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Organisational Factors Affecting the Adoption of E-Procurement System in the County Governments: A Case of Nairobi City County

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Abstract: ***Today, organizations are investing a lot in their IT infrastructure and reengineering their business processes by digitizing firms. If organizational employees will not optimum utilize its IT infrastructure, the productivity gain reduced enormously. Internet has changed the way business is done in every industry. E-procurement has dramatically changed the way purchasing is done. Both public and private sector institutions have realized the advantages accrued from E-procurement practices. The Kenyan government, county governments included, have recognized adoption of ICT in service delivery to the public and its citizens, engraved in the Constitution. However, even given the potential benefits of e-procurement, most of the county governments have not effectively and efficiently, adopted the e-procurement practices. This study therefore, sought to investigate the factors affecting the adoption of e-procurement in the County Governments. The descriptive research design was adopted. The target population of this study were employees working in various departments in the County Government of Nairobi and whose head office is in City Hall Nairobi. The County Government of Nairobi has more than 100 employees at its head office with 58 employees in HR, Finance, Procurement, Administration and ICT departments where the samples will be drawn through a census. The study employedpurposive sampling technique where all this 58 respondents were considered knowledgeable and involved in the procurement process in one way or the other. This study relied mostly on primary data that was collected by the use of questionnaires. The generated data was then analyzed using Microsoft's Excel program and then presented using tables, charts and graphs. The findings of the study shows that perceived benefits, perceived barriers and user training plays a major role in determining the rate of adopting the e-procurement system.***

Keywords: Demand management, Supply management, Procurement, Training, Information Communication Technology, E-procurement, County government.

1. Introduction

Procurement is a process in which organizations establish agreements for the acquisition of goods or services (contracting) or purchase goods or services in exchange for payment (Robinson, Wale and Dickson, 2010). Like private procurement, public procurement is subject to efficiency and cost pressure. Unlike private procurement, however, public procurement is highly regulated. E-procurement is the business to business or business to consumer or business to government purchase and sale of supplies, work and services through the internet as well as other information and networking systems such as electronic data interchange (EDI), (Lysons and Farrington, 2006). The forms of e-procurement are, e-marketplace, e-sourcing, e-collaboration, e-information, e-catalogue, e-tender, e-auction and inter-organizational systems. Public procurement is an important function of government (Thai, 2001). It has to satisfy requirements for goods, works, systems, and services in a timely manner. Furthermore, it has to meet the basic principles of good governance: transparency, accountability, and integrity (Wittig, 2003; Callender & Schapper, 2003)

Globally, in many developed nations, public sector expenditure is substantial. Government organizations across the world tend to spend between 8 per cent and 25 per cent of GDP on goods and services (OECD 2006). In the UK, public procurement expenditure is approximately £150 billion (DEFRA 2007). Government is often the single biggest customer within a country, and governments can potentially use this purchasing power to influence the behavior of private sector organizations (Charles 2007). An effective public procurement policy is fundamental to the success of the single market in achieving its objectives," states a Green Paper issued by the European Union in 1996 (European Union 1996). The purchasing of goods and services in the public sector is central because it supports all functions of government; each governmental unit needs supplies and equipment to accomplish its mission (Thai and Grimm 2000). As emphasized by Thai and Grimm (2000), one of the most important challenges in government procurement is how to best utilize information technology in an age of communications revolution. On-line purchases and payment for goods and services in virtual markets constitute crucial elements of e-procurement. Successful adoption leads to potential benefits, which include the reduction of transaction costs, operational efficiencies, and a better foundation for decision making.

