

EFFECTS OF E-PROCUREMENT ON SUPPLY CHAIN MANAGEMENT

PERFORMANCE IN ELGEYO-MARAKWET COUNTRY

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ABSTRACT

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. It is against this problem that the study sought to investigate the effects of E-procurement on supply chain management performance in Elgeyo Marakwet County. The study was conducted on public entities in Elgeyo Marakwet County. The study was limited to e-procurement and supply chain management performance. The study adopted the use of questionnaires and interview schedules to collect primary data. The research also adopted descriptive design to collect the quantitative and qualitative data that describes the effects of e-procurement and supply chain management. The target population for this study was employees in public entities in Elgeyo Marakwet County; this included the County Government of Elgeyo Marakwet and Iten County Referral Hospital. This study also adopted stratified sampling technique where the study population was stratified into management and non management strata. Then purposive sampling was used to select 30 employees of Elgeyo Marakwet County and 10 employees from County referral hospital Iten. Data collected was done through both qualitative and quantitative. Qualitative data was analyzed through content analysis. Quantitative data was analyzed through the use of frequency distribution, mean scores and standard deviations. With the help of Statistical Package for Social Science (SPSS) the findings were then presented in form of frequency distribution tables, bar charts and pie charts. The data was finally summarized according to the study's specific objectives. The study established a correlation between all the variables of the study and the independent variables.

KEYWORDS: E-Procurement, E-Tendering, E-Invoicing

INTRODUCTION

E-Procurement refers to the use of internet-based system used to carry out individual or all stages of procurement process, including search, sourcing, negotiation; ordering, receipt, and post-purchase review (Croom & Brandon, 2004). Koorn *et al.*, (2001) describes three types of e-Procurement systems which are buyer e-Procurement systems; seller e-Procurement systems; and online intermediaries. There are various forms of e-Procurement that concentrate on one or many stages of the procurement process, such as e-tendering, e-marketplace, e-auction/reverse auction, and e-catalogue. The e-Procurement application can be viewed more broadly as an end-to-end solution that integrates and streamlines many procurement processes throughout the organization. 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 supplier governance, either reinforcing market-based relationships (Barratt & Rosdahl, 2002) or encouraging virtual

hierarchies (Brousseau, 1990). Finally, the e-procurement revolution is expected to enhance the status and influence of the purchasing function within organizations (Osmonbekov et al., 2002). In today's dynamic global competitive business environment, technology-based service is no longer an afterthought; rather it is a must for public and private organizations. It has become necessary for companies to provide their customers with cost-effective total solution and better customer satisfaction with innovative ideas and methods. 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 and e-Supply Chain philosophy in order to sustain themselves (Lee et al., 2007). Over the past decade, both private and public sector organizations have been utilizing Information Technology (IT) to streamline and automate their purchasing and other processes (Koorn et al, 2001).

Continuous replenishment supply model has been integrated in Elgeyo Marakwet County for supply chain management. The idea of the continuous replenishment supply chain model is to constantly replenish the inventory by working closely with suppliers and/or intermediaries. However, if the replenishment process involves many integrated partners to enhance its effectiveness. Therefore very tight integration is needed between the order-fulfillment process and the production process. 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 usually the case with distribution of prescription medicine. The model requires intermediaries when large systems are involved. The actual supply chain in Elgeyo-Marakwet County supply chain model is focused on tracking customer demand in production process and finished goods inventory efficiently. This integration is often achieved through use of an information system that is fully integrated (an enterprise system). Through application of such a system, the organization 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

PROBLEM STATEMENT

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 (Thai, 2009). There is 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). The county government is faced with a challenge when it comes to the issue of tendering. The significant number of complaints that the county government is blamed for in the procurement process varies. Currently, the performance of the county in delivering services to the stakeholders has reduced. The lack of transparency in the procurement process has made it impossible for the county to conduct proper procedure in giving out contracts to the suppliers. The capacity of the county government 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 the county level has made it impossible for the county 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 county is slow in delivering as a result of timelessness in supply. Furthermore, the county has not been able to effectively pay the suppliers due to late invoicing and delayed approvals for supply of goods and services to

the county government. It is due to these backgrounds that this study has been undertaken to assess the effects of e-procurement on supply chain management performance in Elgeyo-Marakwet County

RESEARCH OBJECTIVES

The study was based on the following research objectives:

- To find out the effects of e-tendering on supply chain management in Elgeyo Marakwet County.
- To find out the effect e-invoicing on supply chain management in Elgeyo Marakwet County.
- To find out the effect of e-payment on supply chain management in Elgeyo Marakwet County.

