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STRATEGIC DETERMINANTS OF THE IMPLEMENTATION OF ELECTRONIC PROCUREMENT IN THE PUBLIC SECTOR: A CASE OF COUNTY GOVERNMENT OF KILIFI

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ABSTRACT
Growth in information and communication technology, especially the entrance of Internet helps the application of alliances used by the organizations to become more effective through the integration of firm's information technology (IT) infrastructure. Electronic procurement is one of the information systems that helps revolutionize the supply chain activities. The objectives of the study were to identify the effect of staff competency on electronic procurement implementation at the County Government of Kilifi, to determine the influence of technology infrastructure on electronic procurement implementation at the County Government of Kilifi, to establish the effect of government policies on electronic procurement implementation at the County Government of Kilifi and to examine the influence of top management support on electronic procurement implementation at the County Government of Kilifi. The study was guided by Theory of Technology Acceptance, DeLone and McLean theory, New Public Management, and Theory theory of constraints. The study used descriptive design. The Target population in this study was County Government of Kilifi employees. The study utilized stratified sampling technique where the County Government of Kilifi was classified based on level of management. The strata's were top management, middle management and lower level management. Purposive sampling was then used to pick employees to participate in the study. Slovin's formular was used to identify the sample size. Questionnaire was used to collect data from the respondents and the data was analysed using descriptive and inferential analysis with the help of SPSS. The study concludes that Technological infrastructure; top management support to electronic procurement, staff competency and government policy had a significant positive relationship with successful implementation of electronic procurement in county offices. Good ICT links between the potential suppliers and the county government will therefore increase the chances of successful implementation of electronic procurement. For County government to successfully implement electronic procurement, it should take into consideration technology infrastructure, staff competency, top management support and government policies in implementing electronic procurement.

Key Terms: *Organization performance, ttechnology, staff competency, electronic procurement, procurement policies, management, County Government, internet*

INTRODUCTION

The use of Information Communication Technologies (ICTs) has intensely changed services, business models and people's anticipations of the quality and efficiency of information sharing and service delivery (Brown, 2005; Maniam, 2005). Growth in information and communication technology, especially the entrance of Internet helps the application of alliances used by the organizations to become more effective through the integration of firm's information technology (IT) infrastructure. Electronic procurement is one of the information systems that helps revolutionize the supply chain activities. Through the automation of public financial processes, the electronic procurement has provided an interlinked system of internal controls providing clear audit trails and identification of the originator of all transactions. Electronic procurement has developed as one of the most important technology and is expected to dramatically change the way purchasing is done in the near future (Rankin, Chen & Christian, 2014). Governments of both developed and developing countries have embraced ICT to improve the quality of public service, increase public access to information and to energize more participation in civic affairs. The Government of Kenya recognizes that the provision of Information and Communication Technology is significant for enabling economic and social development by improving communication and facilitating information flow (GoK, 2016). Electronic procurement is the application of internet technology in works, material and service procurement. Electronic Procurement systems also allow more efficient integration of supply chains and provide better organization and tracking of transaction records for easier data acquisition (Ogot, 2009).

Although the growth of the ICT sector in Kenya has been significantly influenced by global trends, it can be evaluated in terms of number of fixed and mobile telephone lines; the number of computers and services; Internet Service Providers , the number of Internet users; broadcasting stations; and market share of each one of them (Kimaru, 2012). Through the help of IT, governments are realizing that, by applying the same principles and technologies that are fueling electronic business revolution, they can achieve similar transformation. The outcome is the emergency of electronic procurement used to provide receivable management solutions to financial service institutions both in the government and in private sector. It aims to strengthen public financial management systems in a bid to enhance transparency, accountability, and responsiveness to public expenditure policy priorities. In Africa, the recent phase in the development of public procurement has appreciated the establishment of special public procurement bodies, whose duty is to implement the new regulations. These bodies aim not just to bring domestic legislation, but to play an important role in the efficient implementation of the regulations. These bodies have also been given increasing obligation for monitoring of public procurement procedures. In this phase the regulatory frameworks have completed by the adoption of all necessary secondary legislation, intensive training programs have been organized and needed manuals and instructions have been published intended to inform widest range of procuring entities and potential bidders on how to implement the law provisions properly (Nicola,Missikoff & Fabrizio, 2011).

The objective of a electronic procurement is to support the attainment of fiscal discipline, strategic and efficient allocation and use of funds, value for money and probity in the use of public funds Some stages in public procurement, such as the invitation, submission and evaluation stages, need bespoke solutions. Agaba and Shipman (2012), posit that the Organization for Economic Cooperation and Development (OECD) estimates

the value of government procurement in the world to be over US$ 2,000 billion equivalent to 7% of world GDP and 30% of global merchandise trade. The submission, evaluation, and order stages are the most complex, requiring a common set of protocols and standards in order to organize the exchange of complex documents and the interaction between public purchasers and suppliers. Juma (2013), argued that in developing countries, the public procurement sector is often the largest domestic market.