In Kenya a wide range of organizations are struggling to adopt information and communication technology in their procurement functions despite proven benefits (Kinyanjui &Marcomick, 2002). The government has emphasized the adoption of ICT in service delivery to the public and citizen in general. This has gained momentum with the current Jubilee Government administration. The Treasury Ministry that rolled out this through the Integrated Financial Management Information System (IFMIS) was developed in

1998, to the county governments in 2012. According to the E-government Strategy Paper 2004, e-procurement was one of the medium term objectives that were supposed to be adopted by major government departments by June 2007, but the implementation process was observed to be very slow (GoK, 2004). According to Mitra, Laka and Abdulla, (2000), the most common forms of e-commerce in the Kenya market are e-procurement, e-Banking and of late m-banking. Of the three, e-procurement which is a user friendly; Internet-based purchasing system has generated a lot of interest due to its ability in improving efficiency and transparency
(De Boer, Harink & Heijboer, 2002).

1.1 Statement of the problem

The Government of Kenya, together with the World Bank started another study to assess the country's procurement procedures and systems (Government of Kenya, 2001*a*). The study findings identified the need for a comprehensive review and an implementation and adoption of a reform process in the procurement systems. The study revealed that the public procurement system in Kenya is wanting and lacked transparency, equity and fair competition. It further revealed that staff in-charge of procurement lacked adequately training and professionalism. Lack of a professional body that would oversee and instill discipline among procurement officers made them vulnerable to corruption. One of the major recommendations from these two studies was that reforms in public procurement systems were paramount if government was to save resources otherwise lost through exorbitant procurement. This World Bank study further states that improvement in procurement systems had a direct benefit on the overall economic situation in the country. The study pointed out the need for reforms, which could have led to a shift towards e-procurement; it did not address the variables being tackled by this study.

The inefficiencies and ineptness of overall implementation of procurement practices in many government institutions contributes to loss of over Ksh.50 million annually (Tom 2009), the recent one being the NYS saga, in the Ministry of devolution. In addition, with the devolved government systems, many institutions have constrains that are inhibiting the implementation of the e-procurement systems. This makes them prone to uncouth dealings. According to Victor (2012), procurement expenditure could be minimized through proper implementation of procurement practices. Many county governments are trying to implement the e-procurement within their operations. Regardless of the recognition of value of e- procurement, it is clear from the study by Gunasekaran and Ngai (2008) that the adoption of e- procurement is still very low. Since the adoption and acceptance of this system has proved to be a major gap to effective procurement activities in these counties, it is in this regard that the researcher set out to find the factors affecting the adoption of e-procurement in the county government with the study area being Nairobi City County.

1.2 General Objective of the Study

The main objective of the study was to determine the organizational factors affecting the adoption of e-procurement in the county governments in Kenya.

1.3 Specific Objectives of the Study

a) To examine the effect of perceived benefits on the adoption of the e-procurement
b) To determine the effect of perceived barriers on the adoption of the e-procurement
c) To establish the effect of user training factor on the adoption of the e-procurement

2. Literature Review

The study considered the following theories related to the adoption of e-procurement:

Linear Policy Model
The linear policy model was developed by Grindle & Thomas (2000), is also known as rational model and is the most widely held view of the way in which policy is made within the organization. It outlines policy-making as a problem solving process which is rational, balanced, objective and analytical. In this model, organization makes decisions in a series of sequential phases, starting with the identification of a problem or issue, and ending with a set of activities to solve or deal with it, which are finally evaluated. The policy model stages include; recognizing and defining the nature of the issue to be dealt with; identifying possible alternative courses of action to deal with the issue; weighing the advantages and disadvantages of each of these alternatives; choosing the option which offers the best solution; implementing the policy and possibly evaluating the outcome (Grindle & Thomas, 2000). This model assumes that policymakers approach issues rationally, going through each logical stage of the process, and carefully considering all relevant information with perceived benefits in mind. If policies do not achieve what they are intended to achieve, the blame is often not laid on the policy itself, but rather on political or managerial failure in implementing and adopting it (Juma & Clarke, 2005). Failure can be blamed on organizational issues such as a lack of political will, poor management or shortage of resources that eventually hinders formulation and effective implementation of procurement practices (Juma & Clarke, 2005). Adoption of procurement policies is greatly determined by procurement planning, management support, budgetary allocation, and preparation of procurement progress reports, procurement records management and the employed procurement methods.