LITERATURE REVIEW

The potentials of e-Procurement have already been proven in a number of studies (Andersen, 2001). According to these studies, e-Procurement enables companies to decentralize operational procurement processes and centralize strategic procurement processes as a result of the higher supply chain transparency provided by e-Procurement systems. A study by Eyholzer and Hunziker (2000) shows that only 18 percent of the Swiss companies analyzed used electronic product catalogs, auctions or requests for quotations in procurement in the year 2000. According to this study, however, many companies were planning to implement e-Procurement systems at that time. Other studies show similar proportions for other. A study by Wyld (2004) reports that currently almost half of all American companies use e-Procurement systems. The analysis by shows that in the US only 30% of the companies surveyed use e-Procurement systems for requests for quotations, online auctions (25%) or e-Markets (33%). A second challenge is that, despite the overwhelming evidence which shows the advantages of e-Procurement systems, proprietary systems such as electronic data interchange (EDI) continue to persist, and have to be included in a company's overall e-Procurement infrastructure. To do so, companies need to know the critical success factors in implementing e-Procurement strategies, processes and systems. Croom (2000) and De Boer *et al.*, (2002) mentioned that internal process efficiencies and automation are seen to be key drivers for increasing process efficiency. Tan *et al.*, (2002) supported that supply chain integration influence majorly in product quality and customer service levels. Narasimhan & Kim (2002) pointed out that improved integration improves the performance of both the buyer and supplier. All of these indicated that firms which improve their supply chain integration are likely to increase their supply chain performance. Studies in ICT adoption frequently highlight in house technical capabilities and experience with ICT, as key contributory factors (Chapman et al, 2000). Price Waterhouse coopers (2002) defend this view by stating "we don't have enough internet human resources, and can't hire people". Implementing a new technology needs skill and knowledge to operate in the organizations and most organizations do not implement because organizations' employees are not familiar with new technology. Empirical evidence identifies that organization whose employees have the necessary skills and technical knowledge are more likely to implement e- Government applications.

Petersen *et al.* (2003) conducted several case studies in both Japan and the US and concluded that only trusted and carefully chosen suppliers have to be involved in projects. They also stated that involving suppliers in organizations teams is critical when technology is advance or when the buying firm lacks sufficient knowledge or expertise. Lang field-Smith and Greenwood (1998) traced the origins of supplier partnership to Japanese automotive industry, and indicated that it was adopted by Western companies in the 1990s. They pointed to information exchange and cooperation as pillars of supplier partnership. Supplier partnership and development involves cooperative efforts to improve supplier capabilities with

respect to technology, quality, delivery, and cost. It also encourages continuous improvements. Burnes and Whittle (1995) stated that the main dimensions that characterize successful supplier development would include, but not limited to: integrating and improving activities and processes, continuous cooperation and long-term relationships, mutual benefits as a result of any improvement efforts, and apparent structure for both companies with regard to cost, price, and profit. Moreover, successful relationships in manufacturing setting are attributed by supplier development, cost savings and technology sharing.

Lascelles and Dale (1990) indicated that buying firms should treat their suppliers as partners. Hadfield and Bechtel (2002) argued that investments in supplier relationships will reduce risk; by involving in activities that is usually regarded in the area of the other firm. Vonderembse and Tracey (1999) indicated that supplier partnership enables both parties to improve decision making process, enhance knowledge sharing, advance communication, and improve the overall performance of both parties. MacDuffie and Helper (1997) argued that the buying firm will gain from efforts done to improve the supplier performance, as both will share the productivity benefits.

