CHALLENGES TO IMPLEMENTATION OF ELECTRONIC PROCUREMENT IN THE CONSTRUCTION SECTOR

BY

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DECLARATION

I declare that the work contained in this dissertation has not been previously published or submitted elsewhere for award of a degree. I also declare that this is my own original work and contains no material written or published by other people except where due reference is made and authors duly acknowledged.

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I do hereby confirm that I have examined the Master's dissertation of

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And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed.

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DEDICATION

I dedicate this research project to my father, mother, siblings and KCA university MBA class of 2014.

CHALLENGES TO IMPLEMENTATION OF ELECTRONIC PROCUREMENT IN THE CONSTRUCTION SECTOR

ABSTRACT

Construction is a strategic industry in a developing economy as it is core for structures to be utilized for industrial, commercial and household purposes. Electronic Procurement is the business-to-business or business-to-consumer or business-to-government purchase and sale of supplies, work, and services through the internet as well as other information and networking systems. The overall objective was to establish challenges affecting the implementation of Electronic Procurement in the Kenyan construction sector. This study followed a descriptive research design. The study targeted 1 procurement manager, 1 supply chain manager and at least 3 procurement supply chain officers from 58 companies based in Nairobi and this gave a total of 86 respondents. The study adopted stratified sampling and questionnaires were used as instruments of data collection instruments. The obtained questionnaires data were coded and organized in excel spreadsheet and analysis done through excel and SPSS software. Pearson's correlations analysis was conducted at 95% confidence interval so as to establish the relationship between dependent and independent variables. The results of the analysis were presented in the form of tables, charts and percentages in a manner that is both simple and comprehensive and then used to complete the research report as per the survey objectives and research questions. The study found out the benefit of electronic procurements which included visibility of spent, increases productivity, reducing costs, encourages use of technology and improved controls and that company had not adopted electronic procurement and that technology had inhibits electronic procurement in most of the organizations due to technological changes. The study further reveal that if employees do not have adequate knowledge and skills in information and communication technology, the implementation of Electronic Procurement may not be successful. The study found out legal framework influences the implementation of Electronic Procurement greatly where legal issues relating to licensing and issues of copyright, regulatory compliance, sharing of information, coupled with poor systems and structures where major inhibitors of Electronic Procurement. The study concludes that technology was part of the challenge to Electronic Procurement implementation in the construction sector, employees in the construction sector are not ready to accept Electronic Procurement in their organization due to incompetence and preference, top management did not support Electronic Procurement initiatives in the organization appropriately and legal framework being the back bone of any business operation was also found to have a major impediment to the implementation of e-procurement systems. The study recommends that the organizations in the industry should hire competent staffs and deploy them appropriately according to their skills and competence, change initiatives should begin and supported by the senior management so that the employees can follow suit should strengthen its internal regulations to help the organizations to adhere to code of good practice as so that they can influence the economy much better.

Keywords: Electronic Procurement, Construction Sector, Implementation and challenges

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LIST OF ACRONYMS AND ABBREVIATIONS

AIA – American Institute of Architects

CBR – Construction Business Review

GDP – Gross Domestic Product

IDT – Innovation Diffusion Theory

IFMIS – Integrated Financial Management Information System

IS – Information System

SPSS – Statistical Package for the Social Science

TAM – Technology Acceptance Model

UTAUT – Unified Theory of Acceptance and Use of Technology

DEFINITION OF TERMS

Electronic Procurement: refers to the use of Internet-based (integrated) information and communication technologies (ICTs) to carry out individual or all stages of the procurement process including search, sourcing, negotiation, ordering, receipt, and post-purchase review

Construction Sector: It encompasses all the businesses that build either houses and office buildings or highways and bridges, as well as those who do the specialized work of electricians, plumbers and masons, who are typically involved in the construction of all kinds of structures.

Implementation: is carrying out, execution, or practice of a plan, a method, or any design, idea, model, specification, standard or policy for doing something. As such, implementation is the action that must follow any preliminary thinking in order for something to actually happen**.**

Challenges: A set of factors that make the execution of a task difficult

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

According to International Business Machines Corporation (IBM, 2012) e-procurement is the acquisition of direct and indirect products and services using the internet and new technologies to facilitate a seamless, end-to-end stream of strategic procurement activities by connecting buyers with suppliers. A properly implemented system can connect companies and their business processes directly with suppliers while managing all interactions between them. This includes management of correspondence, bids, questions and answers, previous pricing, and multiple emails sent to multiple participants. A journal article by Charvat (2011) published in the American Institute of Architects (AIA) noted that procurement is the most essential function in a construction company since constructions involve a great deal of purchases. Construction companies have to acquire a lot of raw materials in order to complete the various projects. In this regard, the procurement personnel should be effectively chosen and supported in order to discharge this essential function in the organization.