The Electronic procurement value chain encompasses indent management, Electronic tendering, Electronic auctioning, vendor management, catalogue management and contract management. Indent management is the workflow included in the preparation of tenders. This part of value chain is optional, with each procuring department defining its indenting process. As concerns works procurement, administrative approvals and technical sanctions are obtained in electronic format. On the other hand, in goods procurement, indent generation activity is done online (Peter, 2012). Recent study also confirms that the diffusion of electronic procurement at the state and local levels has been slow and incremental, and argues that many traditional procurement principles should be reconsidered (MacManus, 2013). State governments as large purchasers have frequently used Information Technology (IT) to streamline procurement procedures and reduce overhead costs.

The successful implementation of electronic procurement has been found to be a strategy for creating and sustaining competitiveness in the market. Hence, in order for state government and organizations to succeed in highly dynamic business environment, it is important to implement electronic procurement in their operations. Information and Communication Technologies have transformed the way organizations and governments operate. According to Nelson et al. (2001), majority of organizational spending consists of purchasing. In order to decrease the total costs spent on purchasing process, internet technologies are implemented and electronic procurement has become popular in the latest era by both governments and enterprises. Although the opportunities for improvement seem abound, both private and public sector are still cautious as far as the adoption of electronic technologies is concerned (Zheng, Caldwell, Harland, Powell, Woerndl, and Xu, 2004).

A number of researchers have conducted studies on electronic procurement. For example, Vaidya, Sajeev and Callender (2006), conducted a study on the critical factors that influence electronic procurement adoption success in the public sector. The study concluded that if electronic procurement initiatives in the public sector are to assist the development of electronic Procurement across the information economy, there should be wider discussion and agreement on what constitutes the relevant CSFs and how the achievement of success can be assessed. Batenburg (2007) did a study on electronic procurement adoption by European firms. He established that there are indeed country differences with respect to electronic procurement adoption, and that firms from countries with a low uncertainty avoidance such as Germany and the UK are the early adopters of electronic procurement, while countries that are less reluctant to change such as Spain and France have lower adoption rates. Greunen, Herselman, and Niekerk (2010) performed a study on the adoption of regulation-based electronic procurement in the Eastern Cape provincial administration. The study 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.

Kemboi, (2011), investigated the factors affecting institutionalization of information system in manufacturing enterprises in Kenya. The study

findings showed that there are two critical factors that influence institutionalization of Information System. These are organizational practices and technological infrastructure and allocation of resources towards such efforts measurably increase knowledge base, management awareness and promotion, climate of openness, teamwork and trust exists among employees. Although there were studies in Kenya dealing with Information Technology, none of them had addressed the factors affecting implementation of electronic procurement in County Government in Kenya. In addition, since there had not been a prior research on the challenges inhibiting successful implementation of electronic procurement in state organizations, this research is worth undertaking. County Government of Kilifi implemented electronic procurement System to enhance service delivery. However, the government has been faced with many challenges during implementation of electronic procurement.

This study sought to identify how technology, top management support, government policy and staff competency influence implementation of electronic procurement at County Government of Kilifi.

Research Objective

- To identify the effect of staff competency on electronic procurement implementation at the County Government of Kilifi
- To determine the influence of technology infrastructure on electronic procurement implementation at the County Government of Kilifi
- To establish the effect of procurement policies on electronic procurement implementation at the County Government of Kilifi
- To examine the influence of top management support on electronic procurement implementation at the County Government of Kilifi

RELATED LITERATURE

Theoretical Framework

Theory of Technology Acceptance

Theory of Technology Acceptance developed by Davis (1989) aims to predict and explain IT usage behavior, that is, what causes potential adopters to accept or reject the use of information technology. In Theory of Technology Acceptance, two theoretical constructs, supposed usefulness, and perceived ease of use are the fundamental determinants of system use, and predict attitudes toward the use of the system, that is, the user's willingness to use the system. Perceived usefulness refers to the degree to which a person believes that using a particular system would enhance his or her job performance and perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989). The Theory of Technology Acceptance is important in this study as it explains electronic procurement usage behavior.

The DeLone and McLean Theory

According to Heo and Han (2003) and Myers (1997), the DeLone and McLean theory of IT success is one of the most widely cited in the Information Technology literature. According to Myers (1997), the basic contributions of the model are extremely important to the IT researchers. This is because it provides a classification for all the evaluation measures that have been reported in the IS literature; the model commences to identify potential stakeholders groups subject to be evaluated in the model, and it suggests how the constructs may interact with each other.

DeLone and McLean propose six different categories or dimensions of IT success: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. According to DeLone and McLean (2004), one of the most studied dimensions of IT success is system quality. It refers to measures of the information

processing system itself, how well the hardware and the software work together. System quality has been operationalized in many different ways in the IT literature, but some of the most relevant are convenience of access, flexibility of system, integration of system, response time. This model is useful in the study as it helps outline electronic procurement success measures.