Rebecca (2007) sought to pursue the understanding of current business-to-business e-procurement practices by describing the success factors and challenges to its implementation in the corporate setting. The study through factor analysis resulted in three e-procurement success factors: supplier and contract management; end-user behaviour and e-procurement business processes; and information and e-procurement infrastructure. Three challenge-to-implementation factors also emerged: lack of system integration and standardization issues; immaturity of e-procurement-based market services and end-user resistance; and maverick buying and difficulty in integrating e-commerce with other systems. Gordon (2009) sought to establish perceived local government (LG) procurement best practice. Secondary research was then drawn upon to establish LG procurement's response to the economic recession. The study was set within the context of English LG. Its contribution is in highlighting that perceived best public procurement practice may well, in the short-term, be inappropriate and perhaps delay economic recovery. Suggestions for more radical short-term procurement strategic interventions were set out and justified as accelerating the economic recovery. The suggestions were considered appropriate, not only for the crisis, but also for future economic downturns or indeed any country facing such a situation. The analysis suggested that British LG procurement strategy generally remain unaltered from that adopted prior to the economic recession. It is then argued that current best practice may well hinder an economic recovery and a short-term shift in procurement strategy is required.

Effects of E-Tendering on Supply Chain Management

According to Eadie *et al.*, (2007), An organization which uses E-procurement has the following advantages: First, Price reduction in tendering: Empirical studies carried out Gebauer *et al.*, (1988) in the United States of America indicated that the two most important measures for the success of procurement processes are cost and time. In this method, there is no paperwork, postage fee and other costs associated with preparation and sending tender documents. It is also faster to send a document electronically as compared to the traditional method of sending tender documents through post office. It results to improved order tracking and tracing, for it is much easier to trace the orders and make necessary corrections in case an error is observed in the previous order. Secondly, there is reduction in time to source materials: In Reduction in time has been proved as a relevant benefit by Knudsen (2003) who says "E-procurement is a rapid efficient method of finding and connecting new sources, being a lean channel for communication". A lot of time is spend on paper invoicing in

terms of writing, filing and postal communication but while in e-procurement, staff have sufficient time to engage on strategic issues of procurement. The time wasted in moving from one town or country to another to look for a potential supplier or buyer is greatly reduced since with a click of a button, you can readily get the information in the internet. By extension, E-procurement leads to reduction in maverick buying. Maverick buying is when staff buys from suppliers than those with whom a purchasing agreement has been negotiated. Thirdly, Lower Administration costs: in his research, Rankin (2006) argues that e-procurement results in reduction in paperwork and this leads to lower administration costs. Fourthly, Reduction in procurement staff: since most of the procurement process is done electronically, the number of staff needed to facilitate the process reduces.

As Eadie *et al.*, (2007) noted, the reduction in staff is an important way of producing competitive advantage through reduced costs. This is further supported by Egbu *et al.*, (2003) in his study which revealed that through implementation of an e-procurement system, a steel supplier was able to carry out a multi-million pound project with only 20% of the staff the company would normally have used. Fifthly, e-procurement gives an organization competitive advantage over its competitors. As a centralized department can oversee all procurement activities and different offices worldwide can access the same documentation when required, this gives a distinct advantage over the much slower process of having to post documentation between offices. This extends the supply chain beyond geographical boundaries to a much wider group. Suppliers can be monitored on timely delivery, quality delivery of products and services hence performing suppliers can be contacted in future. This raises other logistical considerations which may impact on scheme quality (Eadie *et al.*, 2007). This implies that with e-procurement, every prospective supplier and buyer is always accessible to his/her convenience. The result is not only greater market access but also increased productivity. Another benefit of e-procurement is improvement of communication is that e-procurement allows sections of electronic documentation to flow through the supply chain; it improves the speed of returns and subcontractor price visibility. He further notes that since it is easier to communicate requirements in a quicker more accessible manner, it will result in a better understanding of requirements and due compliance besides allowing clients to gauge the state of the market by seeing how much interest is shown in the tender. Hawking *et al.*, (2004) considered market intelligence and the decisions made on that intelligence as two separate drivers. They however state that since reliable procurement decisions cannot be made without market intelligence and each is reliant on the other for the purpose of this study these two are considered together as "Improved Market Intelligence and Enhanced Decision making". A reduced Operating and Inventory cost is also another benefit of e-procurement: This is from the fact that much if not all paperwork is eliminated. Postage costs are also not incurred, among other expenses associated with sending and receiving documents when sending them by post.

