INFLUENCE OF PERCEIVED E-PROCUREMENT USEFULNESS ON THE USAGE OF E-PROCUREMENT IN REFERRAL HOSPITALS IN WESTERN KENYA

[1*] **Susan Achieng' Omenda**

omendasu@gmail.com

School of Business & Human Resource Development, Rongo University, Kenya

Abstract: The purpose of this study was to determine the factors influencing the usage of e-procurement in referral hospitals in western Kenya. The study was guided by serene objectives; to investigate the influence of perceived e-procurement usefulness on the usage of e-procurement in referral hospitals in Western Kenya. The study adopted cross-sectional Survey research design, with a target population of 2 facilities constituting 35 senior management officers and 205 middle level management, giving a total population of 240 personnel, from which a sample of 26 senior management officers and 155 middle level management officers and heads of departments were drawn using stratified random sampling technique, followed by simple random sampling with a mixture of purposive sampling technique to select the sampled Senior and Middle Level Management staff. The major findings were perceived e-procurement usefulness that also influenced the hospitals' ability to use e-procurement. This study recommended that referral hospitals should continuously train their employees on matters e-procurement to enhance their understanding and ability to use e-procurement. The study also recommended that good ICT links between the potential suppliers and the referral hospitals should be established and the suppliers encouraged. As well, a stable ICT infrastructure in the organization including sufficient internet connectivity, power supply and sufficient computer soft and hardware should be enhanced. These were found to be likely to improve the organization's ability to use e-procurement. Lastly, this study recommended that managerial commitment to the well-being of the referral hospitals, specifically to e-procurement, should be enhanced so that it accompanies the increased ease of implementation and hence use of the e-procurement procedure in an organization. The researcher therefore concluded this factor had significant influence on the usage of e-procurement in referral hospitals in Western Kenya.

__Keywords__: e-Procurement, Influence, Usage

1.0 Introduction

According to (Davis, 1989) perceived usefulness is the extent to which a person believes that using a particular system will enhance his or her performance. In TAM Model, it explains the acceptance of information technology in performing tasks and identifies perceived ease of use and perceived usefulness as two key determinants that enhance the use of technology.

E-procurement systems benefit both the buyer and supplier side (Kauffman & Mohtadi, 2004) improving tasks for all involved in the e- Procurement process. Cost Savings occur through improvement in efficiencies and effectiveness of procurement tasks, lowering of purchase prices and the lowering of administrative functions (Croom & Brandon-Jones, 2004). Reducing the administrative aspects of the e-Procurement process allows purchasing professionals to spend more time on the strategic aspects of procurement such as developing

supplier development programs, improved supplier relationships, and improved communication processes. Perceptions of these improvements can have a positive influence on the motivation of purchasing professionals to adopt electronic technologies. This construct is similar to the acceptance factors from the technology acceptance model (TAM) in particular the perceived ease and perceived usefulness of the technology (Davis et al., 1989). Other perceived E-procurement usefulness can be summarized as: It enhances task improvement, it enhances Purchasing efficiency & effectiveness, it ensures Customer satisfaction, and it enhances accelerated institutional turn-over/service quality.

Although forecasts on the use of e-procurement have been downgraded with the burst of the Internet bubble in 2001 (Davila et al., 2003), experts are still predicting growth (Halal, 2003) with statistics showing an increased growth in the use of e-procurement for 2004. For example a recent survey indicated that e-procurement of direct goods is now exceeding that of indirect goods (Bartels, 2003). On the other hand results are also less than expected by some. Such confusion may be causing some type of inertia within the adoption process even though significant benefits can be obtained (Anon, 2002).

Numerous studies have proven the potential of e-procurement, for example, "e-procurement facilitates organizations to decentralize their operational procurement processes and centralize strategic procurement processes as a result to provide higher supply chain transparency using e-procurement system. Other significant operational benefits that can be gained by e-procurement include lower transaction costs, lower staffing requirements, shorter procurement cycles, reduced inventory levels, higher degree of transparency and increased communication and collaboration between supplier and buyer organizations (Davila et al., 2003; Turban, King, Lee, Warkentin, 2002; Osmonbekov, Carter et al., 2000; Raikumar, 2001; Min & Galle, 2003).

