

**IMPACT OF ELECTRONIC PROCUREMENT ON THE PERFORMANCE  
OF PRIVATE UNIVERSITIES IN NAIROBI COUNTY**

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**BY**

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## DECLARATION

I declare that this research paper is my original work and has never been submitted to any other university for assessment or award of a degree.

Signed..... Date.....

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This project paper has been submitted for examination with my approval as the university supervisor.

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## **DEDICATION**

This project is dedicated first and foremost to the almighty God, the giver of life and all that is in this world. Secondly, to my mother, for bringing me up and caring for me until now I can look back at my achievements with happiness and joy.

## **ABSTRACT**

The growth of information technology has transformed the way business is conducted. The internet has revolutionized the way organizations transact externally. Procurement being a major expenditure function, e-procurement has been advocated to bring about efficiency and effectiveness in the procurement process. The study aimed to achieve two objectives; Extent to which e-procurement is practiced by the private universities within Nairobi county and the impact of e-procurement on their performance. Cross-sectional survey design was employed where a census of thirteen private universities in Nairobi county formed the population. Primary data was collected from procurement personnel by use of questionnaire framed on five point likert scale. Data was analyzed and presented in form of pie charts, descriptive tables and histograms. On the extent of e-procurement implementation, the findings indicated that, private universities in Nairobi county are practicing e-procurement at every stage of the procurement process with 80 percent having e-procurement software installed. Correlation Coefficient was calculated to determine the level of impact of e-procurement on the dimensions of performance; efficiency and dematerialization, effectiveness and customer satisfaction and transparency. The correlation coefficient was 0.87, 0.65 and 0.86 respectively indicating that; e-procurement has a strong positive impact on each of the performance dimension. E-procurement practices should be evaluated to ensure their limitations do not hinder the organization's effectiveness, efficiency, customer satisfaction and cost reduction. Further study to be done on impact of e-procurement on supplier management and procurement process transparency because the respondents were neutral on this issue. The coefficient correlation was 0.65 indicating that e-procurement somehow impacted on supplier management and procurement process transparency. Other studies should also be carried out to identify the reasons why organisations are skeptical on the use of purchase cards as a way of e-procurement because respondents recorded a mean of 2.2 indicating that less than half of the universities use this mode of purchasing.

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

<b>B2B</b>	Business-To-Business
<b>B2C</b>	Business-To-Consumer
<b>B2G</b>	Business –To-Government
<b>EDI</b>	Electronic Data Interchange
<b>EP</b>	Electronic Procurement
<b>EPS</b>	Electronic Procurement System
<b>ERP</b>	Enterprise Resource Planning
<b>FTP</b>	File transfer Protocol
<b>FSD</b>	Financial Sector Deepening
<b>IT</b>	Information Technology
<b>KPI</b>	Key Performance Indicators
<b>MRO</b>	Electronic maintenance, repair and overhaul
<b>PP</b>	Procurement Performance
<b>RFI</b>	Request for Information
<b>RFP</b>	Request for Proposal
<b>RFQ</b>	Request for Quotation
<b>SCM</b>	Supply Chain Management
<b>PO</b>	Purchase Order
<b>VAN</b>	Value Added Network
<b>P2P</b>	Procure to Pay

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background of the study**

Over the last few years, the internet has evolved from being a scientific network only to a platform that is enabling a new generation business Ageshin, (2001).The internet is changing the way business is done in every industry. The World Wide Web has become a source of information, goods and services. Electronic Procurement (EP) has emerged as one of the most discussed topic in Supply Chain Management (SCM). Without doubt, it is changing the way purchasing is being done in future (Essig and Ulli, 2001).

An industry wide research by the Arden Partners undertaken in 2011, on what is happening in the procurement world found out that, procurement account for 60.6 % of total enterprise expenditure. In such a competitive world, the importance of proper procurement management is highlighted in order to keep abreast of the market conditions.

Ndegwa (2008) noted that, there was a rapid growth of private universities. The increased demand for university education led the government to encourage the establishment and accreditation of private universities (Onsongo, 2007). This increased growth, has intensified competition among the private universities for students seeking higher education. A study commissioned by Financial Sector Deepening (FSD Kenya) in July 2008 on Procurement and Supply in Kenya, reported that, supply side for organizations is always seen as a cost cutting area.

Amit and Zott (2001) observed that, the theory of value creation in E-business is created by the way in which transactions are enabled. E-procurement enables transactions with customers and vendors to be networked hence creating value. This in the end impacts on the performance of organizations.

### **1.1.1. Electronic procurement**

Electronic procurement is the term used to describe the use of electronic methods, typically over the internet to conduct transactions in a business to business environment. The process of electronic procurement covers every stage of purchasing, from the identification of a requirement, through the bidding process, to the payment and potentially the contract and supplier management.

According to Ageshin, (2001) electronic procurement increased in the second half of 1999, when online auctions and product catalogues became commonplace on the Internet and continued to expand. The convenience online buying offered, even in its infancy, led Electronic Procurement to reach as high as \$145 billion in transactions in 1999, according to a 2001 article in "Product Inventory and Management Journal,"

Corsi (2006) considers e-procurement as more than just a system for making purchases online. A properly implemented system can connect companies and their business processes directly with suppliers while managing all interactions between them. This includes management of correspondence, bids, questions and answers, previous pricing, and multiple emails sent to multiple participants.

### **1.1.2. Performance**

Performance can be defined simply as accumulated end results of organization's work processes and activities. Performance can therefore be both financial and non-financial. Kaplan and Norton (2001) came up with a performance measurement framework which gives organizations, a balanced view of performance; under four perspectives; financial, customer, growth and internal processes.

Zaffron et al (2009) noted that, performance provides the basis for an organization to assess how well it is progressing towards its predetermined objectives, identifies areas of strengths and weaknesses and decides on future initiatives with the goal of how to initiate performance improvements. The implementation of e-procurement has to be

carried out alongside a change management effort to re-engineer the procurement processes, which has to emphasize the importance of monitoring performance (Croom, 2001; Essig and Arnold, 2001; Rasheed and Geiger, 2001). Rajkumar (2001) notes, at a strategic level, it is anticipated e-procurement will free purchasing resources from transaction process to strategic sourcing activities. In many organizations, the business case for e-procurement is predetermined on being able to deliver a variety of benefits which includes; lower price, lower transaction cost and better compliance to procurement policies (Hawkings et al 2004)

Performance benefits are encouraged and strengthened by moving towards a systemic usage of this technological innovation, with a continuous flux of electronic purchasing activities affecting important volumes of expenditure (Ramayah, Zbib, Jantan and Koh, 2006). According to Zaffron et al (2009), measuring the performance of the purchasing function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage.

### **1.1.3. Private Universities in Kenya**

Private universities in Kenya are mandated to provide higher education. Private higher education in Kenya can be traced to the colonial period when missionaries established schools and colleges for their converts. These early universities offered degrees in the name of parent universities abroad. For a long time the government did not give accreditation to these private colleges (Onsongo, 2007). However, the increased demand for university education led the government to encourage the establishment and accreditation of private universities in the 1990s. (Onsongo, 2007), Commission for University Education indicates that, currently there are seventeen chartered private universities in Kenya and twelve private universities operating with a Letter of Interim Authority. Out of this number, thirteen universities are located within Nairobi County; eight fully chartered and seven with the letter of Interim Authority.

Private universities have their own internal procurement policies developed to support the existing organizational objectives. This is unlike their counterparts, the public universities whose procurement practices are guided by the public procurement and disposal Act, 2005 and the Regulation. This Act does not directly regulate the private sector in which private universities belong. This freedom by the private universities gives them an advantage to adopt the best procurement practices without any regulation limiting them.