Effect of E-Invoicing on Supply Chain Management

E-invoicing offers many benefits: significant cost reduction, process simplification, reduced payment time, greater security of data, as well as numerous environmental benefits. This is confirmed by enterprises and public authorities which already use it. Benston and Smith (1976) introduce transaction costs. They attempt to explain why individual corporations do not perform asset transformation themselves as a function of the transaction costs incurred in conducting such activities. As shown in transaction cost economics, the cost of the infrastructure is reduced per transaction when the volume of transactions increases. To create 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. A Value Network is a web of relationships that generates economic value

and other benefits through complex dynamic exchanges between two or more individuals, groups or organizations. The Value Network models mediating firms as creating value through three basic primary activities: network promotion and contract management; service provisioning; and infrastructure operations (Stabell and Fjeldstad, 1998). In a network firm (Economides, 1996) the customers are offered direct access to each other, as in payment mediation, or indirect access to a common pool, as in saving and loan services (Stabell and Fjeldstad, 1998) through the set of mediation activities performed by the firm. Both value and cost are postulated as driven mainly by network characteristics (Stabell and Fjeldstad, 1998). Value and costs depend on the number of access points, nodes or users that can be reached, and the variety of links between users. The costs for the users are in terms of charges for access to and use of the network, while the value is determined by the possibility to reach a large and relevant number of nodes through a variety of links. To provide greater value, value networks can increase their range of services offered by layering new services on top of the contract set and the infrastructure, or increasing access to a larger pool of users. Electronic financial supply chain players need to streamline the settlement process in terms of both workflow and transaction cost by creating e-marketplaces with standardized settlement mechanisms via a finite number of trusted providers with both the range of necessary solutions and the openness and reach to enable transactions throughout the e-marketplace. Buenger *et al.* (1996) provide a framework of competing value drivers, indicating that organizations face different value propositions, which may change over time due to internal and external influences and experiences.

Effect of E-Payment on Supply Chain Management

E-payment is the fastest growth area in the global economy and almost carries potentials beyond measure. It provides consumers with the benefits of any time, any where transactions, with lower costs. Moreover it, shortens the distance between the buyer and the seller and shrinks the world into a small village (Porter, 2001). The uptake of e-payment is influenced by its potential to create business value and by awareness of its participants of the potential benefits (Salnoske, 1997). A major reason for most companies, irrespective of size, to participate in business is to extract some benefit from it. E-payment is no different (Kuzic *et al.*, 2002). Standing [2001] stated more than ten e-payment benefits for both buyer and seller. Such as cost savings and speed in selling and purchasing, exposure to new customers (global reach), convenience and transparency to users, better quality of product/service, reduce need for office space and fewer resources required. The development of information technology and computer networks enhanced the usage of e-payment and improved the use of supply chain management. SCM focuses on the integrated planning, co-ordination and control of all logistical business processes and activities in the supply chain to deliver superior consumer value at less cost to the chain as a whole, whilst satisfying requirements of other stakeholders, such as consumer interest organizations and government. Eventually, the complete implementation of the SCM concept should result in fully integrated much more effective supply chains with full information transparency and optimal allocation of value-adding processes (Vorst, 2002). All transactions are done in a specific virtual place called Business-to-Business electronic marketplaces. E-marketplaces are one of the most heralded developments in recent years. These marketplaces bring together businesses buying and selling goods and services in an online buying community. E-marketplaces propose to increase the efficiency and effectiveness of procurement activities by replacing traditional manual processes with automated electronic procedures and by expanding the number of available trading partners (Koch 20030).

RESEARCH METHODOLOGY

The research adopted descriptive research design to collect the quantitative and qualitative data that describes the effects of supplier performance and e-procurement strategy. Target population represents all cases of people or organizations which possess certain characteristics; it is the larger group from which a sample is taken (Mugenda and Mugenda 2003). The target population for this study was the employees in public entities in Elgeyo Marakwet County and their suppliers; this included the County Government of Elgeyo Marakwet and Iten County Referral Hospital. However, the study was limited to the Procurement departments in the selected entities. The County Government of Elgeyo Marakwet has a total of 30 employees from the department of procurement, while the County referral Hospital of Iten has 10 procurement officers from the procurement department. The total number of food stuff suppliers from both entities is 200. The total population therefore was 40 employees and 200 suppliers. This population was selected because both are partners in procurement services in the county. This study will adopt a stratified sampling technique where the study population is stratified into management and non management strata. Then purposive sampling was used to select the 30 employees of Elgeyo Marakwet County and 10 employees from County referral hospital Iten. The study employed the use of primary sources of data where the researcher used questionnaires'. The questionnaires were issued to the procurement staff through their managers in an effort to ensure that all the information that the researcher sought was availed. The questions were closed ended and mainly consisted of the lickert scale kind of questions. This ensured that the respondents are restricted to certain desirable responses that the study employed in the analysis. Quantitative data was analyzed through the use of frequency distribution, mean scores and standard deviations. These analyses were carried out with the help of Statistical Package for Social Science Version 20. The findings were presented in form of frequency distribution tables, bar charts and pie charts. In addition, to determine the level of significance between the independent variables and the dependent variable, thus Chi-Square test was carried out.

