INSTITUTIONAL FACTORS INFLUENCING PERFORMANCE OF E-PROCUREMENT IN PUBLIC INSTITUTIONS: A CASE OF PARASTATALS OPERATING IN NAIROBI CENTRAL BUSINESS DISTRICT

BY

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DECLARATION

This research project is my creative work and has not been presented or acquiesced for examination purpose in any other institution for the award of a Masters degree or any other qualification.

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This project is dedicated to my entire family.

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ABBREVIATIONS AND ACRONYMS

ICT - Information Communication Technology

TAM - Technology Acceptance Model

PEs - Procurement Entity

PPOA - Public Procurement Oversight Authority

CBD - Central Business District

IFMIS - Information Management system

SPSS - Statistical Package for Social Sciences

ABSTRACT

Given the impact of procurement actions on the operation and usefulness of public sectors in Kenya, it is indispensable that these activities be carried out by competent staff with highly trained and principled standards and using moral procedures anchored in appropriate policies and regulations.The effectiveness of e procurement in many developing countries has not been satisfactory hence it has not been able to deliver its full potential to organizations especially the public sector ones. The objective of this research is to determine institutional factors that influence the performance of e-procurement in Kenya's public organizations. The study was guided by buyer / supplier integration, the institutions' current ICT infrastructure and leadership as the independent variables while the performance of e-procurement while performance of e procurement was the dependent variable. The regulatory framework is the moderating variable. The research was conducted using descriptive research design. The population of interest for the study was 80 procurement and Information technology managers for Parastatals operating in Nairobi CBD. Since this was a small population, a census approach was adopted. Data was collected using a semi structured questionnaires. The study employed descriptive and regression analysis to determine the nature of the relationship between institutional factors and e-procurement performance. Concerning the first objective, the study found out that buyer supplier integration has a significant effect on the performance of e procurement. However the effect of both leadership support and current ICT infrastructure were not found to have any significant effect on the performance of e procurement. The study recommends that future research should concentrate on the effect of institutional factors on e- procurement in other sectors.

DEFINITION OF TERMS

Information Communication Technology (ICT)-All the technology that are used in handling telecommunications, intelligent building management systems, broadcast media, network-based monitoring and control functions as well as audio-visual transmission and processing systems (Kozma, R. B. 2010).

E-procurement-is the business-to-business model of sale and purchase of services as well as supplies via the internet platform (Swalehe et al., 2015)

Technology Acceptance Model (TAM)-A technology implementation theory positing that the intention to use technology is influenced by the technology's ease of use and perceived usefulness (Teo, 2011).

Parastatal- It is a state owned company or government-owned corporation. It is a legal entity that undertakes commercial activities on behalf of an owner, the government. (WG Moseley - 2010)

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

E-procurement can be defined as the process through which procurement processes within an organization are automated by use of electronic systems and in particular the internet (Swalehe et al., 2015) to enhance efficiency and accuracy in the procurement process. E-procurement can also be perceived as a process by government institutions as well as public sector organizations procure goods and services and tender for works using electronic transaction processing and electronic communications (Ordóñez, 2013). E-procurement is beneficial as it not only leads to an improvement in the level of efficiency by which goods and services are purchased but also improves administration of public procurement processes as well as enhanced performance of markets for government contracts.

In the public sector, E-procurement is of great value particularly because over 50% of public sector expenditure covers an array of goods, services and equipment (Swalehe et al., 2015). It is, therefore, important for concerned stakeholders in the public sector to look into e-procurement and how it can be employed to enhance the performance of public sector institutions. Research shows that in the public sector, e-procurement has not been effective in many jurisdictions (Knight et al., 2012). This can be attributed to such factors as inadequate resources (capital and skills), corruption, frauding, poor government policies, lack of managerial support, fear of uncertainty and volatility in the information technology environment.

1.1.1:Concept of E-Procurement Performance in the Public Sector

Governmental institutions across the globe have been adopting e-procurement practices in a bid to benefit from improved efficiency among other benefits. It is, however, worth noting that the rate of adoption has significantly varied from one organization to another depending on the size

of the organization, the cost of the software among other factors. Eadie et al. (2011) conducted a study to investigate the use of e-procurement in private and public sectors within the UK construction industry. There has been an increase in the level of adoption of e-procurement in countries all over the world. Whereas the adoption rate has been high in developed countries, the adoption of e-procurement is been significantly slow in developing countries like Indonesia. According to Hill (2014) e-procurement adoption offers opportunities and challenges for developing countries.On the one hand, e-procurement gives hope for improvement in transparency. On the other hand, e-procurement presents a challenge to stakeholders in the public sector to adopt transparent procurement practices. Therefore, public policy and management attitude are some of influential factors in the adoption of e-procurement.

Within the wider East African region, governments have become increasingly committed to delivering higher levels of efficiency and effectiveness and value for money in terms of managing public resources. E-procurement has gained prominence on the discourse about e-governance and efficiency delivery. Basheka et al. (2012) conducted a study to investigate critical success factors in the implementation of e-procurement in the public sector in Uganda. The study established five critical success factors for e-procurement in the Uganda's procurement sector. They include enhanced risk management procedures, careful choice and involvement of suppliers, redesign of organization practices, a careful choice of suppliers of software and using experienced e-procurement consultants.

The Tanzanian government has also been at the fore-front in the implementation of e-procurement practices. Suleiman (2015) carried out a study to investigate the adoption of e-procurement in the case of Tanzania's public sector. The findings of the study showed that Tanzania is at an infantry stage in the implementation of e-procurement just like most of developing countries. The study further established factors that could hinder the implantation of e-procurement in Tanzania. The factors identified include inadequate policy and legal

framework, procurement processes, institutional structures, challenges inherent in the information communication technology field and the inadequacy of skilled personnel.

Swalehe et al. (2015) conducted a study to find out factors that hinder the implementation of e-procurement in Kenya's public sector. The study focused on Voi Constituency. The study established that even though e-procurement has immense benefits in the public sector, the pace of its implementation has been significantly slow. A number of factors can be attributed to the slow implementation e-procurement in Kenya. They include lack of necessary resources including financial technological, personnel among others.

Corruption has also been sighted as one of the deterrent factors to the implementation of e-procurement in Kenya's public sector. In the absence of e-procurement practices in Kenya's public sector, the cost of procurement can be significantly high. According to Arrowsmith and Quinot (2013) public training institutions in Kenya lose an average of Ksh.50 million due to inefficiency in procurement.

1.2: Statement of the Problem

Traditional procurement has been a thorny issue in many institution and governments this is way there has been need for a more robust E-procurement methods. This new methods has not been rosy but and has faced numerous challenges over the years. The procurement function in Kenya has been pigeonholed by several scandals accredited to poor management of procurement information thus leading to high corruption (Thai, 2009). This results to the need to have an efficient computerized e-procurement system to enhance competitiveness, intelligibility and reduced costs (Ogot, 2009). This is significant since 60% of government expenditure is spent through public procurement.

Locally Mburu (2011) did a study on the function of e-procurement in enabling competence in telecommunication industry. Mose (2013) did a study on the critical success factors and

challenges in e-procurement adoption in large manufacturing firms in Nairobi, Kenya and Makau (2014) studied on the challenges facing the adoption of electronic procurement in public sector.

A survey done on February (2015) by national treasury showed that 30 per cent of the state corporations have in part automated procurement systems while 14 per cent had fully computerized their procurement process. The treasury indicated that emphasis on e-procurement system is to ensure clearness in how tenders were given out. Estimates by the Treasury showed that the government losses more than Sh70 billion annually due to deceitful manipulations in procurement process. KenGen was identified to have fully implemented e-procurement system though the system was not conferring the expected benefits (Wanzala, 2015).

The importance of e-procurement cannot be gainsaid. Bhusry (2005) avers that it brings a high level of convenience in the production, marketing and distribution of merchandise. (MacGregor and Vrazalic, 2007). Despite such benefits, the performance of e-procurement in the public sector in Kenya using the IFMIS platform has not been satisfactory with evidence of stock outs and corruption in e procurement among public corporations in Kenya (Ateto, Ondieki & Okibo, 2013).Thus in spite the stated desire to reduce corruption and enhance efficiency in public procurement through e procurement, in recent years there has been a rise procurement corruption and inefficiency in public organizations in Kenya thereby casting aspersions of the ability of the e procurement to perform optimally and deliver on its promise. According to Gichio (2014) many government initiated projects have been marred in procurement corruption scandals resulting into the loss of huge amounts of money.

In Kenya a number of studies have been undertaken in the area of e procurement. For instance Swalehe et al. (2015) conducted a study to find out factors that hinder the implementation of e-procurement in Kenya's public sector and found financing as a major challenge towards the implementation of e procurement in Kenya. Further Makau (2014) carried out a study to find

out challenges that face the adoption of electronic procurement in Kenya's public sector and reported that e procurement has not achieved its intended benefits. The study recommended that further research should be done on the e procurement performance. While these studies have focused on factors affecting e procurement, this study were specifically explore institutional factors affecting e procurement performance in public sector in Kenya.

1.3 Objectives of the Study

The objectives of the study include the general objective and specific objectives

1.3.1 :General Objective

The aim of the study is to investigate institutional factors influencing the performance of e-procurement in public organizations using the case of Parastatals operating in Nairobi.The following are specific objectives

The research study were seek to achieve the following objectives:

i. To evaluate the effect of buyer/supplier integration on the performance of e-procurement among public sector institutions.
ii. To assess the effect of leadership support on the performance of e-procurement among public sector institutions.
iii. To evaluate the effect of the public institutions' current ICT infrastructure on the performance of e-procurement among public sector institutions.

1.4 Research questions

The research were seek to answer the following research questions:

i. What is the effect of buyer/supplier integration on performance of e-procurement in the public sector institutions?
ii. What is the effect of leadership support on performance of e-performance in the public sector institutions?

iii. What is the effect of the public institution's current ICT infrastructure on performance of e-procurement in the public institutions?

1.5 Significance and Justification of study

E- Procurement plays a critical role in the national economy as it enhances organizational competitiveness and leads to more efficiency in procurement (Hope, 2012). However the performance of e procurement in Kenya has been affected by a number of organizational issues that has curtailed its effectiveness. Studies that have been conducted in this area have in the past given contradictory conclusions.

Swalehe et al. (2015) concluded that the performance of e procurement has been effective and has not been largely negatively affected by institutional factors while Makau (2014) produced evidence that suggested that e procurement has not performed optimally because of inability to align institutional issues with e procurement procuring entities (PEs). This shows that there have been no conclusive studies done in this regard. This study will therefore provide an understanding on the institutional factors affecting performance of e procurement among public institutions in Kenya. The findings of this study contributed to the development of literature in e-procurement. Future scholars would, therefore, use the findings of the current research to increase their knowledge of the e-procurement field and particularly on factors influencing successful performance of e-procurement.

The findings of the study were also useful to the management and stakeholders in public procurement particularly on how to develop appropriate legal regulation environment that would enhance e-procurement. The study also provides recommendations on how implementation of e-procurement can be enhanced in Kenya's public sector. The implementation of such recommendations leads to enhanced transparency in procurement, improved efficiency, and effectiveness and reduced cost of procurement.

The research will benefit suppliers to the government, government employees as Parastatals managers in ensuring a seamless supply chain network. The current research were also be useful to suppliers of e-procurement technology as it provides recommendations on how to ensure successful e-procurement in effect increasing its adoption in the country. The current research was also beneficial to scholars in the field of procurement as it would aid in building theory on e-procurement. The researcher will benefit from this study by achieving her academic goal for submitting and passing this research.

1.6 Scope of the study

The study is focusing on three variables that influence e-procurement adoption in the public sector namely; buyer-supplier integration, leadership support and ICT infrastructure (financial support). The study is seeking to investigate the influence of the aforementioned factors on the performance of e-procurement in the public sector in Kenya. Literature review is carried out on past research studies in the field of procurement.