Recent trend in the education sector has seen a growing demand for higher learning education. The public universities are not enough to accommodate this demand. This has led to expansion and increase in the number of private universities to meet the growing demand. The research aims to understand how electronic procurement impacts the performance of these institutions in order for them to survive the stiff competition.

## **1.2. Problem statement**

The need to reduce procurement related cost has led to the implementation of electronic procurement among businesses and organization the world over. The electronic procurement covers a wide arrangement and assortment of the techniques that the entity may apply in their process with more management in terms of earning the revenue and serving the customers (Luna, 2010).

The recent trend of growth of private universities in Kenya, has led to increased competition among the institutions of higher learning. This has seen universities expanding rapidly to cater for increased demand. The expansion is accompanied by massive procurements of teaching learning materials, constructions works and other services. This requires efficiency in the procurement process through which can be achieved through implementation of E-procurement.

In Kenya, studies have been undertaken by various researchers on the implementation of E-Procurement by educational institutions and businesses. For instance, Oyieke (2011) researched on the factors that affect the e-government service: the case of user community with in institutions of higher learning in Nairobi. Also, Muthigani (2011)

studied the e-procurement implementation: case study of selected firms in Kenya and concluded that, E-procurement has enormous benefits which can only be realized after successful implementation. Nyandimo (2011), researched on Information Communication Technology and public procurement in Kenya and he found that, Information Communication Technology contributes more to quality service delivery in public procurement. Outside Kenya, a study conducted by Cambridge Consultants, identified that through Electronic Procurement the cost of a paper-based order of £60 was reduced to £10 per order, generating a total saving of £57,000 per year. Wojciech (2006), wrote a paper on how e-procurement enhances strategic performance and another research was also conducted on e-procurement practices and performance (Quesda et al, 2006). Information technology is characterized by rapid advancement and hence requires continuous studies to determine how it affects organizational performance. Considering the various studies, it is clear that in recent years, little has been undertaken on the implementation of e-procurement among private universities in Nairobi County and the impact on performance thus creating a research gap.

It is on the basis of this existing gap that this study seeks to examine the impact of e-procurement on performance of private universities in Nairobi County. The study was seeking answers to two questions: to what extent private universities in Nairobi County are practicing e-procurement? What is the impact of e-procurement on performance of private universities in Nairobi county?

### **1.3. Objectives of the study**

The following were the objectives of the study:

1. To establish the extent to which private universities in Nairobi county are practicing electronic procurement.
2. To determine the impact of electronic procurement on performance among private universities in Nairobi county

#### **1.4. Value of the study**

Upon completion, the findings of this study were to benefit to a number of people. Procurement practitioners across all sectors will get an in-depth understanding of how e-procurement impact their performance .Procurement managers of the thirteen private universities in Nairobi county were to get to appreciate how e-procurement implementation has transformed their operations.

Those planning to implement this process were to find it valuable to understand how their investment in e-procurement will create value. This was to enable them to benchmark and adopt best practices that will give them a competitive advantage in the highly competitive environment. The findings of the study were also to benefit those in the academic realm. Those interested in conducting further research in this area were to be able to find materials for reference. Other organizations interested in understanding e- procurement were also to benefit from the findings of the study.



## **CHAPTER TWO: LITERATURE REVIEW.**

### **2.1. Introduction**

This chapter is organized as follows; Theory underpinning e-procurement, the concept of e-procurement and finally the relationship between e-procurement and performance discussed.

### **2.2. Theory underpinning electronic procurement**

Electronic procurement has had an increasing role on business to business (B2B) commerce. Web enabled business to business e-commerce enhances inter-organizational coordination resulting in transaction costs sourcing and competitive sourcing opportunity for buyer organization (Shaw, 2002). Nevertheless, despite the proliferation of literature dedicated to theory and practice, most of the contribution delivers partial solution regarding general rule of behavior (Shaw 2002). Supply managers need to understand impact of technology and gain competency in making business case for Electronic procurement (Presutti, 2003)

According to Gardenal (2003), electronic procurement has been advocated for as a tool that can improve competence and procurement performance. Despite the increasing pace of electronic procurement phenomenon, there remains lack of theoretical underpinning linking e-procurement to performance (Shaw, 2002). The analysis therefore will be sustained by the theory of “Value Creation in E-Business” framework, which basically states that, value can be created by the ways in which transactions are enabled. Amit and Zott (2001) explain that, e-procurement interconnects businesses making it easy for organizations to transact hence the reason why the study was supported by this theory. The theory suggests a model of the sources of value creation in e-business, which depends on four interdependent dimensions: efficiency, complementarities, lock-in and novelty.

The theory suggests that, transaction efficiency increases when the costs per transaction decrease. By leveraging the cheap interconnectivity of virtual markets, e-businesses enhance transaction efficiency by enabling faster and more informed decision making

(Subramaniam and Shaw, 2002). They provide greater vendor selection at lower costs, simplifying transactions which reduce the likelihood of mistakes and speeding up transaction processing and order fulfillment, hence benefiting both vendors and customers (Amit and Zott, 2001)

Complementarities are present whenever having a vast number of goods together provides more value than the total value of having each of the goods separately (Amit and Zott (2001). Complementarities can be expected to increase value by enabling revenue increases. Lock-in is manifested as switching costs, which are anchored in Croom (1975) transaction cost. The unique characteristics of virtual markets such as the removal of geographical and physical constraints, possible reversal of information flows from customers to vendors; and other novel information bundling and channeling techniques, makes the possibilities for innovation seem endless (Amit and Zott (2001)

### **2.3. Electronic procurement**

Electronic procurement can be defined as using Internet technology in the purchasing process. Electronic procurement makes it easier, faster, and less expensive for businesses to purchase the goods and services they require. According to Chaffey (2002), the perceived importance of electronic procurement was highlighted by a Transmit plc (1999) report which showed that around 90 per cent of companies said they planned to implement an electronic procurement system within the next five years, with the majority of them identifying cost savings as their primary goal.

Over the last decade, e-procurement has emerged as a major component in Supply Chain Management (SCM) field (Rajkumar , 2001). The procurement process consists of sourcing (negotiating prices), procurement (raising and fulfilling orders), and payment (collecting invoices and arranging payment). Electronic procurement streamlines all three parts of the procurement process. Corsi (2006) considers e-procurement as more than just a system for making purchases online. A properly implemented system can connect companies and their business processes directly with suppliers while managing all interactions between them. This includes management of

correspondence, bids, questions and answers, previous pricing, and multiple emails sent to multiple participants.

### **2.3.1 Forms of electronic procurement**

GovWin (2012) listed six forms of e-procurement applications. The applications includes; Web-based enterprise resource planning (ERP), Electronic maintenance, repair and overhaul (e-MRO), E-sourcing, E-tendering, E-reverse auctioning, and e-informing as general elements of electronic procurement. In addition, collaboration is an important enabler (Knudsen, 2003)

Enterprise Resource Planning (ERP) is the creating and approving of purchasing requisitions and placing purchase orders and receiving goods and services by using a software system based on internet technology. Electronic maintenance, repair and overhaul (e-MRO) is similar to ERP, but goods and services ordered are non-product-related. E-sourcing is the process of identifying new suppliers for a specific category of purchasing requirements using Internet technology. E-sourcing allows identifying new suppliers for a specific category of purchasing requirements using internet technologies across spatial boundaries. Most important benefits of e-sourcing are increased decision making flexibility and lower prices (GovWin, 2012).

E-tendering involves the process of sending RFI (request for information) and RFP (request for proposal) to suppliers and receiving their response using internet technologies. Often e-tendering is supported by an e-tendering system that can analyze the responses received from the suppliers. On the other hand, the use of Internet technology to buy goods and services from a number of known or unknown suppliers is E-reverse auctioning. e-reverse auctioning supports the contract phase. The gathering and distributing of purchasing information from and to internal and external parties using internet technology is known as E-informing, (GovWin, 2012).