Walters (2008) suggested that to ensure customer satisfaction and customer loyalty, organizations have to work with their suppliers as well as the customers to ensure delivery of desired goods just in time. For such supply chain integration that delivers value to happen, organization use ICTs to enhance supply chain efficiency. E-procurement, enabled by advance in ICTs, has been promoted as one way of improving procurement efficiency and effectiveness (Musau, 2015). This study investigated the contribution of e-procurement to procurement performance in leading supermarkets in Nairobi.

E-procurement is very important when it comes to improving procurement performance and by extension organizational performance (Manrodt, Gibson, & Stephen, 2005). E-

procurement involves use of software to manage and execute procurement functions. The software used in e-procurement integrates procurement functions and creates interfaces that enable fast and cost friendly execution of activities like tendering, catalogues generation and management, supplier contracting and management, and general communication (Manrodt et al., 2005). The automation of processes helps make transactions quick, enhances relationships through more contact between procuring entities and suppliers, provides evidence of transactions, and reduces paper work and related costs among other benefits (Egbu, Vines & Tookey, 2003). Due to the numerous benefits of e-procurement, many organizations both private and public are opting for e-procurement systems

According to Macharia (2014) the Kenyan construction industry comprises all businesses entities engaged in the construction of housing units, roads among other infrastructure. In 2012, the industry grew by 4.5% whereas in 2013 the industry grew by 5.5% (K'akumu, 2015). An increase in the rate of the Kenyan construction industry shows that are more opportunities for firms to invest in this industry in future. The growth in the construction can be attributed to an increase in the value of approved building plans in the housing sector (Macharia, 2014). The value of approved building plans in the housing sector increased by 34.2% between 2012 and 2013. The rapid growth in the population of urban areas has exerted an upward pressure on the demand for housing leading to an increase in the activity within the real estate sector. The growth in the Kenyan construction industry can also be depicted by an increase in the consumption of cement from 2.6 million tons in 2012 to 4.2 million tons in 2013 (Ndaiga, 2015). Cement is a key component for construction and the demand has continuously been on rise clearly indicating that the construction sector is rapidly growing. There are more than five cement manufacturing companies in Kenya alone.

1.1.1 Global Perspective of e-Procurement

A study was carried out to identify and evaluate drivers and barriers to Electronic Procurement in the UK construction industry. A focus group discussion was used to identify possible drivers and barriers of e-Procurement. The focus group was composed of five experts in the e-Procurement field. Questionnaires were formulated from the focus group and administered through a web-based platform (Eadie, Perera and Heaney 2010). Improvement in communications is one of the drivers of Electronic Procurement identified from this study. Another important driver of e-Procurement in the UK construction was the reduction in administration costs. Two barriers to e-Procurement were also identified. The first barrier was security for e-Procurement transactions. The second barrier to e-Procurement was the uncertainty that surrounds the legal system of government e-Procurement.

A research study was carried out to evaluate the state of e-tendering in the Nigerian construction industry (Oyediran & Akintola, 2011). The study established that although there are many benefits associated with e-tendering, though there are quite a number of challenges that stifle the process of e-tendering in the Nigerian construction industry. A cross-sectional research design was used to evaluate the state of the art of e-tendering in the Nigerian construction industry. Architects quantity surveyors, contractors and engineers in the industry were used as respondents from whom data was collected to evaluate the state of e-tendering in the construction industry (Oyediran & Akintola, 2011). It was established that e-tendering faces a number of challenges. One of the challenges is the fact that industry lacks basic facility to facilitate e-tendering. Another challenge associated with e-tendering in the construction industry is the fact that employees lack necessary skills and proficiency to handle e-tendering processes. Other challenges facing e-tendering within the Nigerian construction industry include irregular

power supply, the high cost of establishing an Electronic Procurement system and poor telecommunication network.

