EFFECT OF ELECTRONIC PROCUREMENT PRACTICES ON ORGANIZATIONAL PERFORMANCE IN PUBLIC HOSPITALS IN THE COUNTY GOVERNMENT OF UASIN GISHU, KENYA

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ABSTRACT

Integrating e-procurement in hospitals' supply chain units has made it possible to conduct procurement practices effectively as compared to the manual methods of recording procurement and general conducting of procurement functions. However, the performance of hospitals in delivering high quality of services has reduced due to lack of an e-procurement system in some hospitals. Hospitals with e-procurement systems also face challenges which include poor quality of goods and services, lack of timely delivery of supplies and delayed payments of suppliers and leaking funds where systems fail, forcing management to use manual practices. The study adopted the use of diffusion of innovation theory institutional theory. The purpose of the study was to investigate the effect of e-procurement practices on organizational performance. The research objectives were: to find out the effects of e-tendering, e-invoicing and e-payment on organizational performance of hospitals within the county government of Uasin Gishu County. The study employed a descriptive survey of 5 hospitals. The sample size was 367 respondents. Questionnaires were the main types of data collection tools. The data collected was then coded and entered into the Statistical Package for Social Sciences (SPSS) Version 22. The study used both quantitative and qualitative data. Data was then presented in tables of frequencies and percentages. On e-tendering, the study found that there is increased competitiveness in the tendering bid for the hospital; On e-invoicing, the study found that the adoption of e-invoice is able to indicate charges from purchasers to suppliers; Concerning e-payment, the study found that e-payment makes it cheap to promptly pay suppliers on supply delivery due to fewer charges incurred upon sending money through e-banking systems. The study recommends that hospitals should use a joint policy in the establishment of similar systems of selecting and issuing tenders as a standard procedure to ensure high levels of performance. All hospitals should automate the practice of invoicing so as to promote transparency and record management since it will be easier to track records or identify payments to be made to suppliers. All payments should be carried out using e-payment as this will provide a safe and cheaper means of transactions.

Key Words: E-tendering, E-invoicing, E-Payment, Performance, E- Procurement Practices

INTRODUCTION

E-procurement practices refer to the use of computer-internet based system to carry out individual or groups of the procurement process, including search, sourcing, negotiation, ordering, receipt, and post-purchase review (Asumba, 2010). Krawiecet al. (2010) describe three types of e-procurement practices systems which are buyer e-procurement practices systems; seller e-procurement practices systems; and online intermediaries. There are various forms of e-procurement practices that concentrate on one or many stages of the procurement process, such as e-tendering, e-marketplace, e-auction/reverse auction, and e-catalogue. As noted by Nelson et al. (2001), purchasing accounts for the majority of organizational spending. As such, the advent of web-based electronic procurement has been heralded as a 'revolution' because of its potential to reduce the total cost of acquisition (Rai, et al. 2006). It is also expected to impact on the nature of either supplier governance, reinforcing market-based relationships (Eadie, 2002) or encouraging virtual hierarchies (Chipunza, 2010).

Globally, it has become necessary for companies to provide their customers with a cost-effective total solution and better customer satisfaction with innovative ideas and methods (Osmonbekov et al., 2002). With the emergence of Information and Communication Technology (ICT), companies have been forced to shift their operation from the traditional style to e-Business, e-procurement practices, and e-Supply Chain philosophy in order to sustain themselves (Lee et al, 2007). Real-time information about demand changes is required in order for the production process to maintain the desired replenishment schedules and levels. This model is most applicable to environments with stable demand patterns, as is the case with a distribution of prescription medicine. The model indicates intermediaries when large systems are involved (Burnes, 2008).

In Africa, combating corruption, and building capacity in procurement has helped governments maximise the buying power of their budgets and improve the quality of service delivery to their citizens especially the marginalised. Competitive and transparent public procurement systems are seen as a key element to achieving sustainable development and more prosperous marginalised group in Africa. In Ghana, e-procurement system holistically tackles underlying issues

affecting hospital performance such as lack of access to information for civil society partners and the public. In South Africa, the implementation of the Preferential Procurement Policy Framework Act 5 of 2000, gave effect to section 217(3) of the Constitution of the Republic of South Africa of 1996, by providing a framework for the implementation of a fair public preferential procurement policy.

