



**FACTORS AFFECTING EFFECTIVE IMPLEMENTATION OF E-PROCUREMENT IN COUNTY GOVERNMENTS: A CASE STUDY OF KAJIADO COUNTY, KENYA**

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**ABSTRACT**

Governments have been noted to be the single largest purchaser in a national economy and the public procurement systems in low- and middle-income countries have typically been characterised by lack of transparency and inefficient public expenditures. An E-procurement system offers many benefits which include: enhanced transparency and compliance, increased performance and quality. There is evidence of implementation challenges faced during its introduction in the year 2003. The general objective of this study was to determine the factors affecting the effective implementation of electronic procurement in the county governments in Kenya. This study adopted a descriptive approach. The target population was 40 employees of Kajiado County. The study used a semi structured questionnaire to collect data from the tender committee members. The study found that management support is very crucial in implementing e-procurement in the county governments, top management is so important because it acts as the driving force behind the whole implementation process. The study revealed that budgetary allocation affects the effective implementation of e-procurement. The study also found that budgetary allocation positively affects the effective implementation of e-procurement. The study found that staff competence affects the effective implementation of the e-procurement in the county governments. It was further revealed that staff competence and information technology infrastructure positively influence effective implementation of the e-procurement in the county governments, and concludes that the current information technology infrastructure is not effective enough to support the implementation of e-procurement in the county governments.

**Keywords:** E-procurement, Information Technology, Electronic Government Procurement

**INTRODUCTION**

Traditionally procurement has been characterized by manual, paper based activities mainly in defining suppliers or vendors of materials or services purchased by an organization. However, as noted by Kiarie (2011) this has often resulted in inefficiencies, low transparency and low service quality as well as weak oversight roles, delays, poor linkages between procurement and expenditures, and poor record management. Governments have been noted to be the single largest purchaser of a national economy (PPOA, 2009). The public procurement systems in low-and middle-income countries have typically been characterized by spending money in a less than transparent and inefficient ways. The application of digital technology and e- procurement offers opportunities for improvements in the public sector. Electronic procurement (E-procurement) has been a common theme of many organizations for the promotion of transparency and good governance in procurement for many developed and developing nations. According to PPOA (2011) e-procurement has the potential to strengthen the accountability, transparency, efficiency, and effectiveness of this sensitive, high-value government function.

Electronic Government Procurement (E-GP) is the application of technology (particularly online technology) to public sector procurement of goods, works, and services, under an efficient, high-quality management framework and involves harnessing information and communication technology to transform relationships with citizens and businesses and between the arms of the government (Bhatnagar, 2002). E-procurement systems have proven themselves within various government organizations as an effective tool for instituting procurement reforms and establishing a fully transparent and open procurement environment. As noted in the Expert Group Meeting Report (2011) the business case for implementing an e-procurement system include the following: First, e-procurement enables significant improvement in transparency. This is made possible through traceability of all transactions on an online platform. This in essence provides an audit trail which is essential for the effective prevention of fraud and corruption. Secondly, electronic procurement enables enhanced value-for-money. This is made possible by enhancing competition through improved accessibility; reducing procurement costs and transaction costs; facilitating online catalogue based purchases, such as framework contracts; improved market intelligence and resource allocation management. Thirdly, electronic procurement improves work efficiency by reducing disputes; enabling better enforcement of regulations; reducing procurement time; standardization and streamlining of the procurement process.

Several authors (Coulthard & Castleman, 2001; Vaidya, Sajeew and Callender, 2006) contend that e-procurement systems allow governments to apply standard procurement processes across institutions, using appropriate monitoring and management controls to delegate more responsibility to the individual procuring entities. The proper implementation of standard processes and controls improves the work efficiency within procuring entities and reduces procurement times by providing users with electronic tools and environments to support their tasks. The importance of public procurement in terms of size relative to World GDP and World trade was enlightened in a report by OECD (2001). The report estimated the value of government procurement market at over 2,000 billion in 1998. This was equivalent to 7% of the World's GDP and 30% of the world merchandise trade. In a related study, Trionfetti (2000) estimated that the size of public procurement varied between 5 and 8% of GDP in industrialized countries. For Middle East and Africa, the magnitude of central procurement purchases ranged between 9 and 13%. This clearly indicates that public procurement is important within both developed and developing economies.

Public sector procurement is large and complex, accounting for between twenty and thirty percent of gross domestic product (Thai & Grimm, 2000) and traditionally attempts to meet many social and political objectives (Tether, 1977). A number of researchers (Vaidya, Sajeew and Callender (2006) have conducted studies on e-procurement. Coulthard & Castleman (2001) observed that while some authors have noted the practical difficulties in getting the systems operational (Geraint, 2000), there is virtually no discussion of implementation and management models of e-procurement in the government sector or of the consequences of these models for the government, suppliers, the public or for those whose responsibility it is to implement and manage an e procurement system. Batenburg (2007) established that there are country differences with respect to e-procurement adoption. Firms from countries with low uncertainty avoidance such as Germany and the UK are the early adopters of e-procurement, while countries that are less reluctant to change such as Spain and France have lower adoption rates. Greunen, Herselman & Niekerk (2010) also carried out a study on the adoption of regulation-based e-procurement in the Eastern Cape provincial administration and found that measurable benefits of supply chain management have not yet been realized due to general limited understanding of how supply chain management concept works within government environment.