1.1.2 Kenyan Perspective on e-Procurement

Kenya has recently focused on e-Procurement as a means of reducing corruption, reduce costs and bring efficiency in its public sector. The Kenyan government has launched and is implementing e-Procurement by all public entities. Kenya is the first African country to incorporate an e-Procurement system into a devolved government (IFMIS Department, 2014). The system helps to monitor the transactions through the purchasing life cycle and does provide features that include approval hierarchy and an item master to standardize and manage the use and price inflation of items within government departments. All government suppliers are required to be duly registered with the Registrar of Companies, which helps bring greater tax compliance and certification accuracy, as well as enabling productive collaboration with suppliers.

E-procurement enhances performance of procurement by reducing transaction costs but most critically by reducing fragmentation in procurement (Musau, 2015). E-procurement is supposed to be an end-to-end solution that integrates and streamlines procurement processes in an organization (Abdi, 2012). However, studies show that adoption of e-procurement differs across sectors and across organizations. Musau (2015) reports that e-procurement is at the initial stages of adoption in Kenya: both for private and public organizations.

In the public sector, most organizations in the country have already adopted technology. IFMIS Department (2014) noted that the government had lagged behind the private sector. Adoption of e-Procurement has been characterized by rapid reforms in the public sector. This led to the creation of the Public Procurement Oversight Committee. This was followed with the implementation of e-Procurement in the public sector that has seen many government

procurement functions automated. The e-Procurement implementation was a medium term objective that was to be implemented by 2007 (Malela, 2010).

1.2 Statement of the Problem

Procurement and stores department in any organization is always considered the most important department in its contribution to organizations efficiency and effectiveness. Most companies continue to lose millions of shillings and time in purchasing various products. This has forced organizations to opt to e-procurement in order to cut off on cost among others.

Due to advancements in technology, e-Procurement has been vouched for as a solution to ensuring better acquisition and payment for the raw material needed in a construction sector (K'akumu, 2015). In this view, there is a need to establish factors that would inhibit implementation of e-Procurement in the Kenyan construction sector. This will help organizations in the sector to identify and manage the possible distracters to Electronic Procurement in their organizations. E-Procurement has a number of benefits. For instance, Electronic Procurement in an organization reduces costs, ensures visibility of spend, increases productivity, enhances controls and encourages use of further technology in an organization (Ateto, Nyanamba, Ondieki and Okibo 2013). However, implementation of e-Procurement in an organization is associated with several challenges.

Several studies have been undertaken by various researchers on challenges to implementation of e-procurement for example, Lin, Huang, Jalleh & Tung (2010) found that some health care practitioners related challenges of e-procurement to disaster recovery and security. They emphasized the importance of having a backup/alternative e-procurement system and IT disaster recovery and data security contingency plans in case of system failure or other security issues. While Aini & Hasmiah (2011) studied on e-procurement implementation: a case of the government of Malaysia and the findings show that challenges of e-procurement

implementation in government sector are not only related to software integration, data management and roll-out strategy, but also to legal and administration procedures, information technology (IT) infrastructure, outsourcing contract and IT skills.

Makau (2014) focused on the challenges facing e-Procurement in the public sector. Some of the challenges identified and examined in the study include managerial commitment, challenges arising from the legal framework in government's procurement, the competence of employees in information communication technology and technology-related challenges. He only established the challenges facing implementation of Electronic Procurement in the public sector.

Despite all this studies it is however not clear that any of this past studies on e-procurement implementation has focused on challenges facing the implementation of e-procurement in Kenya's construction sector. This research therefore seeks to address the existing gap while focusing on building and construction companies with their operational base in Nairobi. It seeks to find the answer to the following research question; what are the challenges facing e-Procurement implementation in the Kenyan construction industry?

1.3 Objectives of the Study

1.3.1 General Objectives

The main objective of the study is to determine the challenges facing e-Procurement implementation in the Kenyan construction industry.

1.3.2 Specific Objectives

i. To investigate the effects of technology on electronic procurement in Kenyan construction sector.
ii. To examine whether employee's competence in information communication technology is a challenge on adoption of electronic procurement at Kenyan construction sector.

iii. To find out the extent in which managerial commitment is a challenge on adopting electronic procurement at Kenyan construction sector.
iv. To find out whether public procurement regulation framework is a challenge on adoption of electronic procurement at Kenyan construction sector.

1.4 Research Questions

This research study seeks to provide answers to the following research questions:

i. What is the effect of technology on the implementation of e-Procurement in the Kenyan construction sector?
ii. How employee competence in information communication technology does affects e-Procurement implementation in Kenyan construction sector?
iii. What is the role of managerial commitment affect the implementation of e-Procurement in the Kenyan Construction sector?
iv. What is the effect of legal infrastructure on the implementation of e-Procurement in the Kenyan Construction sector?