Data was obtained from Procurement Managers and ICT Managers in charge of procurement departments in public institutions. These officers were selected as respondents because of their knowledge and experience in e procurement and therefore, were able to provide adequate information on e-procurement in public organizations. The study was conducted on institutional factors influencing the performance of e-procurement in public organizations using the case of Parastatals operating in Nairo

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature on institutional factors that influence performance of e-procurement in the public sector. The chapter presents a review of past studies on the institutional factors that influence the performance of e procurement in the public sector. The review is conducted on scholarly material on the performance of e-procurement and how it is influenced by institutional factors (Horn and Staker, 2014). This chapter is composed of five sections. The first section presents a theoretical framework that forms the basis of this study. Under this section, three software implementation theories are discussed. The second section presents a summary of empirical literature on each of the three institutional factors influencing performance of e-procurement in public institution. The third section identifies the research gap. The fourth section is the conceptual framework forms the basis of this study and finally Operationalization of variables is outlined in the fifth section of the chapter.

2.2 Theoretical Framework

Three theories form the foundation of this study. They include the disruptive innovation theory, Software Engineering Process Theory and Technology acceptance model. These theories are discussed paving way for the development of a theoretical framework for the study.

2.2.1 Disruptive Innovation Theory

The Disruptive innovation theory advances a philosophy by which the occurrence of a new innovation leads to the creation of a new value network and new market that eventual displaces the existing value network and market. A disruptive innovation also leads to the displacement of existing market leaders creating a completely new market environment. It is worth noting that not all innovations that occur are disruptive in nature (Christensen, Horn and Johnson, 2011). An innovation is only considered to be disruptive if it has the potential of bring forth a

revolution in the manner in which goods and services are consumed in the market. The innovation also creates a new market by applying a unique set of values that ultimately overtakes the existing market. According to Danneels (2004) disruptive innovation seeks to introduce different features price attributes as well as performance attributes of a product or service that may be unattractive to mainstream customers at the time of introduction. However, after some further development of the product, the consumers end up liking the new product's attributes thus switching from old products.

The disruptive innovation theory can be understood from three main points of view: low end distributive innovation, new market and high end disruptive innovation. Each of the aforementioned viewpoints applies to the delivery of products or services based on the specific objectives of the concerned stakeholders (Horn and Staker, 2014). Established firms are under constant pressure to sell more products and services to high-end customers who are not price sensitive. Selling to this class of segments enables the firms to maximize their profits through charging premium prices. Firms are, therefore, constantly involved in innovation and development of technologically improved service delivery and product offerings.Disruption, therefore, plays a critical role in ensuring that firms maintain high levels of competitive advantage in the market thus leading to superior levels of financial performance. This technological innovation is not only restricted to the high-end market, it is also evident among firms that sell goods and services to the low-end market although at a considerably lower level. Disruptive innovations in the new market do not compete with existing firms (Christensen and Raynor, 2003). Instead, such innovations lead to the creation of products that are completely new attracting a considerably large number of customers. The disruptive innovation theory can be used to shed more light on the impact of institutional factors on e-procurement in the public sector. The development of e-procurement as new way of carrying out procurement functions represents significant innovation in the public sector.

This innovation seeks to bring a revolution in the manner in which products and supplies are sourced within public sector institutions (Grant, Hackney and Edgar, 2010). As this innovation is implemented in the public sector, various disruptions occur within the private sector. For instance, procurement managers no longer have to rely on offline and paper-work dominated procedures in carrying out procurement functions. It also brings forth a shift in the number of nature of suppliers and members of the supply chain because in the new platform, the choice of the supply is based on their possession of appropriate e-procurement infrastructure and compliance with e-procurement procedures and regulations (Horn et al., 2014). Indeed, the disruptive nature of e-procurement partly explains varying attitudes of stakeholders towards the e-procurement implementation.

2.2.2 Software Engineering Process Theory

The Sense making-Coevolution-Implementation Theory is a theory used to explain the manner by which complex software systems are developed and implemented by software developing teams within organizations. According to this theory, an independent agent, the design team, develops software by carrying out three alternative activities (Pani and Agrahari, 2007). The first activity is for the software design team to organize its perceptions of the context or situation requiring the development of software. The second activity involves the members of the design team mutually comprehending the context within which the software would be designed as well as the design space (Naveda and Seidman, 2013).

The third activity involves the software design team demonstrating their understanding of the situation by coming up with a technological artifact that reflects an appropriate solution to the problem at hand (Kimbrough and Wu, 2005). This theory plays a very important role in enhancing the understanding the circumstances that lead to the development software and its subsequent implementation. The understanding of this theory sheds more light on the manner in which complex software systems are developed and subsequently implemented in

organizations. Further, theory provides background understanding on factors that influence the acceptance and implementation of particular software systems.

This theory of software development and implementation can be used to understand the institutional factors influencing performance of e-procurement in public institution. The process undertaken by the design team creating the software has a great influence over the outcome of the product. The design team enhanced understanding of the context constitutes significantly to the acceptance of the software and the subsequent implementation (Pharr and Humphreys, 2010). On the other hand, if the design team fails to understand one or more aspects of the context, the software developed may effectively address the needs of clients and hence, its implementation may be faced with a significant number of challenges. From this theoretical perspective, it can be understood that the extent to which e-procurement would be implemented is significantly influenced by the software design process and whether or not the design team clearly understands the client situation and client needs (O'Connor et al., 2011). It is, therefore, crucial for the design team to take all necessary procedures to make sure that the e-procurement developed effectively addresses client needs in order to promote its acceptance and subsequent implementation.

2.2.3 Technology Acceptance Model

According to the technology acceptance model, the perceived ease of use and perceived usefulness of particular information system determine a person's intention to use it. In this case, the intention to use the information system acts as a mediator of the actual use of the system. It is also worth noting that the perceived ease of use of the perceived ease of use of a technology impacts on the perceived usefulness of the technology (Teo, 2011).The technology acceptance can be illustrated as shown in the diagram below:

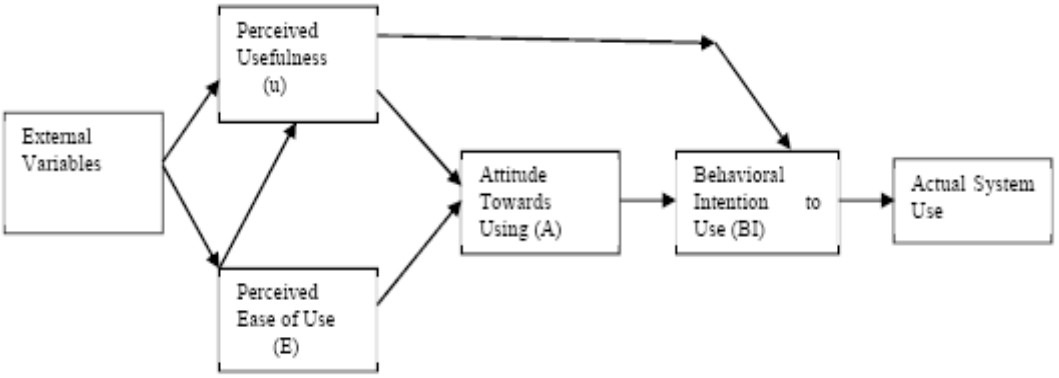

Figure 2. 1: The Technology acceptance model

Source: Teo (2011 p 665)

From the above figure, it can be noted that the intention to use a particular information system is determined by two variables: the perceived ease of use of the system and its perceived usefulness. The two variables then influence the user's attitude towards the system further determining the behavioral intention to use the system (Venkatesh et al., 2003). Eventually, the behavioral intention to use the information system determines the actual use of the system. According to this model as long as a person has formed an intention to use the information system, he or she were use the system without any limit. If a particular information system is perceived to be easy to use, then such a system is considered useful to people (Ordóñez, 2013). Therefore, people were form intentions to use the system and eventually end up using it.

The technology acceptance model forms a theoretical foundation for studying institutional factors influencing performance of e-procurement in public sector. Just like any other information system, an e-procurement platform would be increasingly used if it is perceived to be useful based on its ease of use. If concerned parties have reasons to believe that the e-procurement platform is easy to use, then chances are high that they were applying platform in completing sourcing functions.

The ease of use an e-procurement platform influences the perceived usefulness of the platform and hence, the likelihood that it would be used in the institution in question (Khosrow-Pour, 2013). In fact, when considering institutional factors that influence e-procurement

implementation, leadership support is one of the institutional factors that work concurrently with the perceived usefulness. If the leadership in the organization is convinced that an e-procurement platform is easy to use, chances are high that they were support its implementation as they considered it to be more usefulness that other platforms that have a low ease of use rating (Bwalya, 2014). The understanding of the technology acceptance model, therefore, plays a very important role in understanding the institutional factors that influence performance of e-procurement in public sector. The technology acceptance model contributes significantly to the formulation of the theoretical framework regarding the impact of institutional factors on e-procurement in the public sector.

2.3 Empirical Literature

There was consideration of theories advanced by different scholars around the world regarding e- procurement and what they purport about e-Procurement.

2.3.1 Effect of Buyer /Supplier Integration on E-Procurement Performance

The effect of buyer- supplier integration on the performance of e procurement is well documented in literature. Croom and Brandon-Jones (2005) study on the performance of e-procurement in the UK public sector provided findings that showed that buyer/supplier integration plays a very important role in ensuring successful e-procurement procedures and practice. Such integration enhances the effectiveness of the procurement system thus boosting the chances of success for e procurement.

This indicates that it is essential for organizations that all suppliers are incorporated in the e-procurement system for successful e-procurement. Nurmandi and Kim (2015) demonstrated that the links between the organization and its supplier were essential to the success of the e-procurement platform. These findings are consistent with Muhia (2015) study that established that to ensure successful e-procurement, there has to be an effective means of communication link between the supplier and the buyer.Nurturing effective Buyer-supplier relationships should

be a priority to public firms that is, a cooperative relationship between buyers and suppliers must precede an IT-based inter-organizational linkage for successful e-procurement implementation (Mose et al., 2013). Buyers and suppliers need to freely share information so as to facilitate an effective e-procurement execution. Chae, Yen and Sheu (2005) carried out a study to investigate the moderating effect of buyer-supplier relationships on the effectiveness of information technology and supply chain collaboration and found out that a cooperative relationship between buyers and suppliers plays a very important role in ensuring the success of e-procurement. This is only possible if the two partners establish a relationship of mutual trust, interdependence and one that is based on the two partners' desire to achieve long term objectives. These findings back the assertions of Carr and Smeltzer (2002) who established that buyer-supplier relationships greatly influence information sharing within an e-procurement platform ultimately influence its implementation.

Studies in Kenya have also explored the integration of buyer- supplier relationships. For instance Muriithi et al. (2015) carried out a study to find out factors that influence e-procure within Kenya's energy sector and reported findings that suggested that the performance e-procurement within the Kenyan energy sector was undermined by poor buyer-supplier integration within the company's electronic supply chain system. Buyer-supplier integration has a strong positive impact on the success of e-procurement platforms. These assertions are shared by Makau (2014) show insists that buyer-supplier integration plays an integral role in e-procurement implementation by streamlining the flow of information and electronic documents relevant in the procurement process. Smart (2010) study on the implementation of e-procurement and its role purchasing management showed that the buyer-supplier relationship is an essential component of e-procurement implementation.

The relationship between buyers and suppliers and the manner in it is integrated in the e-procurement system has a great impact on the success of the platform. It is essential for the buyers and suppliers to freely share information and interact seamlessly for successful

implementation an e-procurement platform. A study conducted by Clark et al. (2012) had similar findings whereby it was established that the successful e-procurement implementation is preceded by well seamless buyer-supplier integration. This shows that buyer supplier integration is key to the performance of e procurement.

2.3.2 Effect of Leadership Support on E-Procurement Performance

The role of leadership in the procurement process is well explored in literature. Leadership support for procurement involves the provision of necessary facilities, training of personnel and putting in place an effective e-procurement management system. This leads to an improvement in the adoption and efficacy of e-procurement (Greunen et al., 2010).