As existing literature shows, the introduction of technology in public procurement system have added a new dimension to the procurement reforms in Ghana. The combination of greater computing power and internet-based communication has given rise to the e-procurement or electronic procurement regimes (Segal and Taylor, 2001). Studies also show that e-procurement systems have a potential to enable governments to monitor the efficiency and effectiveness of procurement and provide more transparency and accountability. However, such systems are only effective when linked to e-governance information

systems as seen in Italy, Scotland and more recently in Western Australia (Coulthard & Castleman, 2001). Scholars (Segal and Taylor, 2001; Coulthard & Castleman, 2001; Basheka, 2008) also contend that e-procurement information system development and implementation is done differently depending on the government and the level of Information Technology (IT) appreciation among the public especially the providers of government. These case studies of e procurement provide information about the potential benefits, impact and consequences of e-procurement information systems.

Korea is seen as a leader with the implementation of a fully integrated e-procurement solution that is integrated with all other electronic government operations, including financial management systems, company registrations and tax systems (Kalakota, 2000). The implementation of the Korean KONEPS system was just one of eleven electronic government system initiatives across various institutions to support a fully integrated environment, including system support for the distribution and management of digital certificates to ensure the authenticity and security of the system and associated processes. Korea invested millions of dollars over a number of years as its system evolved from an electronic tendering system to improve transparency in the procurement process to today's fully integrated e-procurement solution that takes full advantage of the efficiencies an electronic system offers.

Though the investment in electronic procurement numbered in the millions and Korea continues to fund millions each year to support system operation and business development activities, the results of the system outweigh the investment with an estimated \$6 billion USD economic impact in savings to government and participating suppliers. KONEPS currently supports over 41,000 public entities, 191,000 registered suppliers and over \$50 billion in annual procurement activity. It is estimated that in Uganda, the volume of public procurement amounts to about 70 percent of the country's Gross Domestic Product (GDP). This reveals that huge amounts of money is being spent on a variety of goods, services and works (Uganda Country Procurement Assessment (CPAR) Team, 2004). It is prudent for the Ugandan government to procure in the most efficient and effective way so as to cut costs and foster transparency. Ngobe (2007) contributed that the efficient and effective way to do this is by adopting the use of e-procurement. Procurement data storage and information dissemination can be improved by an e-procurement information system implemented on web technology which allow data to be stored electronically. Ngobe (2007) noted that since the internet is penetrating every corner of the society, an e-procurement information system can enable the public to have access to relevant information about public procurement on time and in a correct format at a minimum cost, providers can have access to the Procuring Entities' procurement plans and bidding documents through the internet hence competition among potential providers will increase.

Since public procurement is governed by strict laws set up by government, Ngobe (2007) advises that it is important that a preliminary review of the existing public procurement process be first carried out after which a holistic approach in implementing public e-procurement information requirements can be adapted. E procurement information systems needs close communication with the stakeholders like the PDEs, PPDA, providers and the public (Ngobe, 2007). In order to achieve close communication, e-procurement information systems need to be decentralised so that the process is improved by the closeness of the concerned stakeholders. Scholars (Mwololo, 2005; Odoyo, 2011) noted that despite lack of a legislative framework, some significant changes have been realized in the information and communications technology (ICT) sector in Kenya since the turn of the millennium. A notable achievement is the country's ICT policy document, which was approved by the cabinet in February 2006 (Republic of Kenya, 2006).

Existing literature reveal that a number of organizations in Kenya have successfully adopted the use of e-procurement technology. Gitahi (2011) cited the example of Nation Media Group which through their digital platform commonly known as N-Soko has enabled their clients to purchase products online. There is also emerging evidence of the slow uptake of the technology despite the benefits that e-procurement offers (Segal and Taylor, 2001). In the public sector, several models have been tried by different countries to implement e-procurement. These are seller centric buyer centric, e-marketplaces or third-party

managed models. In some countries these models are summarized into three: public, the mixed model and public private partnerships. As Meso, 2010 noted, the Kenya government has adopted the public model.