1.5 Justification of the Study

Kenya has a well-established building and construction industry (K'akumu, 2015). The country has high quality engineering services as well as architectural design services. The Kenyan construction industry is expected to grow in the future because of the plan by the government to facilitate the re-habilitation of roads as well as housing units. The government offers incentives to the construction sector to attract more investors. One of the incentives offered by the government is the tax deductibility for loans used to invest in housing (Momade, 2013). The interest that a person pays on the loan borrowed with the objective of improving his premise is an expenditure that is tax deductible (Kenya Infrastructure Report, 2015). Momade (2013) noted that the amount is deducted from the person's taxable income up to a maximum value of Ksh. 150,000 per annum. Contributions to home ownership savings plan are also deductible from

taxable income up a maximum value of Ksh. 48,000 per annum. These incentives have played an important role in improving the level of investment in housing and construction projects. The construction industry in Kenya is, therefore, poised for an improvement in the near future owing to the incentives as well as other initiatives developed by the government.

There has been a push by the government of Kenya for public entities to adopt e-Procurement. The push was informed by the knowledge of the fact that e-Procurement brings forth an improvement in efficiency, reduction in cost as well as an improvement in transparency (IFMIS Department, 2014). Procurement activities can be understood from three perspectives: direct procurement, indirect procurement and sourcing. Direct procurement involves the buying of goods and facilitating the manufacture of finished goods. Indirect procurement is the process through which supplies necessary for the daily running of the organization are selected, purchased and managed. Sourcing, on the other hand, is the process by which a product is bought from an outside supplier. It can be applied in direct and indirect procurement activities and involves four major processes: information, negotiation, settlement and finally after-sales services. The adoption of e-Procurement in organization is important because of the many benefits accrued to it (Van, Herselman, & Van, 2010). For instance, it leads to an improvement in efficiency of operations, reduction in costs and also improvement in transparency during the entire procurement process.

The implementation of e-Procurement in the Kenyan construction sector, however, faces a number of challenges. The legal framework governing the implementation of e-Procurement may also pose a challenge to implementing e-Procurement in the country (Makau, 2014). The laws regarding the formation of contracts between parties to the Electronic Procurement may impede its effective implementation. It is, therefore, important to examine the legal framework government procurement to establish whether it may have any effect on the manner in which

Electronic Procurement is implemented. The competence of employees in information communications technology also plays a very important role in affecting the implementation of procurement (Eadie, Perera & Heany, 2010). This factor may either bring forth successful implementation of Electronic Procurement or may pose challenges to the process. Lastly, the commitment of the management towards implementing Electronic Procurement may also become a challenge especially if the management is not willing to adopt it. Management especially at senior levels plays a critical role of budget allocation and general overseeing of the implementation process.

1.6 Importance of the Study

The results of this research study would be useful to all the stakeholders in the construction industry. They include investors, procurement specialists and other key stakeholders in the industry. The managers in the industry would be able to understand challenges that face e-Procurement and the strategies that could be used to overcome such challenges. This would play a very important role in enabling managers to organize their organization's e-Procurement processes in a manner that would result into huge benefits for the organization. Once the challenges associated with Electronic Procurement have been overcome, the organization would be able to enjoy the benefits associated with it.

This research study would, therefore, be useful to the managers in the procurement field as it would enable them to adequately identify challenges of e-Procurement, find solutions to the challenges and hence, bring forth improvement in organizational performance.

The findings of this research study would also be useful to policy makers in the construction industry. The legal framework governing procurement poses a challenge to the procurement industry, and then it would be advisable for the regulators to come up with necessary changes in the legal system that can bring forth improvement in e-Procurement. Policy makers would

benefit from this research study by understanding the impact of their policies on e-Procurement and knowing changes that could be undertaken in order to bring forth an improvement in Electronic Procurement.

1.7 Scope of the Study

The study was carried out in the context of 58 registered building and construction companies with their operational base in Nairobi. It aims at establishing the challenges that have led to the slow uptake of e-Procurement in the organization and come up with recommendations that would remove the barriers. The study targeted 1 procurement manager, 1 supply chain manager and at least 3 procurement supply chain officers from each company and this gave a total of 86 respondents.