RESEARCH FINDINGS

Majority of the respondents were male 69 (69%) as opposed to the female respondents who were only 31 (31%) of respondents. Despite the gender differences, the researcher was able to minimize the influence of gender bias by collecting data across all genders. This was important as it was useful in identifying different views based on gender in relation to the study topic. The study finding revealed that 22% of respondents were 25 years and below with another 34% of respondents been at the age bracket of 26 to 30 years with another 21% of the respondents being in the age bracket between 31 to 35 years. Other respondents age bracket were as follows: 18% being in the age bracket of 36 to 40 years, 7% of respondents being at age bracket of 41-45 years and finally another 9% of respondents being over 46 years of age. It was clear from the results that majority of the respondents were respondents with a other qualifications in educational attainment. 29% of respondents were diploma holders followed by certificate which had a totaling to 9% of respondents. Finally, 62% of the respondents had a degree level of education as their highest level of education. This implies that the researcher was able to obtain respondents from all the levels of education backgrounds. Further, the study findings were that 23% of respondents had worked for the in their position for a period less than 3 years. Another 30% of respondents had working experience between 4 and 6 years and another 10% of respondents having a working experience between 7 to 9 years. Finally, 37% of respondents had working experience above 10 years.

E-Tendering on Supply Chain Management Performance

The researcher sought to establish the opinion of the respondents on the E-tendering and supply chain management. The findings of the study were then presented in the Table 1.

Table 1: E-Tendering on Supply Chain Management Performance

Statement	SA	A	U	D	SD
There is increased tendency towards market structures	80.6	2.9	5.8	7.2	3.6
There is increased coordination between suppliers	60.3	6.5	9.5	7.9	15.8
Low infrastructure and transaction costs of Internet-based systems allow organizations to exploit the increased opportunities	58.3	5.8	9.4	18	8.6
There is improved levels of trust	43.9	8.6	15.2	23	8.6
Inter-organizational systems enhance opportunities tend to create more effective customer-supplier relationships over time	50.4	15.1	6.5	15.1	19.4

The study findings were that, majority of the respondents 80.6% were of the opinion that there is increased tendency towards market structures with another 60.3% of respondents agreeing to the statement that there is increased coordination between suppliers with another 58.3% of respondents revealing that low infrastructure and transaction costs of Internet-based systems allow organizations to exploit the increased opportunities. Other findings were that 43.9% of the respondents stated that there is an improved level of trust with another 50.4% of the respondents stating that inter-organizational systems enhance opportunities tends to create more effective customer-supplier relationships over time. From the findings of the study, based on the fact that the main finding of the study was that majority of the respondents were of the opinion that there is increased tendency towards market structures and could be interpreted to mean that the market that enabled the supply of the companies products and services is large enough to accommodate the business. This could also imply to mean that the market is promising and thus profitable to the organization. The ability of the company to penetrated into the market is not difficult as a result of low cost and little time needed in accessing the market and thus this enables that company to make more strides, in addition to this, the study finding could also be interpreted to mean that it is due to small legal issues needed that the company has been able to access the market.

E-Invoicing and Supply Chain Management

The researcher sought to establish the opinion of the respondents on the impact of E-invoicing on supply chain management Performance. The findings of the study were then presented in the Table 2.