Service Quality Theory

Parasuraman et al., (1985) pioneered the development of the model. It was based on the theory relating service quality to the clients' satisfaction. According to Lewis and Booms (1983), it is a measure of how well the service level of an organization matches customers' expectations. The Service Quality Theory represents service quality as the discrepancy between a customer's expectations for a service offering and the customer's perceptions of the service received, requiring respondents to answer questions about both their expectations and their perceptions Parasuraman et al., (1988). The Service Quality Theory includes reliability, responsiveness, assurance, empathy, and tangibility. Reliability refers to the ability to perform the promised services dependably and accurately. Responsiveness is the willingness to help customers and provide prompt service; assurance refers to the knowledge and courtesy of employees as well as their ability to convey trust and confidence; empathy is the provision of caring, individualized attention to customers, and tangibility is the appearance of physical facilities, equipment, personnel and communication materials (Parasuraman et al., 1988). This theory is important in the study as it explains the quality of service that an organization should have. County Government of Kilifi implemented electronic procurement to improve its services. The study will use the service quality as per the theory.

New Public Management Theory

New Public Management Theory originated in the late 1970s in the United Kingdom, Australia, and New Zealand. Since then, it has come to dominate thinking about the public sector reform and is hailed as a new paradigm. Different factors led to the emergence of NPM, some of which are: fiscal crises of governments, poor performance of the public sector in different arenas, imperious bureaucracy, and lack of accountability, corruption, and changes of people's expectations and the emergence of better alternative forms of service delivery (Sarker, 2006). As per NPM, philosophy modern government should be customer oriented, competitive and result oriented, and thus IT has a room to play for enhancing the effectiveness of government services. As a strong theoretical foundation, the concept of new public management is used to strengthen the need and importance of IT in public sector, including the implementation of electronic procurement in the County of Kilifi.

Theory of Constraints

The theory of constraints is a management philosophy that seeks to increase firm's throughput efficiency or system performance measured by sales through the identification of those processes that are constraining the organization system (Goldratt, 2004). According to Kazim (2008), the theory of constraints is based on the principle that a chain is only as strong as the weakest link or constraint and to elevate and manage the constraint as necessary.

The difficulties in the theory of constraints are: very long lead times, large number of unfulfilled orders or they are executed with much extra effort (overtimes), high level of unnecessary inventories or lack of relevant inventories, wrong materials order, large number of emergency orders and expedition levels, high levels of devolution, lack of key customers engagement, frequent changes or absence of control related to priority orders, which implies on schedule conflicts of the resources

(Goldratt, 2004). These are the bottlenecks firms are likely to face warranting their application of inventory management practices in order to enhance their supply chain performance. The theory is founded on the belief that an organization that maximizes the output of every inventory system will not perform as well as one that ensures optimization of the flow of materials and value created through its organizational competitiveness (Kazim, 2008).

Theory of constraints emphasizes focus on effectively managing the capacity and capability of these constraints if they are to improve the organizational competitiveness of their organization. This can be achieved by firms applying appropriate inventory management practices. Companies have struggled to invest in the technology and organizational structures needed to achieve to-date systems synchronization that enable coordinated inventory flows (Fawcett, Ogden, Magnan, & Cooper, 2006). Theory of constraints is a methodology whose basis is applied to production for the minimization of the inventory. In reality, it is difficult for a firm to forecast with precision the consumption of its specific product at a specific region with sometime prior to production and supply of the same product.

In Theory of Constraints, performance measurements are based on the principles of throughput, inventory dollar days and operating expenses (Umble, Umble, & Murakami, 2006). Theory of Constraints measurements are based on a simple relationship that highlights the effect of inventory control system on progress toward the organizational competitiveness. The proof of effectiveness for any inventory control system is the degree to which it improves organizational competitiveness of business firms. For firms to ensure that the bottlenecks on their operations run smoothly they have to embrace the use of inventory management practices that can facilitate operational efficiency. The Theory of Constraints supports the organization structure variable by explaining constrains to the implementation of electronic procurement.