1.8 Limitation of the Study

Due to the veil of confidentiality surrounding construction companies most of respondents were reluctant to participate. However, the researcher assured the respondents that the findings were used for academic purposes only and that their information was held confidential. Due to their busy schedule most of the procurement managers had no time to participate in the study. The researcher requested the respondents to secure some time and offer information for the study. The researcher also selected data collection instrument that was less time consuming and administered with ease. This ensured collection of sufficient data for the study. The procurement managers of the companies were also given ample time to fill the questionnaires.

This study was limited to the selected construction companies in Nairobi county hence the results would not be generalized. This is because different construction companies are located in different market environment unique from each other and therefore generalizing the findings would hinder the actual status of the situation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the information from other researchers who have carried out their research in the same field of study. The specific areas covered here are theoretical review, empirical review and the conceptual framework.

2.1.1 Concept of e-Procurement

Electronic Procurement is the business-to-business or business-to-consumer or business-to-government purchase and sale of supplies, work, and services through the internet as well as other information and networking systems, such as electronic data interchange (Van, Herselman & Van, 2010). It can also be perceived as process through which goods and services are acquired electronically. E-Procurement can also be perceived as the automation of an organization's procurement function through which vendor selection, sourcing, procurement, tracking of shipment status and payment processes are carried out in an online environment (Madina, 2013).

In e-Procurement, all activities within the procurement function such as searching, ordering, sourcing, negotiating, receipt, payment are carried by use of an internet-based information communication technology (Graham, Manikas and Folinas 2013). The introduction of e-Procurement has a great benefit on organizations. First, it has a led to a reduction in the time spent in completing procurement processes through manual delivery of orders and payments. It has also led to the reduction of errors that arise from the exchange of papers during the procurement process (Van, Herselman & Van, 2010). Implementation of e-Procurement has not only led to fast procurement processes but has also led to the reduction of errors thus improving the accuracy and saving huge amounts of resources for organizations. Organizations that have

successfully implemented e-procurement have managed to cut procurement costs to a least 30% according to Madina (2013).

2.2 Theoretical Review

The study was based on four theories which include innovation diffusion theory, technology acceptance model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT) and Delone and McLean IS success model. The theories are reviewed separately and are used to inform the concept of e-procurement.

2.2.1 Innovation Diffusion Theory (IDT)

Developed by Rogers (1962), the innovation diffusion theory explains how a new idea, product or innovation is adopted in a social system. Accordingly, some people adopt the innovation faster than others. There are five categories of adopters based on how early they adopt the new idea. Innovators are always the first to adopt a new idea. They have an insatiable interest in new ideas and would, therefore, adopt the new ideas without being compelled to do. Early adopters are opinion leaders. They enjoy leading and appreciate new opportunities. The early majority adopt the new ideas earlier than the average person. Before they adopt a new idea, they must ascertain that it works. Success stories concerning the innovation motivate them to adopt it. The late majority is also skeptical and would, therefore, only adopt a new innovation after it has been tested by majority. Laggards are conservative and hence averse to change. Although the adoption of Electronic Procurement brings uncertainty, it is prudent for the organizations to be aware of the advantages and risks of such innovation. Rogers (1962) advanced that the timing of innovation adoption does influence the market share commanded by the organization.

The attributes suggested by IDT include observability, complexibility, compatibility, trialability and relative advantage. However, past studies have shown that only two variables;

relative advantage and compatibility have been consistently been found to be positively related to the adoption of Electronic Procurement. On the other hand complexity has been found to negatively relating to the adoption of Electronic Procurement (Donnellan, 2006). Since different agencies with varied intensities will perceive the adoption of innovation different, it will be prudent to take perception based characteristics into account rather than salient features of technology that do not vary across various agencies. Once the organizations are convinced on the benefits of IT, they will then integrate it with its other department's thus easy and quick adoption. They will also dedicate both their financial and managerial skills towards the adoption.

A perceived benefit refers to relative advantages that technology will bring to an organization after implementation. Many studies have shown that perceived benefits greatly impact Electronic Procurement adoption (Donnellan, 2006). One of the limitations of this theory is that it does not consider social support or individual resources. This theory suggests that players in the construction sector must perceive the benefits associated with Electronic Procurement implementation and must aim to counter all possible challenges. This would specifically influence the management's support. If the top management and other key stakeholders have perceived the associated benefits and are committed to support the implementation process, the project will succeed (Rogers (1962).