Leadership support plays a very important role in the successful implementation and performance of an e-procurement system. Makau (2014) carried out a study to find out challenges that face the adoption of electronic procurement in Kenya's public sector. And found evidence that showed that apart from factors like employee competence and supportive procurement regulations, leadership and top management support and commitment plays a very important role in successful e-procurement implementation. It is, therefore, essential for the management of an organization to provide adequate support to members of the organization to bring forth successful e-procurement implementation. The findings of the above study are in line with the findings of a similar study by Eadie, Perera and Heaney (2010) it was established that lack of managerial support was one the barriers to e-procurement success in the UK.

Beyond management support, leadership plays a big role in making the e-procurement systems full proof and corruption free Swalehe et al. (2015) identified corruption as one of the factors that inhibit e-procurement adoption, performance and effectiveness in Kenya's public sector. Corruption thrives in an environment where procurement practices present loopholes for individuals to embezzle funds. The implementation of e-procurement has the effect of reducing corruption because of its transparent nature.

Therefore, managers and stakeholders who are used to corruption would not wish to adopt e-procurement because it would reduce their chances of engaging in corruption. Therefore, corruption stifles the effectiveness and performance of e-procurement in the public sector in Kenya. According to Mose et al. (2013) resistance to change by employees presents a challenge to the adoption of e-procurement in the public and private sector in Kenya. Employees as well as some members of the management view e-procurement as a potential threat to their employment positions as well as other opportunities for personal progress in the organization (Fernandez and Vieira, 2015). As a result, they tend to oppose the adoption of e-procurement practices in the organization. Employees resist changes brought forth by e-procurement as they perceive such changes as likely to cause their loss of employment positions. A section of the management also resists changes brought forth by e-procurement as it minimizes their opportunities to engage in corruption.

E procurement takes many forms. Mose et al. (2013) investigated factors affecting e-procurement among large scale manufacturing firms in Nairobi Kenya and provided evidence that showed an impressive adoption of e-procurement among large scale firms in Kenya and showed that leadership is an important factor especially in aligning employee attitudes with the requirements of e procurement. The biggest barriers to successful e-procurement implementation include employees' resistance to change, the company's board's failure to approve e-procurement adoption, old and outdated information technology equipment and lack of managerial support (Makau, 2014). The findings are in line with the findings of a study conducted by Shalle, Guyo and Amuhaya (2013) in which it was established that adequate managerial support significantly enhances the success of e-procurement implementation in an organization.

Lack of managerial support is at the heart of the problems affecting the performance of e procurement systems. Swalehe et al. (2015) showed that among the major challenges facing e-procurement systems in Kenya's public sector is corruption, inadequate resources, inadequate

government policies, employees and managers' fear of the unknown, the dynamic information technology environment and lack of managerial support. Lack of managerial support has been cited by the author as one of the most crucial determining factors of successful e-procurement implementation. This is the case because almost all other factors can be influenced by managerial support.The management has the power to influence employees into rallying behind the new e-procurement system as well as providing the necessary financial among other crucial resources. Therefore, lack of managerial support almost certainly stalls any e-procurement implementation plans thus hampering its ability to operate optimally. These sentiments are also shared by Croom and Brandon-Jones (2005). Similar findings were reported by Nurmandi and Kim (2015) who investigated the implementation of e-procurement in decentralized governmental system of Indonesia and showed that a high level of top management support led to improved efficiency and effectiveness of an e-procurement implementation initiative in the public sector. Managerial support is, therefore, a critical success factor in bringing forth improved e-procurement implementation in the public sector (Korir et al., 2015). The foregoing review demonstrates the effect of leadership on the performance of e procurement.

2.3.3 Effect of Current ICT Infrastructure on E-Procurement Performance

E-procurement can be defined as business-to-business, business-to-government or business-to-consumer sale and purchase of goods, services and work via the internet (Patricia, 2012). The e-procurement value chain contains the following components: e-tendering platform, e-auctioning, catalogue management, vendor management, order status, purchase order integration, e-invoicing and e-payment. Under an e-procurement platform, technical sanctions and administrative authorizing of transactions is conducted using an electronic format. There has been a significant rise in the uptake of e-procurement in the public sector across the globe as a result of the various benefits accrued to this platform (Smeltzer, 2002). Firstly, e-procurement leads to an increase in efficiency of the procurement process.

E-procurement eliminates excessive paper work that would otherwise consume a lot of employees' time and energy. Secondly, the e-procurement platform is associated with huge cost savings. When procurement functions are conducted via an online platform, the number of employees involved in the process is reduced as well as the costly paperwork. In the long run organizations that make use of the e-procurement platform achieve huge cost savings. Thirdly, e-procurement improves transparency within the procurement process thus reducing corruption and saving public resources.

The importance of infrastructure in e procurement cannot be gainsaid because e procurement itself is mounted on a technology platform. A study by Muhinda (2015) showed that access to appropriate e-procurement technologies and their adequate integration with existing organizational platforms is critical to successful e-procurement implementation and efficacy of the entire system. In third world countries where infrastructure is still a challenge, the deployment of e procurement is not satisfactory. Beauvallet, Boughzala and Assar (2011) showed that the performance of e procurement in developing countries is hampered by poor connectivity and inadequate access to appropriate technological platforms. Otieno et al. (2013) conducted a study to find out factors that influence e-procurement in companies in Kenya and revealed that the value of e-procurement, e-procurement models and e-procurement infrastructural capability influenced the performance of the entire e-procurement system. Thus the development of a good internet infrastructure should precede the implementation of e procurement. Kim (2015) carried out a research to find out factors that influence e-procurement in the decentralized system of the local government in Indonesia and established that e-procurement can only be successful if the government can come up with a comprehensive system by which complex online systems are integrated with relevant databases. Linking the e-procurement system to the financial management system is crucial in order to enable the online payment system for all suppliers. The findings of this study are in line with the findings of a similar study conducted by Engström, Wallström and Salehi-Sangari (2009) in which it was

established that an effective system-to-system integration facilitates successful e-procurement implementation.

There has been considerable increase in the number of public institutions adapting e-procurement. The increase in e-procurement implementation in the public sector is has been driven by the many benefits associated with the platform such as enhanced transparency, improved efficiency and increased cost savings (Makau, 2014). Despite these benefits, there are still public sector organizations that have experienced challenges in implementing e-procurement thus slowing down the entire process.

Empirical literature shows that the extent of e-procurement implementation varies from one country to another depending on various factors. For instance, in their study Laryea and Ibem (2014) establish that e-procurement in the South Africa public sector and particularly in the construction sub-sector e-procurement implementation has considerably lagged behind. The slow rate of e-procurement implementation can be attributed to various barriers. The barriers to e-procurement implementation in the South African public sector include inadequate ICT infrastructure, inadequate personnel with adequate knowledge and skills in ICT and e-procurement, poor access to ICT infrastructure by some firms and inadequate legal and legislative framework to support the implementation of e-procurement. A number of research studies have been conducted to find out institutional factors that influence e-procurement implementation in the sector. The literature on this subject is reviewed in this section. The institutional factors are classified into four categories: leadership support, buyer/supplier integration, legal and regulatory framework and financial support.

Njuki and Kagiri (2015) carried out a study to investigate factors that influence e-procurement in country governments showed that all the three factors (IT infrastructure, employees' technological skills and financing) had a positive correlation with e-procurement in Nairobi City County. The study's findings are in line with findings of a study conducted by

Kamarulzaman and Mohamed (2013) in which it was established that IT infrastructure significantly influence e-procurement implementation and performance.

2.4 Research Gap

Most of the literature reviewed in this chapter showed a positive relation between such factors as management support, and buyer supplier integration on successful e-procurement implementation and performance. However, there is inadequate research on the financial policies on environment and how it impacts on e-procurement in the public sector. It is also important to note that the available literature on the impact of the financial legal policies and environment on e-procurement concerns other countries across the globe and non-public institutions. Few studied on the relationship between the financial policy environment and e-procurement performance focus directly on Kenya's public sector. This research is, therefore, conducted in order to fill this knowledge gap. This research focuses on the influence of buyer-supplier integration, leadership support and financial support on e-procurement performance in Kenya's public sector.

2.5: Effect of Legal and Regulatory Framework on E-procurement Implementation

The effect of the legal and regulatory environment on e- procurement has been explored by a number of studies such as Fernandes and Vieira (2015) who carried out a study to evaluate public e-procurement impacts in small and medium enterprises that identified the complex legal framework governing e-procurement as one of the barriers to e-procurement implementation within the public sector. The findings of this study are in line with Tavares' (2010) assertions that the complex legal environment hampers the implementation of e-procurement.

Kirimi and Shalle (2014) conducted a study to investigate factors that influence e-procurement within government ministries in Kenya, focusing on the national treasury. And reported that budget allocation organizational structure, skilled manpower and government policy influenced the success of e-procurement implementation. The government policy adopted as well as

regulations used in governing e-procurement practiced has a great influence on the success of the e-procurement implementation (Ateto, et al, 2013). It is, therefore, crucial for the management of the government to ensure that appropriate, policies and regulations are in place to govern implementation of e-procurement system. Further Eadie, Perera and Heaney (2010) carried out a study in order to find out drivers and barriers of e-procurement in the UK construction industry and found evidence that showed that the regulatory framework governing e-procurement is one of the most influential factors in e-procurement implementation.

In some organizations, e-procurement could not be effectively implemented due to stringent regulations that made it difficult for the management to apply a number of e-procurement initiatives. Owing to challenges associated with electronic authorization transactions, the government had in place very stringent measures aimed at curbing fraud within the procurement function. This called for the formulation and implementation of a strict regulatory framework that made it difficult for the management to control promote e-procurement implementation. It is also notable that when strict regulations are put in place, the management in charge of e-procurement implementation is compelled to spend huge financial resources consulting with legal professionals on how to go about e-procurement functions (Ateto, Ondieki, & Okibo, 2013). This has also slowed down the implementation of e-procurement within the public sector. To improve the implementation of e-procurement, it is essential for the government to come up with policies and regulatory frameworks that are supportive of the practice. Such policies will encourage the use of information technology in completing sourcing transactions leading to an improvement in the performance firms in the public sector.

In Kenya studies on the effect of the legal environment one procurement have been explored by Kangogo and Gakure (2013) who conducted a study to find out factors that influence the implementation of e-procurement in Kenya's automobile sector and established that e-procurement has been increasingly hampered by excessive regulatory and legislative barriers within individual organizations and at the national level. This research is in line with findings of

a similar study conducted by Beauvallet, Boughzala and Assar (2011) which established that one of the main barriers to full implementation of e-procurement in the public sector is the complexity associated with the juridical context under which e-procurement has to be implemented. Other countries like Portugal have not incorporate de-procurement laws in the national legislative framework further derailing the full implementation e-procurement in the public sector (European, 2012).