In relation to this, continuous replenishment supply model has been integrated into hospitals in Kenya for supply chain management (Krawiecet al, 2010). The idea of the continuous replenishment supply chain model is to constantly replenish the inventory by working closely with suppliers and/or intermediaries (Langevoort, 2002; Asumba, 2010). The actual supply chain in hospitals supply chain model is focused on tracking customer demand in the production process and finished goods inventory efficiently (Kimtai et al, 2010). This integration is often achieved through the use of an information system that is fully integrated (Chinois, 2010). Through an application of such a system, the organisation can receive the access to timely information that can be used to develop and modify production plans and schedules. This information is also integrated further down the supply chain to the procurement function so that the modified production plans and schedules can be supported by input materials (Eadie, 2007).

Statement of the Problem

There is the need to have a robust automated procurement system which is interlinked and this will lead to enhanced competitiveness and lowered costs (Ogot et al., 2009). However, this is not the case of what is currently happening in most Kenyan hospitals. Despite the modern procurement currently taking place online, many hospitals in developing economies are still lagging behind in their rate of adoption. The procurement function in Kenya has been characterized by massive scandals and indignity which have been attributed to poor handling of procurement information thus leading to excessive corruption. Hospitals in Kenya are faced with a challenge when it comes to the issue of tendering. The significant number of complaints that hospitals are blamed for in the procurement process varies.

Currently, the performance of the hospitals in delivering services to the stakeholders and the entire public population has reduced. The lack of transparency in the procurement process has made it impossible for hospitals to conduct proper procedure in giving out contracts to the suppliers. The capacity of the hospitals in the county to achieve the best supply deals in terms of supplies provided by the suppliers is not giving the exact results and the process continues to deprive other suppliers a better chance to access the procurement services and contracts due to lack of viable information about the procurement process. The lack of an e-procurement system in some hospitals has made it impossible for the hospitals to achieve the best deal of the supply contract and thus little is done in terms of giving the right information. Payments are delayed when it comes to service delivery and thus, the hospitals are slow in delivering services as a result of timelessness in supply. Furthermore, the hospitals have not been able to effectively pay the suppliers due to late invoicing and delayed approvals for the supply of goods and services to the hospitals in the County Government of Uasin Gishu. It is due to these backgrounds that this study was undertaken to assess the effect of e-procurement practices on organisational performance in hospitals in the County Government of Uasin Gishu. The study ensured that information from hospitals with high rates of adoption of e-procurement and those with low levels of adoption of e-procurement were well investigated by making data collection instruments reliable through relevant questions that were generally suitable to meet the expected results for the study.

General Objective

The main objective of the study was to assess the effect of e-procurement practices on organisational performance with a focus on hospitals within the County Government of Uasin Gishu.

Specific Objectives

1. To find out the effects of e-tendering on organisational performance in hospitals within the county government of Uasin Gishu County.
2. To assess the effects of e-invoicing on organisational performance in hospitals within the county government of Uasin Gishu County.
3. To determine the effects of e-payment on organisational performance in hospitals within the county government of Uasin Gishu County.

LITERATURE REVIEW

The effects of e-tendering on organizational performance lot of studies have been conducted with a study done by Eadie *et al* (2007), on the advantages of organization which uses E-procurement. The Eadie *et al* (2007) study has been able to discuss on the reduction in staff as an important way of producing competitive advantage through reduced costs with e-procurement practices organizational competitive advantage benefits in the market. Additionally Eadie et al (2007) has also captured on communication efficiency in the procurement process; with Hawking et al, (2004) also discussing on market intelligence. In as much as the study has been able to capture on various issues concerning e-tendering; a lot has not been covered in terms of studies relating to the transparency of the tendering process. The study has also captured on the general aspect of e-tendering without mentioning the current issue in relation to high-income countries in comparison to low-income countries. There is no study that will be done on e-tendering in Kenya and thus an existing gap in knowledge.

Based on the literature review on past studies done on Effect of E-invoicing on organizational performance, a study conducted by Geldenhuy *et al.*, (2005) titled the introduced transaction costs discussed on individual corporations performance in asset transformation on cost economics, the cost of the infrastructure is reduced per transaction when the volume of transactions increases. The studies were done by Wanjera (2014) also discussed on the creation of a financially viable e-invoicing solution, corporate needs to create this critical mass by a value network of alliance partners and technology solution providers to add the necessary desirability

for electronic invoicing through the Financial Supply Chain.

Based on the study done by Buenger *et al.* (2005), the value drivers, indicating that organizations face different value propositions, which may change over time due to internal and external effect and experiences. In as far as the study will be conducted to identify the benefits of e-invoicing; there is yet an existing gap in the achievement of knowledge on the benefits of e-invoicing in Kenya. The studies have also generalized the discussion and thus, there is no specific study on e-invoicing on hospital in the County Government of Uasin Gishu and thus making this study relevant to fill these gaps.