Table 2: E-Invoicing on Supply Chain Management Performance

Statement	SA	A	U	D	SD
There is secure and low cost procurement transactions	70.4	15.1	6.5	5.1	9.4
Easy retrieval and processing of data	52.4	20.9	5.2	16.5	5.0
Better utilization of resources	51.1	8.6	7.2	28.8	4.3
Exchange and utilization of information to users	43.2	23.7	11.1	6.5	15.1
There is faster and better communication	43.6	8.6	15.2	23	83.6
Time taken for delivery of service has reduced	15.8	40.3	29.5	7.9	6.5
Reliability of service delivery has increased	20.8	40.3	11.5	7.9	6.5

The results of the study were that majority 70.4% of the respondents agreed that there is secure and low cost procurement transactions. Other findings were that, 52.4% of the respondents were of the opinion that it is easy for retrieval and processing of data, with another 51.1% of respondents stating that there is better utilization of resources with another 43.2% of respondents revealing that E-invoicing able them to exchange and utilization of information to users. 43.6% of respondents were also of the agreement that there is faster and better communication with another 15.8% of the respondents stating that time taken for delivery of service has reduced and finally, another 20.8% of the respondents also revealed that there is reliability of service delivery has increased. The fact that the majority of the respondents agreed that there is secure and low cost procurement transactions could be interpreted to mean that E-invoicing has a great significance in the companies operation. The ability to reduce payment time, greater security of data, as well as numerous environmental benefits has made E-invoicing to be more applicable in the companies operating in the county. This is confirmed by enterprises and public authorities which already exist. This could also be interpreted to mean that cost economics has been streamlined with the cost of the infrastructure having been reduced per transaction when the volume of transactions increases. If there were no cost cutting in the supply chain and procurement, there would have been a lot of stress encountered by the company. There would be more time taken to transact without E-procurement since the checking of qualifications would require manual work. Additionally, there would be congestion during the procurement process and thus making it hard for the company to operate.

E-Payment and Supply Chain Management

The researcher sought to establish the opinion of the respondents on the impact of E-payment on supply chain management Performance. The findings of the study were then presented in the Table 3.

Table 3: E-Payment on Supply Chain Management Performance

Statement	SA	A	U	D	SD
We find payments online more convenient	80.4	15.1	6.5	1.1	3.4
We do not incur agency costs due to direct payments online	42.4	45.9	5	5.5	1.2
We trust payments systems of the organization	51.8	8.6	7.2	51.1	4.3
There is immediate reflection of payments	43.2	11.5	15.1	23.7	6.5
We receive notifications on demand	61	12	17	7	3.0

The results of the study were that majority of the 80.4% of the respondent were of the opinion that they find payments online more convenient, with another 42.4% of the respondent revealing that they do not incur agency costs due to direct payments online, with another 51.8% of the respondents having the opinion that they trust payments systems of the organization. Other results of the study were that 43.2% of the respondents were of the opinion that there is immediate reflection of payments and finally, another 61% of the respondents indicated that they receive notifications on demand. The main finding of the study was that were of the opinion that they find payments online more convenient could be interpreted to mean that the development of IT has enhanced the usage of e-payment and improved the use of supply chain management. This could also be interpreted to mean 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. On determining if all the variables on E-procurement (independent variables) and there significant relationship to Supply chain management (dependent variable) the study went ahead to compute a Chi-square test indicating how the variables interacted in the study. The model summary indicated that over 60.2% of the data was used to

compute the Chi-square test. This was deemed sufficient because it was over 50% which is the desired amount of data. The Chi-square test provides an overall test of significance of the fitted test. The p-value of 9.831 indicates that all the variables in the equation are important hence the overall regression is significant.

Table 4: Inferential Analysis

Variables	Correlation Parameters	E-Tendering	E-Invoicing	E-Payment
E-tendering	Pearson Correlation	1	.945**	.890**
	Sig. (2-tailed)		.000	.000
	N	66	66	66
E-invoicing	Pearson Correlation	.945**	1	.880**
	Sig. (2-tailed)	.000		.000
	N	66	66	66
E-payment	Pearson Correlation	.890**	.880**	1
	Sig. (2-tailed)	.000	.000	
	N	66	66	66
**. Correlation Is Significant At The 0.01 Level (2-Tailed).				

The Chi-square coefficient test of E-tendering and E-invoicing is 0.945. This implies that there is a positive association of 94 percent E-tendering and E-invoicing. The Chi-square coefficient test for E-payment is 0.890. Collinearity was observed in all the variables tested in the study. This did not allow for regression to be computed as the results would have resulted in biased estimates.