2.6 Conceptual Framework

This research sought to find out the influence of three institutional factors on performance of e-procurement in the Kenya's public sector. The three factors in question were management support, buyer-supplier integration and ICT infrastructure. Management support as a factor that influences e-procurement includes how the management perceived the benefits of e-procurement and their support in terms of creating suitable policies training employees and putting in place suitable infrastructure. Buyer-supplier integration refers the relationship between suppliers and buyers and how these relationships enhanced through effective communication, sharing of information and maintaining mutual trust. Financial support refers the amount and adequacy of financial resources set aside by the management to facilitate e-procurement implementation and performance. The conceptual framework can be illustrated as follows;

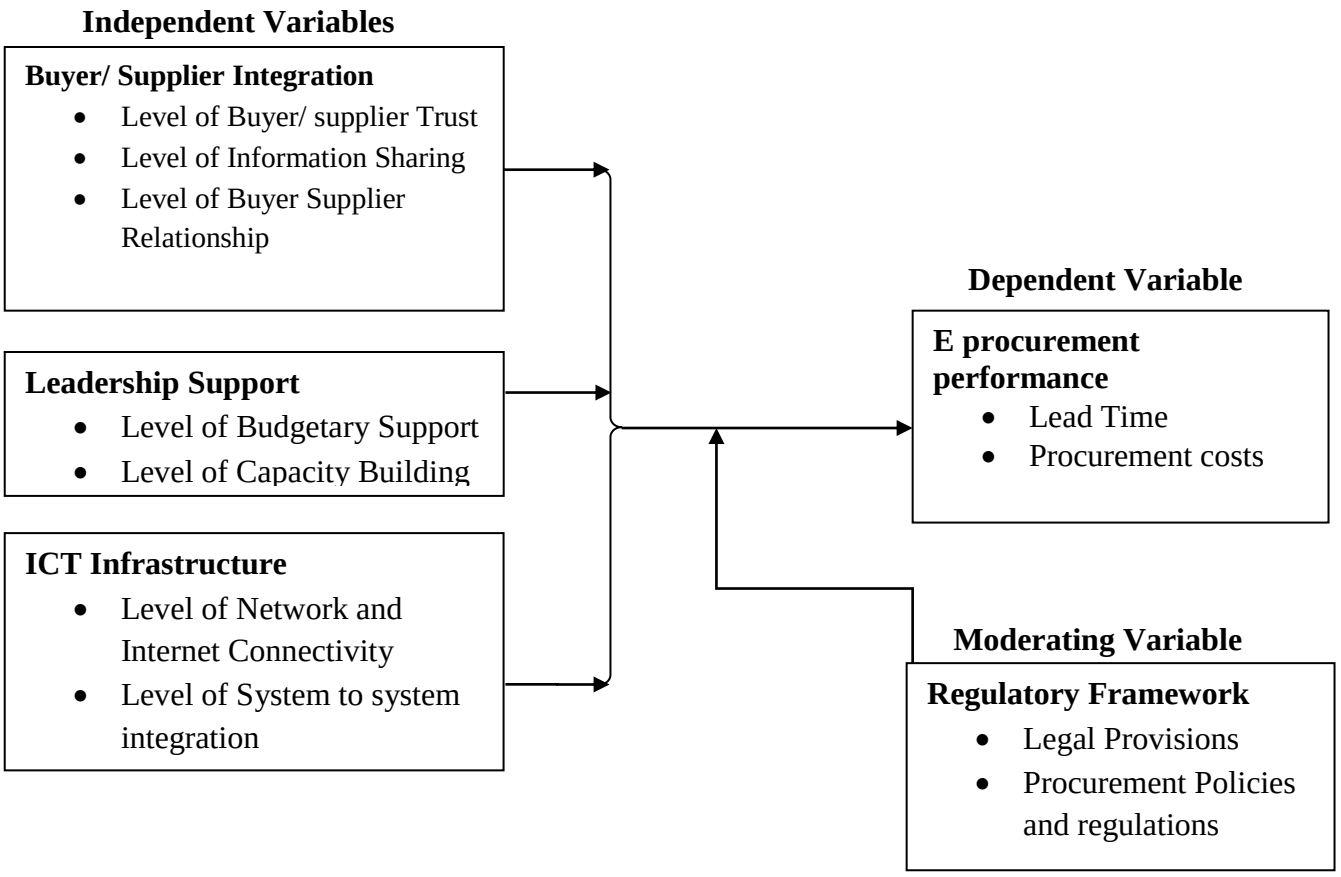

Figure 2.2: Conceptual framework

Source: Author

2.7 Hypothesis of Study

H_o1a: Buyer / Supplier integration has no significant effect on the performance of e procurement

H_o1b: Leadership support has no significant effect on the performance of e procurement

H_o1c: Current ICT infrastructure has no significant effect on the performance of e procurement

H_o1c: The regulatory framework has no significant moderating effects on the relationship between institutional factors on performance of e procurement

2.7 Operationalization of Variables

This section analyses the operational definition of variables the study is to investigate institutional factors influencing the performance of e-procurement in public organizations using the case of Parastatals operating in Nairobi. The operation of the variables is as shown below;

Table 2. 1: Operationalization of Variables

Objectives	**Variables**	**Indicators**	**Measurement**	**Tool of Analysis**
To evaluate the effect of buyer/supplier integration on the performance of e-procurement among public sector institutions.	Buyer supplier relationship	Buyer/ supplier Trust	Supplier response, number of risks encountered.	Regression
		Information sharing	Flow of information, materials and finances	Regression
		Supplier partnership and Performance	Reduced Lead time and quality products	Regression
To assess the effect of leadership support on the performance of e-procurement among public sector institutions.	Management support	Budgetary approval	Suitability of transaction policy, establishing of ICT infrastructure	Regression
		Capacity Building	Number of staff with technical capability and their output	Regression
		Systems Monitoring	Sales volume, Number of requisitions processed and delivered timely	Regression
To evaluate the impact of the public institutions' current ICT infrastructure on the performance of e-procurement among public sector institutions.	ICT tools and software	Network and Internet Connectivity	Level of electronic connectivity	Regression
		A System to system integration and automated Workflow,	Number of automated operations	Regression
To determine if the regulatory framework has significant moderating effects on the relationship between institutional factors the performance of e procurement	Regulatory framework	Legal provisions Procurement policy Procurement law	Number of laws	Regression

Source: Author

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methods that were used to collect and analyze data in order to investigate institutional factors influencing performance of e-procurement in public organizations. This chapter cover's the research design, data collection procedures as well as validity and reliability respectively. The last section of the chapter presents a description of the data analysis and presentation method.

3.2 Research Design

A research design can be defined as a framework developed with the main objective of finding out solutions to the research questions. This research employed a descriptive research design. In descriptive research, data is collected to provide descriptions about an organizations, persons, phenomenon or settings (Bergh and Ketchen, 2009). In a descriptive research, variables relating to a particular phenomenon are measured and recorded in the most accurately manner by making use of a representative sample. Descriptive research presents suggestions on causal relationships that can be tested in an experiment. The descriptive research design is also appropriate particularly in eliminating bias within the research hence leading to a high level of reliability (Kothari, 2008).

3.3 Instrumentation and Data Collection

This research was using primary data that was collected using a structured questionnaire to collect data. The choice of questionnaires is informed by their practicability and the possibility of collecting large quantities of data at a significantly low cost (Hakim, 2012).The questionnaire is also used because collected data can be easily quantified facilitating fast and accurate data analysis procedures. The questionnaires used in this research fall into the category of self-completed questionnaires (Jost, et al., 2008). The researcher administers self-completed

questionnaires by handing them over to the respondent who after having them filled in, they return the questionnaires back to the researcher.

The questionnaires are adopted by this study because they are cheap to administer and able to gather data from respondents spanning a wide geographical area. The researcher approached respondents from the 40 public organizations asking for their consent to participate in the research. Once consent has been attained, the researcher sends the questionnaires to the respondent via email and personal delivery based on the respondents' choice. The respondents were given a period of two weeks to fill in the questionnaires. Secondary data was collected from annual reports of the Parastatals as well as from peer reviewed journal articles.

3.4 Target Population

The target population was 40 Parastatals operating in Nairobi. However to enable deeper understanding of the variables, the study population was made up of the employees composed of a Procurement manager and IT manager in each Parasternal in Nairobi. The target population for this study were 80 where 40 were information technology (IT) managers and the other 40 were Procurement Managers of public corporations in Kenya. There are 40 Parastatals organizations in the Nairobi CBD. The 40 public organizations in the CBD represent the accessible population. The choice of the 40 public organizations is informed by their accessibility. It will be possible to collect data from the 40 public organizations because of their location in Nairobi CBD and so the researcher could easily access them. This population is appropriate for this study because they possess the knowledge being sought by the study. Since the accessible population was small, this study will use the entire population as the sample that is, a census will be conducted. Israel (2012) posits that although cost considerations make census technique impossible for large populations, a census is attractive for small populations, for instance, 200 or less.

3.5 Validity and Reliability

The researcher conducted a pre-test on the instrument to ensure its validity. The objective of pre-testing for the validity of instrument is to ensure that the respondents have a uniform understanding of the questions within the data collection instrument. The researcher incorporated suggestions and expert validity reviews from the supervisors ensuring that the final questionnaire facilitates the collection of high quality data. The researcher conducted a pilot study by administering 15 questionnaires to 15 colleagues. The responses from the colleagues were examined providing important feedback for necessary changes to be made on the questionnaires. The researcher made some changes to the wording of the questionnaires and instructions to ensure uniformity, accuracy, completeness and relevance. The researcher also conducted frequent cross checking of the questionnaires to ensure that uniformity and accuracy is maintained.

The researcher also conducted a reliability analysis in order to find out the questionnaire's consistency. According to Gravetter and Forzano (2015) reliability refers to the degree by which a research instrument brings forth consistent results following a repeated study. The researcher used Cronbach's alpha test to evaluate the validity of the research. According to this model, an alpha value of 0.5 is the minimum value for a reliable data collection instrument. The reliability test yielded a Cronbach's alpha of 0.72 which is above the threshold of 0.05 as outlined by Gravetter and Forzano (2015)

3.6 Data Analysis and Presentation

The analysis of data in a research study involves three main phases. The first phase of data analysis involves examining data to ascertain its validity and comprehensiveness. The second phase involves testing the data to find out its reliability while the third involves finding solutions to the research question. The data collected using questionnaires were checked to establish its reliability. The data were then be analyzed using the statistical package for social

sciences (SPSS). The analysis of data involved establishing the nature and direction of relationship between institutional factors and e-procurement performance. This was done using correlation analysis. The ordinary linear least square (OLS) was then carried out. The following regression model was be used:

$Y= \beta_0 +\beta_1 X_1 +\beta_2 X_2 + \beta_3 X_3 + \varepsilon,$

Where;

Y=the dependent variable, performance of e-procurement

β_0 = regression

$\beta_1$to β_3 =the regression coefficients

X_1=buyer-supplier integration

X_2 =leadership support

X_3= financing

In order to test for the effect of the moderating variable, the study were employ the moderated multiple regression analysis (MMR). Aiken and West (1991) reported that this approach involves the addition of interaction effects to a multiple regression model by comparing two different least squares regression equations. The findings of the study were presented graphically to facilitate the reader's understanding of the outcome and implications of the study.

CHAPTER FOUR

DATA ANALYSIS, RESEARCH FINDINGS

4.1 Introduction

This chapter presents the research findings and interpretation of study data. The study investigated institutional factors influencing the performance of e-procurement in public organizations using the case of Parastatals operating in Nairobi. . Data was collected from 40 Parastatals organizations in the Nairobi CBD. The 40 public organizations in the CBD represent the accessible population. The choice of the 40 public organizations was informed by their accessibility.

4.1.1 Response Rate

The study targeted 80 respondents and questionnaires were distributed out of which only 70 were reimbursed fully completed. This constitutes a response rate of 87.5 percent which is good for the study. According to Mugenda and Mugenda (2003) this response rate was fair and representative since it surpasses the 50% threshold for analysis and reporting, a response rate of 70 percent is good while 77 percent and over is very good. The good turn up was attributed to the data collection procedures, where the researcher notified potential participants in advance and utilized self-administered questionnaires in which respondents completed and the same was picked shortly. In addition follow up was made when some respondents delayed in handing over the questionnaires. Data analysis and the report of the findings were done using descriptive statistics in the form of tables, figures, frequencies and percentages.

