Factors influencing adoption of electronic procurement in Kenyan public sector: A survey of selected government agencies

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Abstract- The study focused on identifying the factors that influence adoption of electronic procurement in Kenyan public sector. The research used selected government agencies. The study intended to investigate to which extent the following independent variables namely; E-security, staffing, user acceptance and top management support influence adoption of electronic procurement in Kenyan public sector. Descriptive research design was adopted for the study where all the government agencies (122) that are registered in Kenya formed the target population for the study. The study considered a sample of 18 government agencies in Kenya from which 54 respondents were purposively selected. Questionnaires were used to collect primary data from procurement managers and procurement officers. From the study, it was noted that E-procurement has not been fully adopted by all the government agencies. Top management support and E-security are the major influence of E-procurement adoption in Kenyan public sector. The study recommended that Top management support among the parastatals in Kenya should set goals, strategies and baselines that are necessary for the adoption of the E-procurement and follow up to ensure implementation. The study also recommended that due to the sensitivity of the government data and the legal nature of orders and payments, security of data should be enhanced.

Index Terms- e-procurement, e-security, staffing, top management support and user acceptance.

I. INTRODUCTION

According to Public Procurement and Disposal Act (PPDA) Act (2005) "procurement" means acquisition by purchase, rental, lease, hire purchase, license, tenancy, franchise, or any other contractual means, of any type of works, services or supplies or any combination. Procurement therefore encompasses the whole process of acquiring property and/or services. It begins when an agency identifies a need and decides on its procurement requirement (Dyckhoff, 2004). Procurement continues through the processes of risk assessment, seeking and evaluating alternative solutions, contract award, delivery of and payment for the property and/or services and, where relevant, the ongoing management of a contract and consideration of options related to the contract (Dyckhoff, 2004). Procurement is the acquisition of goods or commodities by a company, organization, institution, or a person. This simply means the purchase of goods from suppliers at the lowest possible cost (Cooper & Ellram,

1993).The best way to do this is to let the suppliers compete with each other thereby keeping the expenses of the buyer at a minimum. It is because of this reason of lowering the costs that have now made organizations to accept and implement E-procurement. The Internet provides a cost-effective mechanism for organizations to engage in search, negotiation and coordination with their suppliers anywhere in the world (Buxmann & Gebauer, 2007).

Globally, e-procurement has gained popularity especially with the advent of technology. In United States of America for instance, rapid development of e-procurement was reported in early 2000 just before the recession (Layne & Lee, 2001). A four stage growth model for e-government was developed using local state and federal government as points of reference. By the end of the same year, it was reported that all state functions were maintaining web presence in at least some stage of their procurement processes with some participating in online bidding (Reddick, 2004).

Most African countries have resorted to legal reforms and adoption of e-procurement. Tanzania for instance put into place e-procurement systems to allow e-sharing, e-advertisement, e-submission, e-evaluation, e-contacting, e-payment, e-communication and e-checking and monitoring to ensure all public procurement activities are conducted online (Sijaona, 2010).

In Kenya, public procurement system has been undergoing reforms consistent with the global trend since the mid 1990s, most notably within the periods covering 1997-2001 and 2005. Previous to these reforms, the legal framework governing public procurement was not clearly defined, providing a conducive environment for the perpetration of various malpractices in public procurement including the corruption that characterized the system (Public Procurement Oversight Authority, October 2007).

1.1 E-procurement Adoption

According to Mauti (2013) Kenya has adopted e-procurement with the following e-procurement practices: online advertisement of tenders, receiving online submission of proposals for the tenders, and short listing suppliers online among others. The five critical success factors identified were: employees and management commitment to success of adoption; reliability of information technology and supplier performance; monitoring the performance of e-procurement systems; user acceptance of e-procurement systems and top management support. The challenges established were: resistance to change

from employees, lack of e-procurement approval by company board, existence of old Information Technology equipment among the firms that needed thorough examination and repairs and lack of managerial support. Mauti et.al. (2013) recommended that large scale manufacturers in Nairobi needed to incorporate all the e-procurement activities into the system; they need to find out ways of encouraging employees to make use of e-procurement systems as well as finding ways of addressing the factors that are critical to the success of e-procurement. This will enable them to improve adoption of e-procurement. For any e-procurement initiative to be successful, there are a number of factors that an organization must critically consider. They include: user acceptance of new system; information quality; trust; risk/security perception; early supplier involvement; staff training; users and buyers; compliance with best practices; top management support; continuous measurement of the key benefits; re-designing affected business processes and actual selection of e-procurement solution.