Conceptual Framework

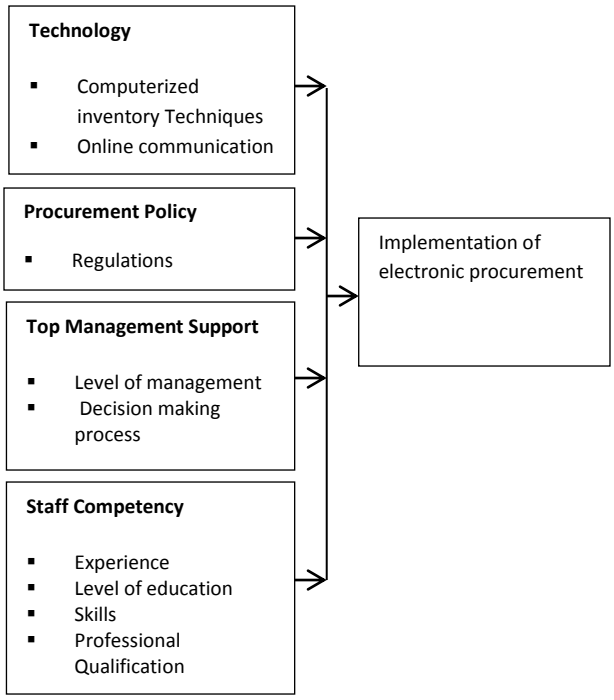

Figure 1: Conceptual Framework

Review of Variables

Staff Competency and Electronic procurement

Training of staff in procurement practices and the use of electronic -Procurement tools are necessary for the success of an electronic Procurement initiative (World Bank, 2013). The staffs of an organization need to acquire the necessary skills that can enable them to operate effectively and efficiently while using the new electronic procurement system. If staff is not adequately trained, they may not be able to own the electronic procurement system and this may contribute to failure. The success of electronic Procurement initiative depends on users and buyers making use of the new process and system. The solution must attract end users, including employees to view

electronic Procurement as the preferred means by which to purchase goods and services. The success of electronic procurement also depends on communication to the users (Birks et al., 2001). The organization adopting an electronic procurement system must be able to communicate this information to the users. Distorted communication of information may lead to failure of the system. The World Bank (2003) suggests that developing an electronic Procurement system in an open environment allows it to link to other systems for interoperability and simplifies upgrading the system.

As with any new technology introduced into the workplace, an electronic -Procurement system's effectiveness depends, eventually, on its being adopted and regularly used by employees. Since e-Procurement systems are a self-service tool, end users sometimes resist using it (Bedell, 2012). Employees are said to comply with the purchase of contracted items only 65% of the time, causing companies to miss out on the 22% in cost reductions possible through compliance with contract terms (Aberdeen, 2010). Maintenance requires a wider supplier base than other business functions, and an e-Procurement system needs to provide access to a broad supplier base. Many suppliers, especially smaller ones, do not have the technological capability to integrate with e-Procurement platforms. They may lack the IT infrastructure and capital necessary to provide e-Procurement and fear that e-Procurement will enable buyers to leverage price concessions (Singer, 2013).

Technology Infrastructure and E-procurement

The numerous technologies that are applied in organizations 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 (Laudon & Laudon, 2013). These technologies allow organizations to respond better to existing challenges and improve the anticipation of future developments. As with the case with earlier innovations, rich multi-facetted interactions are occurring between developments in the place, global business environment, work environments, and technical innovations (Thompson & Cats-Baril 2013).

User acceptance of new information system has a critical and profound impact on the overall usage and success of the system's adoption (Succi & Walter, 1999; Venkatesh et al., 2003). Al-Ghatani and King (1999) posit that system usage is an obvious defined measure and better indicator of information technology acceptance. According to Davis (1993), user acceptance is often the pivotal factor determining the success or failure of information system. In similar vein, Pikkarainen, Karjaluoto & Pahnila (2004) contended that user acceptance and usage of a system defines the effectiveness or ineffectiveness of the system. Understanding the factors that influence user acceptance of information technology is undoubtedly of interest to both scholars and researchers in a variety of fields as well as procurers of technology for large organizations (Dillon & Morris, 2006).

Compliance with best practices equally leads to successful e-procurement. E-Procurement initiatives only deliver the planned benefits if the users and buyers make changes to the way they work, which requires championing the system and senior management sponsorship. The business case processes for e-Procurement include identifying drivers, understanding the starting point, benefits, approaches, affordability, risks, and benefit realization. To ensure achievement of the e-Procurement objectives, the adoption project

should proceed, as far as possible, in alignment with the business case (Birks et al., 2001).

Khanapuri et al. (2011), assert that there are a number of requirements relating to the adoption of e-procurement system. They include technology, objectives, information, staffing and skills. The requirements make the adoption process to face a number of challenges such as Compatibility, Integration, Adoption and regular use by employees and lack of capacity by small suppliers. Companies require investing in a good IT system with access to the web and integration to the customers. According to World Bank (2013), the cost of purchasing e-procurement software can be huge and may be prohibitively expensive for smaller organizations. They must consider not only the price of the software itself but other costs associated with the system and its implementation. Those additional costs include networking infrastructure, information technology hardware and software, application design, development and implementation, training, and maintenance of equipment. There is also the time required for employees to learn the new system.

Despite the various benefits offered by the use of e-procurement, organizations meet a number of challenges when implementing such systems. Problems with integration to backend systems, which may have incompatible platforms, are a stumbling block to many e-Procurement efforts (Bedell, 2012).

Effect of procurement Policies on Implementation of E-procurement

It has been identified that role of government is salient in information communication technology adoption. Government policies about tax and tariff subsidies, rules regulations, restrictions, incentives and support with regards to a particular technology play an important role in adoption or rejection of any technology (Bowonder, Miyqake, & Singh, 2011). The general stability of the countries in which the organization operates and the specific attitude of the elected government officials towards adoption of certain technology plays a crucial role in technology adoption decisions. New enterprises exhibit a higher likelihood of technology adoption. Therefore, they need to be nurtured through proper fiscal incentives for technology adoption including tax credits for research and development activities (Mahmood, Din, Ghani, & Iqbal, 2009). For technology transfer or technology adoption, market is primary actor but government is also major actor of market. Therefore, the government should take necessary administrative means for the factor those hinders the adoption of the technology. It is the government's main responsibility to take care of the economic growth, resources and socioeconomic problems for the sustainable development of the country (Timmer & Van Ark, 2006).