Economic Order Quantity (EOQ) Model
The EOQ model is the method that provides an institution with an order quantity. This order quantity is where the record holding costs and ordering costs are minimized. By using this model, the companies can minimize the costs associated with the ordering and inventory holding. Ford W. Harris (1913) developed this formula whereas credit for the application and in-depth analysis on this model was given to R. H. Wilson (Edward, 2010). This is a model used to calculate the optimal quantity that can be purchased or

produced to minimize the cost of both the carrying inventory and the processing of purchase orders or production setups (Edward, 2010). The EOQ model considers the tradeoff between ordering cost and storage cost in choosing the quantity to use in replenishing item inventories. A larger order-quantity reduces ordering frequency, and, hence ordering cost per month, but requires holding a larger average inventory, which increases storage (holding) cost per month. On the other hand, a smaller order-quantity reduces average inventory but requires more often, ordering and higher ordering cost per month (Edward, 2010). The EOQ model helps organizations to reduce inventory management costs by reducing the cost of ordering and holding stock.

3. Conceptual Framework

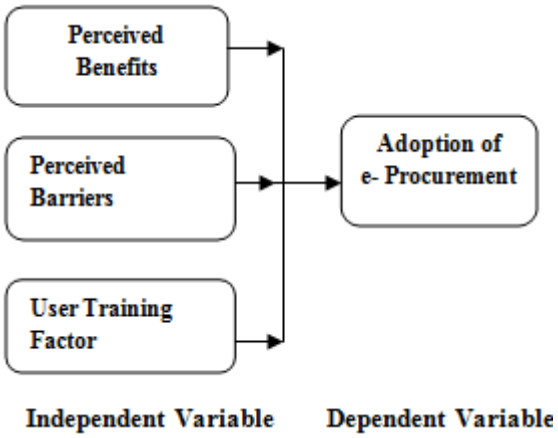

Figure 1.1: Conceptual framework

a) Perceived Benefits

E-procurement systems benefit both the buyer and supplier side (Kauffman and Mohtadi, 2004) improving tasks for all involved in the procurement process. Cost minimization is a major driver to the growth and adoption of e-procurement. It is also believed that there is more benefit to be gained by using e-commerce for sourcing, rather than for transaction management (Kalakota and Robinson, 2000). It is possible to reduce buying and service costs through product standardization. For example, all computers ordered for staff are in pre-defined configurations only, and from one supplier only, so prices could be negotiated once a year. Organizational cost management due to e-Procurement typically results from the reengineering of supply chain (Bland, 2003) thus resulting in increased revenue and competitiveness (Kheng and Al-Hawamdeh, 2002). For example, the use of direct auction increases the organization's chances of getting lower prices for the goods offered (Pearcy et al., 2008). Cost savings also occur through improvement in efficiencies and effectiveness of procurement tasks, lowering of purchase prices and the lowering of administrative functions (Croom and Brandon-Jones, 2004). Purchasing officials will now spend more time on the strategic aspects of procurement such as developing supplier development programs, improved supplier relationships, and improved communication allowed by reduced by the administrative aspects of the procurement process. E-Procurement is perceived as reducing purchasing time (Gunasekaran and Ngai, 2008) and streamlining purchasing process (Tanner et al., 2008). Time saving and process efficiency in purchasing can be achieved by automating management of information and decision making (Barlezzaghi and Rochi, 2005), simplifying the purchasing process (Gunasekaran and Ngai, 2008), and eliminating intermediaries such as brokers and dealers (Kheng and Al-Hawamdeh, 2002). The end result of reducing purchasing time and streamlining purchasing process by using e-Procurement are reduced consumption (Davila et al., 2003) and enhanced quick and efficient decision making (Hawking and Stein, 2004). Organizational access to a wider market can also be a benefit enhanced by e-Procurement (Gunasekaran and Ngai, 2008). The use of the electronic platform allows organizations access and reach trading partners despite geographical and time gaps (Standing and Lin, 2007). Improved trading partners relationship over the internet is established though the use of e-collaboration (Gunasekaran & Ngai, 2008). ICT has offered a wide range of communication capabilities that has bridged this geographical gap. Strategic partnership, where the company establishes long-term relationship with a single supplier so that the future prices are known ahead saving time to determine the prices of supply.