### **2.3.2. Benefits of electronic procurement**

E-procurement system allow more efficient integration of supply chains and provide better organization and tracking of transaction records for easier data acquisition. According to Ageshin (2001) transactions can be standardized and all bids for products and services can be tracked more easily, allowing business owners to use such knowledge to obtain better pricing. Due to faster exchanges of information and delivery of goods and services, e-procurement also promotes shorter product-development cycles.

Jason (2003), there are three main benefits of e-procurement that are mentioned throughout the previous literature. First, e-Procurement offers administrative cost savings by decreasing the labor and repetitious paperwork that has traditionally gone into the procurement process. Next, through visibility of spend data; the procuring organization can leverage their procurement decisions to realize better prices on purchases. Finally, there should be decreased time in the procurement process, leading to better efficiency.

Another benefit of e-procurement is to obtain high quality data on purchasing activities, such as what has been bought, when, from which supplier and how much. Equipped with this data, companies are well positioned to negotiate better frame agreements with suppliers, to consolidate spend and reduce sub optimization (Corsi, 2006).

Kumar, Ram and Crook (1996) argue that, a good electronic procurement system helps a firm organize its interactions with its most crucial suppliers. It provides those who use it with a set of built-in monitoring tools to help control costs and assure maximum supplier performance. It provides an organized way to keep an open line of communication with potential suppliers during a business process. The system allows managers to confirm pricing, and leverage previous agreements to assure each new price quote is more competitive.

Presutti (2003) found e-procurement system can bring benefits to the company such as reducing time to- market cycles, reducing material and transactions costs, and reducing

stock levels. Chaffey (2004) argued that the benefits of e-procurement include reduced purchasing cycle time and cost, enhanced budgetary control, elimination of administrative errors, increasing buyers' productivity, lowering prices through product standardization and consolidation of buys, improving the payment process, and improving information management.

E-procurement system plays a fundamental role in purchasing by streamlining the buying process and providing the information needed to make more effective purchasing decisions (Osmonbekov et al. 2002,). Previous studies allude to the fact that many companies have found benefits from their implementation of e-procurement system; reduction in transaction costs, efficiency in the internal processes and increased collaboration (Chaffey, 2004).

### **2.3.3. Advantages of electronic procurement**

Gardenal (2013) identified the most often quoted advantage of e-procurement as the potential to cut costs of purchased goods and services .The phenomenon of cost saving allowed by e-procurement is based on the new processes that cut all costs associated with purchasing, that is, the cost of goods and services purchased, ordering costs, and holding costs

Corsi (2006) maintains that, the availability and generally low cost of information and technology provided by Internet-based purchasing create absolutely different economics characterized by the low barriers for market entrance ,price transparency and better balance of power between sellers and buyers. Companies adopting e-procurement are becoming increasingly dependent on suppliers because of the wider adoption of just in time practices, shorter ordering cycles and increased involvement of suppliers in product development (Pressutti, 2003)

According to (Epiqtech, 2012) most organizations suffer inefficiencies when using the traditional procurement process. The procurement process consists of sourcing

(negotiating prices), procurement (raising and fulfilling orders), and payment (collecting invoices and arranging payment). E-procurement streamlines all three parts of the process and offers: improved management information across all areas of purchasing, instant access to catalogs and products, improved transparency and interoperability, standardized and streamlined purchasing practices, budget visibility and control.

Other advantages of e-procurement are timely payment of suppliers' bills and the reduction in paperwork and duplicated records, centrally-managed contracts and faster procurement. Improved methods of spending and performance measurement and analysis, lower overhead and marketing costs for vendors are some benefits of e-procurement as well (Epiqtech, 2012).

#### **2.3.4. Limitations of Electronic procurement**

Okello (2013) argues that, several models have been tried by different countries to implement e-Procurement. The findings show that most of the procurement processes are still manual with the internet only being used for e-mails and web browsing. This low rate of adoption is due to the comprehensive list of barriers for electronic procurement implementation. Electronic procurement is very complex and that the main benefits of electronic procurement can be achieved only in the long term (Sitar, 2010).

Gardenal (2013) explain that, suppliers may be reluctant to adopt the idea of e-procurement because of the necessity of dealing with more than one marketplace, high training costs associated with switching to e-procurement, turbulence in this new industry and the high risk of compromising sensitive data. Another great difficulty in adopting e-procurement according to Arbin (2002) is the rapidly growing multitude of standards in the industry. It is not clear which e procurement solution providers (and whose standards) will survive, and which will not. Multiple standards in the industry

are already causing confusion and increasing purchasing cost, which undermines the cost savings previously

Additionally, Kumar, Ram and Crook (1996), explain that numerous firms sign on for E-procurement without anticipating the long road ahead. They dive into projects only to learn that E-procurement applications are limited in the types and scope of purchasing activity they address. Managing electronic catalogues with thousands of products, providing employees with the right mix of products and adequate information about them in most instances can be difficult.

Gilbert (2000) argued that e-procurement also carries its share of disappointments and disadvantages, such as human or system errors in orders, software and systems that don't meet companies' needs, lack of vendor support for e-commerce generation and maintenance of product information. Inadequate search capabilities and the tendency to use one e-procurement system or process, training cost and potential change in suppliers or available goods are added disadvantage of e-procurement.

In his study, Sigh (2011) concluded that organizations are investing a lot in their information technology infrastructure and reengineering their business processes by digitizing firms. If organizational employees will not optimally utilize its information technology infrastructure, the productivity gain will reduce enormously. There is need to find the determinants which influence employee's adoption and uses of electronic procurement systems so as to provide managers with the valuable information to take intervention programs to achieve greater acceptance and usage of electronic procurement system

## **2.4. Organizational Performance**

According to Kaplan and Norton (2001) performance is referred an analysis of a company's performance as compared to goals and objectives. It can be defined as the outcomes of work because they provide the strongest linkage to the strategic goals of an organization, customer satisfaction and economic contributions.

Zaffron (2009), traditional performance measures, those developed from costing and accounting systems, have been criticized for encouraging short termism, lacking strategic focus, and not being externally focused. In an attempt to overcome these criticisms, performance management frameworks have been developed to encourage a more balanced view between internal and external factors, financial and non-financial measures. The four perspectives of the “Balanced Scorecard” approach represent one of the most prominent examples of these frameworks (Kaplan and Norton ,2001).

Knudsen, (1999) suggested that procurement performance starts from purchasing efficiency and effectiveness in the procurement function, in order to change from being reactive to being proactive to attain set performance levels in an entity. According to Weele (2006,) purchasing performance is considered to be the result of two elements: purchasing effectiveness and purchasing efficiency. Performance provides the basis for an organization to assess how well it is progressing towards its predetermined objectives, identifies areas of strengths and weaknesses and decides on future initiatives with the goal of how to initiate performance improvements.

Gardenal (2013) identified the measurement framework of e-procurement effect on organizational performance based on five impact dimensions, each consisting of a set of indicators. The impact dimensions represent the organizational areas which could benefit the most from the introduction of e-procurement: efficiency, effectiveness, competitiveness, dematerialization and transparency.

## **2.5. Electronic procurement and organizational performance**

E-Procurement has to be evaluated in its complexity, which encompasses numerous goals: to rationalize expenditure, to reduce “administrative confusion” and costs, to foster operational efficiency (Croom, 2000), to strengthen organizations’ network vision and technological collaboration with business partners (Gamble, 1999; Greenemeier, 2000; Murray, 2001), to completely automate certain procurement activities (Smith and Flanegin, 2004).



Gardenal (2013), efficiency measures the usage of resources during a process. E-procurement impacts this dimension allowing employees to achieve (at least) the same results of a traditional “paper-based” procedure, but using less time, thanks to the automation of certain activities. Thus, the reduction of the overall elapsed time employed to complete the tendering process is the main driver to measure efficiency. Subramaniam (2006), E-procurement systems provide both operational and strategic benefits. The operational benefits are related to improving the efficiency of the procurement process and thereby reducing the total costs of procurement. E-procurement should allow increased discounts, because it makes possible to access larger markets and to use advanced instruments for negotiations, such as e-auctions PQuayle, M. (2005.)