A study by Van Ark, O'Mahony, and Timmer (2008), compared the Europe and USA and it was found that EU lagging behind the USA in terms of ICT contributions to productivity growth. The reason is less focus on regulations and structural impediments in product and labour markets factors to rapid catch up (Van Ark, Melka, Mulder, Timmer, & Ypma, 2012). The forces of the ICT transformation on labour productivity growth in European Union and the United States is analysed by using a growth accounting technique. The result showed that ICT capital deepening and Total Factor Productivity (TFP) growth originating from ICT goods production are the factors that lead the US (Timmer & van Ark, 2005). The impact of information communication technologies diffusion has negative relation with the market rigidities (Cette & Lopez, 2011). Lower growth of the country is the result of lower investment in ICT and small share of technology producing industries (Timmer & Van Ark, 2005).

Management Support and E-procurement

Management offer support by organizing the employees to carry out the organizational plans in e-procurement. In case of any changes management support helps employees to absorb and understand the changes. Organizing entails assembling together human, material resources to attain organizational goals and objectives. Management support also involves directing employee toward the right direction. Although a work plan is laid down, employees need to be pushed to the right direction for the goals to be achieved. According to Castetter (2010), directing is a complex management process whose primary purpose is to get people to work effectively and willingly. Motivation plays a big role by giving employees a reason to do a job and to give their best. Management support also involves controlling where management does evaluation and checks if set objectives are being achieved or not. Management finds out whether employee implements e-procurement as per plan. Here, management collects information on action taken in implementation of e-procurement and then measures performance against feedback.

According to Pande, Neuman & Cavanagh (2010), management support establishes quality standard by implementing principles of total quality management. These principles include proper communication at work place, upholding of integrity and ethics, providing leadership, establishing team work, sponsoring training and recognizing workers who have excelled in quality implementation by rewarding them. These quality management principles can be used by top management to guide their organizations towards implementing quality standards. Since the organizations depend on their customers, therefore they should understand current and future customer needs, should meet customer requirements and try to exceed the expectations of customers. An organization attains customer focus when all people in the organization know both the internal and external customers and also what customer requirements must be met to ensure that both the internal and external customers are satisfied.

Management support also involves communication, which is the ability to pass information. The information must be easily understood and a feedback given so that it's complete. The purpose of communication is to influence behavior and attitude. Successful information must motivate the listeners t implement the message carried by the information. Communication in implementation of quality standards must show what quality is target for the market. Visual communication is the most successful since human being retain up to 90% of what they see but can only remember 20% of what they hear (Chase, 2013).

The executive management team is responsible for setting the vision and goals, bringing about collective commitment for change in process and organizational structures, and formulating the policies and strategies necessary to put an e-Procurement initiative in place (WB, 2003). If the e-procurement system does not have the full support of the top management team, there is every reason for to fail. It is important to make sure that the top management has given full support for the adoption of e-procurement. Considerable attention and support should be provided by senior management to ensure that the procurement reform has been well understood in the agency (Ancarani, 2013). It is significant for the organization to continuously measure the key benefits since it is vital to the successful delivery of a business project. Measurement drives behavior and is a key to making the change a success (Birks et al., 2001). Establishing goals and baselines is very important. These established goals will enable the organization measure how much has already been achieved as far as e-procurement system adoption is concerned.

It is important to define key performance indicators (KPIs) early in the process to enable successful benefits tracking and distil the business case into measurable KPIs. Cost saving, improved efficiency and control, are the three catalysts driving growth in the e-procurement area. It is also believed that there is more benefit to be gained by using ecommerce for sourcing, rather than for transaction management (Kalakota and Robinson, 2000).

Electronic Procurement in the State Governments

A significant issue in public sector management today is the increasing demand for transparency, efficiency and effectiveness in service quality (Ancarani, 2013). The advent of the internet, digital connectivity, the explosion and use of ecommerce and e-business models in the private sector are pressuring the public sector to rethink their hierarchical and bureaucratic organizational models. Customers, citizens and businesses faced every day with new innovative e-business and e-commerce models implemented by the private sector and made possible by ICT (Information and Communication Technologies) tools and applications, are requiring the same from Government entities.

Private and public sector organizations have been utilizing e-procurement to streamline and automate their purchasing and other processes over the past years. It is only in the past decade that e-Procurement systems have attracted attention. While there is debate about how recently e-Procurement has emerged, (Dai & Kauffman, 2001; Koorn, Smith & Mueller, 2001), there is no doubt that the use of the Internet in e-Procurement provides several advantages over earlier inter-organizational tools.

