

**FACTORS INFLUENCING THE USAGE OF E-PROCUREMENT IN REFERRAL
HOSPITALS IN WESTERN KENYA**

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Abstract

E-Procurement applications focus on creating efficiencies. Their goal is to make the traditional purchasing procedures more efficient and cost effective. Organizations that have implemented and used this system have reported to have derived a lot of benefits from the system, some of which include task improvement, purchasing efficiency and effectiveness and accelerated institutional turnover. Despite bringing all these benefits, the usage in referral hospitals still remains low. 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 examine whether institution's e-procurement capability influences the usage of e-procurement in referral hospitals in Western Kenya and to determine the influence of internal organizational support on the usage of e-procurement in referral hospitals in Western Kenya. The study adopted cross-sectional Survey research design. Questionnaires were used as data collection instrument. Data was analyzed using qualitative and quantitative techniques and presented using tables, percentages and explanatory notes. The major findings were that referral hospitals' e-procurement capability and internal organizational support had a great influence on the hospitals' ability to use e-procurement. This study recommended that referral hospitals should continuously train their employees on matters e-procurement, that good ICT links between the potential suppliers and the referral hospitals should be established and that a stable ICT infrastructure in the organization should be enhanced. The researcher therefore concluded that both factors had significant influence on the usage of e-procurement in referral hospitals in Western Kenya.

Keywords: e-Procurement, Influence, Usage

1.0 INTRODUCTION

The globalization of markets is driven by forces related to the combination of an information based reduction of barriers to international trade, extending to businesses' own domestic market, through the reduction and convergence of transaction and transport costs (De Boer, 2002). The globalizing importance of information and communications technology (ICT) at the macro and micro levels has long been understood in Australia.

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, Poulou, 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).

1.1 Purpose of the Study

The purpose of the study was to determine the factors influencing the usage of e-procurement in referral hospitals in western Kenya. The study was guided by the following objectives:

- i. To examine how institution's e-procurement capability influences the usage of e-procurement in referral hospitals in Western Kenya.
- ii. To determine the influence of internal organizational support on the usage of e-procurement in referral hospitals in Western Kenya.

1.2 Research questions

- i. How does an institution's e-procurement capability influence the usage of e-procurement in referral hospitals in Western Kenya?
- ii. How does internal organizational support influence the usage of e-procurement in referral hospitals in Western Kenya?

1.3 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

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

$$n_1 = 111.7$$

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

$$\text{Total sample size} = n_1 + n_2 = 111 + 70 = 181$$

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

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

For example:

For Senior Management in JOOTRH:

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

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).

1.4 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. Out of the 181 sampled respondents, 170 of them duly filled and returned their questionnaires. Out of the 170 questionnaires that were returned, 8 were further discarded for either lack of response or being improperly filled out. The researcher ended up with

162 usable questionnaires which represented a response rate of 89.5% and this was found to be sufficient.

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.

1.5 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.

1.6 EMPIRICAL RESULTS AND DISCUSSION

The e-procurement capability was determined by employee training on matters e-procurement, infrastructure support including internet connectivity and computers, computer self efficacy and integration with supplier electronic system.

The study sought to find out whether the Referral Hospitals operated on e-procurement platform. 100% of the respondents confirmed that the two referral hospitals indeed operated on an e-procurement platform. This is summarized in table 3 below:

Table 3: Whether Referral Hospitals operate on e-procurement platform

	Number of Respondents	Percentage
Yes	162	100
No	0	0
Total	162	100

These findings confirm that all of the respondents are aware of what E-procurement is.

The study also sought to find out whether there were sufficient computer and internet connectivity in the referral hospitals to support the e-Procurement platform effectively. The findings revealed that 81.5% of the respondents thought that the Referral Hospital they work in did not have sufficient computer and internet connectivity to support the e-procurement platform effectively while only 18.5% thought there were sufficient computer and internet connectivity to support the e-procurement platform effectively. The results are indicated in Table 4 below.

Table 4: Sufficiency of Computer and Internet Connectivity to Support the e-Procurement Platform Effectively.

	Number of Respondents	Percentage
Yes	30	18.5
No	132	81.5
Total	162	100

The study also sought to find out whether the Referral Hospitals offered training on e-procurement to its employees. All the respondents (100%) confirmed that the referral hospitals trained their employees on the usage of e-procurement. Results are as indicated in table 5 below:

Table 5: Employee Training on E-Procurement

	Number of Respondents	Percentage
Yes	162	100
No	0	0
Total	162	100

The study further sought to find out the number of times the Referral Hospitals offered training on e-procurement to its employees. The findings revealed the hospitals offered their employees training on e-procurement matters, with more than 90% of the respondents confirming that their institutions trained employees at least twice every year on matters e-procurement. The findings are as summarized in table 6 below:

Table 6: Frequency of Training

Frequency	Number of Respondents	Percentage
Monthly	0	0
Every 3 months	26	16.0
Bi-annually	120	74.1
Annually	16	9.9
Total	162	100