The Public Financial Reform Management (PFMR) Strategy Paper 2001-2006 recommended automation as well as integration of key government functions such as human resources payroll, accounting, procurement and budgeting citing transparency, better financial management and reporting as some of the benefits (GoK, 2001). According to E-government Strategy Paper 2004 e-procurement was one of the medium term objectives which were supposed to be implemented by June 2007, but the implementation process was observed to be very slow (GoK, 2004). The National Treasury is a Ministry in Government which is spearheading public financial management reforms. Within the ministry, there is a Department called the Integrated Financial Management Information System (IFMIS) Department which has the mandate of designing, spearheading and managing the Integrated Financial Management Information System re-engineering process. Through this department, the Integrated Financial Management Information System (IFMIS) was developed in 1998 and the deployment of the system to ministries started in 2003. The deployment to the counties started in 2012 and as at the date of the study, only nineteen out of forty seven counties have started using the IFMIS system. At present the intended users of the IFMIS system at the counties are being trained on the same. The Strategic Plan for GoK IFMIS (2011-2015) outlined the development of the Integrated Financial Management System (IFMIS). At present the system is being re-engineering with the aim of improving systems for management and reporting of financial data and information for the Government of Kenya.

The IFMIS implementation requirement in Kenya originated from the Ministry of Finance and Economic Planning ICT Master Plan 2001- 2005 that highlighted gaps and weaknesses within the SIBET system that was in use (Imbuye 2013). The master plan proposed development of different modules comprising: accounting, revenue management, asset management among others and establishment of interfaces with the National Bank Payment Information System, Kenya Revenue Authority (KRA) and the Ministry of Labour for payroll and human resource management modules. The GoK IFMIS is an Oracle based Enterprise Resource Planning (ERP) software. ERPs are large scale computer software and hardware systems that attempt to integrate all data and processes of an organization into a unified system housed in a centralized database which is accessed through a secure network. ERPs have capabilities for handling enterprise wide business processes ranging from functions such as manufacturing, logistics, distribution, inventory, shipping, invoicing and accounting.

PPOA Interim Report (2009) outlined plans to introduce electronic procurement in all Kenya's public organisations as a way of curbing corruption and tendering delays. According to the report, the programme is set to be rolled out in 2013 after the completion of a pilot study. The system is anchored on the Integrated Financial Management System (IFMIS). The PPOA Interim Report (2009) highlighted the objectives which the Government of Kenya aims to achieve through the implementation of an e-procurement system. The objectives include the following: First is to enhance transparency in public procurement by making the required information available in the internet. According to the PPOA Interim Report (2009), cost savings can be sought through demand aggregation and higher competition as a result of wider publicity to Government procurement opportunities. Through e procurement this can be achieved through aggregating Government departments' demand to leverage buying power with the supply market. Thirdly; through e-procurement, the objective of reduced inventory costs can be achieved through improved planning and management of inventory leading to lower levels of inventory. Fourthly; by using e-procurement, the objective of internal arbitrage can be achieved by ensuring consistency in goods and services costs at the best price across all departments at item level. Through the e procurement system, the objective of consistent and sustainable contractor development can be achieved by enabling pre-qualified vendors the opportunity to access other government departments. E-procurement can enable transactional effectiveness through automation and eliminating of non-value adding steps within the procurement to enable efficient and effective processes.

The territory of Kenya is divided into national and county governments. The First Schedule of the Constitution of Kenya (COK) outlines the establishment of forty seven county governments in the Republic of Kenya (GoK, 2010). Article 202 of the Constitution stipulates that revenue raised nationally shall be shared equitably among the national and county governments. Article 203 further dictates that for every financial year, not be less than fifteen per cent of all revenue collected by the national government should be disbursed to the counties. According to the Commission on Revenue Allocation (CRA), a total of 210 billion Kenya shillings was disbursed to the forty seven counties in the financial year 2013-2014 (GoK, 2013). In Kenya, public procurement is governed by the Public Procurement and Disposal Act (PPDA), 2005 pursuant to article 227 of the Constitution of Kenya (CoK). Besides the PPDA, there are three regulations namely: Public Procurement and Disposal Regulations (PPDR), 2006; Public Procurement and Disposal (Preference and Reservations) Regulations (PPDPRR), 2011 and Public Procurement and Disposal (County Governments) Regulations, 2013.

Procurement has traditionally been characterized by the use of manual, paper based systems mainly in defining suppliers for goods, works or services. This has often resulted in inefficiencies, reduced transparency, poor records management, delays, weak oversight roles, and poor linkages between procurement and expenditures (Kiarie, 2011). Public procurement is an important function of government as it constitutes the principal means through which governments acquire goods, works and services (Thai, 2001). Public sector procurement is large and complex, accounting for between twenty and thirty percent of gross domestic product (Thai & Grimm, 2000). Governments have been noted to be the single largest purchaser in a national economy and the public procurement systems in low-income and middle-income countries have typically been characterised by lack of transparency and inefficient public expenditures (PPOA, 2009).