b) Perceived barriers

Jeyaraj, Rottman and Laicity (2006), found that top management support to be one of the best predictors of organizational adoption of IS innovations. Lack of top management support or will, will hinder the adoption of e-Procurement systems. Top management's strong will can stimulate change by communicating and reinforcing values through an articulated vision for the organization to their employees (Thong, 1999). As with any new technology introduced into the workplace, an e-Procurement system's effectiveness depends, ultimately, on its being adopted and regularly used by employees. Since e-Procurement systems are a self-service tool, users sometimes resist using it (Bedell, 2002). Employees are said to comply with the purchase of contracted items only 65% of the time, causing companies to miss the 22% in cost reductions possible through compliance with contract terms (Aberdeen, 2006). Success of e-Procurement adoption calls for a change in the attitude of both the employees of the organization and their suppliers.Top management support is generally reflected in two ways: a) willingness to provide the necessary resources to the implementation of an e-Procurement system; and b) a strong role-played at resolving disputes result from the introduction of the e-Procurement system. When employees are given a clear signal from their senior management about the importance of the e-Procurement to succeed and also receive considerable support in terms of necessary training and required changes necessary for business process, their willingness to accept that system are increased (Sum & Chung, 1995). Implementation costs issues are also cited as major barriers to e-Procurement adoption (Tanner et al., 2008). A considerable investment is in e-Procurement adoption on software, hardware and trained workforce is much of a required (Kheng& Al-Hawamdeh, 2002). Lack of knowledge and skills is also a perceived as a barrier to the adoption of e-Procurement. Success in the implementation and adoption of e-procurement in any organization highly depends on the workforce's knowledge and skills about the e-procurement systems.

c) User Training Factor

Another important factor is user training, which refers to the process of providing employees with the logic and overall concepts of a complex e-procurement application that is being introduced within an organization. Training helps employees in two distinct ways: a) It helps in the transfer of knowledge from vendors consultants to employees about why the e-procurement system is needed and how it should improve their work. This in turn helps in addressing the fear employees may have about the e-procurement system; b) hand-on training helps employees to know about the features of the software and thus helps in developing a familiarity with the system. Thus, user training is essential to generate employee acceptance of any e-procurement system. User involvement which refers to the participation in the e-procurement system implementation process by representatives of target employee groups facilitate their acceptance of the e-procurement system. Involving employees at both planning and implementation stages decrease the resistance to any e-procurement system because they develop a feeling that they are important stakeholders who can make decision about how the system can be made work for them (Birks et al., 2001).

d) Adoption of E-procurement

E-procurement refers to the use of Internet-based (integrated) information and communication technologies (ICTs) to carry out individual or all stages of the procurement process including search, sourcing, negotiation, ordering, receipt, and post-purchase review (Rasheed, 2004).Adopting an efficient e-procurement system improves the performance of the procuring entity and at the policy level: assists policy makers to understand how various policy goals interact and how policy impacts on the overall performance of the procurement system; enables governments and parliaments to improve the quality of decision-making and to take constructive and long-term actions that will most effectively develop their public procurement systems (e.g. in terms of procurement policy and regulatory reform, institutional development and capacity strengthening); create stronger incentives on county governments to improve the e-public procurement systems, help them to set priorities for reform actions in the area of procurement and to monitor progress against the objectives set; and provide valuable information for the assessment of the public expenditure system (Hardy & Williams, 2011). E-Procurement solutions are seen as a way to address many public sector procurement requirements. It has become apparent that the more the procurement process is supported by Internet technology, the easier it will become to develop and implement e-Procurement. The e-Procurement infrastructure and procedures can facilitate the achievement of the principles including transparency and accountability requirements of the public offices while enhancing efficiency, effectiveness, and flexibility in the procurement process. E-Procurement has the potential to promote operating efficiency in public sector procurement and provide significant cost savings.There are various forms of e-Procurement that concentrate on one or many stages of the procurement process such as e-tendering, e-sourcing, e-collaboration, e-advertising, e-payment, e-collaboration, e-invoicing, e-catalogue. Private and public sector organizations have been utilizing Information Technology (IT) systems to streamline and automate their purchasing and other processes over the past years (Choudhury, 2004).