From the findings of the study, based on the fact that the main finding of the study was that majority of the respondents were of the opinion that there is increased tendency towards market structures and could be interpreted to mean that the market that enabled the supply of the companies products and services is large enough to accommodate the business. This could also imply to mean that the market is promising and thus profitable to the organization. The ability of the institution to penetrated into the market is not difficult as a result of low cost and little time needed in accessing the market and thus this enables that institution to make more strides, in addition to this, the study finding could also be interpreted to mean that it is due to small legal issues needed that the institution has been able to access the market. This is supported by a study done by Rebecca (2007) who reveals that to pursue the understanding of current business-to-business e-procurement practices by describing the success factors and challenges to its implementation in the corporate setting. The study through factor analysis resulted in three e-procurement success factors: supplier and contract management; end-user behaviour and e-procurement business processes; and information and e-procurement infrastructure. Three challenge-to-implementation factors also emerged: lack of system integration and standardization issues; immaturity of e-procurement-based market services and end-user resistance; and maverick buying and difficulty in integrating e-commerce with other systems.

Secondly, the fact that the majority of the respondents agreed that there is secure and low cost procurement transactions could be interpreted to mean that E-invoicing has a great significance in the companies operation. The ability to reduce payment time, greater security of data, as well as numerous environmental benefits has made E-invoicing to be more applicable in the companies operating in the county. This is confirmed by enterprises and public authorities which already exist. This could also be interpreted to mean that cost economics has been streamlined with the cost of the infrastructure having been reduced per transaction when the volume of transactions increases. If there were no cost cutting in the supply chain and procurement, there would have been a lot of stress encountered by the institution. There would be

more time taken to transact without E-procurement since the checking of qualifications would require manual work. Additionally, there would be congestion during the procurement process and thus making it hard for the institution to operate. This finding is in support of the study conducted by Stabell and Fjeldstad (1998) which states that both value and cost are postulated as driven mainly by network characteristics. Value and costs depend on the number of access points (network size effects), nodes or users that can be reached (positive demand externalities), and the variety of links between users (services provided). The costs for the users are in terms of charges for access to and use of the network, while the value is determined by the possibility to reach a large and relevant number of nodes through a variety of links. To provide greater value, value networks can increase their range of services offered by layering new services on top of the contract set and the infrastructure, (vertical expansion of service range) or increasing access to a larger pool of users (horizontal expansion of network scope).

Lastly, the main finding of the study was that were of the opinion that they find payments online more convenient could be interpreted to mean that the development of IT has enhanced the usage of e-payment and improved the use of supply chain management. This could also be interpreted to mean that the complete implementation of the website usage has to a large extent integrated, much more effective supply chains with full information transparency and optimal allocation of value-adding processes. This study finding is in line with a study done by Mentzer and John (2001) who reveal that the development of information technology and computer networks enhanced the usage of e-payment and improved the use of supply chain management (SCM). This is also associated with Vorst (2002), who states that SCM focuses on the integrated planning, co-ordination and control of all logistical business processes and activities in the supply chain to deliver superior consumer value at less cost to the chain as a whole, whilst satisfying requirements of other stakeholders, such as consumer interest organizations and government. Eventually, the complete implementation of the SCM concept should result in fully integrated much more effective supply chains with full information transparency and optimal allocation of value-adding processes.

CONCLUSIONS

The study concluded that there is increased tendency towards market structures and thin was interpreted to mean that the market that enabled the supply of the institution's products and services is large enough to accommodate the business. The study concluded that there are secure and low cost procurement transactions and was interpreted to mean that E-invoicing has a great significance in the companies operation. The ability to reduce payment time, greater security of data, as well as numerous environmental benefits has made E-invoicing to be more applicable in the companies operating in the county.

This was also interpreted to mean that cost economics has been streamlined with the cost of the infrastructure having been reduced per transaction when the volume of transactions increases. Further it was concluded that payments made online were more convenient and was interpreted to mean that the development of IT has enhanced the usage of e-payment and improved the use of supply chain management. This was also interpreted to mean that the complete implementation of the website usage had to a large extent integrated, much more effective supply chains with full information transparency and optimal allocation of value-adding processes. The institution should provide the supplier with access credentials for the supplier portal. This will increase users access to information in the e-procurement service with effective internet and thus an increase in chances of selecting the best supplier company for e-tendering. The system should

enhance government financial controls and improve accounting, recording and reporting through proper systems of invoicing with regard to both the supplier and the institution.

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