Having two levels of government (the national and the county governments) and with the constitutional requirement dictating the disbursement of at least fifteen per cent of the revenue raised nationally to the forty seven counties, a proper functioning public procurement system is both crucial and important in the Kenyan case. In the 2013/2014 financial year a total of 210 billion Kenya shilling was disbursed to the counties (CRA, 2013). In order to integrate key functions such as procurement and accounting; streamline and enhance transparency in management of public funds as well as to provide a framework for standardized reporting, the government adopted the policy requiring all government procuring entities to use the Integrated Financial Management Information System (IFMIS). The Kenyan electronic government procurement (known as 'Procure to Pay') is anchored in the IFMIS system.

However, only nineteen out of the forty seven counties had adopted the IFMIS System as at July 2013. Moreover, the history of implementation of the IFMIS system since its introduction in Kenya in the year 2003 is riddled with a number of challenges which cannot be ignored globally and regionally. There have been studies on factors affecting the adoption and implementation of e-procurement in organizations around the world but only a few have sought to address the Kenyan case especially with the new devolved governance structure. It is therefore in light of this that this study seeks to investigate factors affecting the effective implementation of e-procurement in the county governments. The general objective of this study was to determine the factors affecting the effective implementation of electronic procurement in the county governments. The study specifically sought to:

1. To assess the effects of budgetary allocation on the effective implementation of e-procurement.
2. To investigate the effect of top management support on the implementation effective implementation of e-procurement in the county governments.
3. To determine how staff competence affects the effective implementation of the e-procurement in the county governments.
4. To investigate the effect of information technology infrastructure on the effective implementation of e-procurement in the county governments.

### **Theoretical Review**

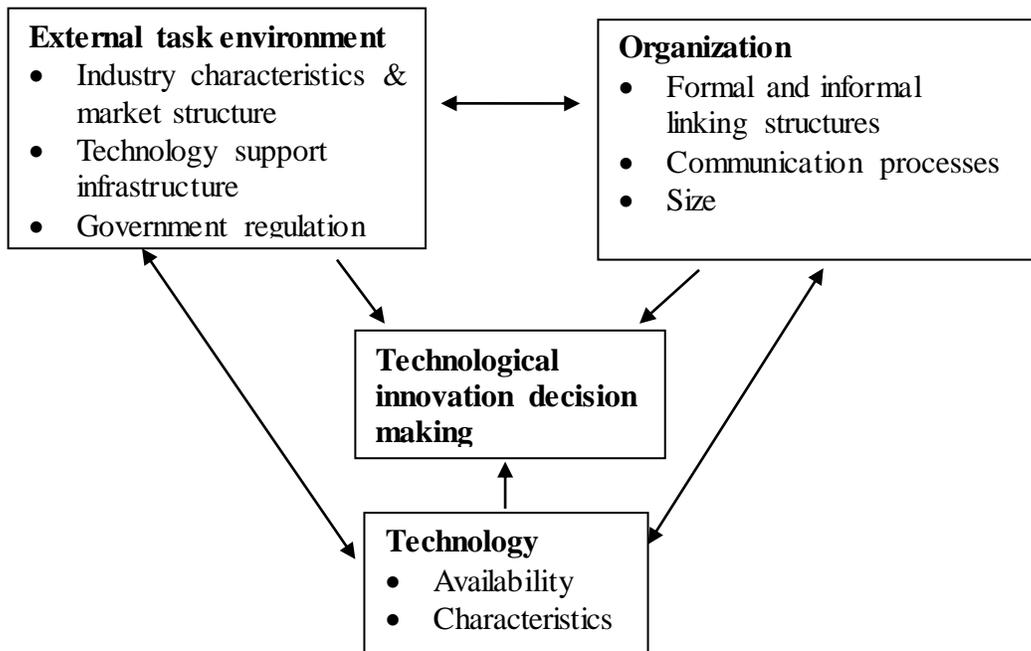
#### **Technology – Organisation – Environment Model, (TOE)**

Several models have been used within past research studies to explain IT adoption/diffusion. Notable among them are theories such as Davis's Technology acceptance model (TAM), Roger's Diffusion of Innovation (DOI), Fishbein and Ajzen's Theory of Reasoned action (TRA), Ajzen's Theory of Planned Behavior (TPB) and Tornatzky and Fleischer's Technology-organization-environment (TOE) framework. Technology-organization-environment framework states that a firm's technology adoption/implementation decisions are influenced by three factors: technology, organization and environment. Technology describes the existing and new technologies relevant to the firm, Organizational factors refer to the available resources within the firm and Environmental describes the industry features where a firm is conducting business (Tornatzky and Fleischer, 1990).

The TOE framework was developed in 1990 (Tornatzky and Fleischer 1990). It identifies three aspects of an enterprise's context that influence the process by which it adopts and implements a technological innovation: technological context, organizational context, and environmental context (Figure 2.1). (a) Technological context describes both the internal and external technologies relevant to the firm. This includes current practices and equipment internal to the firm (Starbuck 1976), as well as the set of available technologies external to the firm (Thompson 1967, Khandwalla 1970, Hage 1980). (b) Organizational context refers to descriptive measures about the organization such as scope, size, and managerial structure. (c) Environmental context is the arena in which a firm conducts its business—its industry, competitors, and dealings with the government (Tornatzky and Fleischer 1990).