Existing literature reveals 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 however emerging evidence of the slow uptake of the technology despite the benefits that e-procurement offers (Segal & Taylor, 2001). In the public sector, several models have been tried by different public entities to implement e-procurement. These are seller centric, buyer centric, e-marketplaces or third-party managed models. According to e-government strategy paper (2004), e-procurement was one of the medium term objectives which were to be implemented by June 2007, but the process has been very slow. Despite the Government's sustained and incremental efforts in laying down Information Communication Technology strategies in the area of Public Financial Management Reforms in order to boost transparency, efficiency and effectiveness, it is still apparent that the implementation of e-procurement is still very slow Patricia (2015). This slowed adoption of e procurement in the public

sector raises concern as to what factors influence adoption of e procurement in Kenya.

The researcher therefore intended to analyze factors that influence the adoption of e-procurement in public sector with a view of recommending measures to be put in place to enhance adoption of electronic procurement. This will benefit public organizations adapting e-procurement system and other private organizations in general that are implementing the same system as they will be more enlightened on the factors influencing adoption of electronic procurement in order to reap maximum benefits.

II. RESEARCH METHOD

This study used descriptive research design which provides a clear presentation of the variables under study. It emphasizes on quality in the collection and analysis of data and it is used when collecting data using open- ended questionnaires. According to Orodho (2003), descriptive research describe the "who, what, when, where and how" of a situation. It also tries to measure the types of activities, how often, when, where and by whom. This study used descriptive research design to gather the data and involves systematic data collection and analysis to answer these questions. The target population comprised of all the government agencies that are registered in Kenya and operate within the country. The population of interest was divided into eight strata (sectors). The sampling specifically focused on 18 parastatals based in Nairobi. The questionnaires used had closed- ended questions to elicit specific responses for quantitative and qualitative analysis respectively.

III. RESULTS

Response Rate

41 respondents filled in and returned the questionnaire giving a response rate of 76%.

Table1. Response rate

Response	Frequency	Percentage (%)
Responses	41	76%
Non responses	13	24%
Total	54	100%

Sector of the parastatal

The study sought to establish the sector in which the Parastatal operated.

Table2. Sector of the parastatals

Sector	Frequency	Percentage (%)
Agriculture	12	29.27%
Environment and Natural Resources	3	7.32%

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Energy and Petroleum	3	7.32**%**
Manufacturing and Allied	3	7.32**%**
Construction and Allied	3	7.32**%**
Tourism	9	21.95**%**
Telecommunication and Technology	3	7.32**%**
Commercial Services	5	12.20**%**
Total	41	100%

Academic qualification

The figure below shows the analysis of the qualifications of the respondents who contributed in data collection.
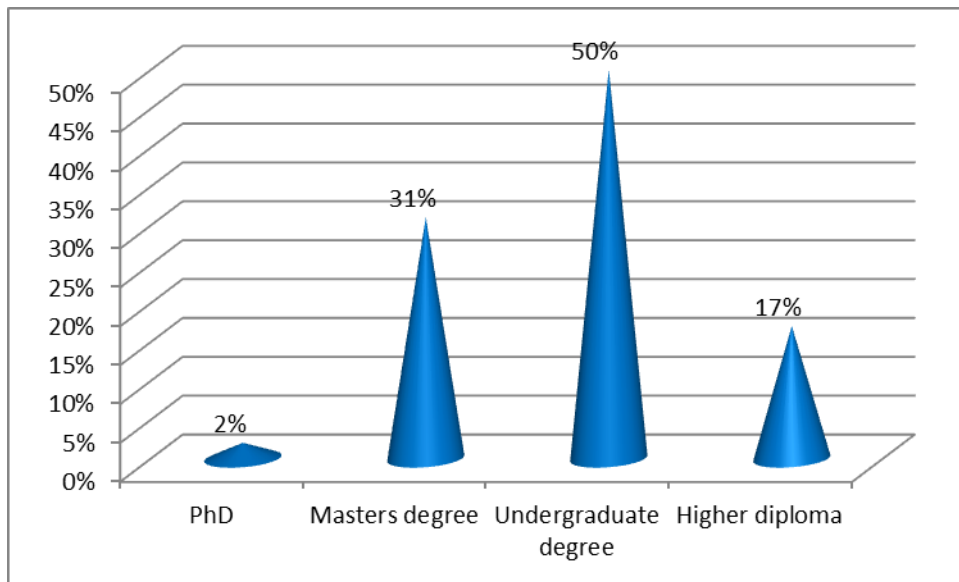
Figure1. Academic qualification of the respondents
Position in the organization