According to Acher (2015), the state government organizations use E-Procurement for contracts to achieve such benefits as increased efficiency and cost savings, faster and cheaper in-government procurement and improved transparency, and to reduce corruption in procurement services by eliminating interaction with suppliers. Procurement in the public sector has seen rapid growth in recent years. Transactions can be standardized and all bids for products and services can be tracked more easily, allowing business owners to use such knowledge to obtain better pricing. Due to faster exchanges of information and delivery of goods and services, e-procurement also promotes shorter product- development cycles.

According to Wilson (2012), e-procurement is the amalgamation of sales and purchasing business models and calls for differentiation based on application and functions. Therefore suppliers form an integral part of the implementation process and their attitude, integrity; transparency, capacity and willingness to comply play a major role in the success of the process. These suppliers would also be using e-procurement systems for management of all processes relating to purchase. The Public Financial Reform Management (PFMR) Strategy Paper 2001-2006 recommended automation as well as integration of key government functions such as the human resources payroll, accounting, procurement and budgeting citing transparency, better financial management and easier reporting as some of the benefits (GoK, 2001).

Public Procurement Oversight Authority (PPOA) Interim Report (2009) outlined plans to introduce e-procurement in all Kenya's public entities as a way of curbing corruption and reducing tendering delays. According to the report, the programme was 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 Public Procurement Oversight Authority (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. Second, 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 contract 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 no value adding steps within the procurement to enable efficient and effective processes.

METHODOLOGY

Research Design

The study used descriptive design (Cooper & Schindler, 2003). This approach was suitable for this study since the researcher intend to collect detailed information through descriptions making it useful to identify variables under the study. The Target population in this study was County Government of Kilifi employees. The target population was made of His Excellency the County Governor, County Executive Committee Members (CECM), County Chief Officers (CCO), County Directors (CD), Sub-County Administrators and County Procurement Officers (CPO). To come up with an appropriate study sample, the study utilized stratified sampling technique where the County Government of Kilifi was classified based on level of management. The strata's were top management, middle management and lower level management. Purposive sampling was then used to pick employees to participate in the study. Slovin's formular was used to identify the sample size. According to Ariola (2006), slovin's formula is used when nothing about the behaviour of a population is known at all. Slovin's formula is written as:

$n = N / (1 + Ne2)$

n = sample

N = Total population

e = Error tolerance

Ariola (2006), further argued that in using the formula, the error of tolerance is first determined which can a percentage of between 90 and 99 for example a confidence level of 90 per cent (gives a margin error of 0.1 and 98 per cent confidence level (a margin of error of 0.02). In the study, a confidence level of 90 was utilized thus the margin of error is 0.1.

n= 800/ (1+800*0.1*0.1) =88.89

n= 89

RESEARCH FINDINGS

This study sought to get from the respondents the influence of technology on implementation of electronic procurement at County Government of Kilifi. The range was 'strongly disagree' (1) to 'strongly agree' (5). The scores of disagreeing have been taken to represent a variable which had a mean score of 0 to 2.4 on the continuous Likert scale; (0≤ Mean<2.4). The scores of 'Undecided have been taken to represent a variable with a mean score of 2.5 to 3.4 on the continuous Likert scale: (2.5≤Mean<3.4) and the score of both agree and strongly agree have been taken to represent a variable which had a mean score of 3.5 to 5.0 on a continuous Likert scale; (3.5≤ S.A. <5.0). A standard deviation of > 0.9 implies a significant difference on the impact of the variable among respondents.

Technology Infrastructure

From the result in Table 1 below, the county government had successfully managed technologies to aid in implementation of e-procurement (mean = 3.15, SD =1.159), new technologies that supported implementation of e-procurement were available (mean = 3.15, SD =1.181), technological change management had enhanced the implementation of e-procurement (mean = 3.00, SD =1.222), and the government had enough computers to support implementation of e-procurement (mean = 2.75, SD =1.288).

Table 1: Technology Infrastructure

	N	Mean	Std. Deviation
The county government has successfully managed technologies to aid in implementation of e-procurement	80	3.15	1.159
Technological change management has enhanced the implementation of e-procurement	80	3.00	1.222
The government has enough computers to support implementation of e-procurement	80	2.75	1.288
New technologies that support implementation of e-procurement are available	80	3.15	1.181
Valid N (listwise)	80		

Source: (SPSS Output, 2017)

The mean ranged from 2.75 to 3.15. This meant that the respondents were not sure (undecided) of the infrastructure statements posed in the questionnaire. Therefore the ICT infrastructure in place in County Government of Kilifi was not adequate to support e-procurement.

Top Management Support

This section of the questionnaire sought to get from the respondents on the influence of top management support on implementation of electronic procurement at County Government of Kilifi.

From Table 2 below, management supported the implementation of e-procurement (mean = 3.29, SD =1.203), management considered the needs of the system users when implementing new systems (mean = 3.15, SD =1.294), the organization culture was one which accepted changes brought by innovation (mean = 3.11, SD =1.350), and the organization structure was flexible for e-procurement implementation (mean = 3.305, SD =1.242). Financial support is provided for implementing e-procurement (mean = 2.90, SD =1.098).