The TOE framework has been used and empirically validated in several studies with diverse technology innovations and various contexts to explain technology adoption/diffusion decisions (Iacovou, Benbasat et al. 1995; Chau and Tam 1997; Kuan and Chau 2001; Teo and Pan 2004; Zhu and Kraemer 2005; Srivastava and Teo 2006; Zhu, Dong et al. 2006; Chang, Hwang et al. 2007; Huy 2007). Based on TOE's solid theoretical foundation and the consistent empirical support presented in earlier research studies, the TOE framework is considered suitable and a good starting point for this study.

TOE framework is designed for analyzing technology adoption within firms in various contexts. Businesses in developed and developing countries are significantly different. Organizations in developed countries have access to more resources and face more competition than organization in developing countries (Dasgupta, Agarwal et al. 1999). Against this background and after review of other technology



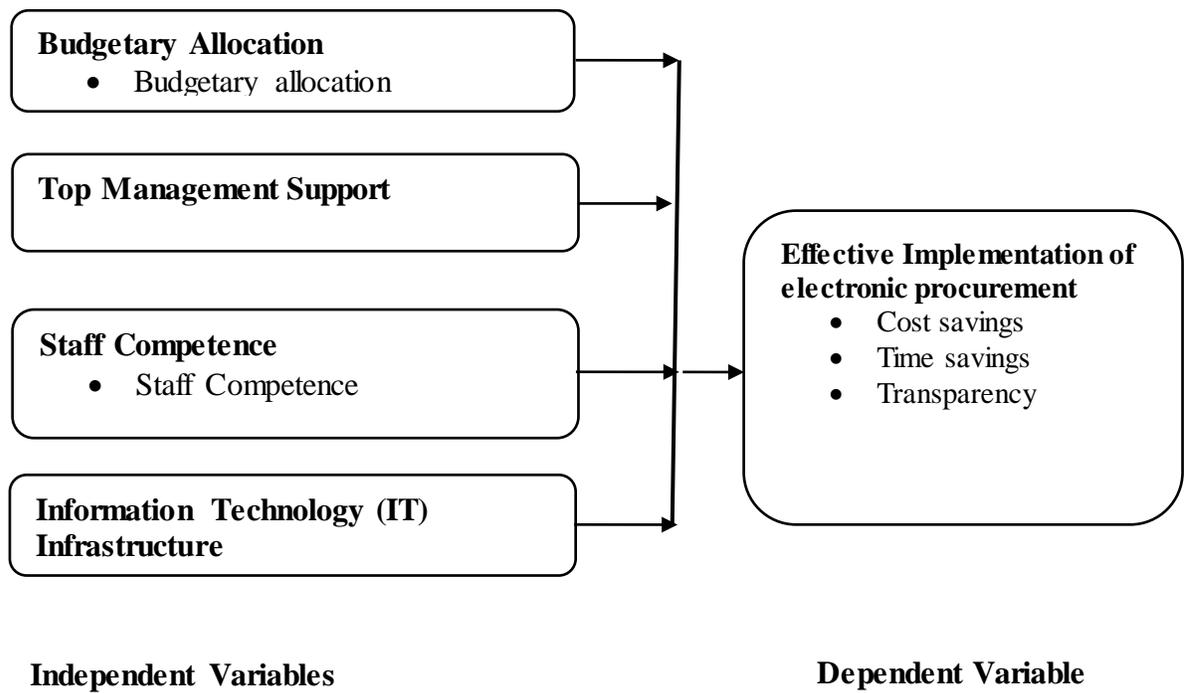
**Figure 1: Technology, Organization, and Environment Framework**

**Source:** Tornatzky and Fleischer (1990)

adoption models, TOE appears most suitable to ground this study. A review of existing literature does not show any evidence of the TOE framework having been applied to technology diffusion within an African context and Kenya in particular.

### **Conceptual Framework**

The following framework depicts the relationship between hypothesized factors and adoption of e procurement. The independent variables of the study will be Budgetary allocation, Top Management Support and Staff Competence and IT Infrastructure. The dependent variable will be the effective implementation of e procurement (in terms of: Cost, Time savings, and Transparency). The framework is based on the argument put forth by Arasa & Achuora (2012) study on antecedent to successful adoption of electronic procurement in textile industry in Kenya. Such has been adopted by Ochola (2013) in a study on e-commerce adoption among micro, small and medium sector in Nairobi County, Kenya which identified organizational, technological and environmental issues as factors affecting adoption of e commerce among SMEs.