2.2.2 Technology Acceptance Model (TAM)

The technology acceptance model is used to study the willingness of people to adopt a new technology. It was developed by Davis (1986) to explain the factors that influences the acceptance of new information technology. According to TAM the two factors that influence acceptance of innovation are perceived usefulness and complexity of the technology. The degree to which employees believe that using as system will improve their performance will

significantly impact on the adoption of Electronic Procurement. On other hand, perceived complexity of the system will discourage the acceptance of the innovation. It is therefore important for administrators or managers to gauge the attitude of the employees before implementing the system to avoid implementation failures. The attitude then determines an individual's behavior towards the new technology.

To this end, managers and key Electronic Procurement implementation team ought to understand the external variables amidst other influencers of Electronic Procurement implementation. The perceived usefulness and ease of use should be well communicated so as to overcome negative attitude towards use and to inculcate positive behavior of intention to use the Electronic Procurement system so as to obtain actual use of the technology.

2.2.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT model explains the acceptance of new technology as being influenced by an individual's expectations of the performance of the technology, efforts to be expended and the technology's social acceptance as well as the availability of facilitating conditions (Lawan & Jinjiri, 2012). The four factors are moderated by the gender, age and experience of the individual as well as the voluntariness of the use of technology. In this case, if the adoption of the technology is mandatory then it would be implemented regardless of the way individuals perceive it.

Performance expectancy, social expectancy and effort expectancy are intervened by gender, age, and experience as moderators. Some individual will accept the adoption of innovation if they believe that it will improve their job performance thus performance expectancy. On the other hand, employees will easily accept the adoption innovation if they believe that the introduction of the system will reduce their effort in performing the required duties. Social acceptance will also influence the degree of acceptance of innovation if an

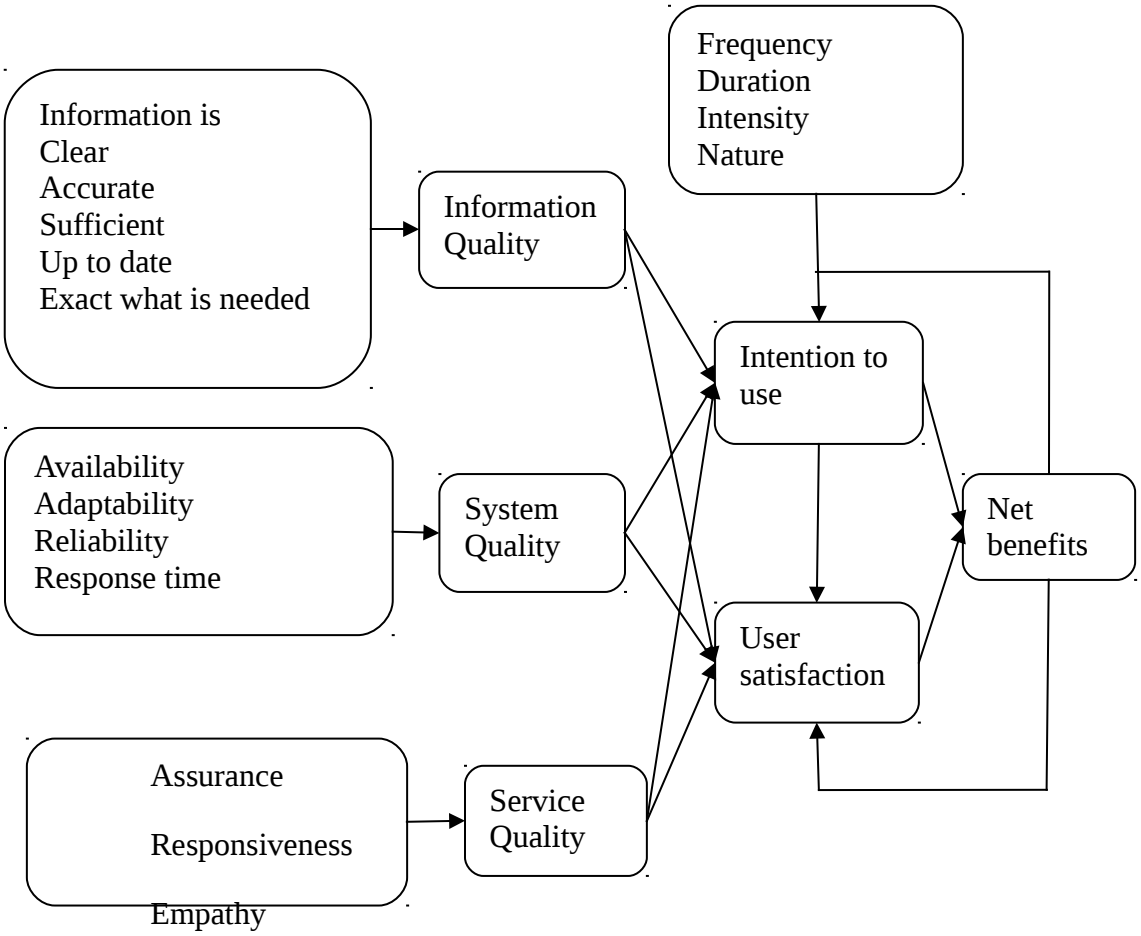
individual believe that by using the system will influence her social status and bring pride and self-esteem. This model has been largely used in the acceptance of Electronic Procurement and governments all over the world.