Table 2: Top Management Support

	N	Mean	Std. Deviation
Management support the implementation of e-procurement	80	3.29	1.203
Management considers the needs of the system users when implementing new systems	80	3.15	1.294
Financial support is provided for implementing e-procurement	80	2.90	1.098
The organization culture is one which accepts changes brought by innovation	80	3.11	1.350
The organization structure is flexible for e-procurement implementation	80	3.05	1.242

Valid N (listwise)	80

Source: (SPSS Output, 2017)

Top management supported towards e-procurement in Kilifi County was assessed in a view to determine its relation with e-procurement. The findings presented in Table 2 revealed that the respondents were undecided if there was some level of top management support towards e-procurement in County Government of Kilifi.

Staff Competency

This section sought to get from the respondents on the influence of staff competency on implementation of electronic procurement at County Government of Kilifi. The findings as exhibited by Table 3 strongly acknowledged that preservation and development of staff competencies were critical issues to county government (mean = 3.85, SD =1.303).

Training was offered on the use of new system implemented in the government were seconded (mean = 3.37, SD =1.325). The findings also showed that the staff at the county had adequate professional qualifications in use of e-procurement System (mean = 2.90, SD =1.176). Furthermore the study showed that the staff had been adequately trained and sensitized on e-procurement (mean = 2.77, SD =1.211).

Table 3: Staff Competency

	N	Mean	Std. Deviation
Training is offered on the use of new system implemented in the government	80	3.37	1.325
The staff at the county have adequate professional qualifications in use of e-procurement System	80	2.90	1.176
The staff in have been adequately trained and sensitized on e-procurement	80	2.77	1.211
Preservation and development of staff competencies are critical issues to county government	80	3.85	1.303
Valid N (listwise)	80		

Source: (SPSS Output, 2017)

Procurement Policy

This section sought to get from the respondents on the influence of procurement policy on implementation of electronic procurement at County Government of Kilifi. The findings from Table 4 showed that the government supported the adoption of technology including e-procurement (mean = 3.95, SD =0.953), the government provided training for users on e-procurement (mean = 3.49, SD =1.212), the government had developed policies that make the process of implementing technology easy (mean = 3.36, SD =1.082), and the government regulations on implementation of technology were not limiting (mean = 3.30, SD =1.011) according to respondents.

Table 4: Procurement Policy

	N	Mean	Std. Deviation
The government has developed policies that make the process of implementing technology easy	80	3.36	1.082

The government regulations on implementation of technology are not limiting	80	3.30	1.011
The government supports the adoption of technology including e-procurement	80	3.95	.953
The government provides training for users on e-procurement	80	3.49	1.212
Valid N (listwise)	80		

Source: (SPSS Output, 2017)

The mean ranged between 3.30 (undecided) to 3.95 (agree) that procurement policy on e-procurement procedures were in place in their respective places of work. It's revealed that indeed the government supported the adoption of technology including e-procurement and government provides adequate training for users on e-procurement.

E-procurement Implementation

This section sought to get from the respondents on the implementation of electronic procurement at County Government of Kilifi. The findings indicate that most respondents acknowledged that the use of IT tools had improved operational efficiency of employees (mean = 3.59, SD =1.198), use of e-procurement tools and services had significantly improved the management of data (mean = 3.50, SD =1.180), and innovation had provided greater data accuracy (mean = 3.47, SD =1.232). The study further revealed that use of e-procurement had facilitated better management of departmental data (mean = 3.41, SD =1.177). Also, it had made the decision making process faster (mean = 3.26, SD =1.166).

Table 5: E-procurement Implementation

	N	Mean	Std. Deviation
Use of IT tools has improved operational efficiency of employees	80	3.59	1.198
Use of e-procurement tools and services has significantly improved the management of data	80	3.50	1.180
Innovation has provided greater data accuracy	80	3.47	1.232
Use of e-procurement has facilitated better management of departmental data	80	3.41	1.177
It has made the decision making process faster.	80	3.26	1.166
Valid N (listwise)	80		

Source: (SPSS Output, 2017)

Regression Results

The linear regression model below;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where Y is the knowledge management system implementation, β_0 is constant and ε is the error term of the model.

X_1 = Technology infrastructure

X_2 = Staff competency

X_3 = Top management support

X_4 = Procurement policy

Model Summary

Results from Table 6 indicated Coefficient of determination R^2 value of .874, This implies that Y; knowledge management system implementation influenced by X_1; technology infrastructure, X_2; staff competency, X_3; top management support and X_4; procurement policy at 87.4 %. At a 0.05 level of significance. This therefore means that majority agreed the independent variables were critical factors to knowledge management system implementation.

Table 6: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.935[a]	.874	.778	2.942

Source: (SPSS Output, 2017)

Analysis of Variance

Table 7 presented the results of ANOVA test which revealed that all the independent variables notably; (X_1) technology infrastructure, (X_2) staff competency, (X3) top management support and (X_4) procurement policy have a significance influence on knowledge management system implementation. Since the **P** value was actual 0.02 which was less than 0.05 level of significance. Table 7 also indicates that the high value of F (79.086) with significant level of 0.00 was large enough to conclude that all the independent variables significantly influence knowledge management system implementation.