**Figure 2: Conceptual Framework**

**Critique of Existing literature**

Governments have been noted to be the single largest purchaser of a national economy (PPOA, 2009). The public procurement systems in low - and middle-income countries have typically been characterised spending money in a less than transparent and inefficient ways. The application of digital technology and e procurement promises opportunities for improvements that the public sector. Many researchers agree that the benefits of e-procurement include: enhanced transparency and compliance, increased performance and quality, and economic development. Existing literature on e-procurement has emphasized the cost improvements that may be achieved as a result of transactional and process efficiencies. These efficiencies are gained in three ways. Greater opportunity for lower prices from suppliers; reduced work content in the total ‘requisition to payment’ process; and significant reductions in the time taken to complete the procurement process (Min & Galle, 1999; Croom, 2000; Emiliani, 2000; Zsidisin & Ellram, 2001; deBoer et al, 2002; Wyld, 2002).

The researcher argues that it would be inappropriate for organizations to assume that adoption and implementation of e-procurement would result in automatic increased performance and economic development. This is because an e procurement system essentially entails the use by two parties; the buyer (organization) and the seller (vendors of goods, services and works). Organizations use the e procurement system to buy/source for goods, works or services from the sellers. Therefore a market has to be created and activated for the e- procurement system. This particular aspect has not received adequate attention from e- commerce scholars. The researcher’s view is consistent with that of McDermont (2005), who observed that buyer supplier activation as a strategy for successful electronic government procurement has been neglected in existing business literature. Past studies on the subject of electronic procurement have mostly focused on the adoption implementation of e-procurement by firms in the private sector. Only a few studies have attempted to focus on the public sector. Moreover these studies have concentrated on government ministries and state corporations; none has attempted to address the

unique case for county governments in Kenya. Almost all studies were based in the developed countries in Europe and USA with a few exceptions such as those carried out in Uganda and Singapore.

**RESEARCH METHODOLOGY**

This study adopted a descriptive approach on the factors affecting the effective implementation of e-procurement in the county governments. Mugenda and Mugenda (2003) described population as the entire group of individuals or items under consideration in any field of inquiry and have a common attribute. The target population was 40 employees of Kajiado County. According to Cooper and Schindler (2011) there are many methods of data collection. The study used a semi structured questionnaire to collect data from the tender committee members. The instrument was divided into six sections. Section one dealt with demographic and general information. Section two to six addressed the five variables hypothesized to affect the implementation of e-procurement in Kajiado county government. The study relied on primary data which was collected through semi structured questionnaires. Collection of data was conducted by the researcher with the help of research assistants. The questionnaires were dropped at the respondents' places of work and picked within two weeks.

The research instrument was pre-tested before final administration of questionnaires to the respondents. Upon collection of the questionnaires, they were coded. They were then fed into Statistical Package for Social Sciences (SPSS) version 20 (George & Mallery, 2003). Case summaries were then generated to check for any errors in data entry. Exploratory data analysis was conducted to determine the effect of any outliers and missing entries. The version 20 selected was deemed appropriate for analysis since it offers a friendlier interface that could easily be linked with Microsoft office utility programs. Frequencies were generated for each variable namely: Budgetary allocation, Top Management Support, Staff Competence, and IT Infrastructure. Linear Regression Analysis was further used to show the relationship between the dependent and the independent variables (Kothari, 2004).

**Data Analysis Interpretations and Presentations**

Descriptive and inferential statistics have been used to discuss the findings of the study. The study targeted a sample size of 40 respondents from which 38 filled in and returned the questionnaires making a response rate of 95%. This response rate was satisfactory to make conclusions for the study. Weisberg, Krosnick & Bowen (1996) recommended a response rate of 70%.

**Reliability Analysis**

Reliability of the questionnaire was evaluated through Cronbach's Alpha which measures the internal consistency. Cronbach's alpha was calculated by application of SPSS version 20 for reliability analysis. The value of the alpha coefficient ranges from 0-1 and may be used to describe the reliability of factors extracted from dichotomous and or multi-point formatted questionnaires or scales. A higher value shows a more reliable generated scale. Cooper & Schindler (2008) has indicated 0.7 to be an acceptable reliability coefficient. Table 4.1 shows that staff competence had the highest reliability ( $\alpha=0.814$ ) followed by information technology infrastructure ( $\alpha=0.803$ ), then top management support ( $\alpha = 0.765$ ) and budget allocation ( $\alpha=0.754$ ). This illustrates that all the four scales were reliable as their reliability values exceeded the prescribed threshold of 0.6.