The question sought respondents' current job role.
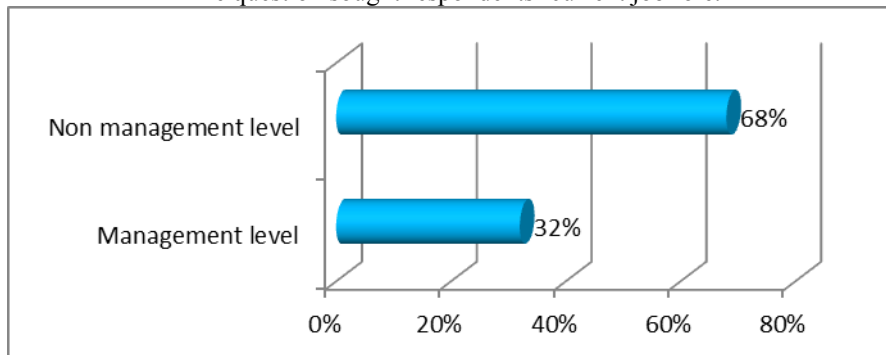
Figure2. Position of the respondent in the organization
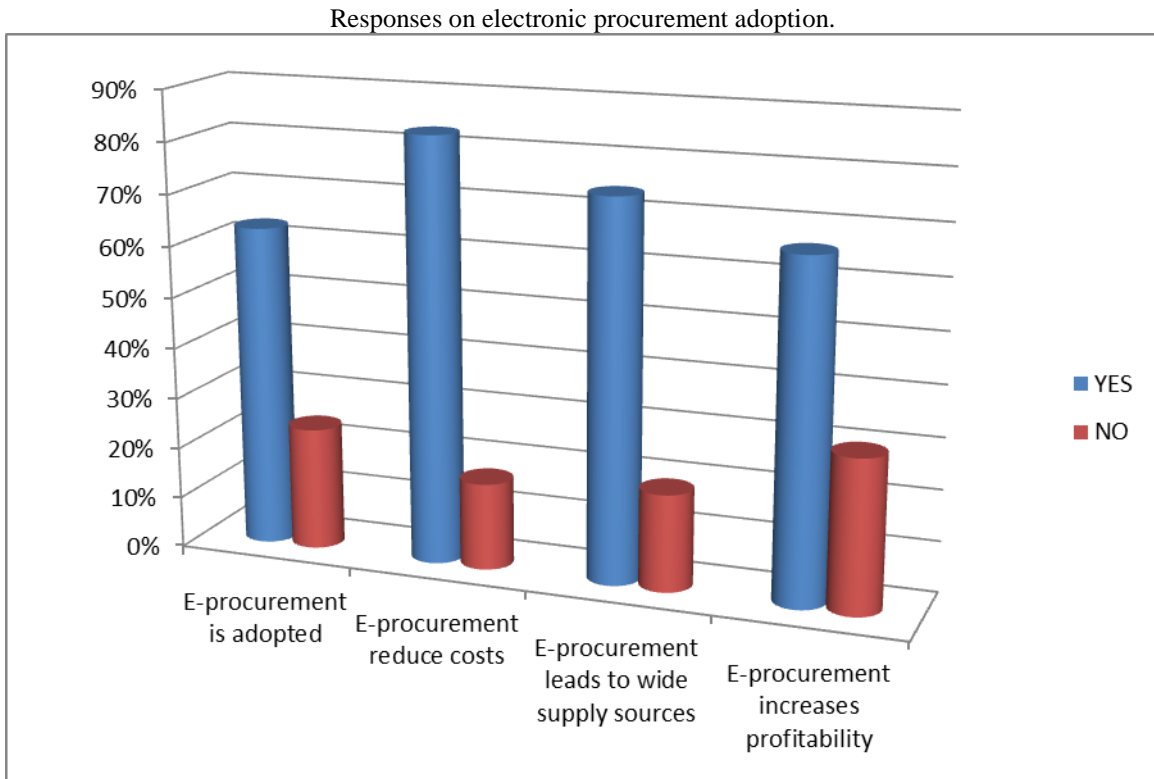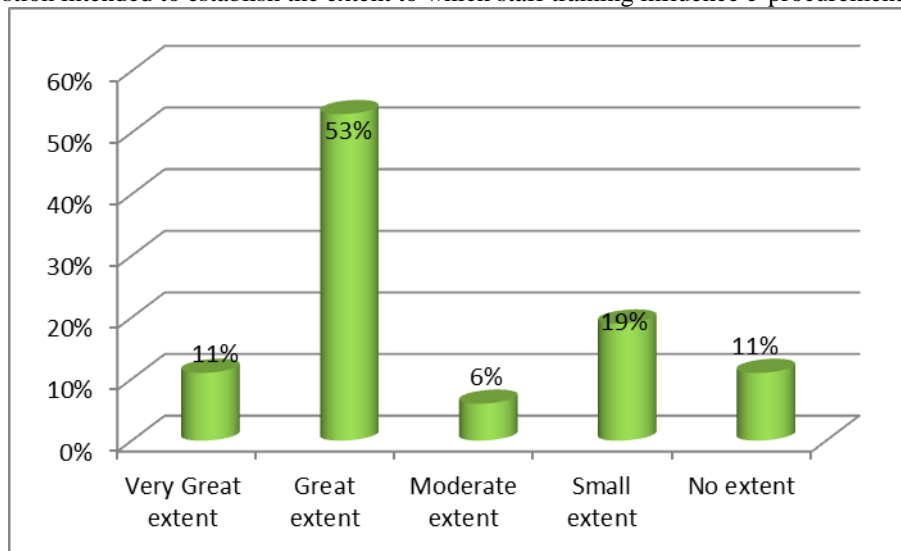**Electronic procurement adoption**