E- Procurement in the public sector is emerging internationally, with such initiatives having been implemented in Singapore, UK, USA, Malaysia, Australia and European Union. E- Procurement projects are often part of a country's larger e- Government efforts to better serve its citizen and businesses in the digital economy. For instance, Singapore's GeBIZ was implemented as one of the programs under its e- Government master plan. According to Aberdeen 2001, an e- Procurement system manages tenders through a web site. This can be accessed anywhere globally and has greatly improved the accessibility of tenders.

E- Procurement applications focus on creating efficiencies; their goal is to make the traditional purchasing procedures more efficient and cost effective (Wu, 2007 and Turban et al., 2006). Larsen et al., (2008) noted the development and implementation of electronic commerce business models such as a procurement portal in organizations is a challenge that goes beyond mere technological functionality. Top management support, organizational adaptation, and training of employees are examples of issues for the successful implementation of organization IT system (Kawalek et al., 2003). In the study on e- procurement adaptation in Greece, Panayiotou et al., (2004) pointed out e- procurement strategy, re- engineering of procurement processes and management of expectations as key success factors in an e- procurement adaptation strategy. Their conclusion was that implementation must be achieved in a manner of "incremental change" where technological solutions apply to regulations and policies.

Today, e- Procurement within government is recognized as one of the main areas in the Government- to- business (G2B) category, and receives much attention from researchers (Turban and King, 2003), being also called electronic referral procurement. UK National e- Procurement Project Report (2004) notes that e-Procurement is a tool to enable procurement activities, including sourcing, ordering, commissioning, receipting and making payments for the whole spectrum of an authority's activities. The issues in building efficient electronic government procurement solutions have been identified by the CEN/ISSS e- Business Focus Group,

as being of organizational, procedural, technical, and legal nature (CEN, 2005). An investigation into the implementation strategy of e- Procurement in the Irish referral sector concluded that fundamental changes are required in the referral sector procurement environment to achieve the benefits of e- Procurement approach (Lee, 2001). It was found that the key issues could be grouped into a number of areas: procurement framework and practices, organizational arrangement, e- Procurement technology framework, and the legal and economic environment. Among these issues, a strong and efficient organizational aspect was identified as a very critical success factor for efficient e- GP implementation.

In the Kenyan market, research conducted by Humphrey *et al.,* (2003) revealed that conducting e- commerce is mostly meant for provisions that enable the firms identify trading partners that they could contact off- line with a view to doing business. The follow- up to an initial contact generally is taking place through other channels such as e- mail, hyperlink, the telephone, fax or the post. Despite the benefits of e-procurement as recognized by managers such as better coordination with suppliers, quicker transaction times, higher flexibility, better supplier integration, and lower costs (Kheng and Hawamdeh, 2002), it is clear that adaption of e-procurement is still very low (Gunasekaran and Ngai, 2008). According to Mitra *et al.,* (2000), the most common forms of e- commerce in the Kenyan market are e-procurement, e-banking and of late Em banking. Of the three, e-procurement which are user friendly; internet based purchasing system (Nikolaou, Poulo, and Bokos, 2006) has generated a lot of interest due to its ability in improving efficiency and transparency, thereby reducing the cost of operation within and between business parties (De Boer *et al.*, 2002).

2.0 Purpose of the Study

The purpose of the study was to establish the influence of perceived e-procurement usefulness on the usage of e-procurement in referral hospitals in western Kenya. The study was guided by the following objective:

i.   To establish the influence of perceived e-procurement usefulness on the usage of e-procurement in referral hospitals in Western Kenya.

2.1 Research questions

i.   How does perceived e-procurement usefulness influence the usage of e-procurement in referral hospitals in Western Kenya?

3.0 Research Methodology

This study adopted a cross-sectional survey research design in two referral hospitals in Western Kenya, namely: Jaramogi Oginga Odinga Teaching and Referral Hospital and Kisii Teaching and Referral Hospitals. The target population of this study comprised all the Senior Level and Mid Level Management staff in the Teaching and Referral Hospitals in Western Kenya—an estimated population of 240 Management Staff.