Lastly, the study sought to find out how the referral hospitals had ensured integration with supplier electronic system. The findings revealed that such integration was enabled through two major platforms including vendor managed inventory system and open interconnectivity portals. Table 7 below shows the summarized findings:

Table7: How Referral Hospitals Have Ensured Integration Supplier Electronic System

	No of Respondents	Percentage
Through Vendor managed inventory systems	162	100
Through open interconnectivity portals	157	96.7
Both	0	0

In summary, the first major finding therefore, was that referral hospitals' e-procurement capability had a great influence on the hospitals' ability to use e-procurement. It was found that an enhanced e-procurement capability in the referral hospitals would encourage the hospitals' ability to use e-procurement, hence registering a positive influence. On the other hand, a hindrance on the hospitals' e-procurement capability would hinder the usage of e-procurement, hence a negative influence.

Internal organizational support was assessed among employees and they were investigated under flexibility of organizational culture, interdepartmental collaboration and management support. The study therefore sought to establish how these internal organizational support factors affected the referral hospitals' ability to use e-procurement. The findings were as under:

The study sought to find out whether the referral hospitals encouraged interdepartmental collaboration on matters e- Procurement. Majority of the respondents (91.4%) confirmed that the referral hospitals encouraged interdepartmental collaboration on matters e-procurement, with only 8.6% suggesting lack of interdepartmental collaboration. The summary is shown in Table 8 below:

Table 8: Whether Referral Hospitals Encourage Interdepartmental Collaboration on Matters E-procurement

	Number of Respondents	Percentage
Yes	148	91.4
No	14	8.6
Total	162	100

The study sought to find the influence of departmental collaboration on the referral hospital's ability to use e-procurement platform. The findings revealed that 71.6 % of the respondents think it greatly influence and only 28.4% thought it had little influence.

Table 9: Influence of Departmental Collaboration on Ability of Referral Hospitals to Use E-procurement

	Number of Respondents	Percentage
Greatly Influence	116	71.6
Little Influence	46	28.4
No Influence	0	0
Total	162	100

Further the study sought to find whether referral hospitals' managements offer any form of support to encourage the use of E-procurement. The findings revealed that all of the respondents

(100%) thought the referral hospitals' management offered some support to encourage the use of e-procurement. Table 10 below clearly indicates this.

Table 10; Referral Hospitals' Management Ability to Offer Any Form of Support to Encourage the Use of e-Procurement

	Number of Respondents	Percentage
Yes	162	100
No	0	0
Total	162	100

The study sought to find out the kind of support the referral hospitals' managements offer to encourage the use of E-procurement. The findings revealed that 96.9% of all the respondents think the referral hospitals' management offer some support in form of employee training, 91.4% in form of infrastructure support and 93.8% in form of interdepartmental collaboration. This is illustrated in Table 11 below.

Table 11: Kind Of Support Referral Hospital Managements Offer to Encourage the Use of E-procurement

Form of Support	No of Respondents	Percentage	No of	Percentage
	Agreed	(Agreed)	respondents	(Disagreed)
			Disagreed	
Employee training	157	96.9	5	3.1
Infrastructure support	148	91.4	12	8.6
Interdepartmental collaboration	152	93.8	10	6.2
Any other (Specify)	0	0	0	0

Therefore, the second major finding of the study was that internal organizational support influenced the hospitals' ability to use e-procurement. An enhanced internal organizational support is therefore seen as a major catalyst for the hospitals to use e-procurement, while lack of internal organizational support is perceived to negatively influence the hospitals' ability to use e-procurement.

1.7 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 established that referral hospitals' e-Procurement ability and internal organizational support were the factors considered as major determinants of the usage of E-procurement. The study established that both factors investigated had significant influence and were the major determinants of the usage of E-procurement in Referral Hospitals.

REFERENCES

- Aberdeen. (2001). *The E-Procurement Benchmark Report*.
- Anonymous. (2002). E-Procurement in the Public Sector.
- 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*.
- Davila, e. a. (2003). E-Procurement: A Case Study about the Health Sector in Turkey.
- De Boer, e. a. (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.
- Halal. (2003). E-Procurement in Public Sector.
- Humphrey, e. a. (2003). *GOVERNMENT PURCHASING: A REVIEW OF E-PROCUREMENT SYSTEM IN MALAYSIA*.
- Kawalek, e. a. (2003). *E-Procurement Adoption in the Danish Public Sector*.
- Kheng, H. (2002). "The Adoption of Electronic Procurement in Singapore," . *Electronic Commerce Research, 2*.
- Larsen, e. a. (2008). Framework of e-procurement and supply chain performance.
- Lee. (2001). *E-Business and Supply Chain Management*.
- Mitra, e. a. (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, e. a. (2004). Adoption of e-procurement in the government departments. *Internationa 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*.
- Wu. (2007). *Extent of E-Procurement Use in SMEs; A Descriptive Study*.