Table 7: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2280.980	17	78.654	79.086	.002[b]
	Residual	328.961	64	8.657		
	Total	2609.941	81			

Source: (SPSS Output, 2017)

Beta Coefficients

Table 7 presented the results of the test of beta coefficients which indicated that the significant relationship between independent variables notably; (X_1) technology infrastructure, (X_2) staff competency, (X3) top management support and (X_4) procurement policy and dependent variable Y = knowledge management system implementation. As presented in Table 7, (X_1) technology infrastructure coefficient of 0.865 was found to be positive at significant level of 0.0012 and this indicates that technology infrastructure had a positive influence on knowledge management system implementation, (X_2) staff competency coefficient of 0.868 was found to be positive at significant level of 0.0022 and this indicated that staff competency had a positive influence on knowledge management system implementation., (X3) top management coefficient of 0.810 was found to be positive at significant level of 0.0019 and this indicated that top management had a positive influence on knowledge management system implementation. *(*X_4) Procurement policy coefficient of 0.741 was found to be positive at significant level of 0.001 and this indicated that procurement policy had a positive influence on knowledge management system implementation. This clearly demonstrated that all the independent variables significantly influenced knowledge management system implementation.

However, since the significance values were less than 0.005, all the coefficients were significant an thus the regression model was fit;

$Y= 243 + 741X_1 + 865X_2 + 810X_3 + 868X_4 + \varepsilon$

From Table 8, the t values of 1.703, 1.060, 1.335 and 1.723 is statistically significant. Kothari (2014) notes that the closer T is to 0, the more likely there isn't a significant difference.

Table 8: Beta Coefficients

Beta Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.243	.233		1.546	.0001
Technology infrastructure	.865	.508	.156	1.703	.0012
Staff competency	.868	.819	.130	1.060	.0022
Top management	.810	.607	.130	1.335	.0019
Procurement policy	.741	.430	.140	1.723	.0009

Source: (SPSS Output, 2017)

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study concluded that Technological infrastructure, top management support to e-procurement, staff competency and procurement policy had a significant positive relationship with successful implementation of e-procurement in County Government. Good ICT links between the potential suppliers and the county government would therefore increase the chances of successful implementation of e-procurement. Therefore county government having good links and Technological infrastructure, other factors held constant were likely to easily implement e-procurement and consequently benefit in terms of reduced costs and increased efficiency associated with e-procurement.

Top management support to the well-being of an organization, specifically to e-procurement, is accompanied by an increased ease of implementation of the e-procurement procedure in an organization. Therefore companies which train and motivate employee by addressing their needs, will have committed workforce and therefore have ease of implementation of the e-procurement. Based on the findings, this study concludes that, improving employee skills, through training in ICT and e-procurement policies and procedures results in increased staff competence and consequently resulting to ease of implementation of e-procurement.

Finally the study concluded that the Technological infrastructure was not adequate, also top management support towards e-procurement, staff competence and knowledge and application of procurement policy on e-procurement is low in County Government. This fact accounts for the low adoption of e-procurement in county offices.

Recommendations

Based on the above findings, study objectives, significance and limitations of this study, the following are the key recommendations:

To get the benefits associated with successful implementation of e-procurement, the procuring entities need to invest in technological infrastructure both in hardware and software. Therefore the procuring entities have the role to create technology infrastructure like e-procurement platforms in which stakeholder in the procurement department can sign in and invite potential bidders for available procurement opportunities. Potential bidders should also be given user names and electronic supplier numbers in order for them to log into the e-procurement platforms and access procurement opportunities.

Secondly, top management should be able to adopt change management strategies towards making the transformation process a success. This is so because e-procurement brings change in an organization that requires managerial and employee commitment. Therefore managers should show accommodating and positive attitude towards employees to enhance innovative or adoptive to change like shifting from manual procurement to e-procurement that could be of benefit to the organizations.

Third, the employee especially the procurement officers, need to be trained on procurement procedures and functions regularly in order for them to give professional advice on matters electronic procurement in line with the Act. Therefore bodies like Public Procurement Regulatory Authority which are mandated with the responsibility of ensuring that procurement procedures established under the Public Procurement and Asset Disposal Act 2015 are complied with, need to prepare and distributing manuals and standard tender documents, provide advice and assistance to procuring entities and employee.

Lastly, it is prudent for public institutions to prepare procurement policies and procedure manuals that should supplement the Act. The procurement policies and procedure manual should seal any gap created before new holder of an office takes charge.

Suggestions for Further Research

The study was limited to county offices and never considered other variables; therefore the study recommends that related study be undertaken particularly to investigate the intervening effect of variables like leadership style and competence of county bosses on e-procurement in the county government under devolved unit and also in government and non-government offices. Such studies should involve larger samples sizes than 89 which this study used to increase result reliability for further generalization.

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