On the effect of e-payment on organizational performance, the study has been able to identify resources such as studies done by Porter, 2001; Asumba e-Future Center, (2007) on E-payment is in the global economy. Also, the studies that were conducted by Salnoske (1997) and Music, et al., (2002) which discussed on e-payment potential in creating a business in the global perspective. Another study will be that of Mentzer & John (2001) on the development of information technology and computer networks enhanced the usage of e-payment and improved the use of supply chain management (SCM).

There is an existing gap in the literature concerning the challenges that face e-procurement practices payment systems. The study has not been able to give a comparative literature on the payment system that is being used in the current century. Further, the study has ignored the methods of e-payment in Kenya in relation to supply chain management and e-procurement. Thus, there was a need for more research to be conducted with the aim of identifying comparative literature on e-procurement practices globally, in Africa and in Kenya. There was also the need to conduct further studies with regard to the existing literature on the e-procurement practices challenges and strategies that are being used to impose the best system in procurement.

METHODOLOGY

The study employed the use of descriptive survey research design. This implies that the study was able to collect data from more than one organization and thus making the study to cover a wider scope in terms of geographical location and respondents. The study targeted a total of 5 hospitals in the County Government of Uasin Gishu. The hospitals included in the study were Moi teaching and referral hospital (MTRH), Turbo district Hospital, Huruma District Hospital, Uasin Gishu District Hospital and Ziwa Sirikwa District Hospital.

The study adopted the use of 4379 respondents as the target population for the study. The sample size for students was calculated based on Yamane's formula (Yamane, 1967). Therefore, the expected sample size was 367 respondents. The study also used simple random sampling to identify the management staff. This was because of their knowledge and experience in the management of the hospital's operations. The study adopted the use of simple random sampling procedure to acquire the number of respondents from the junior staff in the hospital. The sampling techniques were advantageous as they gave all the respondents the opportunity to be asked or share information on the issues that the study wants answers to.

Questionnaires were the main techniques for data collection in the study. The study sought permission from IREC prior to data collection. The study was also given a research permit by the University to conduct the study. The study ensured the validity of the research instrument by discussing the data collection instruments with the supervisors and experts in study at the department prior to data collection process. The respondents were expected to indicate by tick or cross for every item in the questionnaire if it measures what it is supposed to measure or not. The questionnaire was tested reliability by using Cronbach alpha coefficient test to determine the internal consistency of the items. This was a method of estimating the reliability of test scores by the use of a single administration of a test.

The study conducted data cleaning which involved the identification of incomplete or inaccurate responses which were then corrected to improve the quality of the responses. The data collected was then coded and entered into a computer for analysis using a Statistical Package for Social Sciences (SPSS) Version 22. The study produced both quantitative and qualitative data. The study was guided by Gray's (2004) observation that qualitative data provides rich description and explanations that demonstrate the chronological flow of events as well as ready to change findings. On the other hand, quantitative data was analysed using descriptive statistics including frequency and percentage tables which were used in interpreting the respondents' perception of issues raised in the questionnaires so as to answer the research questions. There was a complimentary use of qualitative and quantitative data in undertaking the data analysis. The study further conducted analysis using correlation statistics and multiple regressions.

RESULTS

The study administered a total of 367 (100%) questionnaires where 344 questionnaires were returned fully filled and hence considered for the study. This means that the study had 93.7% response rate.

E-Tendering

From the study, majority 58% (186/321) of the respondents strongly agreed that there is increased competitiveness in the tender bid process in hospitals. In addition to the main finding, 6% (19/321) of the respondents agreed, 8% (26/321) of the respondents were undecided, 18% (58/321) of the respondents disagreed and another 10% (32/321) of the respondents strongly disagreed to the statement. Another 52% (167/321) of the respondents also revealed that there is an improved level of accessibility to medicine and services in the hospital. Other responses on the statement were that 8% (26/321) of the respondents agreed, 16% (51/321) of the respondents were undecided, 20% (64/321) of the respondents disagreed and finally, 4% (13/321) of the respondents strongly disagreed. Finally, 50% (161/321) of the respondents revealed that the system has reduced the load of work and speeding the selection of the right supplier and thus reduced the Cost of the tendering process. Finally, 50% (161/321) of the respondents revealed that the system has reduced the load of work and speeding the selection of the right supplier and thus reduced the Cost of the tendering process. To add on to the finding of

the study, 16% (51/321) of the respondents agreed, 6% (19/321) of the respondents were undecided, 14% (45/321) of the respondents disagreed and another 14% (45/321) of the respondents strongly disagreed with the statement.