Gardenal defines dematerialization as reduction in paper usage as a result of implementation of e-procurement. Using e-procurement as an operational standard could trigger a dramatic turnaround in paper usage (Gardenal 2013). This is supposed to happen thanks to the substitutive document retention in e-procurement platforms, the use of digital signatures, the use of certified emails and other technologies. Kumar, Ram and Crook (1996) instead of having to sort through large volumes of paper or electronic catalogues, purchasing professionals are able to build custom catalogs that include only the items the company is interested in. Corsi (2006) notes the benefits of reduced paper usage as reduction in storage space and reduction in papers required.

Jason (2003) points out that, the rapid growth of competition in the market and consequent changes in economic conditions, imposes organizations and firms to implement new technology to remain competent. Gardenal (2013) argues that e-procurement solutions could contribute to promoting competitiveness, ensuring higher levels of suppliers’ participation in tendering procedures and using advanced negotiation instruments (i.e. e-auctions).

E-procurement could improve transparency, for example, automating the online publishing of tender documentation and the outcomes of procedures (Gardenal, 2013).

According to Epiqtech (2012) a good e-procurement system helps a firm to organize its interactions with crucial suppliers on timely basis. It provides an organized way to keep an open line of communication with potential suppliers during a business process.

E-Procurement tools provide the opportunity to enhance two elements of procurement process; communication and transaction aspects (Oslo mobekov et al 2000). Surveys have confirmed that, e-commerce tools and IT solutions have an influence on procurement related processes. Companies have reported; Cost reduction ( Croom and Johnson, 2003), Reduction in Purchasing Cycle time ((Davilla et al, 2003), Reduction in supplier base ( Davilla et al, 2003), Inventory savings (Shaw1, 2002),Reduction in purchase price ( Davilla, 2003).

The adoption of e-procurement system in the purchasing transaction allows firms to reduce transaction costs, improve internal procurement process efficiency and increase collaboration with suppliers (Chaffey, 2004) before formulating an e-procurement strategy it is vital to recognize that the nature of the products and services to be procured and their pricing basis will have a significant impact on the way they should be sourced and procured in terms of technology, organization and processes to maximize the benefits of the proposed system ( Presutti, 2003).

## **2.6. Summary of literature review**

There are a number of studies that have focused on real practices in the field of e-procurement management. Several empirical studies in the area have been published. They consist mainly of case studies and surveys. Most case studies deal with the benefits and challenges organizations face when implementing e-procurement decisions. McCormack and Trkman (2009) assert in their study that in recent years, organizations have invested heavily in e-procurement technology solutions. However, an estimation of the value of the technology-enabled procurement process is often lacking.

Process efficiency and process integration capabilities of a procurement process provide a significant contribution to firm performance. Tanner (2003) goes ahead to conclude

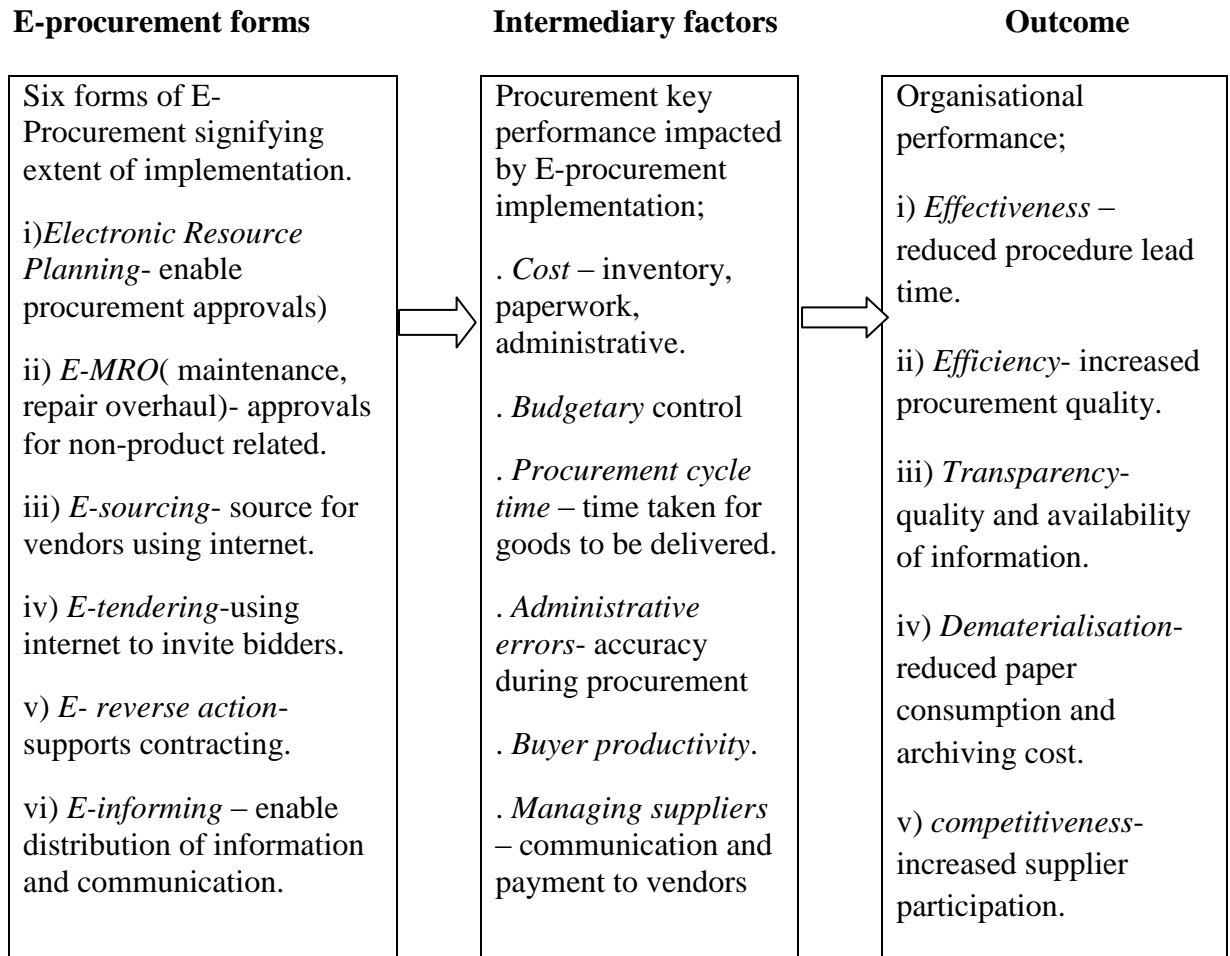
that, “the main benefits of e-procurement are an increase in firms’ competitiveness through cost reduction and boosted efficiency with inbound logistics. These benefits can materialize in a reduction of purchasing transactions costs, order fulfillment and cycle time, a reduction of the number of suppliers or even a reduction in the price paid, and the number of staff to support purchase transactions”. It is believed that, in addition to a decrease in costs, e-procurement also eliminates paperwork, improves data accuracy, collaboration, and transparency of the process when reducing inventory levels and lead times (McCormack, K., and Trkman, P., 2009) .

Wojczech (2011) argued that e-procurement through its application of rapid data processing electronic technology, provides a means to improve efficiency within specific areas of the supply chain and provide solutions to the challenges of e-procurement. It provides improved efficiency across the supply chain thereby extracting a number of tangible and quantifiable benefits such as reduce processing time. However, in order to reap the full benefits, the business processes connected to procurement should be carefully analyzed and if necessary improved before it is supported with an e-procurement solution, (Tanner, 2003).