2.2.4 Delone and McLean IS success model

The Delone and McLean IS success model measures the willingness of people to adopt a new technological innovation. The model has three independent factors: net benefits, intention to use the technology and user satisfaction with the technology.

Delone and McLean IS success model

Figure 1



Source: DeLone & McLean (2003)

The dependent factors include information quality, system quality, IS use, user satisfaction, individual impact, organization impact and service quality (Filipe & Cordeiro, 2009). Consequently, information technology system can be accessed on the basis of system, service and information quality. Since then, they have been researches done on the model either to extend it or remove some variables. The updated model include the following; information quality, system quality, service quality, user satisfaction, system usage and net benefits. Certain benefits will arise as a result of using the system. These benefits will therefore influence the adoption of Electronic Procurement either negatively or positively. These variables then affect

people use or intention to use the technology as well as the level of satisfaction derived from the use. The use of the technology would bring forth some net benefits. If the benefits are positive, they would encourage continued use of the technology but if negative they would discourage the use of the technology (Filipe & Cordeiro, 2009).

2.3 Empirical Studies

A study was carried out by Eadie, Perera & Heaney (2010) to identify and evaluate drivers and barriers to Electronic Procurement in the UK construction industry. A focus group discussion was used to identify possible drivers and barriers of Electronic Procurement. The focus group was composed of five experts in the Electronic Procurement field. Questionnaires were formulated from the focus group and administered through a web-based platform (Eadie et al., 2010). Improvement in communications is one of the drivers of Electronic Procurement identified from this study. Another important driver of Electronic Procurement in the UK construction was the reduction in administration costs. Two barriers to Electronic Procurement were also identified. The first barrier was security for Electronic Procurement transactions. The second barrier to Electronic Procurement was the uncertainty that surrounds the legal system that government Electronic Procurement.

Daud, Mohammad, Azmi & Mohamed (2013) carried a study to examine factors that influence the use of Electronic Procurement among contractor firms in Malaysia. The study focused on the perceived ease of use, attitudes towards Electronic Procurement and its usefulness as well as the people's intention to use Electronic Procurement. One hundred and seventy eight questionnaires were administered to personnel in construction companies in Malaysia. The study established that Electronic Procurement is perceived to be useful within the Malaysian

construction company and that is why managers and personnel in the industry have strong intention towards using it despite its challenges (Daud et al., 2013).

Makau (2014) carried out a study to investigate challenges that face the adoption of electronic procurement in the public sector in Kenya. According to this research study, the implementation of Electronic Procurement would bring forth huge benefits for organizations in the public sector through improvement in transparency, efficiency and reduction costs. The study was carried out the Nairobi Water and Sewerage Company. A sample of 86 respondents was selected from the population of 203 employees in the company. Data was gathered through the use of questionnaires. The analysis was carried out by use of both quantitative and qualitative methods. The presentation of results was done using pie charts, tables and bar graphs. The study established four challenges of adopting Electronic Procurement in the public sector. They include technological challenges, the competence of employees in information and communication technology, legal framework that may at times hamper effective implementation of Electronic Procurement and inadequate managerial commitment to Electronic Procurement adoption.

2.3.1 Effect of Technology on Electronic Procurement Implementation

A study conducted by Kangongo & Gakure (2013) sort to identify the impact of Electronic Procurement in the automobile industry in Kenya in the organizational, managerial, environmental and technical aspects. In the technical aspect, which also referred to the technological aspect of Electronic Procurement, the findings indicated that incompatible technological architecture decreases the efficiency in operations if the Electronic Procurement infrastructure. This further decreases the speed of the systems, which further causes user frustration. He found out that technological compatibility issues significantly affected majority of the firms, whether in the automobile sector or any other sector (including the construction

sector), especially because the internet is a driving factor in Electronic Procurement. If a firm fails to identify software that integrates with the platform already in existence, duplicate work steps are created.