E-Invoicing

Regarding the effect of e-invoicing on the performance of hospitals, majority 73% (234/321) of the respondents stated that the adoption of e-invoice is able to indicate charges from purchasers to suppliers. In addition to the main finding, 26% (8/321) of the respondents agreed, 6% (19/321) of the respondents were undecided, 8% (26/321) of the respondents disagreed and another 5% (16/321) of the respondents strongly disagreed to the statement. Another 60% (193/321) of the respondents also revealed that there are secured and low-cost procurement transactions. In addition to the main finding, 10% (32/321) of the respondents agreed, 6% (19/321) of the respondents were undecided, 10% (32/321) of the respondents disagreed and another 14% (45/321) of the respondents strongly disagreed with the statement. Finally, 62% (200/321) of the respondents indicated that the adoption of e-invoice is able to make extra charges indications from purchasers to suppliers. In addition to the main finding, 16% (51/321) of the respondents agreed, 6% (19/321) of the respondents were undecided, 16% (51/321) of the respondents disagreed and another 0% (0/321) of the respondents strongly disagreed with the statement.

E-Payment

The study found that majority, 58% (186/321), of the respondents were of the opinion that e-payment makes it cheap to promptly pay suppliers on supply delivery due to fewer charges incurred upon sending money through e-banking systems. In addition to the main finding, 20% (64/321) of the respondents agreed, 6% (19/321) of the respondents were undecided, 8% (26/321) of the respondents disagreed and another 8% (26/321) of the respondents strongly disagreed to the statement. Another 44% (141/321) of the respondents stated that customers/Suppliers are paid faster. In addition to the main finding, 4% (13/321) of the respondents agreed, 6% (19/321) of the respondents were undecided, 8% (26/321) of the respondents disagreed and another 38% (122/321) of the respondents strongly disagreed with the statement. Finally, 42% (135/321) of the respondents also indicated that e-payment has increase transparency. In addition to the main finding, 10% (32/321) of the respondents agreed, 6% (19/321) of the respondents were undecided, 18% (58/321) of the respondents disagreed and another 24% (77/321) of the respondents strongly disagreed with the statement.

Organizational Performance

From the study 69.9% (224/321) of the respondents stated that the hospital has reduced the cost of operation through the use of e-procurement practices. In addition to the main finding, 6.5% (21/321) of the respondents agreed, 29.5% (95/321) of the respondents were undecided, 7.9% (25/321) of the respondents disagreed and another 17.1% (55/321) of the respondents strongly disagreed to the statement. Other findings of the study were that 68.1% (219/321) of the respondents indicated that the system has improved the speed of service with consideration to the amount of work in selecting the right supplier. In addition to the main finding, 8.6% (28/321) of the respondents agreed, 0% (0/321) of the respondents was undecided, 13.1% (42/321) of the respondents disagreed and another 15.2% (49/321) of the respondents strongly disagreed with the statement. Finally, 61% (196/321) of the respondents also gave the opinion that there are less complaints from stakeholders and customers. In addition to the main finding, 8.6% (28/321) of the respondents agreed, 7.2% (23/321) of the respondents were undecided, 8.8% (28/321) of the respondents disagreed and another 18% (58/321) of the respondents strongly disagreed with the statement.

Organizational Performance F (3, 317) = 0.54 + 0. 316(E-tendering) + 0. 794(E-invoicing) + 0. 154(E-payment) +0.20 (Error Margin).A multiple regression was run to predict organizational performance from e-payment, e-invoicing, e-tendering. The variables significant relationship to organizational performance were statistically predicted as follows: F (3, 317) = 4833.390, p<.000, R^2 = 0.979. All three variables added statistically significantly to the prediction.

The organizational performance of hospitals depends on the implementation of e-procurement. The adoption of e-invoicing such as competitiveness, level of accessibility and cost of tendering process will increase the performance of the hospitals in the County Government of Uasin Gishu.

On e-tendering, the findings of the regression model identify extra charges indicator, cost of procurement process and availability of transaction information for goods and services affect organizational performance.

The implementation of e-payment such as cost of transaction, speed of payment and level of transparency are part of strategies that will promote the performance of hospitals.The implementation of the mentioned e-procurement systems thus increases organizational performance and hence an increase in quality of service, operational efficiency and reduction in the number of complaints brought to the organization.