4. Research Methodology

The study adopted a descriptive research design which according to Cooper and Schindler (2003), is concerned with finding out the what, where and how of a phenomenon.The targeted population in this study constituted the employees of Nairobi County Government under the HR, Finance, Procurement, Administration and ICT departments.All the 58 employees (source: Human Resource Department) formed a rich population that provided a helpful understanding of the issues that were being considered by the study. The justification of this population is that these employees were affected by organizational factors and these enhance the adoption of the e-procurement system in the organizations.The study employed stratified sampling technique in coming up with a sample size of respondents within the County whose office is in City Hall, NairobiThis research used a census in selecting the respondents in the organizations where all the employees on the departments (see figure below) will used for the study.

Table 3.1: Sample Size

Department	*Sample size*
HR Office	08
Finance/Accounts	10
Procurement	13
Administration	12
ICT	15
Total	**58**

Source: Human Resource Department, Nairobi City County

In order to meet the objective of the study, questionnaires developed by the researcherwere used to collect the data.To establish the reliability of questionnaire, the researcher pre-tested using a test- re- test on 5 respondents of a different organization. The study adopted descriptive statistical techniques including a summary of findings in form of charts, tables and graphs from coded numbers and percentages. The data was later analyzed using descriptive statistics involving frequencies and percentages then presented using tables and graphs.

5. Results and Discussions

The study was conducted on 58 respondents; however, 3 did not turn up to return the questionnairetranslating to a response rate of 94.8%.64% of the respondents were male and the rest were female (36%).The percentage ages of the respondents were: 18-15 (16%), 26-35 (51%), 36-45 (15%) and above 45 (18%).

a) Perceived benefits

Eighty nine percent (89%) of the respondents agreed that Buying through the internet e.g. e-auction, was found out to enhance organizational chances of getting lower prices for the goods offered while just a partly 11% were neither unsure nor disagreed due to that internet is widely accessed. 42%, neither were neutral on this or did not agree on labor cost reduction since e-procurement mostly enhances

efficiency and effectiveness of the process. However, 58% agreed that there is cost reduction in labor. Lower purchase price and administrative functions can be attained as concurred by 89%.The system also enhances time savings and process efficiency in purchasing. This issue received a whopping 95% support of the respondents.Organization can make much savings by reducing inventory level because faster purchase cycle time is achieved through e-procurement system and consequently reduce the need for more material in stock. 64% of the respondents agree, 32% were unsure while a mere 4% disapproved this statement.

b) Perceived barriers

Ninety eight percent (98%) cited lack of top management support as the biggest barrier that hinders the organization and its workforce in adopting the system while 2% not sure.Employee usability will ultimately enhance e-procurement system effectiveness. All the 55 respondents agreed with this with the majority strongly agreeing.58% strongly agreed that lack of employee training support is will impede on the uptake of the system, 36% agreeing while a partly 6% did not express their opinion either to accept or reject the statement.Lack of investment by the management to invest in the purchasing software and hardware and training of workforce may inhibit the rate of user uptake of the system. 33% strongly agreed with this in addition to the 65% who also agreed. Only 2% of the respondents were unsure.Seventy three percent (73%) of the respondents agreed that the success of implementation and adoption of e-procurement in any organization highly depends on the knowledge and skills of the workforce on the system. However, 16% of the respondents disagreed citing that investment in the system is vital for it success as 11% of the respondents were not sure on the issue that enhances success of the system citing anything that the organization can do is important in the adoption.