## **2.7. Conceptual model**

The conceptual framework illustrates the relationship between the independent variables and the dependent variables. The relationship between e-procurement implementation and organizational performance can be conceptualized at a fairly general level in figure 1 below as a two-stage relationship. Successful and complete e-procurement implementation evidenced by the six forms of e-procurement showing the extent of implementation and the impact on a series of intermediate factors of procurement key performance indicators (KPI), which in turn determine organizational performance. The model presents the five dimensions impact on organizational performance by e-procurement implementation as developed by Gardenal (2013)

**Figure 1; Conceptual model framework.**



**Source – Gardenal (2013).**

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter gives the methodology that will be used to accomplish the already established research objectives. This section includes the research design, target population, sampling design, sample size, data collection and data analysis which are discussed in the below paragraphs.

### **3.2. Research Design**

Cross sectional survey design was employed to determine impact of e-procurement on organizational performance. Creswell (2006) points out that, cross-sectional design allows same variables measured on one occasion for each population unit at a specific point in time. Therefore, the design was chosen due to its adaptability to determine how related two or more variables are at a specific point in time. The researcher sought to establish how e-procurement has impacted on the performance for private universities within Nairobi County.

### **3.3. Target Population**

The target population refers to entire group of individuals or objects to which researcher is interested in generating conclusions. For purpose of this study, target population consisted of all the private universities located in Nairobi County. Currently there are thirteen (13) private universities in Nairobi County both chartered and those operating with Letter of Interim Authority as per the list provided by the Commission of University Education. The list of private universities located in Nairobi is attached as Appendix II.

### **3.4. Data collection**

Research questionnaire was used as the main instrument of data collection. The study made use of primary data with structured questions to provide closed ended questions. The questionnaire comprised four parts; first part constituted particulars of respondents, second part on e-procurement implementation and third and fourth part to constituted key consideration on e-procurement. Data was collected by questions framed using the

5 point Likert scale format. Likert Scale according to (Bissonnette 2007), is a psychometric response scale primarily used in questionnaires to obtain participant's preferences or degree of agreement with a statement or set of statements.

The questionnaire was self-administered and hand delivered or sent by mail. The data was obtained from the procurement managers or the most senior manager involved in procurement within each private university. To ensure informed judgments, respondents ought to be fully knowledgeable about the procurement function and its performance, both before and after the implementation of e-procurement. Procurement managers are usually the most knowledgeable when it comes to the key performance metrics and the impact of e-procurement. To obtain more reliable responses, the procurement managers were asked to respond to the questions with regard to their respective university.

### 3.5 Data analysis

To facilitate analysis, the questionnaire was coded according to each variable of study to ensure accuracy and minimal error of margin during analysis. The first objective, the extent of e-procurement implementation by private universities in Nairobi County was measured based on the descriptive statistics. The findings were then presented in tables and pie charts to give clear picture of research findings at a glance

The second objective was measured using a two-step analysis. The first step made use of descriptive statistics to show the mean and standard deviation of the collected data. The second step analysis sought to assess how e-procurement implementation and performance are related. Coefficient correlation model was used at this stage of analysis.

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Where; r- Coefficient Correlation which represented the degree of relationship

## **CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION**

### **4.1. Introduction**

In this chapter, the researcher reports on the main results obtained by analysis of data and presentation of results of the questionnaire data. The findings are to establish the extent to which private universities within Nairobi county practice e-procurement and to determine the impact of e-procurement on their performance. Data generated from this research was both qualitative and quantitative. Quantitative data was presented in form of frequencies, means, modes and percentages. Qualitative data was presented by way of narration. Presentation was done using tables, charts and graphs for easy yet effective communication.

### **4.2 Response Rate**

The researcher distributed 13 self-administered questionnaires to the entire population. The respondents were from the administration and procurement departments of which the study is based on. All the 13 questionnaires were returned and only 1 was rejected for incomplete information due to uncooperative respondent. Thus 12 questionnaires were subjected to analysis. This represented a 92.3% response rate which the researcher found sufficient to proceed with data analysis. The high response rate was attributed to the fact that the researcher personally administered the questionnaires to the respondents at the various private universities.

### **4.3 Demographic Data of the Respondents**

Demographic data of the respondents was sought to provide information about the experience of the respondents in the procurement field, their level with regard to the organisation's structure and how long they have been serving with the current employer.

#### **4.3.1 Level/grade of the Respondents**

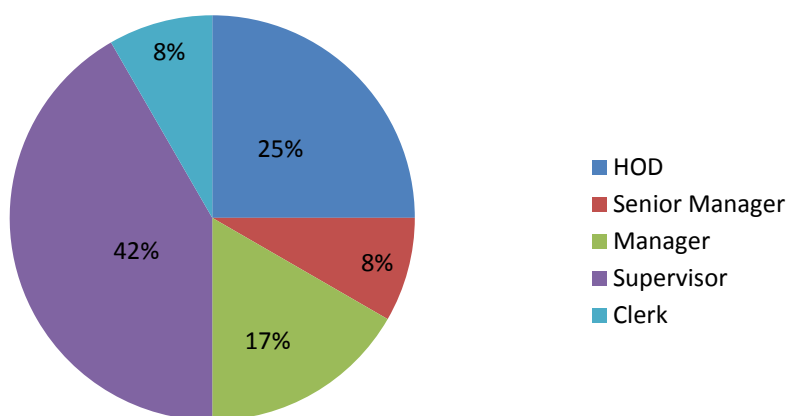
The researcher sought to establish the job level of the respondents in the organization structure of the universities. The responses are indicated in the table and figure below.

Table 1: Summary of level of the respondents

Level of respondents		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	HOD	3	25.0	25.0	25.0
	Senior Manager	1	8.3	8.3	33.3
	Manager	2	16.7	16.7	50.0
	Supervisor	5	41.7	41.7	91.7
	Clerk	1	8.3	8.3	100.0
	Total	12	100.0	100.0	

From the table above, 41.7% of the respondents were supervisors in the procurement department, 25.0% were head of departments, 16.7% of the respondents were managers, 8.3% were senior managers and 8.3% of the respondents were clerks. This can also be depicted from the figure below.

Figure 2: Pie chart summarising grade of respondents





#### 4.3.2 Length of service of the Respondents

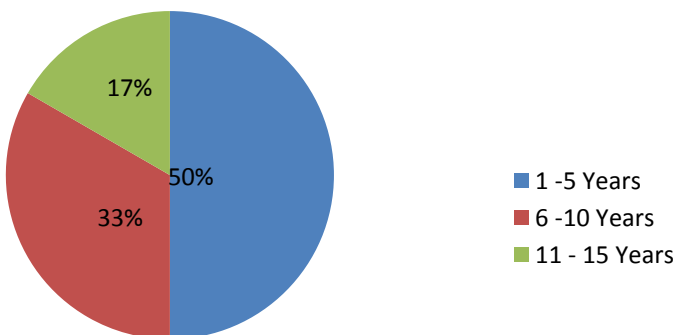
The researcher sought to establish the number of years the respondents have worked for various private universities. The responses were indicated in the table and figure below.

Table 2: Service length for respondents

Length of service		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years`	6	50.0	50.0	50.0
	6-10 years	4	33.3	33.3	83.3
	11-15 years	2	16.7	16.7	100.0
	16-20 years	0	0.0	0.0	100.0
	20 plus	0	0.0	0.0	100.0
	Total	12	100.0	100.0	

From the table above, 50.0% of the respondents have served in the universities for 1 to 5 years procurement department department, 33.3% have served for 6 to 10 years and 16.7% of the respondents have served for 11 to 15 years in the universities. However none of the respondents have served for more than 15 years. This can also be depicted from the figure below.