Hypotheses Testing using the Multiple Regression Model

H_{01}: E-tendering has no significant effect on the organizational performance. The results rejected the hypotheses (β = 0. 316, p = 0.000). The regression results showed that e-tendering has an effect on organizational performance with a beta coefficient of 0. 316, the effect is very significant at (p=0.000) and thus rejecting the hypotheses that there is no significant relationship between e-tendering and organizational performance. This result supports existing literature; in concurrence to Thomas, (2006) that e-tendering has a significant impact on the organizational performance.

H_{02}: There is no significant relationship between the organizational performance and e-invoicing. The results rejected the hypotheses (β = 0.794, p = 0.000).The regression results showed that e-invoicing has a significant effect on organizational performance with a beta coefficient of 0.79. There has been improvement in organizational performance of

the hospitals as a result of investments one-invoicing. According to the interpretations made on the findings of the study, e-invoicing is the most efficient element in the procurement process to enable the procurement department realizes faulty payments or misquoted budgets. Thus e-invoicing affects organizational performance.

H_{03}: E-payment has a significant effect on organizational performance. The results rejected the Hypotheses (β = -0.154, p =0.000).The regression results showed that e-payment has no significant effect on organizational performance with a beta coefficient of 0.154 (negative) (p=0.000).

The correlation coefficient test of e-tendering and e-invoicing is 0.947. This implies to mean that there is a positive association of 94.7 percent between e-tendering and e-invoicing. The correlation coefficient test between e-tendering and e-payment is 0.966. This implies to mean that there is a positive association of 96.6% between e-tendering and e-payment. Finally, the correlation coefficient test of e-invoicing and e-payment is 0.875. This implies that there is a positive association of 87.5 percent between e-invoicing and e-payment. The results implied to mean that all the three variables had a correlation of over 0.70 which indicated high consistency and thus reliability of data was excellent.

CONCLUSIONS

With regard to e-tendering, the study concludes that there is increased competitiveness in the tendering bid for the hospital and was interpreted to mean that; the hospital has put in place electronically enabled procurement systems that allow individuals and hospitals to bid for any amount of tender they find suitable and in line with their profession or qualifications; most of the hospitals in the area have free and fair bidding processes that allow those who qualify to receive a tender to apply with assurance; there are less condition put on bids and the availability of information for suppliers is readily available either through online or directly from the hospitals website; and finally the hospital management has supplier friendly ICT systems that allow applicants for tendering projects to easily access information with less knowledge or skills required to operate the site where tenders and availed.

Based on e-invoicing, the main finding of the study was that the adoption of e-invoice is able to indicate charges from purchasers to suppliers and was interpreted to mean that majority of the hospitals conduct operations based on information regarding the tenders that the hospitals conduct; the number of hospitals in the area that apply the use of e-tendering systems is greater than those that do not have e-procurement process and that most hospitals in the County Government of Uasin Gishu prefer to make extra charges based on changes in cost of goods and services. In addition to the use of e-invoicing, the main finding of the study was also interpreted to mean that majority of the hospitals use e-invoicing to reduce the cost of labor for the delivery of hard files as an invoice to destined suppliers and partners.

With respect to e-payment, the main finding of the study was that e-payment makes it cheap to promptly pay suppliers on supply delivery due to fewer charges incurred upon sending money through e-banking systems. The main finding of the study was then interpreted to mean that the development of IT has enhanced the usage of e-payment and improved the use of supply chain management; that the complete implementation of the website usage has to a large extend integrated, much more effective supply chains with full information transparency and optimal allocation of value-adding processes; and that the hospitals that have full operational e-procurement systems are able to follow up the stages of procurement to determine the payments to be made and thus a transparent system reduces the cost of operation which has been flooded with corruption in the past when the hospital was using manual methods.

RECOMMENDATIONS

In relation to e-tendering, the study recommends that hospitals should use a joint policy in the establishment of similar systems of selecting and issuing tenders as a standard procedure to ensure high levels of performance. This will enable the hospital to purchase the right items based on the best suppliers and thus a stiff competition among suppliers and high quality of supplies offered to the institution. Based on e-invoicing, the study recommends that all hospitals should automate the practice of invoicing so as to promote transparency and record management since it will be easier to track records or identify payments to be made to suppliers. Concerning e-payment, the study recommends that all payments made within the institution should be carried out using e-payment as this will provide a safe and cheaper means of transactions. In addition, this will further promote the integration of financial transaction within administration and record management departments. The study generally recommends more studies to be conducted with relation to each element of e-procurement as this will maximize the collection of information regarding each element which is not the case of a comprehensive study.

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