4.2 General information

As regards to the gender, we note in figure 4.1 that majority of the respondents were males 57.1% while the females were closely at 42.9%. This therefore indicates that more male officers were engaged in procurement compared to their female counter part

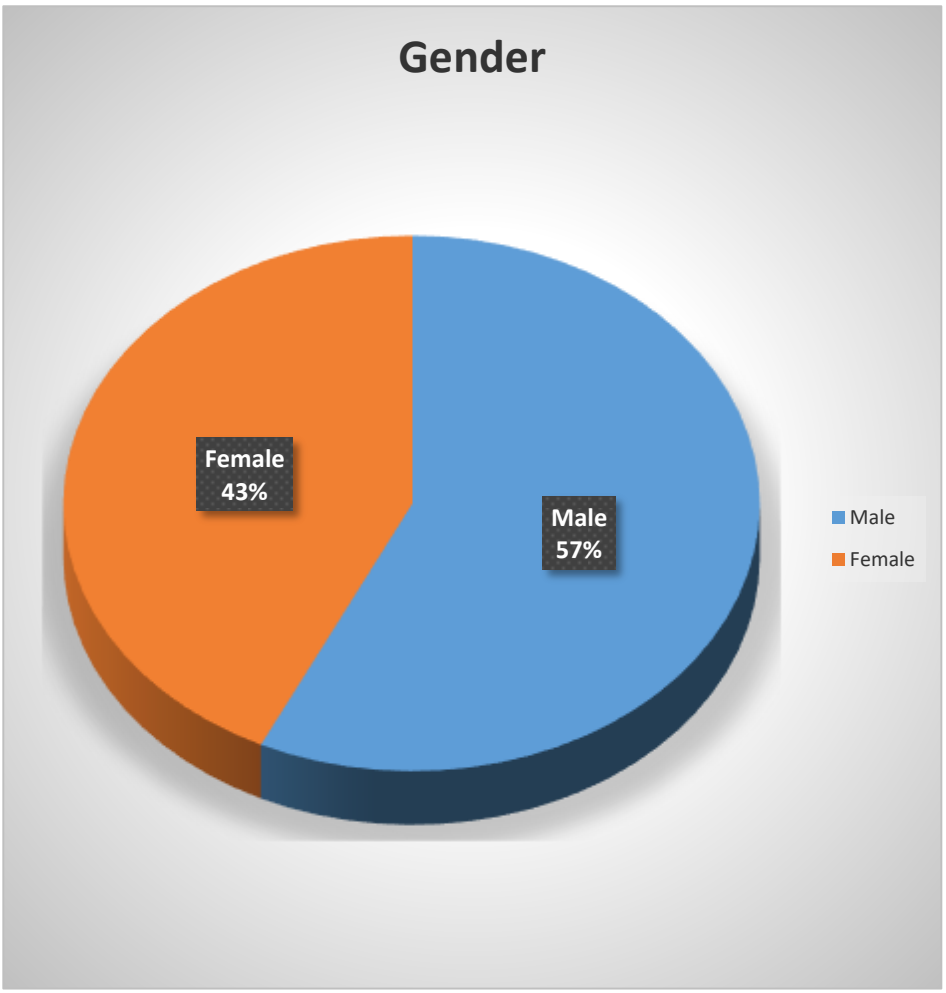

Figure 4. 1: Gender

As show in figure 4.2, 37.1% of the respondents were between 26-35 years, 35.7% being within 18-25 years with 1.5% being in the 46-55 brackets, (17.1%) being within 36-45years a minority (8.6%) were over 55 years. This implies that most of respondent were middle age.

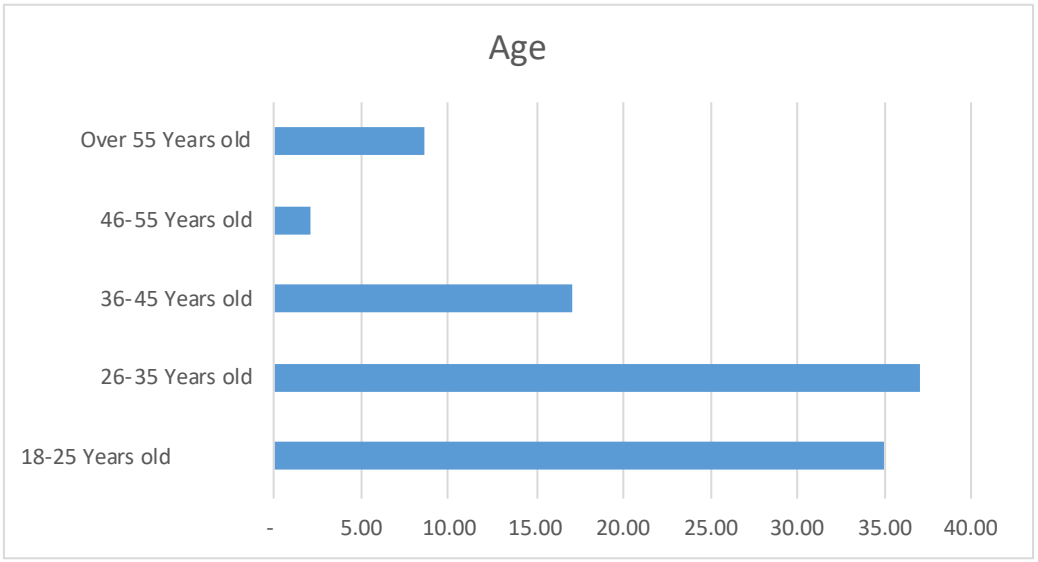

Figure 4. 2: Age

The study sought to determine the department in which respondent are working. The respondents are presented in figure 4.3. As shown in fig 4.3, 58.6% of respondents were working in Procurement department while 41.4% working in IT department.

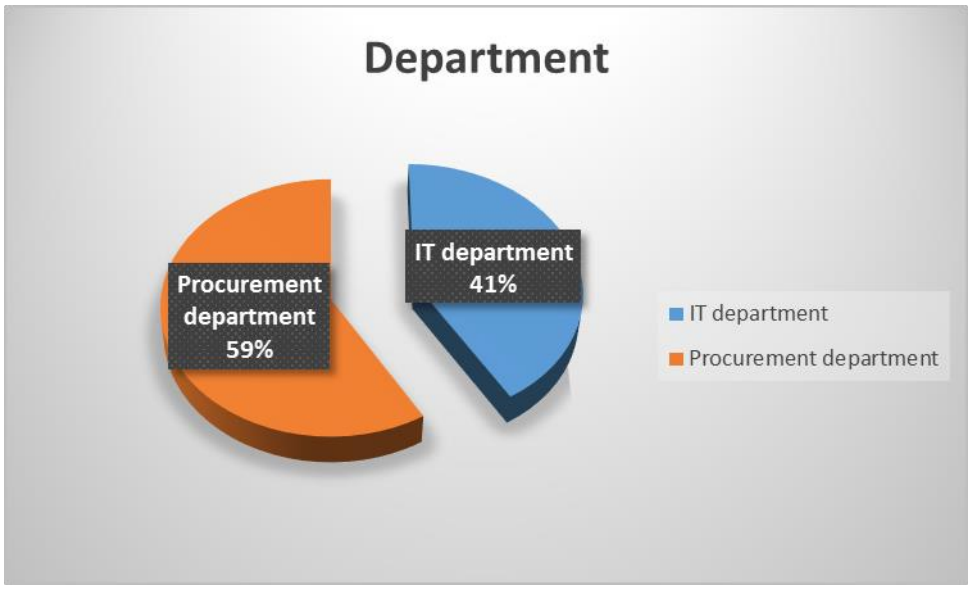

Figure 4. 3: Department

The respondents were asked to indicate the number of years in experience in their work as in Figure 4.4 indicated that majority of respondents 40% were below 5 years and experience in working ,between five and ten years 38.6% and over 10 years with 21.4% of respondents

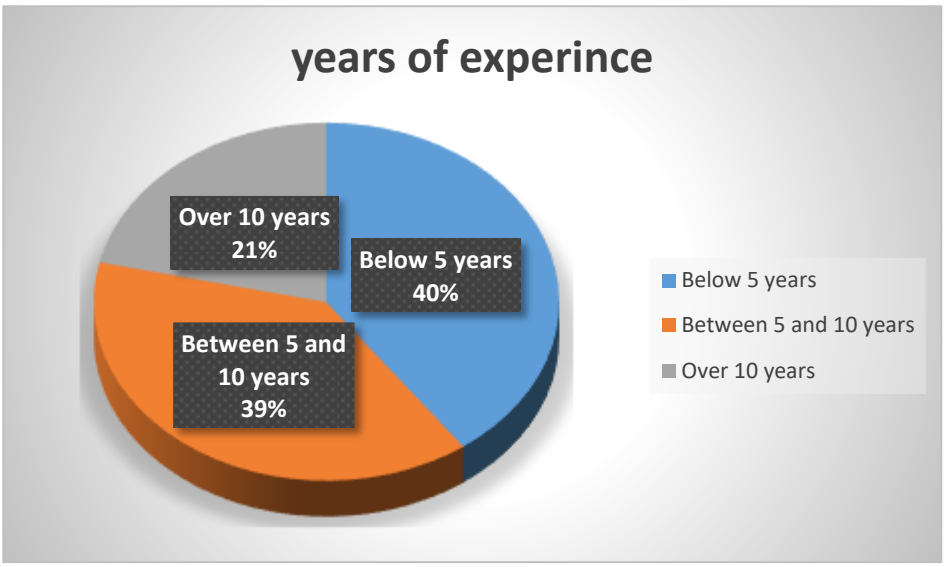

Figure 4. 4: Years of experience

Table 4. 1: General information

		Frequency	Percent
your years of experience			
	Male	40	57.1
	Female	30	42.9
Age			
	18- 25 years old	25	35.7
	26-35 years old	26	37.1
	36-45 years old	12	17.1
	46-55 years old	6	8.6
	Over 55 years old	1	1.4
In which department, do you work			
	IT department	29	41.4
	Procurement department	41	58.6
	Total	70	100
your years of experience			
	Below 5 years	28	40
	Between 5 and 10 years	27	38.6
	Over 10 years	15	21.4
	Total	70	100

4.3 Descriptive Statistics

This division represents the descriptive outcomes on buyer/supplier integration, effect of leadership support, effect of the current ICT infrastructure and regulatory. The respondents were measured on a five point Likert scale. The range was 'strongly disagree (1)' to 'strongly agree' (5). The scores of disagreeing have been taken to represent a variable which had a mean score of less than 2.5 on the continuous Likert scale. The scores of 'Neutral' have been taken to represent a variable with a mean score of 2.5 to 3.4 on the continuous Likert scale while the score of both agree and strongly agree have been taken to represent a variable which had a mean score of 3.5 to 5.0 on a continuous Likert scale. A standard deviation of > 0.9 implies a significant difference on the impact of the variable among respondents

4.3.1 Effect of Buyer/Supplier Integration on Performance of E-procurement

The effect of buyer/supplier integration on the performance of e-procurement among public sector institutions was the first objective of the study. The respondents responded to statements on buyer/supplier integration. Rated on a five Likert scale, the responses were as obtainable in Table 4.2.The low standard deviation of 0.75057 indicates that the variation among the respondents was low. The respondents were further in agreement with Information flow (mean=4.2429); Buyer/ Supplier interface(mean=4.200); Supportive buyer/supplier IT platform; (mean=4.1286); Complicated procedures in the organization adversely affect buyer-supplier integration, which derails e-procurement implementation and application(mean=4.100); To what extent does the supplier's IT capabilities affects your organization's e-procurement processes; (mean=4.0571); Absence of close relationships between buyers and suppliers has negatively affected e-procurement implementation and application(mean=3.4857); Most of our suppliers want status quo(mean=3.2429); Supplier inclusion in our changes delays possible changes in IT(mean=3.000) Change communication to our suppliers has always been received negatively in the past(mean=2.9143) The high standard deviation of 1.05941 indicates that there was high variation among the respondents.

Table 4. 2: Deviation

	N	Mean	Std. Deviation
Information flow	70	4.2429	0.75057
Buyer/ Supplier interface	70	4.2	0.69366
Supportive buyer/supplier IT platform;	70	4.1286	0.8151
Complicated procedures in the organization adversely affect buyer-supplier integration, which derails e-procurement implementation and application	70	4.1	0.88711
To what extent does the supplier's IT capabilities affects your organization's e-procurement processes	70	4.0571	0.77806
Absence of close relationships between buyers and suppliers has negatively affected e-procurement implementation and application	70	3.4857	1.05971
Most of our suppliers want status quo	70	3.2429	1.02767
Supplier inclusion in our changes delays possible changes in IT	70	3	1.10335
Change communication to our suppliers has always been received negatively in the past	70	2.9143	1.05971

4.3.2; Effect of Leadership Support on performance of e-procurement

The effect of leadership support on the performance of e-procurement among public sector institutions was the second objective of the study. The respondents responded to statements on leadership support. Rated on a five Likert scale, the responses were as obtainable in Table 4.3.