Responses on electronic procurement adoption.

Figure3. Electronic procurement adoption

Extent to which training influence e-procurement adoption
This question intended to establish the extent to which staff training influence e-procurement adoption.

Figure4. Extent to which training influence e-procurement adoption
Organization top management support

The study sought to establish the extent to which Top management support influence adoption of e-procurement.

Table3. Organization top management support

Description	Total	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total (%)
Top management provides the necessary resources on time.	38	9%	54%	10%	27%	0%	100%
Top management follows up e-procurement implementation.	40	23%	43%	5%	29%	0%	100%
Top management support and commitment leads to effective adoption of e-procurement.	41	71%	29%	0%	0%	0%	100%

Extent to which transaction risks influence e-procurement adoption

The study sought to establish from the respondents the extent to which transaction risks influence e-procurement adoption. The results were shown in figure 4.7 below.
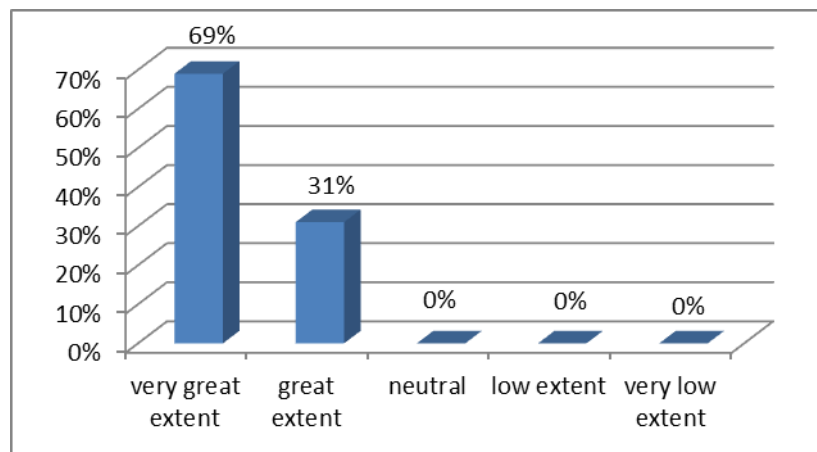

Figure5. Extent to which transaction risks influence e-procurement adoption

User acceptance

This question sought to determine the extent to which user acceptance influence adoption of e-procurement.

Table4. User acceptance

Description	Total	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total (%)
Most of the employees in the organization prefer e-procurement.	39	0%	52%	30%	18%	0%	100%
Many suppliers can be identified online.	36	32%	22%	17%	29%	0%	100%
Acceptance by users leads to effective adoption of e-	41	82%	11%	7%	0%	0%	100%

procurement.