**Table 1. Reliability Coefficients**

Scale	Cronbach's Alpha	Number of Items
Budgetary Allocation	0.754	5
Top Management Support	0.765	5
Staff Competence	0.814	4
Information Technology Infrastructure	0.803	2

**RESULTS AND DISCUSSION**

**Budgetary Allocation**

**Table 2. Statements relating to budgetary allocation**

Statements	Strongly Disagree	Disagree	Moderately Agree	Agree	Strongly Agree	Mean	Std Deviation
Budgetary allocation affect the implementation of e procurement	1	0	2	20	15	4.26	0.24
There is sufficient budget to enable effective implementation of electronic procurement in the Kajiado County Government	14	19	2	1	2	1.89	0.22
Implementation of e procurement is expensive	0	2	3	19	14	4.18	0.22
Implementmation of e procurement will lead to cost savings for the organisaton	0	1	0	25	12	4.26	0.29

The study sought to determine the level at which the respondents agreed or disagree with the above statements relating to budgetary allocation in regard to the adoption and implementation of electronic procurement in Kajiado county government. From the findings (Table 2) the study established that majority of the respondents agreed; that Implementation of e procurement will lead to cost savings for the organization, budgetary allocation affects the implementation of e procurement as shown by mean of 4.26 in each case, implementation of e procurement is expensive as shown by mean of 4.18. The study also established that respondents agreed that there is sufficient budget to enable effective implementation of electronic procurement in the Kajiado County Government as shown by mean of 1.89. All the cases were supported by low mean which implies that majority of the respondents were of similar opinion. This confirms the findings by Cragg and King, (1993) that budgetary allocation is a major determinant in the adoption of new technology by organizations.

**Top Management Support**

**Table 3. Statements relating to top management support**

Statements	Strongly disagree	disagree	Moderately agree	Agree	Strongly Agree	Mean	Std deviation
Top management support affect the effective implementation of e procurement	1	0	4	18	15	4.21	0.22
The top management is committed to see the implementation of the e procurement in the county	0	2	3	22	11	4.11	0.24
E procurement can be implemented without the top management support	10	23	2	2	1	1.97	0.25

The study sought to determine the level at which the respondents agreed or disagree with the above statements relating to top management support in regard to the adoption and implementation of electronic procurement (Table3). From the findings the study established that majority of the respondents agreed that; top management support affect the effective implementation of e procurement as shown by mean of 4.21, the top management is committed to see the implementation of the e procurement in the county as shown by mean of 4.11, the study also established that respondents disagreed that E procurement can be implemented without the top management support as shown by mean of 1.97. This confirms the findings of a research done by Arasa and Achuora (2012) on antecedents to successful adoption of e-procurement in textile and apparel firms in Kenya. In that study, it was established that top management support, among other organizational factors is linearly related with the e-procurement implementation. In other studies, Jeyaraj et al (2006) found that top management support is one of the critical predictors of organizational adoption of Information System (IS) innovation. Other scholars in their studies (Premkumar and Roberts, 1999; Grover and Goslar, 1993) have also shown that top management support is crucial in adoption of new technology by firms.

### Staff Competence

**Table 4. Statements relating to staff competence in regard to the adoption and implementation of electronic procurement**

Statements	Strongly disagree	disagree	Moderately agree	Agree	Strongly Agree	Mean	Std deviation
Competencies and skills are pre requisite in implementing the electronic procurement	0	1	3	28	6	4.03	0.31
There is sufficient in-house competent and skilled human capital to implement e procurement	0	1	4	24	9	4.08	0.26
The procurement staff are competent and have the required skills to embrace electronic procurement	0	0	22	13	3	3.50	0.25
The users of e procurement are well trained and able to use the system well	12	19	4	3	0	1.95	0.20

The study sought to determine the level at which the respondents agreed or disagree with the above statements relating to staff competence in regard to the adoption and implementation of electronic procurement. From the findings as shown in Table 4, the study established that majority of the respondents agreed that, there is sufficient in-house competent and skilled human capital to implement e procurement as shown by mean 4.08, Competencies and skills are pre requisite in implementing the electronic procurement as shown by mean 4.03, The procurement staff are competent and have the required skills to embrace electronic procurement as shown by mean 3.50, the study also established that respondents disagreed that the users of e procurement are well trained and able to use the system well as shown by mean of 1.95. This confirms the findings by Huy (2012), on the significance of organisational determinants as factors of e-commerce adoption in SMEs in Vietnam which established a positive and statistically significant relationship between that employees' knowledge of e-commerce and e-commerce adoption. Similarly, Dholakia and Kshetri (2002) established that skills and knowledge influence the adoption of new technology to a large extent. In addition, the greater the IS expertise available in the organisation, the more likely that IS will be adopted by MSMEs (Kapurubandara & Lawson, 2008). On

ICT skills and experience by employees, Sparling *et al.* (2007) found that the higher the level of ICT skills, the higher the likelihood that a firm will adopt e-commerce.