Table 1 Target Population of the Study per Referral Hospital

Target Population	JOOTRH	KTRH	Total
Senior Management	25	10	35
Middle Management & HoDs	130	75	205
Total	**155**	**85**	**240**

Source: *Hospital Records (August, 2015)*

Orodho & Kombo, (2002) criteria for sample size determination was used to select the total sample of 181 respondents.

Sample size was determined using the formula:

$$n = \frac{N}{1 + (N * e^2)}$$

Where;

N= population size

e= Tolerance at desired level of confidence, at 95% confidence level = 0.05

n= sample size.

Sample size determination

$$n_1 = \frac{155}{(1 + (155*0.05*0.05))} \quad \text{for} \quad \text{JOOTRH}$$

$n_1 = 111.7$

Thus the sample size, $n_1 = 111$ for JOOTRH

$$n_2 = \frac{85}{(1 + (85*0.05*0.05))} \quad \text{for KTRH}$$

$n_2 = 70.1$

Thus the sample size, $n_2 = 70$ for KTRH

Total sample size= $n_1 + n_2$ = 111+70 = 181

The distribution of the sample across the various strata was done using the formula below:

Stratum sample = $\frac{\text{Number of individuals in the stratum X Sample Size}}{\text{Total population}}$

For example:

For Senior Management in JOOTRH:

Stratum sample = $\frac{25 \times 111}{155}$ = 17.9 = 18

Table 2: Sample Size

Target Population	JOOTRH	Sample	KTRH	Sample
Senior Management	25	18	10	8
Middle Management & HoDs.	130	93	75	62
Total	**155**	**111**	**85**	**70**

Source: *Hospital Records (August, 2015)*

The researcher then used stratified random sampling to select the respondents. This involved dividing the target population into two different strata consisting of Senior Management and Middle level Management Staff. The researcher then used simple random sampling, with a mixture of purposive sampling technique to select the sampled Senior and Middle Level Management staff. This ensured that the sample was as representative as possible, with each individual having equal chances of being included in the sample (simple random sampling) and that some key senior and middle level management staff, including the Hospital CEO and Procurement Officers were also included (purposive sampling).

3.1 Data Collection

The researcher relied mainly on primary data that was collected using questionnaires as the main research instrument. A set of structured questionnaires were designed and administered to the respondents by the researcher. To guarantee the validity of the research instruments, the researcher ensured that the instruments were sufficiently formatted and the contents capable of measuring what they purported to measure with regard to set objectives of the study. The researcher also sought advice from the research supervisors and peers and made the necessary adjustments recommended there from. To ascertain the reliability of the data instrument, the researcher piloted the research instruments using the split-half test technique in which questionnaires were administered to 9% of the non-sampled respondents of the target population at the same period of time in order to estimate how well the questions checking the same concepts would yield the same results. The number of respondents for a pilot study should be between 9% and 10% of the target population of the study (Hardy & Bryman, 2009). The questionnaires were then separated into evenly numbered and odd numbered questions and results noted, scored and correlated to ascertain reliability coefficient using the Cronbach's Alpha test to examine the internal consistency of the data.

3.2 Data Analysis and Presentation

The responses were classified into themes and sub themes for ease of analysis using both quantitative and qualitative techniques. In this case the raw data was grouped into themes and sub themes as per the study objectives and subjected to chi-square analysis to obtain the calculated chi-square values upon which the variables were tested. The quantitative data was coded and analyzed through the use of descriptive statistics. The analyzed data was then presented in the form of frequencies, tables, pie charts, percentages and explanatory notes.

4.0 Results and Discussion

The influence of e-procurement usefulness on the usage of e-procurement in referral hospitals in Western Kenya were determined by determining the major benefits E-procurement usages has guaranteed the organization, the major challenges the organizations face in using E-procurement technical process and how E-procurement perceived usefulness factors affect the referral hospitals' ability to use e- procurement.

The study sought to find out the major benefits E-procurement usages had guaranteed the Referral Hospital. The findings revealed that all of the respondents (100%) thought that task improvement and cost reduction was guaranteed, 87% of the respondents thought purchasing efficiency and effectiveness was guaranteed, 85.8% thought customer satisfaction was guaranteed and 85.8% of the respondents thought accelerated institutional turnover/service quality was guaranteed. The results are as shown in Table 3

Table 3: Major Benefits E-procurement Usages has Guaranteed to the Referral Hospitals.