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IV. DISCUSSIONS

From the results, majority 63% agreed that top management provides the necessary resources on time. 23% of the respondents strongly agreed while 43% agreed that top management follow up E-procurement implementation.71% strongly agreed and 29% agreed that top management support influences adoption of E-procurement. This implies that top management support influences adoption of E-procurement to a greater extent. This information is suggesting that support, commitment, authority, and direction from top management for the adoption of E-procurement are necessary in ensuring overall success in adopting the system.

The results show that there exist threats associated with adoption and use of E-procurement. 94% of the respondents consulted agreed on the presence of such risks. Majority of the respondents 69% were for the opinion that transaction risks influence E-procurement adoption to a very great extent. The other 31% responded that transaction risks influence E-procurement to a great extent. 82% of the respondents said that security risks resulting from unauthorized penetration influence adoption of E-procurement to a very great extent while 15% argued that the influence was to a great extent.

From the results, majority (82%) strongly agreed that user acceptance leads to effective adoption of E-procurement while 11% agreed on the same. It was also revealed that most (52%) of the employees prefer E-procurement as it makes it easier to identify many suppliers online and save on costs.

From the findings, most of the respondents (57%) attended orientation training. The training is important as it improves their skill on E-procurement. 53% of the respondents consulted said that staff training influence adoption of E-procurement to a great extent with 11% stating that the training influenced the adoption to a very great extent.

V. CONCLUSIONS

From the study, it was revealed that top management support, E-security, user acceptance and staff training influences adoption of E-procurement in the organizations under review. It is also revealed that E-procurement has not been fully adopted in Kenyan public sector.

From the results, it can be concluded that E-procurement success would continue to be enhanced not only at the implementation phases, but also at latter stages in the adoption as long as top management support and commitment is high. Conversely, overall benefits of E-procurement system may be low in situations where top management support is either low or nonexistent. It is therefore evident that for the adoption of E-procurement to be successful at all stages, the support of top organizational actors is required. Top management should therefore provide the necessary resources, communicate on time and be committed fully for smooth adoption of the system.

Security of Procurement Transaction Data is also a major factor inhibiting the adoption of e-procurement by the public sector. Individual end users and entire business units will naturally resist any change in business processes that poses uncertainty in security and privacy of their transactions. Most of the organizations keep their business information secret as a protective mechanism to effectively compete and remain competitive in the business environment. Public sector organizations on the other have limits to the amount and nature of information to be shared with other third parties. The balance between transparency, protection against unauthorized data disclosure, ensuring the authenticity of a data source and the impact of disclosure of procurement process remains unclear.

The result also shows that user acceptance influences adoption of E-procurement. The acceptance of e-procurement systems among the users will lead to the success of the system since those involved will have a positive attitude in learning on how to use the system thus making it easy to incorporate most of the operations into the system. The ease with which users could use the e-procurement system involves the recognition by the senior management of the importance of the ease of using the e-procurement system for its staff and then chose an application that is easy to navigate. Automatic routing of purchase orders to appropriate managers for approval, access to e-catalogues, sending purchase orders to suppliers, producing expense report capabilities, encourages employees to accept and use the system without much hesitation.

From the findings of this study, it can also be concluded that lack of employee competency hinders smooth adoption of e-procurement in the public sector. Although majority of organizations were committed to e-procurement skills development, training is still not at 100%. It is evident that employees has a great role in adoption of e-procurement and their skills, competencies and training may influence to a large extent how e-procurement is adopted and implement in an organization.

VI. RECOMMENDATIONS

From the findings, if E-procurement adoption does not have the full support of the top management team, there is every reason for that system to fail. Top management support among the parastatals in Kenya should therefore set goals, strategies and baselines that are necessary for the adoption of the E-procurement. The strategies should be in line with the firms' objectives. The goals will enable the organizations measure how much they will achieve as far as e-procurement system adoption process is concerned.

On security of procurement transactions data, the study recommends that due to the sensitivity of the government data and the legal nature of orders and payments, security of data is critical in e-Procurement systems. The system must have mechanisms for identifying and authenticating the user

who places an order so that the supplier knows it is safe to fulfill the order.

The study recommends that all the parties involved in adoption of E-procurement should be considered when laying down structures on implementing the system. This will incorporate all their interests and hence make them develop positive attitude toward the system. By improving the other factors like security and training, the various parties will be motivated to adopt the system.

Staff training is a factor that influences E-Procurement adoption; this study recommends that for effective adoption and implementation of E-procurement, continuous training for the incoming and present staff is required. In addition, training should be made compulsory and should be implemented. The training should cover E-procurement extensively to equip the employees with the skills required.

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