Figure 3: Pie chart representing length of service for respondents



#### 4.4 Electronic procurement practices

The researcher sought to establish the use of various internet based procurement practices in private universities. This helped to establish the extent to which private universities are practising e-procurement. The responses presented and summarised in the table and figure below.

Table 3: Summary of e-procurement practises

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Procurement activities					Lower Bound	Upper Bound		
Email	12	4.75	.452	.131	4.46	5.04	4	5
Credit cards	12	2.42	1.505	.434	1.46	3.37	1	5
Search for vendors	12	4.17	.937	.271	3.57	4.76	2	5
Request for bids	12	4.00	.953	.275	3.39	4.61	2	5
Online ordering	12	3.75	1.288	.372	2.93	4.57	1	5
Plan orders	2	4.33	1.371	.396	3.46	5.20	1	5
Payment to vendors	12	3.75	1.215	.351	2.98	4.52	1	5
Purchase approval	12	3.58	1.240	.358	2.80	4.37	1	5
Order tracking	12	3.67	1.303	.376	2.84	4.49	1	5
E-procurement software	12	4.00	1.477	.426	3.06	4.94	1	5
Online catalogue	12	3.67	1.371	.396	2.80	4.54	1	5
Search for suppliers	12	4.33	.985	.284	3.71	4.96	2	5
Visit supplier database	12	4.75	.622	.179	4.36	5.14	3	5
Develop supply chain	12	3.33	1.557	.449	2.34	4.32	1	5
Functional coordination	12	3.83	1.267	.366	3.03	4.64	1	5

From the descriptive statistics table above, most of the respondents strongly agreed that they used E-mails as part of e-procurement practice having a mean of 4.75. Respondents disagreed on use of credit cards on purchases of office supplies as part of E-procurement with a mean of 2.42 on their responses. Respondents were in agreement with a mean of 4.17 that they sourced/searched for vendors over the internet as part of E-Procurement practice. Most respondents agreed that they use internet to request for bids(RFQ, RFP) as part of E-procurement practices with a mean of 4.00. However, respondents were neutral on online ordering as part of E-procurement practices in private universities with a mean response of 3.75. Respondents agreed on use of internet to plan and schedule orders as part of E-procurement practices having a mean response of 4.33. Respondents were neutral on using internet to make payment to vendors with their mean response being 3.75. Respondents were neutral again on using internet for purchase approval and Order tracking as part of E-procurement practice having a mean 3.58 and 3.67 respectively on their responses. However respondents agreed on using software services of an electronic procurement solution as part of E-procurement practice with their responses having a mean of 4.00. Respondents could neither agree nor disagree on accessing online catalogues and their mean response was 3.67. Respondents agreed with a mean response of 4.33 on using internet to search for suppliers and strongly agreed on visiting suppliers websites with a mean of 4.75 is part of E-procurement practices. However they were neutral that using internet to develop an integrated supply chain is part of E-procurement practices and the mean response was 3.33. They somehow agreed that they used internet to achieve cross functional coordination as part of E-procurement practices and the mean response on this was 3.83.

#### **4.5 Impact of e-procurement on performance dimensions**

The researcher sought to determine the impact of e-procurement on performance of private universities under the five dimensions as represented in the conceptual model.

#### 4.5.1 Efficiency and dematerialization

The researcher sought to establish the impact of electronic procurement practices on efficiency and dematerialization of private universities in Nairobi county. The responses were summarised as per the table below.

Table 4: E-procurement and efficiency.

	Mean	Std. Deviation	N
Reduction of Procurement cycle time	4.25	.965	12
Reduce inventory cost	4.08	1.240	12
Eliminate paper work	4.75	.622	12
Reduction in archiving cost	4.33	.985	12
Enable procurement Aggregation	4.00	1.128	12
Reduce Administration costs	4.42	.793	12
Results in volume discount	3.17	1.267	12

**Model Summary<sup>b</sup>**

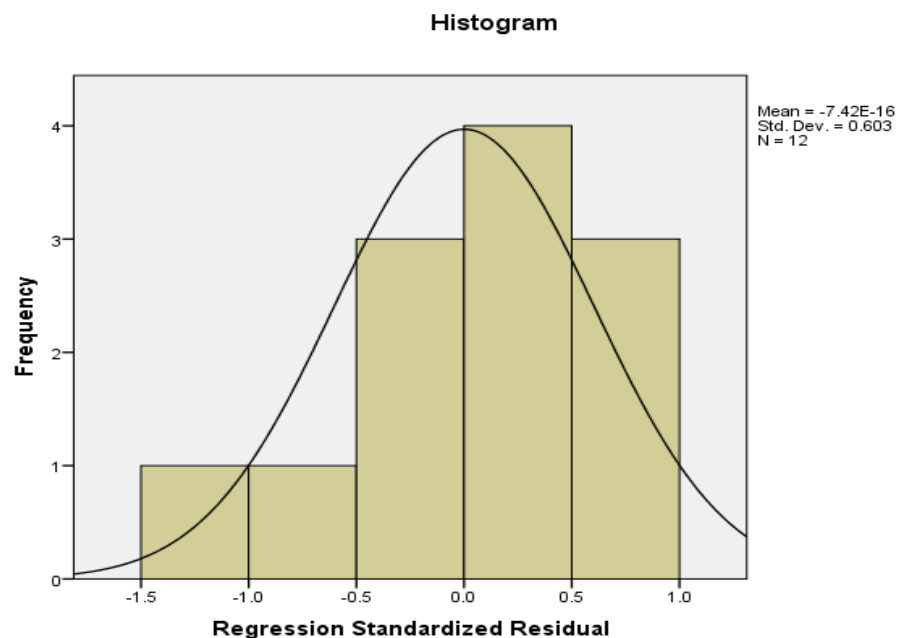
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.863 <sup>a</sup>	.746	.300	3.016

From the descriptive statistics table above, mean responses of 4.25 and 4.08 from respondents indicated that e-procurement practices highly reduces the time of procurement cycle time and inventory costs. Respondents indicated that e-procurement practices eliminated paper work in private universities and this was indicated by a mean response of 4.75. Respondents indicated that electronic procurement practices highly reduced the costs associated with archiving records and administration costs e.g. office space and hiring procurement personnel and also enabled procurement aggregation.

This is shown by the mean response of 4.33, 4.00 and 4.42 respectively from respondents on the above three performance indicators. However respondents indicated that e-procurement practices had moderate impact to volume discounts with a mean response of 3.17. From model summary table above, there is a very strong positive correlation of 0.863 between e-procurement practices and the efficiency and dematerialization of procurement duties in private universities.

It was then summarized that, e-procurement implementation leads to increased efficiency. This can be depicted by the histogram below which shows the distribution of the respondents' responses on effects of e-procurement practices on efficiency and dematerialization.

Figure 4: A histogram depicting relationship between e-procurement and efficiency.



#### **4.5.2 Supplier management and transparency**

The researcher sought to establish the impact of electronic procurement practices on supplier management and transparency of private universities in Nairobi county. The responses were indicated in the tables below.