**Information Technology Infrastructure**

**Table 5. Statements relating to IT infrastructure in regard to electronic procurement adoption and implementation**

	Strongly disagree	disagree	Moderately agree	Agree	Strongly Agree	Mean	Std deviation
Information technology infrastructure is necessary for implementation of e procurement.	0	0	3	25	10	4.18	0.28
IT infrastructure in Kajiado County is inadequate to support the implementation of electronic procurement	11	20	2	5	0	2.03	0.21

The study sought to determine the level at which the respondents agreed or disagree with the above statements relating to IT infrastructure in regard to electronic procurement adoption and implementation. From the findings the study established that majority of the respondents agreed that Information technology infrastructure is necessary for implementation of e procurement as shown by a mean of 4.18, the study also established that respondents disagreed that IT infrastructure in Kajiado County is inadequate to support the implementation of electronic procurement as shown by mean of 2.03, all the cases were supported by a low mean which implies that majority of the respondents were of similar opinion (Table 5).. This result corroborates the findings by Achuora (2011), in a study on factors affecting implementation of e-procurement in textile and apparel firms, that IT infrastructure plays a major role in the implementation of e-procurement.

**Regression Analysis**

**Table 6. Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.892 <sup>a</sup>	.796	.727	.93818

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the Table 6 the value of adjusted R squared was 0.727 an indication that there was variation of 72.7% on implementation of e-procurement in the county governments due to changes in budgetary allocation, top management support, staff competence and information technology infrastructure at 95% confidence interval . This shows that 72.7% changes in implementation of e-procurement in the county governments could be accounted for by budgetary allocation, top management support, staff competence and information technology infrastructure. R is the correlation coefficient which shows the relationship between the study variables. From the findings shown in the Table 6, there was a strong positive relationship between the study variables as shown by 0.892.

**Table 7. ANOVA**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.978	6	2.494	2.834	.015 <sup>a</sup>
	Residual	18.484	31	.880		
	Total	28.462	37			

From the ANOVA statistics in Table 7, the processed data, which is the population parameters, had a significance level of 0.015 which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value) is less than 5%. The calculated value was greater than the critical value ( $1.7619 < 2.834$ ) an indication that budgetary allocation, top management support, staff competence and information technology infrastructure were significantly influencing implementation of e-procurement in the county governments. The significance value was less than 0.05 an indication that the model was statistically significant.

**Table 8. Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sign
		B	Std. Error	Beta		
1	(Constant)	.810	.389		2.106	.023
	Budgetary Allocation	.243	.305	.190	.797	.034
	Top Management Support	.281	.417	.184	.675	.007
	Staff Competence	.473	.418	.419	1.133	.027
	Information Technology Infrastructure	.240	.389	.216	.615	.045

From the data in the Table 8, the established regression equation was

$$Y = 0.810 + 0.243 X_1 + 0.281 X_2 + 0.473 X_3 + 0.240 X_4$$

From the above regression equation it was revealed that holding budgetary allocation, top management support, staff competence and information technology infrastructure to a constant zero, implementation of e-procurement in the county governments would be 0.810, a unit increase in budgetary allocation would lead to increase in implementation of e-procurement in the county governments by a factor of 0.243, unit increase in top management supports would lead to increase in implementation of e-procurement in the county governments by factors of 0.281, a unit increase in staff competence would lead to increase in implementation of e-procurement in the county governments by a factor of 0.473, a unit increase in information technology infrastructure would lead to increase in implementation of e-procurement in the county governments by a factor of 0.240. All the sign value were found to be less than 0.05, hence budgetary allocation, top management support, staff competence and information technology infrastructure were significantly influencing implementation of e-procurement in the county governments.

## CONCLUSION

From the findings the study concludes that top management support is very crucial in implementing e-procurement in the county governments, top management is so important because it acts as the driving force behind the whole implementation process. The study also concludes that staff competences positively affect the implementation of the e-procurement in the county governments. The study revealed that budgetary allocation positively affects the effective implementation of e-procurement. The study found that staff competence affects the effective implementation of the e-procurement in the county governments. It was further revealed that staff competence positively influence effective implementation

of the e-procurement in the county governments. The study revealed that information technology infrastructure on the effective implementation of e-procurement in the county governments. The study further concludes that the current information technology infrastructure is not effective enough to support the implementation of e-procurement in the county governments.

### **RECOMMENDATIONS**

From the summary and conclusions the study recommends the top management should remain committed towards the implementation of e-procurement process in county governments. This will help to give guidelines in critical stages of implementation process

The study also recommends that the county governments needs to allocate enough fund for implementing e-procurement system as a way to reduce government costs by ensuring that the implementation phases proceeds in respect with time.

The study further recommends that county government should consider offering additional training to the staff; this will help to equip end users with competence thus smoothening the implementation of e-procurement process.

The study also recommends that the county governments should consider partnering with other stake holders in ICT in laying the IT infrastructure/foundation , this will help in ensuring that e-procurement implementation is performed of firm established grounds thus increasing its overall success. The government needs to draft new policies and regulations with ensures effective supervision and monitoring of e-procurement implementation process in all county governments .

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