indicated that Electronic Data Interchange and procurement performance of the county government of Kiambu had a positive but insignificant association (R = 0.174, Sig>0.05) implying that improvement in all the indicators of Electronic Data Interchange such as inventory costs management, lead time management, documents management, warehouse management and improved customer service will result to an insignificant improvement in the procurement performance of the county government of Kiambu. The findings are consistent with the argument by Kimani and Shale (2015) that electronic data interchange will not only reduce the costs associated with filing but also reduce paper work, unnecessary time wastage during retrieval of document and also boost productivity of employees.

**Regression analysis**

The model summary results as presented in Table 8 revealed that the four independent variables jointly had a strong positive influence on procurement performance of the county government of Kiambu as supported by a joint Pearson correlation of 0.720. This therefore implies that an improvement in all the four variables (E-Sourcing, E-Payments, E-Tendering and Electronic Data Interchange) results to a strong positive improvement in the procurement performance of the county government of Kiambu. The coefficient of determination (R-square) was 0.519 implying that the four variables (E-Sourcing, E-Payments, E-Tendering and Electronic Data Interchange) jointly account for up to 51.9% of the variation in procurement performance of the county government of Kiambu. This reveals that the remaining 48.1% of the variation in procurement performance of the county government of Kiambu is accounted for by other factors not covered in the model.

**Table 8 Model Summary**

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>.720</td>
<td>0.519</td>
<td>0.48</td>
<td>0.305</td>
</tr>
</tbody>
</table>

Predictors: (Constant), Electronic Data Interchange, E-payments, E-sourcing, E-tendering

The F statistic indicating the overall significance of the model is significant at 5% (Sig < 0.000) showing that the model was significant. The F calculated statistic of 13.464> F (4, 50) critical value of 2.557confirming that the model was significant. The model significance results therefore imply that the four independent variables (E-Sourcing, E-Payments, E-Tendering and Electronic Data Interchange) used in this study are suitable factors in predicting procurement performance of the county government of Kiambu. The results are presented in Table 9.

**Table 9 ANOVA (Model Significance)**

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
</table>

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The results as presented in Table 10 reveal that E-Sourcing positively and significantly influences procurement performance of the county government of Kiambu (Beta = 0.389, Sig< 0.05). This implies that a unit increase in various indicators of E-Sourcing such as reduction of transaction costs during sourcing, enhancing supplier relationships, Compliance to E-sourcing requirements, enforcing risk management strategies and enhancing efficiency during E-sourcing will result to a 0.389 unit effect in procurement performance of the county government of Kiambu. The results are consistent with the argument of Lewis (2004) that e-sourcing can be used as a tool to reduce process time, generate procurement savings and to drive incremental revenues.

The findings further shows that E-Payments positively and significantly influences procurement performance of the county government of Kiambu (Beta = 0.220, Sig <0.05) implying that an improvement in E-Payments such as convenience, security, financial risk management, transaction efficiency and compatibility will lead to a 0.220 unit positive and significant improvement in procurement performance of the county government of Kiambu. Accordingly, the findings of the study are consistent with the argument by MacGregor (2011) that online transactions allow businesses to expand the customer base through the penetration into global markets due to enhanced access to information on an international scale. He further argued that through online transactions, small businesses can improve most aspects of their operations and in turn improve their internal efficiency.

The regression results further revealed that E-Tendering positively and significantly affects procurement performance of the county government of Kiambu (Beta = 0.169, Sig <0.05) implying that an improvement in E-Tendering practices such as audit management facilitates, bid analysis, error management, inventory management and security analysis during tendering will result to 0.403 unit improvement in procurement performance of the county government of Kiambu. The findings are consistent with the argument of Oyediran and Akintola, (2011) that e-tendering is a veritable tool for increasing productivity and empowering procurement professionals to take better control of the tendering process.

The regression results finally reveal that Electronic Data Interchange had a positive but insignificant influence on procurement performance of the county government of Kiambu (Beta = 0.026, Sig>0.05). This implies that a unit improvement in Electronic Data Interchange indicators such as inventory costs management, lead time management, documents management, warehouse management and improved customer service will result to a 0.026 unit improvement in procurement performance of the county government of Kiambu. The findings are consistent with the argument by Kimani and Shale (2015) that electronic data interchange will not only reduce the costs associated with filing but also reduce paper work, unnecessary time wastage during retrieval of document and also boost productivity of employees.