The low standard deviation of 0.73101 indicates that the variation among the respondents was low .The respondents were further in agreement with Capacity building (mean=4.0429); ; Approval of implementation budgets(mean=4.0286); ; Leading the implementation process (mean=4.0286);, Meeting Costs on Training programs(mean=3.9000); ; To what extent do you agree that leadership support is essential for e-procurement implementation(mean=3.8571); ; Organizing skills improvement programs(mean=3.4857);

The high standard deviation of 1.0997 indicates that there was high variation among the respondents.

Table 4. 3: Effect of Leadership Support

	N	Mean	Std. Deviation
Capacity building	70	4.0429	0.73101
Approval of implementation budgets	70	4.0286	0.93206
Leading the implementation process	70	4.0286	0.93206
Meeting Costs on Training programs	70	3.9	0.93483
To what extent do you agree that leadership support is essential for e-procurement implementation	70	3.8571	0.99689
Organizing skills improvement programs	70	3.4857	1.09997
Valid N (listwise)	70		

4.3.3 Effect of the Current Organization's ICT Infrastructure

The effect of the current ICT infrastructure on the performance of e-procurement among public sector institutions was the third objective of the study. The respondents responded to statements on current ICT infrastructure. Rated on a five Likert scale, the responses were as obtainable in Table 4.4.The low standard deviation of 1.23811 indicates that the variation among the respondents was low. The respondents were further in agreement System/to system integration; (mean=3.3429) Internet connectivity (mean=3.300); Sufficient Bandwith (mean=3.0714); Automated workflow; (mean=3.0714) Network Connectivity (mean=2.7429); To what extent do you feel that the current ICT Infrastructure has derailed e-procurement implementation (mean=2.1714); To what extent do you rate the robustness of the ICT Infrastructure in your organization (mean=1.9857).

The high standard deviation of 1.47926 indicates that there was high variation among the respondents

Table 4. 4: Current ICT Infrastructure

	N	Mean	Std. Deviation
System/to system integration	70	3.3429	1.23811
Internet connectivity	70	3.3000	1.28931
Sufficient Bandwith	70	3.0714	1.14615
Automated workflow	70	3.0714	1.14615
Network Connectivity	70	2.7429	1.23577
To what extent do you feel that the current organization's ICT Infrastructure has derailed e-procurement implementation	70	2.1714	1.22736
To what extent do you rate the robustness of the ICT Infrastructure in your organization	70	1.9857	1.47926

4.4 Test of Assumptions of the Study

Before the regression analysis, the data was subjected to assumptions of regression analysis. Assumptions of linear regression models ought to be validated so that ordinary least squares (OLS) can provide reliable estimates of parameters (Long and Ervin, 2010). This study therefore evaluated these assumptions by testing normality, multicollinearity and homoscedasticity

4.4.1 Normality

A normality test determines if the data set is well modeled by a normal distribution (Paul and Zhang, 2010). The three key variable; effect of buyer /supplier integration, effect of leadership support, effect of the current ICT infrastructure were subjected to a normality test using stem and leaf graphical display and a normal distribution curve as shown in Appendix 5,. The resulting stem and leaf display confirmed that the data set was normally distributed since the significant value for Shapiro- will test were greater than 0.05.

4.4.2: Muticollineraity

Further, the data was tested for existence of muticollineraity. Muticollineraity is a situation where two or more predictor variables in a multiple regression model are highly correlated (Martz, 2013). In this study the variance inflation factor (VIF) was used to test for muticollineraity. The VIF gives an index that shows how much variance of an estimated regression coefficient is increased collinearity (Wooldridge, 2000). As indicated in appendix 6, the independent variables were correlated. The results showed a VIF was less than 2.5 significant .The weak relationships meant the data did not suffer from multicollinearity.

4.4.3 Homoscedasticity

The third assumption tested was that of equal variance (homoscedasticity). The residual plots showed that the error term (εi) was normally and identically independently distributed with mean zero and constant variance. This meant the error variance Procurement performance and effect of buyer /supplier integration, effect of leadership support, effect of the current ICT infrastructure. This therefore indicated that the data did not suffer from heteroscedasticity and thus was homoscedastic. The data was therefore appropriate for regression as in did not defy the CLM assumptions. As shown in Appendix 7

4.5 Test of Hypothesis for the Study

4.5.1 Effect of Buyer/Supplier Integration on the Performance of E-procurement among Public Sector Institutions.

The first objective of this study was to determine if buyer/supplier integration affects the performance of e-procurement. The hypothesis to test for this objective was:

H_{01}: effect of buyer/supplier integration has no significant effect on the performance of e-procurement

In order to test the hypothesis, buyer/supplier integration was set as the independent variable while performance of e procurement was set as the dependent variable. Following a simple linear regression analysis, an ANOVA output presented in Table 4.5, shows that the model was significant (F= 11.079, p-value = 0.001) at 0.05 level in explaining the linear relationship between buyers/suppliers integrations and performance of e-procurement.(See table 4.5 below)

Table 4. 5: ANOVA TEST ON BUYER /SUPPLIER INTERGRATION

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.549	1	4.549	11.079	.001[b]
	Residual	27.922	68	0.411		
	Total	32.471	69			

a. Dependent Variable: performance of e procurement

b. Predictors: (Constant), effect buyer supplier integration

A model fitness done to determine the fitness of the model. As shown in the Table 4.6, the coefficient of determination (R^2) = 0.140, indicating that 14% of the variation in buyer /supplier integration was explained by the model leaving 86% of the variations unexplained. This meant that model one provided a weak fit. (See table 4.6 below)

Table 4. 6: Model Summary Of Buyer/Supplier Integration

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.374[a]	0.14	0.127	0.64079

a. Predictors: (Constant), effect buyer supplier integration
b. Dependent Variable: performance of e procurement

Hypothesis tests were done by assessing the significance of the p value. The results of the hypotheis test are presented in Table 4.7 The relationship between Buyer/ Supplier integration and performance of e procurement was statistically significant (p = 0.001). The study therefore rejected the research hypotheses H_{01} at 5% level and concluded that buyer/supplier integration has significant effect on the performance of e-procurement.(See table 4.7 below)

Table 4. 7: Coefficient of Buyer /Supplier Integration

			Unstandardized Coefficients		T	Sig.
			B	Std. Error		
	1	(Constant)	1.811	0.642	2.821	0.006
		Effect buyer supplier integration	0.572	0.172	3.329	0.001

a. Dependent Variable: performance of e procurement

4.5.2 Effect of Leadership Support on the Performance of E-procurement among Public Sector Institutions.

The second objective of the study was to determine the effect of leadership support on the performance of e-procurement. The study had hypothesized that:

H_{02}: effect of leadership support has no significant effect on the performance of e-procurement

The regression analysis was done by setting leadership support as the independent variable while the performance of e procurement was the dependent variable. The strength/ significance of the model was assessed by performing an ANova test. Following The ANOVA output presented in Table 4.8, shows the model was not was significant (p-value = 0.129>0.05) level in explaining the linear relationship between effect of leadership support and performance of e-procurement.(See table 4.8 below)

Table 4. 8: Anova Leadership Support

Model			Sum of Squares	df	Mean Square	F	Sig.
1		Regression	1.09	1	1.09	2.362	.129[b]
		Residual	31.381	68	0.461		
		Total	32.471	69			

a. Dependent Variable: performance of e procurement
b. Predictors: (Constant), leadership support

The model fitness shown in the Table 4.9 indicates that the model had coefficient of determination (R^2) = 0.034, indicating that 3% of the variation effect of leadership support was explained by the model leaving 97% of the variations unexplained. This meant that model one provided a very weak fit. (See table 4.9 below)

Table 4. 9: Model summary of leadership support

Model		R	R Square	Adjusted R Square	Std. Error of the Estimate
	1	.183[a]	0.034	0.019	0.67933

a. Predictors: (Constant), leadership support
b. Dependent Variable: performance of e procurement

Table 4.10 presents the coefficients of effect of leader support. Since the regression yielded a non-significant P value (p = 0.129), the study therefore accepted the null hypotheses H_{02}at 5% level and observed that effect of leadership support has no significant effect on performance of e-procurement. (See table 4.10)

Table 4. 10: Coefficient of Effect of Leadership Support

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.147	0.517		6.091	0
	Leadership support	0.202	0.131	0.183	1.537	0.129

a. Dependent Variable: performance of e procurement

4.5.3 Effect of the Current ICT Infrastructure on the Performance of E-procurement among Public Sector Institutions

The third objective of the study was to find out if the current ICT infrastructure affects the performance of e-procurement. The corresponding hypothesis for the objective is set below:

H_{03}: effect of current ICT infrastructure has no significant effect on the performance of e-procurement

Following a simple linear regression analysis, an ANOVA output presented in Table 4.11, shows model three not was significant (p-value = 0.122>0.05) level in explaining the linear relationship between current ICT infrastructure and performance of e-procurement.(See table 4.11 below)

Table 4. 11: Anova Current ICT Infrastructure

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.131	1	1.131	2.454	.122[b]
	Residual	31.34	68	0.461		
	Total	32.471	69			

a. Dependent Variable: performance e of e procurement
b. Predictors: (Constant), current ICT infrastructure

As shown in the Table 4.12, model three had coefficient of determination (R^2) = 0.035, indicating that 3.5% of the variation effect of current ICT infrastructure was explained by the

model leaving 96.5% of the variations unexplained. This meant that model one provided a very weak fit. (See table 4.12 below)

Table 4. 12: Model Summary Of Current ICT Infrastructure

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.187[a]	0.035	0.021	0.67888

a. Predictors: (Constant), current ICT infrastructure
b. Dependent Variable: performance of e procurement

Table 4.13 presents the coefficients of effect of current ICT infrastructure. In reference to model three, had a p-value of 0.122The study therefore accepted the research hypotheses H_{03}at 5% level and observed that effect current ICT infrastructure has no significant effect on the performance of e-procurement. (See table 4.13 below)

Table 4. 13: Coefficients of Current ICT Infrastructure

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.387	0.302		14.539	0
	Current ICT infrastructure	-0.162	0.103	-0.187	-1.566	0.122

a. Dependent Variable: performance of e procurement

4.5.4 Regression Analysis

The study sought to determine if institutional factors affect the performance of e procurement, a multiple regression was done by setting buyer/ supplier integration, ICT infrastructure and

leadership support as the predictor variables while the performance of e procurement was set as the dependent variable. The findings are discussed in the following sections. (See table 4.14)

Table 4. 14: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.396[a]	0.157	0.119	0.64405

a. Predictors: (Constant), effect buyer/supplier integration, current ICT infrastructure, leadership support
b. Dependent Variable: performance of e procurement

The findings shown in table 4.14 indicate the extent of variation on the e procurement performance which was explained by the independent variables. The R^2 value is 0.157. This means that the independent variables explain 15.7 percent of the disparities in dependent variable. The rest 84.3 percent are explained by other factors.(See table 4.14 above)

Table 4. 15: Analysis of Variance ANOVA

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	5.094	3	1.698	4.094	.010[b]
	Residual	27.377	66	0.415		
	Total	32.471	69			

a. Dependent Variable: performance of e procurement

b. Predictors: (Constant), effect buyer supplier integration, current ICT infrastructure, leadership support

The results in table 4.15 show that the independent variables are statistically significant in predicting the performance e procurement. The study identified a significant value of p=0.010 showing a statistical significance relationship. (See table 4.15 above)