Response	Number of Respondents	Percentage
Task improvement	162	100
Purchasing efficiency and effectiveness	141	87
Customer satisfaction	139	85.8
Accelerated institutional turnover/service quality	127	78.4
Cost reduction	162	100

Source: Research Data (2015)

The study sought to find out the major challenges the referral hospitals face in using E-procurement information and technical process. The findings revealed that 89.5% of the respondents thought most suppliers were not familiar with the process while 78.4% thought insufficient infrastructure was the major challenge. The results are shown in the table 4. below.

Table 4: Major Challenges the Referral Hospitals face in Using E-procurement Information and Technical Process.

Organizational Challenges	Number of Respondents	Percentage
Most suppliers not familiar with the process	145	89.5
Insufficient infrastructure	127	78.4

Source: Research Data (2015)

The study sought to establish how E-procurement perceived usefulness factors affect the referral hospitals' ability to use e- procurement. A five point Likert scale was provided against which respondents rated some selected factors. The chi square value was calculated from the tabulated results of the likert. The calculated value for χ^2 at 5% level of significance was 189.88. Since the calculated value is greater than the table value of 4.991, the researcher concluded that E-procurement perceived usefulness factors affected the referral hospitals' ability to use e-procurement**.**

5.0 Conclusion

The purpose of this study was to investigate the factors influencing the usage of E-procurement in referral hospitals in Western Kenya. The study found out that perceived e-procurement usefulness influences the hospitals ability to use e-procurement. The study found out that task improvement, purchasing efficiency and effectiveness, customer satisfaction, service quality and cost reduction are some of the major benefits the hospitals derive from the use of e-procurement. These benefits have prompted the hospitals to install and use e-procurement platform, and as such, have registered a positive influence on the hospitals' ability to use e-procurement.

References

Bartels, H. P. (2003). *Online Reverse Auctions. An Assessment of the Adoption of E-procurement.*

Carter P, C. J. (2000). *The future of purchasing and supply: a ten year forecast. Electronic Procurement Systems (EPS).*

CEN. (2005). *Best Practices in E-Procurement.*

Croom, J. (2003). *Factors Affecting Implementation of E-Procurement Practices*

Davila et al., (2003). *E-Procurement: A Case Study about the Health Sector in Turkey.*

De Boer et al., (2002). *Role of Public E-Procurement Technology to Reduce Corruption in Government Procurement.*

Galle, M. A. (2003). *Using e-procurement applications to achieve integration.*

Gunasekaran, N. (2008). *The Effect of Inter-Organization Trust and Dependency on E-Procurement Adoption.*

Kauffman, K. (2008). *"An Empirical Analysis of E-Procurement in the Service Industry". Journal of MIS, 23(2).*

Kawalek et al., (2003). *E-Procurement Adoption in the Danish Public Sector.*

Kheng H. (2002). *"The Adoption of Electronic Procurement in Singapore,". Electronic Commerce Research, 2.*

Larsen et al., (2008). *Framework of e-procurement and supply chain performance.*

Lee (2001). *E-Business and Supply Chain Management.*

Mitra et al., (2000). *Successful use of e-procurement in supply chains.*

Nikalaos, P. B. (2006). *Successful use of e-procurement in supply chain. Supply Chain Management.*

Osmonbekov, B. (2002). *Procurement Implementation and Adoption. Key Issues in E-Procurement.*

Panayiotou et al., (2004). *Adoption of e-procurement in the government departments. International Journal, 7.*

Raikumar. (2001). *E-procurement: How does it enhance strategic performance?*

Report, U. N.-P. (2004). *Design of E-Procurement Systems for Government of Chhattisgarh.*

Turban, K. (2003). *Introduction to E-Commerce. (P. Education, Ed.) Prentice Hall.*

Warkentin, C. (2002). *Centralization vs. Decentralization of Purchasing in the Public Sector. The Role of e-Procurement in the Italian Case*