Table 10 Regression Coefficients

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.258</td>
<td>0.577</td>
</tr>
</tbody>
</table>

The results as presented in Table 10 reveal that E-Sourcing positively and significantly influences procurement performance of the county government of Kiambu (Beta = 0.389, Sig< 0.05). This implies that a unit increase in various indicators of E-Sourcing such as reduction of transaction costs during sourcing, enhancing supplier relationships, Compliance to E-sourcing requirements, enforcing risk management strategies and enhancing efficiency during E-sourcing will result to a 0.389 unit effect in procurement performance of the county government of Kiambu. The results are consistent with the argument of Lewis (2004) that e-sourcing can be used as a tool to reduce process time, generate procurement savings and to drive incremental revenues.

The findings further shows that E-Payments positively and significantly influences procurement performance of the county government of Kiambu (Beta = 0.220, Sig <0.05) implying that an improvement in E-Payments such as convenience, security, financial risk management, transaction efficiency and compatibility will lead to a 0.220 unit positive and significant improvement in procurement performance of the county government of Kiambu. Accordingly, the findings of the study are consistent with the argument by MacGregor (2011) that online transactions allow businesses to expand the customer base through the penetration into global markets due to enhanced access to information on an international scale. He further argued that through online transactions, small businesses can improve most aspects of their operations and in turn improve their internal efficiency.

The regression results further revealed that E-Tendering positively and significantly affects procurement performance of the county government of Kiambu (Beta = 0.169, Sig <0.05) implying that an improvement in E-Tendering practices such as audit management facilitates, bid analysis, error management, inventory management and security analysis during tendering will result to 0.403 unit improvement in procurement performance of the county government of Kiambu. The findings are consistent with the argument of Oyediran and Akintola, (2011) that e-tendering is a veritable tool for increasing productivity and empowering procurement professionals to take better control of the tendering process.

The regression results finally reveal that Electronic Data Interchange had a positive but insignificant influence on procurement performance of the county government of Kiambu (Beta = 0.026, Sig>0.05). This implies that a unit improvement in Electronic Data Interchange indicators such as inventory costs management, lead time management, documents management, warehouse management and improved customer service will result to a 0.026 unit improvement in procurement performance of the county government of Kiambu. The findings are consistent with the argument by Kimani and Shale (2015) that electronic data interchange will not only reduce the costs associated with filing but also reduce paper work, unnecessary time wastage during retrieval of document and also boost productivity of employees.

Table 10 Regression Coefficients

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.258</td>
<td>0.577</td>
</tr>
</tbody>
</table>
The optimal regression model is as shown below

\[
\text{Procurement Performance} = 1.258 + 0.389\text{E-Sourcing} + 0.220\text{E-Payments} + 0.169\text{E-Tendering}
\]

**Conclusions**

The conclusions are based on the findings of the study. Based on the study findings, the study concluded that various indicators of E-sourcing such as reduction of transaction costs during sourcing, enhancing supplier relationships, Compliance to E-sourcing requirements, enforcing risk management strategies and enhancing efficiency during E-sourcing leads to significant improvement in procurement performance in the County Government of Kiambu.

The study also concludes that E-payment outcomes such as convenience, security, financial risk management, transaction efficiency and compatibility leads to improvement in procurement performance of the county government of Kiambu. Further, the study concludes that improvement in various indicators of E-Tendering such as audit management facilitates, bid analysis, error management, inventory management and security analysis during tendering will all eventually lead to a significant improvement in procurement performance of the county government of Kiambu. Another conclusion that can be made by the study is that an improvement in various Electronic Data Interchange indicators such as inventory costs management, lead time management, documents management, warehouse management and improved customer service will result to an insignificant improvement in the procurement performance of the county government of Kiambu.

**Recommendations of the study**

Based on the aforementioned conclusions, the study made the following recommendations that if appropriately implemented will lead to an improvement in procurement performance in the county government of Kiambu. The study recommends that in order for the county government of Kiambu to improve procurement performance, there is need for the county to focus on adopting E-sourcing for reduction of transaction costs during sourcing, enhancing supplier relationships, Compliance to E-sourcing requirements, enforcing risk management strategies and enhancing efficiency during E-sourcing.

The study also recommends that in order for the county government of Kiambu to improve procurement performance, there is an urgent need to adopt E-payment practices to improve on convenience, security, financial risk management, transaction efficiency and compatibility during procurement. The study also recommends that in an attempt to improve its procurement performance, the county government of Kiambu should be keen on adopting e-tendering during audit management, bid analysis as well as inventory management. The study also recommends that in an attempt to improve its procurement performance, the county government of Kiambu should be keen on adopting Electronic Data Interchange for the purposes of inventory costs management, lead time management, documents management, warehouse management and improved customer service during procurement.

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