Table 4. 16: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.254	0.759		2.97	0.004
	Current ICT infrastructure	-0.113	0.1	-0.13	-1.129	0.263
	Leadership support	-0.009	0.149	-0.008	-0.061	0.951
	Effect buyer supplier integration	0.548	0.209	0.358	2.619	0.011

a. Dependent Variable: performance of e procurement

The findings in table 4.16 show the coefficients of the regression. According to the findings, current ICT infrastructure (p=0.263), leadership support (P=0.951), effect buyer/supplier integration, (p=0.01) and only one variable was significant in predicting the e procurement performance of the since all the p values were less than 0.05. However, as it can be seen leadership support and current ICT infrastructure had a p=value of 0.951 and 0.263respectively which shows that they were not as significant as the rest of the factors which had lower values of p. Since a low value indicates high significance of the variable on the dependent variable and vice versa. (See table 4.16 above)

The resulting regression equation was:

PEP=2.254+0.548X1

Where

PEP is performance of E procurement

X_1 is Buyer Supplier integration

X_2 Leadership Support

X_3 is Effect of buyer/supplier integration

The findings indicate that when all the factors are held constant one unit use effect of buyer supplier integration increases the performance by 0.548 units. Fig 4.17 below shows that the R^2 changed from 0.396 (table 4.14) to 0.523 giving a change in R^2 of 0.127 .The result in table 4.16 indicated that regulatory framework was a significant moderator in the relation between the four independent variable. This was because the interaction variable was significant (β=0.381,$p<0.05$).moreover ,the inclusion of the moderating variable in the model did positive significantly change the coefficient in the model.(See table 4.17 below)

Table 4. 17: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.523[a]	.273	.228	.60260

a. Predictors: (Constant), current ICT infrastructure, leadership support, legal regulatory, effect buyer supplier integration

The resultant model is statistically significant as shown in figure 4.18 below. An analysis of the R^2 is done to determine if there is any change. Cohen (1992) postulates that a change in R^2 is an indicator of the presence of the moderating variable. (See table 4.18 below)

Table 4. 18: Anova Test for Moderated Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.868	4	2.217	6.105	.000[b]
	Residual	23.603	65	.363		
	Total	32.471	69			

a. Dependent Variable: performance of e procurement

b. Predictors: (Constant), current ICT infrastructure, leadership support, legal regulatory, effect buyer supplier integration

The moderating effect of the regulatory framework was done by determining the change in R^2 in the model. In the first step all the independent variables were entered as predictors while performance of e procurement was the dependent variable. In the second step all the independent variables plus the hypothesized moderator (regulatory framework) were entered as the predictors of performance of e procurement. (See table 4.19 below)

Table 4. 19: Regulatory framework on performance of e-procurement

Model		**Unstandardized Coefficients**		**Standardized Coefficients**		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	1.445	.753		1.919	.059
	Effect buyer supplier integration	.501	.196	.328	2.557	.013
	Legal regulatory	.381	.118	.376	3.224	.002
	Leadership support	.020	.139	.018	.146	.885
	Current ICT infrastructure	-.252	.103	-.291	-2.449	.017

a. Dependent Variable: performance of procurement

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter deliberates the summary of the finding in chapter four. Conclusion and recommendations drawn from these findings are conversed in relation to the objectives of the study which was to investigate institutional factors influencing the performance of e-procurement in public organizations using the case of Parastatals operating in Nairobi.

5.2 Summary of Findings

From the research study the following were findings on institutional factors influencing performance of e-performance in Public institutions

5.2.1: Buyer /Supplier Integration and E-Procurement

The effect of buyer/supplier integration on the performance of e-procurement among public sector institutions was the first objective of the study. It was observed that effect of buyer/supplier integration has significant effect on the performance of e-procurement this was influenced significantly by the following by Information flow, Buyer/ Supplier interface, Supportive buyer/supplier IT platform and Complicated procedures in the organization adversely affect buyer-supplier integration, which derails e-procurement implementation and application The study concluded that the effect of buyer/supplier integration had a positive significant effect on the performance of e procurement. These findings are consistent with Nurmandi and Kim (2015) who demonstrated that the links between the organization and its supplier were essential to the success of the e-procurement platform. Other studies that found similar findings include Croom and Brandon-Jones (2015) and Muhia (2015).

5.2.3: Leadership Support and E- Procurement

The effect of leadership support on the performance of e-procurement among public sector institutions was the second objective of the study it was also observed that that effect of

leadership support has no significant effect on the performance of e-procurement. This findings though not well supported in literature nevertheless agrees with Fernandes and Viera, (2015) who observed that organizational leadership could oppose e procurement as it minimizes opportunities for corruption.

5.2.3: Current ICT Infrastructure and E-Procurement

The effect of the current ICT infrastructure on the performance of e-procurement among public sector institutions was the third objective of the study. It established that current ICT infrastructure has no significant effect on the performance of e-procurement, through System/to system integration, Internet connectivity, Sufficient Bandwidth and Automated workflow. The finding is consistent with Beauvallet,Boughazala and Assar (2011) showed that the performance of e-procurement in developing countries is hampered by poor connectivity and inadequate access to appropriate technological platforms.

5.3 Conclusions

This study examined the effect to investigate institutional factors influencing the performance of e-procurement in public organizations using the case of Parastatals operating in Nairobi. On the first objective, the study determined that buyer supplier integration has significant effect on the performance of e procurement. The study therefore concludes that buyer / supplier integration has a positive effect on e procurement performance. On the second objective the study did not find any significant effects of leadership support on e procurement performance. The study therefore concludes that leadership support has no effect on the performance of e procurement.

On the third objective the findings did not show any significant effects of current infrastructure on the performance of e procurement. The study therefore concludes that current ICT infrastructure does not impact on the performance of e procurement. The study further

concludes that the regulatory framework moderates the relationship between institutional factors and the performance of e procurement.

5.4 Recommendations for policy and practice

The study results found positive significant effect of buyer /supplier integrations on performance of e procurement. The study therefore recommended further enhancing of buyer/supplier integration to enhance to support the e procurement practice in public institution and come with policy to support and enhance the integrations

The insignificant effect of leadership support on performance indicated how the e procurement is not appreciated by many users therefore the study recommend proper training on procurement and implementation and come with clear policy and guideline to use e procurement plat form..

The insignificant effect of current ICT infrastructure on performance of e procurement meaning the infrastructure are not in place to support the use of e procurement .The study recommends that users be properly training on installing and solving the technical problem which may come up with use ICT infrastructure.

5.5 Limitations of the Study

The Parastatals are very political thus many respondents had fear of disclosing some relevant information. It therefore took a lot of time to gather adequate data for this research through the respondents who were more cooperative than the management as originally anticipated.

Time allocated for the study was insufficient while holding a full time job and studying part time. This was encountered during the collection of material as well as the data to see the study success. However, the researcher tried to conduct the study within the time frame as specified.

5.6 Suggestions for Further Research

This study only focused on institutional factors influencing performance of e-procurement in public organizations in Kenya left out other private institutions such as SACCOs, banks and other financial institutions. In order to obtain a conclusive decision, future studies should

concentrate on other financial institutions to examine the effect of e procurement performance of such institutions.

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APPENDICES

APPENDIX I: QUESTIONNAIRE

Dear respondent,

May name is Violah Jerugut a MBA student at KCA University. I am conducting a study pursuant to the course requirements. My topic is "institutional factors influencing performance of e-procurement in public organizations in Kenya" and your insights will be helpful to me in order to complete this study. The survey is anonymous. You don't need to write your name or other private information if you don't want the final feedback. The questionnaire is organized into 4 mains sections and I will be happy to have all the questions completed. It will take you 10-15 minutes only to complete the questionnaire. Thank you for your participation!

Section 1: General information

1. Please indicate your gender

   - Male
   - Female

2. Please indicate your age by ticking appropriately

   - 18- 25 years old
   - 26-35 years old
   - 36-45 years old
   - 46-55 years old
   - Over 55 years old

3.In which department do you work?

   - IT department
   - Procurement department

4. Please indicate your position

- Manager
- Non-manager/Support personnel

4. Please indicate your years of experience

- Below 5 years
- Between 5 and 10 years
- Over 10 years

Section 2: Effect of buyer/supplier Integration on performance of e-procurement

5. To what extent does the supplier's IT capabilities affects your organization's e-procurement processes?

To a very great extent [ ]

To a great extent [ ]

Neutral [ ]

To a little extent [ ]

Not at all [ ]

6. Please briefly explain your answer above in the space below

……

In a likert scale of 1-5, please indicate extent to which you agree with the following statements, whereby 1 equals Strongly Disagree, 2 equals Disagree, 3 equals Neither Agree nor Disagree, 4 equals (Agree), and 5 equals Strongly Agree. (Tick appropriately)

buyer/supplier Integration	**1. Strongly Disagree**	**2. Disagree**	**3. Neutral**	**4. Agree**	**5. Strongly agree**

Complicated procedures in the organization adversely affect buyer-supplier integration, which derails e-procurement implementation and application					
Supportive buyer/supplier IT platform					
Information flow					
Buyer/ Supplier interface					
Most of our suppliers want status quo					
Change communication to our suppliers has always been received negatively in the past					
Supplier inclusion in our changes delays possible changes in IT					
Absence of close relationships between buyers and suppliers has negatively affected e-procurement implementation and application					

7. How do you think the buyer/supplier Integration Processes affect e-procurement implementation Organizational?

……

……

……

……..

Section 3: Effect of Leadership Support on performance of e-procurement

8. Top what extent do you agree that leadership support is essential for e-procurement implementation?

Strongly Disagree ( ) Disagree ( ) Neutral ( ) Agree ( ) Strongly Agree ( )

(b) Please explain your answer above

……

9. To what extent do you feel the leadership has helped to attain implementation and use of Electronic Procurement in the Kenyan public organizations construction sector? Please rate the aspects below.

Technology	**1. Strongly Disagree**	**2. Disagree**	**3. Neutral**	**4. Agree**	**5. Strongly Agree**
Approval of implementation budgets					
Capacity building					
Organizing skills improvement programs					
Meeting Costs on Training programs					
Leading the implementation process					
Others……					

10. Rate the extent to which you believe that the following factors have slowed e-procurement implementation in public organizations.

Aspect/factor	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
Bureaucracy and long administrative procedures have derailed e-procurement implementation and application					

	Aspect of the Organization	**Rate the importance of each aspect in an implementation (Between 1-10)**	**Extent to which each its presence has influence/eased e-procurement implementation (Between 1-10)**
1	Buyer/supplier integration		
2	leadership support		
3	Legal/Regulatory framework		
4	current ICT infrastructure		

Section 4: Effect of the current ICT infrastructure on e-procurement performance

11. To what extent do you rate the robustness of the ICT Infrastructure in your organization

To a very great extent	
To a great extent	
To a moderate extent	
To a little extent	
To no extent	

12. To what extent do you feel that the current ICT Infrastructure has derailed e-procurement implementation?

To a very great extent	
To a great extent	
To a moderate extent	
To a little extent	
To no extent	

13. Rate the extent to which you believe that the following factors have affect e-procurement implementation in public organizations.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Network Connectivity					
Internet connectivity					

System/to system integration					
Automated workflow					
Sufficient Bandwidth					

15. Rate how the following measures of legal framework affect e- procurement performance

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Legal provisions					
Procurement policy					
Procurement law					
Taxation regulations					

APPENDIX II: WORK PLAN

Task Description	*Jan 2016 – May 2016*	*June 2016 – 15ThJuly 2016*	*16ThJuly – August 2016*	*September-2016*
Proposal writing	✓			
Questionnaire Design		✓		
Proposal Defense		✓		
Data collection			✓	
Data Analysis			✓	
Findings and Report Writing				✓
Submission of Report				✓

Source:Author

APPENDIX III: STUDY BUDGET

PARTICULARS	**AMOUNT "Kshs"**
Printing and Stationery	5,000.00
Photocopying	3,000.00
Travelling expenses	6,000.00
Flash Disk 4 GB	1,000.00
Data collection and Analysis	30,000.00
Airtime and Internet services	10,000.00
Miscellaneous during the course of research	5,000.00
TOTALS	60,000

Source: Author

APPENDIX IV: TEST OF NORMALITY

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Effectbuyersupllierintegration	.133	70	.004	.974	70	.161
Leadershipsupport	.107	70	.044	.966	70	.056
currentICTinfrastucture	.105	70	.052	.963	70	.036

a. Lilliefors Significance Correction

Effectbuyersupllierintegration Stem-and-Leaf Plot

Frequency Stem & Leaf

4.00 2 . 5788

18.00 3 . 011112223333333344

27.00 3 . 556666667777777777777788888

17.00 4 . 00000000012222334

4.00 4 . 5555

Stem width: 1.00

Each leaf: 1 case(s)

leadershipsupport Stem-and-Leaf Plot

Frequency Stem & Leaf

.00 2 .