c) User training

The setting up of the system should be an affair that involves every participant of the system in order to own it and feel like this is their own as supported by 89% of the respondents, as 11% did not site either an agreement or disapproval. All the 100% respondents agreed that hands-on-training enhances familiarity with the system, helping the employees to know the features of the software installed in the system. Involvement of all the stakeholders especially the users at all the stages of setting up the system helps decrease resistance. 91% agreed with this as it enables a feeling that they are important and stakeholders who can make decisions about how the system can be made work for them while 9% registered their disapproval.On the best way to enhance the skills appropriate for the adoption of the system, 73% of the respondents opined that training of the employees was the best method as they train and do while 27% claimed that employing an already skilled workforce was the most appropriate.

d) Adoption of E-Procurement

On the adoption of the elements of procurement, majority of the respondents were in agreement that their organization has made steps in the adoption of these elements. These were cited as the major aspect of the e-procurement system. These are the forum in which traders do business. Nonetheless, a good number were not in support or dismiss the adoption of e-invoicing (7 respondents=13%) and e-reverse auction (9 respondents = 16%).Asked about their thought on their organization's doing enough to enhance adoption of e-procurement, the respondents confirmed that their organization has done enough and still improving on their effort. Nairobi City County has invested a lot in the ICT platform and automated almost all the services that are touching on public finances.

6. Conclusion and Recommendations

Perceived Benefits: The results of the study have indicated that perceived benefits that would rather be derived from the e-procurement systems will enhance the adoption of the system. This system would rather help the organization to save on the time and costs of doing business and improve on efficiencies and effectiveness of its purchasing operations. Majority of respondents, more than 80% agreed with the facts that these benefits would enhance the uptake of the system. Every organization aims at cost saving and improving on its processes in doing business. Public entities have been put to task by the central government to put into public domain their business dealings. This therefore has called on every entity to do business over the web, where everyone of interest can access.

Perceived Barriers: Findings of the study on the perceived barriers indicated that the majority of the respondents agreed, that barriers within the organization will hinder the adoption of e-procurement system. No respondent cited displeasure with the questions posted to him or her on the barriers. Management and employees proves to be a major barrier by not willing to embrace the system. Management may deliberately fail to allocate resources and invest towards the development of the system and thus cause a failure. However, a sizable number, less than 6% were not aware if the barriers would really interfere with the adoption of the system.

User Training: On the question on whether user training affects the adoption of e-procurement, majority of the respondents were in concurrent that the training of all the participants in the system plays a major role in the ensuring that an IT system is adopted within the organization. Less than 15% of the respondents were neither sure nor unsure whether the training of the employ has any effect on the uptake of the system. Imparting employees with knowledge and skills will enable them have knowledge and skills on how to overcome the technicality of the system. This enhances familiarity bringing some sense of ownership of the system by the employees.

Adoption of e-procurement: Majority of the respondent (94%) concurred that their organization has adopted the elements of e-procurement system sought to be known by the study. However, a 4% disagreed with the adoption of e-invoicing and e-reverse action, claiming that they have never used it, so, they are unaware of these elements. These are important elements used in the trading via internet.

7. Conclusion

The study concluded that, Nairobi City County has embraced e-procurement and the employees as adopted the usage of this system in the purchasing of goods and services. This is in line with the current public finance reforms spearheaded by the treasury under the umbrella of financial process reengineering calls for all state corporations to partake in e-procurement in tandem with the National Integrated Financial Management (IFMIS) policy. However, more training is required to equip the employees with necessary skills and information to embrace and practice the system.

8. Recommendations

- **Perceived benefits:** From the study, some respondents expressed their displeasure especially on the lowering of prices of the supplies. It was recommended that, participants in the e-commerce should embrace e-auction where different traders will post their offers and the prices. This will give the different participants a chance to choose from a variety.
- **Perceived barriers:** On the perceived barriers, the study recommended that firms should invest heavily in the system if they want to reap the benefit of their existence in future. These investments should be in form of provision of the resources and the training of the users. These will enable the ease of adoption.
- **User training:** Training of new and old employees should be encouraged if the organization hopes that this system will be embraced by everyone in the procurement system. This will enable them own the system and become familiar with it hence reduce the chances of resistance.

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