**Table 5: E-procurement impact on supplier management**

	Mean	Std. Deviation	N
Reduce supplier database	3.58	1.311	12
Improve communication	4.33	.651	12
Improves transparency	4.00	1.206	12
Improves visibility of supply chain	3.83	1.403	12
Helps in monitoring suppliers	4.08	.996	12
Establishes mutual trust	4.00	.953	12
Leads to Centralized control	3.58	.996	12

**Model Summary<sup>b</sup>**

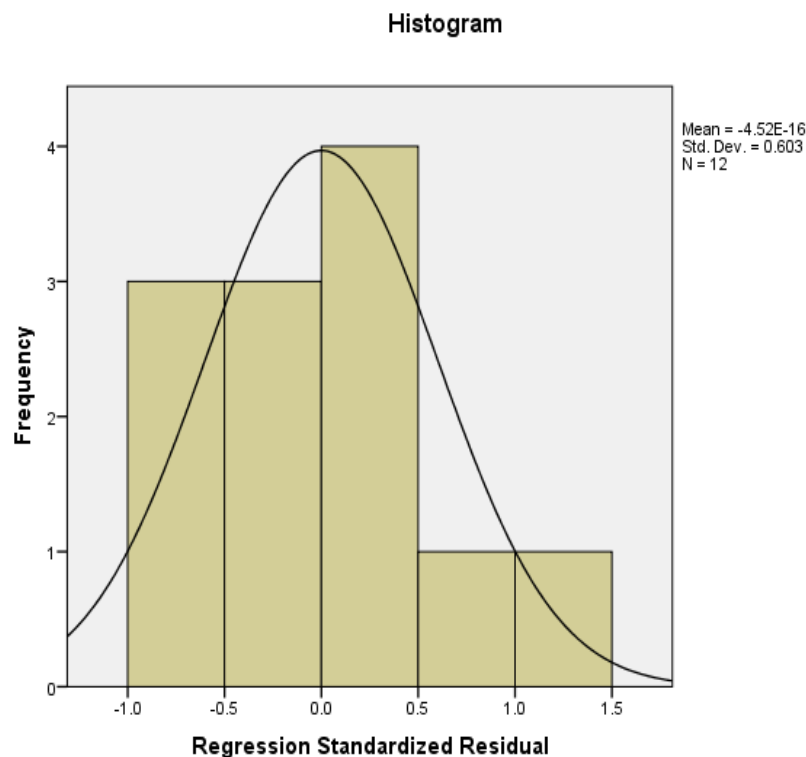
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.651 <sup>a</sup>	.424	-.584	4.538

From the descriptive statistics table above, mean responses of 4.33, 4.00, 4.08 and 4.00 from respondents indicated that e-procurement practices highly improved communication externally with the suppliers, improved transparency during procurement process, helped with monitoring supplier performance and also established mutual trust with vendors. Respondents indicated that e-procurement practices somehow highly improved visibility of supply chain with a mean of 3.83. Respondents indicated that there was moderate impact on reduction of supplier database and centralized control of contracts, product data, catalogues and price updates with a mean response of 3.58 on both performance indicators. From model summary table above, there was a moderate positive correlation of 0.651 between e-procurement practices and supplier management and transparency of procurement in private universities. This

indicated that the performance of procurement in the private universities improved as a result of undertaking e-procurement practices.

This was depicted by the histogram below which shows the distribution of the respondents' responses on effects of e-procurement practices on supplier management and transparency.

Figure 5: A histogram depicting relationship between e-procurement and supplier management



#### 4.5.3 Customer Satisfaction and effectiveness

The researcher sought to establish the impact of Electronic procurement practices on customer satisfaction and effectiveness of private universities in Nairobi county. The responses are indicated in the tables below.

**Table 6: E-procurement impact on effectiveness and customer satisfaction.**

	Mean	Std. Deviation	N
Enhance service Delivery	4.25	.754	12
Shortened procurement cycle	3.92	1.084	12
Improves Contract compliance	3.67	1.231	12
Improves Market intelligence	4.08	.996	12
Reduces Maverick buying	3.42	1.165	12
Promotes Dissemination of info.	4.00	1.128	12
Improves Visibility	3.83	.937	12
Reduce errors in procurement process	4.00	.853	12

**Model Summary<sup>b</sup>**

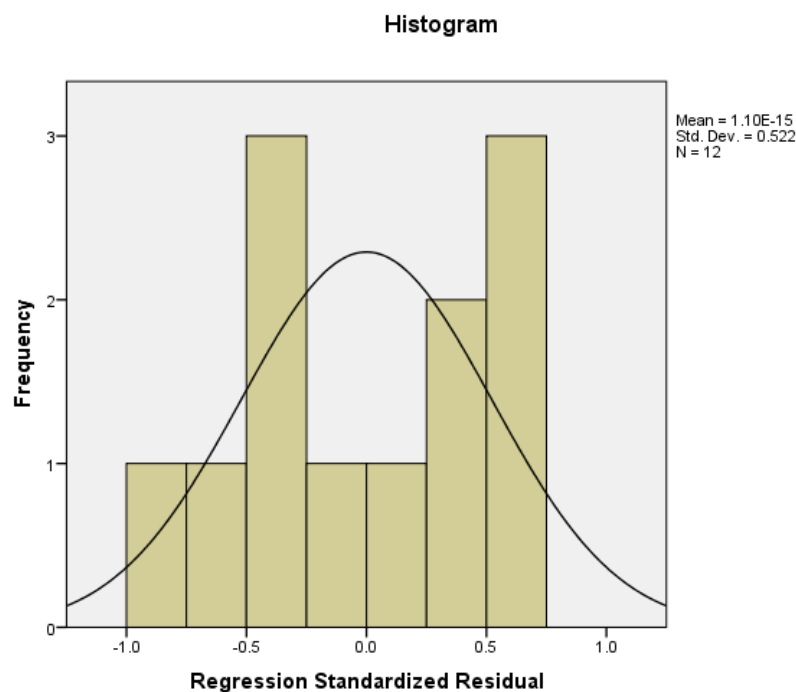
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.870 <sup>a</sup>	.758	.112	3.398

From the descriptive statistics table above, mean responses of 4.25, 4.08, 4.00 and 4.00 from respondents indicated that e-procurement practices highly improved customer satisfaction and effectiveness by highly enhancing service delivery, improving market intelligence, promoting dissemination of procurement related information and reducing errors in procurement process. Respondents indicated that e-procurement practices had a moderate impact on shortening procurement cycle, improving contract compliance, reduced maverick buying and promoting compliance to internal plans and improving visibility of internal customer demand with a mean response of 3.92, 3.67, 3.42 and 3.82 respectively on the above performance indicators. From model summary table above, there is a very strong positive correlation of 0.870 between e-procurement



practices and customer satisfaction and effectiveness of procurement duties in private universities. This indicated that the performance of procurement in the private universities was greatly improved as a result of undertaking e-procurement practices. This can be depicted by the histogram below which shows the distribution of the respondents' responses on effects of e-procurement practices on customer satisfaction and effectiveness.

Figure 6: A histogram depicting relationship between e-procurement and customer satisfaction and effectiveness.



#### **4.6. Limitations of electronic procurement**

The researcher sought to establish the limitations of electronic procurement practices in private universities in Nairobi county. The responses are indicated in the tables below.

Table 7: E-procurement implementation limitations

	Mean	Std. Deviation	N
Inadequate Tech. infrastructure	3.83	1.467	12
Inadequate financial resource	3.75	1.485	12
Lack of skilled personnel	3.58	1.084	12
Lack of integration with partners	3.83	1.115	12
Organization culture	4.17	1.115	12
Lack of std interchange formats	3.92	.900	12
Implementation, training indirect costs	3.92	1.240	12

From the descriptive statistics table above, mean responses of 3.83, 3.75, 3.58 and 3.83 from respondents indicated inadequate technological infrastructure, inadequate financial resources, lack of skilled personnel and lack of integration with business partners were limitations that were somehow limit e-procurement implementation. However organization structure, lack of standards interchange formats for e-procurement and implementation, training and indirect costs were the major limitations that hinder adoption of e-procurement practices. This is captured by the respondents' mean responses of 4.17, 3.92 and 3.92 respectively.

## **CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

In this chapter, the researcher presented a summary of the major findings from the results of the study and the conclusions drawn from them. It also presented the recommendations made by the researcher. This was done in respect to the stipulated objectives in a bid to answer the research questions.