5.00 2 . 58888

14.00 3 . 01111133333333

16.00 3 . 5555566666668888

16.00 4 . 0000000000111333

17.00 4 . 55555566666668888

2.00 5 . 00

Stem width: 1.00

Each leaf: 1 case(s)

currentICTinfrastucture Stem-and-Leaf Plot

Frequency Stem & Leaf

1.00 1 . 2

7.00 1 . 5778888

20.00 2 . 00111111111222222444

14.00 2 . 55555577778888

14.00 3 . 00001111224444

9.00 3 . 577778888

2.00 4 . 01

3.00 4 . 588

Stem width: 1.00

Each leaf: 1 case(s)

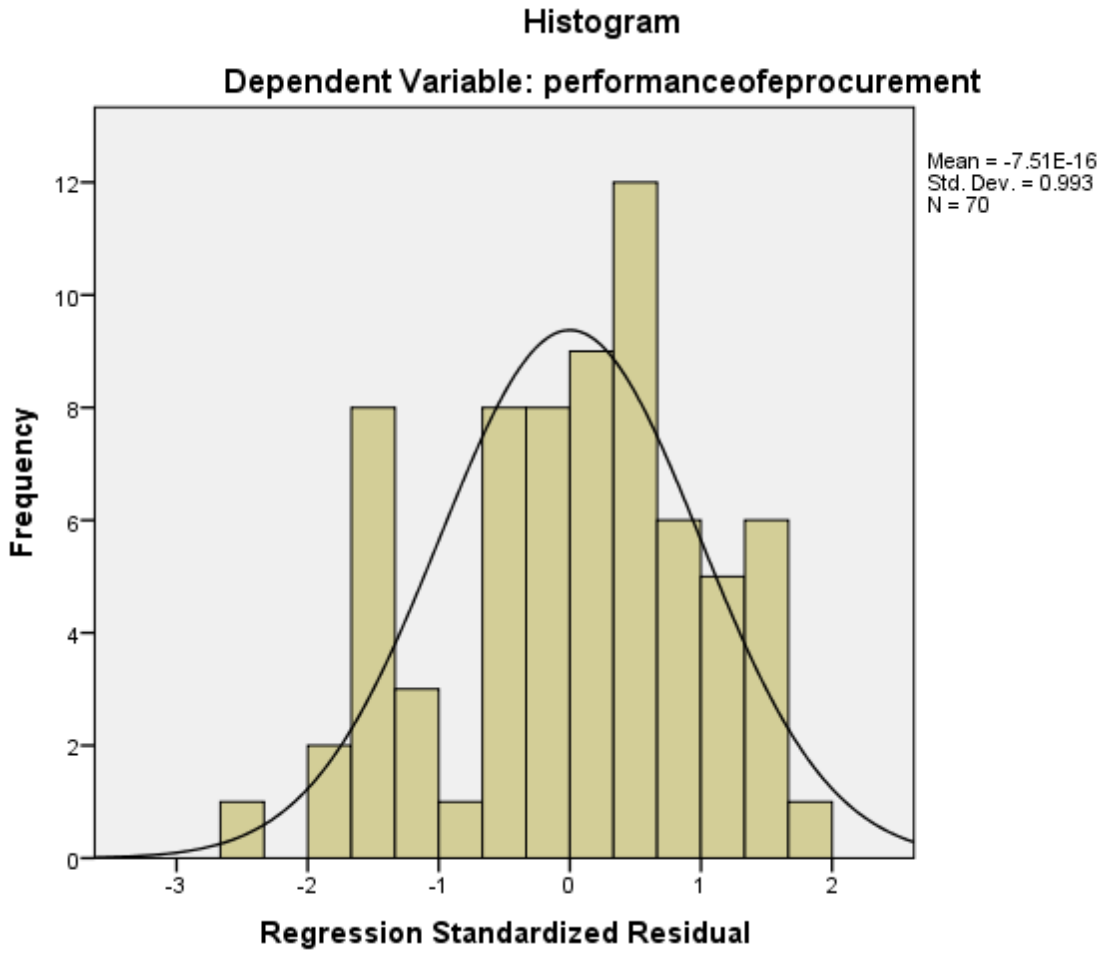
APPENDIX V: TEST OF MULTICOLLINEARITY

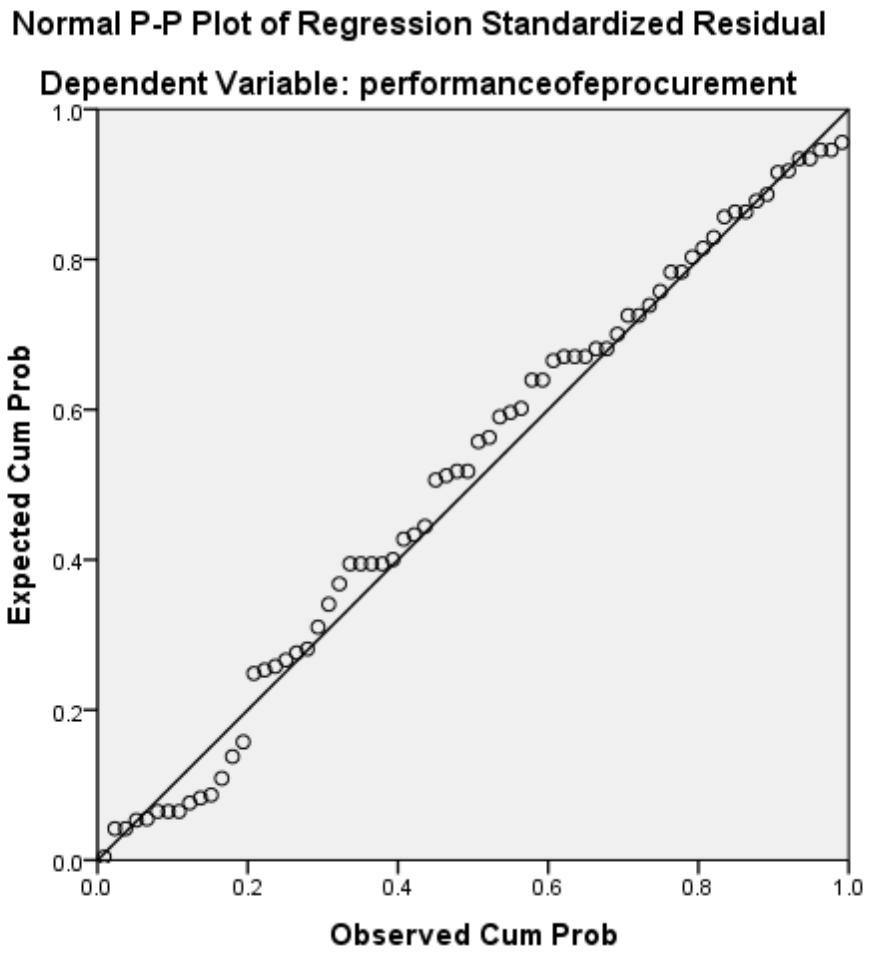
Coefficients[a]

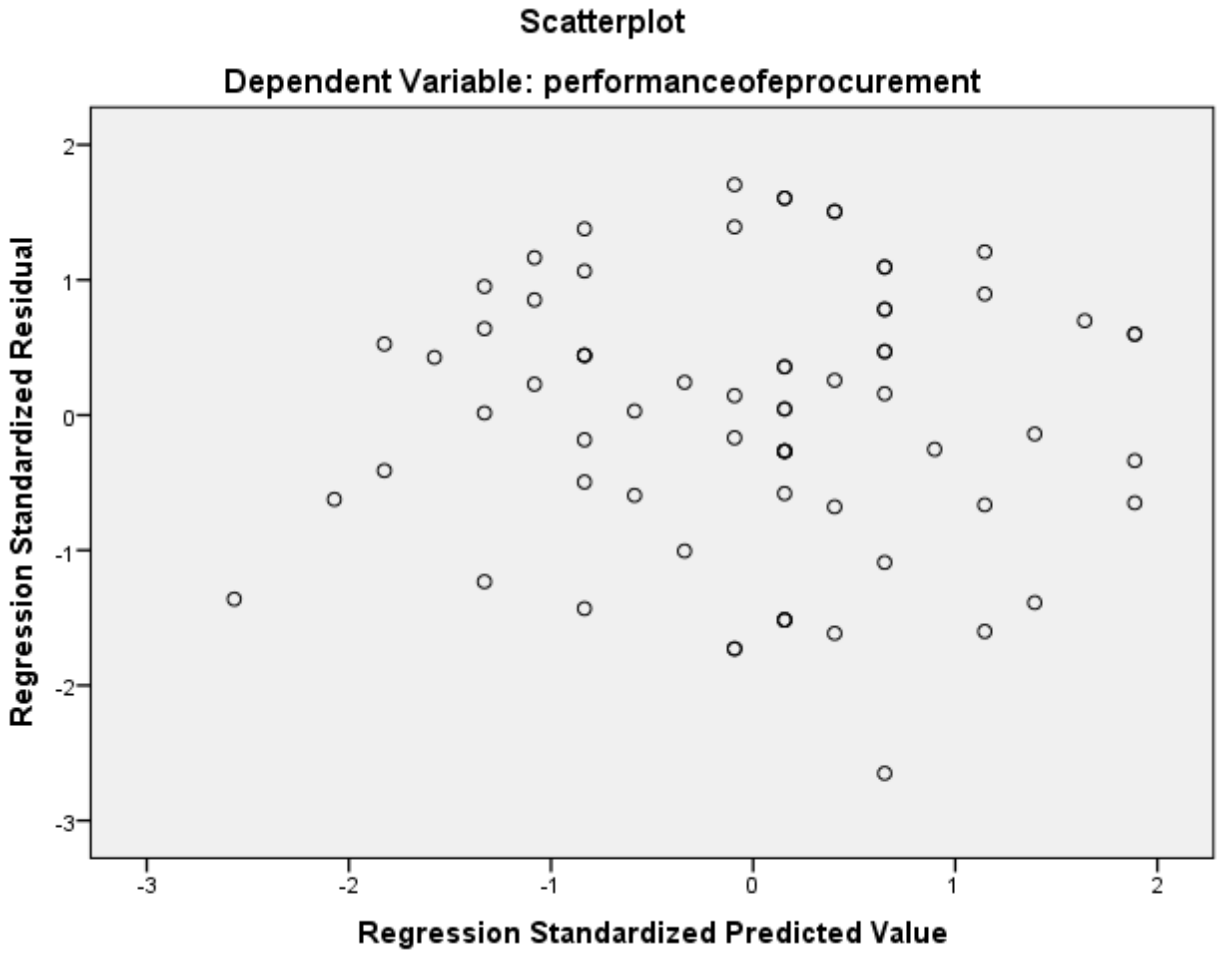
Model		Sig.	Collinearity Statistics	
			Tolerance	VIF
1	(Constant)	.004		
	effectbuyersupllierintegration	.011	.683	1.465
	leadershipsupport	.951	.700	1.429
	currentICTinfrastucture	.263	.962	1.040

a. Dependent Variable: performanceofeprocurement

APPENDIX VI: TEST OF HOMOSCEDASTICITY




Normal P-P Plot of Regression Standardized Residual
Dependent Variable: performanceofeprocurement
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Scatterplot
Dependent Variable: performanceofeprocurement
Regression Standardized Residual
Regression Standardized Predicted Value
2
1
0
-1
-2
-3
-3
-2
-1
0
1
2