### **5.2 Summary of the findings**

The following are the major findings of the study as per the objectives:

The first objective sought to establish the extent to which Private Universities that operate within Nairobi County practise e-procurement. The researcher identified thirteen (13) private universities which are listed in Appendix I. The findings indicated private universities practise e-procurement to a large extent with most of the procurement activities from approvals to vendor payment being done by use of internet except the use of credit cards to make small repetitive and small purchases. Respondents disagreed on use of credit cards on purchases of office supplies as part of e-procurement with a mean of 2.42. Majority agreed that they have adopted an electronic procurement solution as part of e-procurement practice with their responses having a mean of 4.00

The second objective sought to determine the impact of e-Procurement practices on performance of private universities in Nairobi county. The researcher found out that e-procurement practices had a very high impact on eliminating paper work ,reducing the costs associated with archiving records and administration costs e.g. office space and hiring procurement personnel and also enabled procurement aggregation. This is shown by the mean response of 4.33, 4.00 and 4.42 respectively from respondents on the above three performance indicators. However respondents were neutral on whether e-procurement practices resulted to volume discounts being indicated by a mean response of 3.17. There was a very strong positive correlation of 0.863 between e-procurement practices and the efficiency and dematerialization of procurement duties in private

universities. This indicates that the performance of procurement in the private universities greatly improved as a result of undertaking e-procurement practices.

The researcher found out that e-procurement practices highly improved communication externally with the suppliers, improved transparency during procurement process, helped with monitoring supplier performance and also established mutual trust with vendors. Respondents indicated that e-procurement practices somehow highly improved visibility of supply chain with a mean of 3.83. Respondents indicated that there was moderate impact on reduction of supplier database and centralized control of contracts, product data, catalogues and price updates with a mean response of 3.58 on both performance indicators. There was a moderate positive correlation of 0.651 between e-procurement practices and supplier management and transparency of procurement duties in private universities. This indicates that the performance of procurement in the private universities improved as a result of undertaking e-procurement practices.

The researcher sought to find out the limitations of using electronic procurement practices on private universities within Nairobi county which affected the extent to which e-procurement was practised. The researcher found out that inadequate technological infrastructure, inadequate financial resources, lack of skilled personnel and lack of integration with business partners were the limitations that somehow limited e-procurement implementation. However organization structure, lack of standards interchange formats for e-procurement and implementation, training and indirect costs were the major limitations that were hindered the adoption of e-procurement practices. This is captured by the respondents' mean responses of 4.17, 3.92 and 3.92 respectively.

### **5.3 Conclusions**

To show the impact of electronic procurement on the performance of private universities in Nairobi county, the researcher found out that indeed e-procurement had a positive impact on the performance of the private universities. The researcher identified 13 private universities that are within Nairobi county and also identified the

various electronic procurement practices that were in use in the private universities. The researcher also identified several performance indicators on e-procurement practices which were efficiency and dematerialization, supplier management and transparency and customer satisfaction and effectiveness. All the four correlation coefficients were between 0.65 and 0.90 implying that there was a strong positive correlation between e-procurement implementation and organizational performance.

#### **5.4 Recommendation of the study**

In light of the above findings, the researcher made the following recommendation:

The study recommends that there should be an increase in automation of more procurement activities because of the benefits and the positive impact it brings to organisation's performance. The procurement environment both internally and externally should be evaluated before implementation of e-procurement so as to reap full benefits. This is due to the fact that, implementation of e-procurement requires a significant amount of financial resources.

E-procurement practices should be evaluated to ensure their limitations do not hinder the organization's effectiveness, efficiency, customer satisfaction and cost reduction. Organisations should first evaluate. E-procurement implementation enables integration with other organisations which requires partnership and mutual trust. Also the huge resources required to install, train and maintain e-procurement infrastructure requires organisations to undertake a thorough evaluation in order to ensure the process adds value.

#### **5.5 Limitations of the study**

Time was a major limitation for this study. There was no time allowance for follow up questions in order to clarify on some issues. Some of the respondents also indicated they needed time to understand the questionnaire and due to that, they delegated to their subordinates to respond. There was also lack of cooperation from some respondents and it is because of persistence, since the questionnaire was administered personally that they agreed to complete

### **5.6 Suggestions for further study**

The researcher suggests that more studies should be carried on the the impact of e-procurement on supplier management and procurement process transparency because the respondents were neutral on this issue. The coefficient correlation was 0.65 indicating that, e-procurement somehow impacted on supplier management and procurement process transparency.

Other studies should also be carried out to identify the reasons why organisations are skeptical on the use of purchase cards as a way of e-procurement for small and repetitive purchases. Respondents recorded a mean of 2.2 indicating that less than half of the universities use this mode of purchasing despite this being the fastest way of procurement.

Comparative studies should also be undertaken on extent of e-procurement and impact on performance for public universities. This is due to the fact that procurements for private universities and public universities are conducted differently. Public Universities are guided by the Public procurement Act while the their counterparts in the Private universities are guided by organisation's policies hence they have a free will to implement any good procurement practices.

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## **Appendix II: List of private universities in Nairobi County**

1. Aga khan University
2. United States International University
3. Pan-African Christian University
4. Strathmore University
5. African International University
6. KCA University
7. Kiriri Women's University of Science and Technology
8. Inoorero University
9. Riara University
10. Management University of Africa
11. Genco University
12. Pioneer International College
13. Pan-African University

Source <http://www.cue.or.ke/services/accreditation/status-of-universities>.

### Appendix III. Questionnaire

<b>A. DEMOGRAPHIC DETAILS – please provide some background information</b>					
Name (optional)					
Contact information ( email or telephone number)					
Department					
Level / grade	HOD	Snr manager	Manager	Supervisor	Clerk
Lenth of service.	1-5 yrs	6-10yrs	11-15 yrs	16-20 yrs	+20yrs

<b>B. What are the current E-procurement practices at your organization?</b>					
Please indicate with an 'X' ( 1- strongly disagree, 2- disagree 3- neutral, 4- agrees, 5- strongly agree.)					
We use internet- based technologies to:					
	1	2	3	4	5
E-mail					
Purchase office supplies (use of credit card)					
Source/search for vendors					
Request for bids(RFQ,RFP)					
Online ordering					
Plan and Schedule orders					
Payment to vendors					
Purchase approvals					
Plan and Schedule orders					
Order tracking					
Use the software services of an electronic Procurement solution					

Access on line catalogues					
Search for suppliers					
Visit suppliers Web site					
Develop an integrated supply chain					
Achieve cross functional coordination					
<p>C. What is the impact of E-procurement on performance?  Please indicate with an 'X' ( 1- Very low, 2- low 3- Moderate, 4- High, 5- Very High.)</p>					
	1	2	3	4	5
i) Efficiency and dematerialization					
Reduction of procurement cycle time					
Reduce inventory costs					
Eliminates paper work					
Reduction in archiving costs					
Enables procurement aggregation					
Reduce Administration costs (procurement personnel, office space, etc)					
Results in volume discounts					
ii) Supplier management and transparency					
Reduce supplier data base					
Improve communication externally with the suppliers.					
Improves transparency during procurement process					
Improves visibility of supply chain					
Helps with monitoring supplier performance					
Establishes mutual trust with vendors					
Leads to centralized control of contracts, product data, catalogues and price updates					

iii) Customer satisfaction and effectiveness					
Enhance service delivery					
Shortened procurement Cycle					
Improves contract compliance					
Improved market intelligence					
Reduces maverick buying and promotes compliance to internal plans.					
Promotes dissemination of procurement related information.					
Improved visibility of internal customer demand					
Reduces errors in procurement process.					

<p>D. What are the E-procurement limitations? Please indicate with an 'X' ( 1- least important, 2- less important 3- neutral, 4- important, 5- most important.)</p>					
	1	2	3	4	5
Inadequate technological infrastructure					
Inadequate financial resources					
Lack of skilled personnel					
Lack of integration with business partners					
Organization culture					
Lack of standards interchange formats for E-procurement					
Implementation , training and indirect costs					