Beauvallet, Boughzala and Assar (2011) find out that if there development process of the virtualization platforms is not completed, performance handicaps is suffered by the implementation process of Electronic Procurement. Inadequate connectivity and access, inclusive of limited absorption and Electronic Procurement technologies utilization can also cause these performance handicaps.

Entities have a challenge of buying technology which is referred to as “closed”. This “closed” technology is not able to communicate with the respective technologies, which further hinders the entities from accessing the broader network of the constituencies in the supply chain arena. According to the European Commission (2012), the information technology infrastructure level and how it is used, in as far as the developing countries are concerned, continues to remain an obstacle to a full incorporation of Electronic Procurement.

Panda, Sahu and Gupta (2011) identified that the reliability and availability of software and hardware in Electronic Procurement is significant. If suppliers have challenges in trusting of using the software or hardware put in place, it leads to issues that significantly challenge the trust of the customers placed in the suppliers. This is why it is relevant to ensure that the information system put in place not only improves effectiveness, but it also efficient for both the suppliers and the customers. The system should also not be complex and allow for integration or upgrading with other systems in future. The technology should stay as relevant possible in the industry

2.3.2 Effect of Employee Competence in ICT on Electronic Procurement Implementation

There is need for ensuring that employees are not only equipped with ICT skills in order to successfully implement Electronic Procurement, but also that the skills and knowledge are constantly updated. The ICT industry is constantly changing and so the industries or arenas dependent on ICT are changing as well. Constant research is needed in order to ensure that the employees are up to date with the knowledge needed to place them at a competitive advantage (Mbeche, Ngari & Richu 2014)

Mbeche, Ngari & Richu (2014) conducted a research on the Electronic Procurement skills level in employees as a challenge affecting Electronic Procurement implementation. The focus was on Nakuru Water & Sanitation Services Ltd, which is based in Nakuru, Kenya. The researchers identified that the level of employees' skills in Electronic Procurement positively affected Electronic Procurement implementation. This therefore means that if the relevant employees in the Electronic Procurement arena fail to be equipped with the relevant skills, there will be failure in implementing Electronic Procurement.

A study conducted by Mose, Njihia & Magutu (2013) sort to identify the most important success factors and challenges pertaining to Electronic Procurement. The focus was large scale manufacturing firms. The location was in Nairobi, Kenya. The results identified that the lack of regular use of technology by the employees was one of the challenges affecting Electronic Procurement in Kenya. This means that employees are not ready to get out of their comfort zones. This challenge can be linked to another challenge identified as resistance to change. Employees were likely to use the traditional approaches of procurement that they were fond of using rather than embracing Electronic Procurement. Mose et al (2013) also noted that employee readiness to make Electronic Procurement to succeed greatly impacted its implementation process. It could be further noted that some of the identified readiness or willingness was brought

about by the lack of technological skills characterizing a significant share of employees in the organizations.

2.3.3 Effect of Managerial Commitment on the Electronic Procurement Implementation

In order to ensure that the top level management is in support of the Electronic Procurement process, there are several factors that must be considered. The management itself must know or have an understanding of the implementation process. This is also aligned by having ICT or Electronic Procurement skills so that the management team can be looked up to by the other employees hence acting as a source of inspiration. If the management shows resistance in embracing the Electronic Procurement changes evident in the market, then the employees will not act any differently from the team managing them.

Mohammadi (2013) focuses on the success factors of implementing Electronic Procurement on the automotive industry in Iran. According to his findings, engagement of the managers at the top levels of the organization in the implementation process of Electronic Procurement. The researcher notes that many entities are dependent on the commitment and motivation of these top level managers. This has been seen as critical in the developing and implementing Electronic Procurement. The overall findings by Mohammadi (2013) indicate that top management commitment is the most significant factor implementing Electronic Procurement. However this is only identified in the other studies focusing on other areas. When it comes to Electronic Procurement implementation in the automotive industry, process engineering is the most significant factor. Nevertheless, support from the top-management was considered to be crucial in Electronic Procurement implementation.

The United Nations led an examination on the efficiency and straightforwardness levels out in the open acquisition covering sub-Saharan Africa and Asian nations (UN, 2011). The examination discoveries showed that the overhaul Electronic Procurement frameworks crosswise

over private division and open areas were reliant on the top administration backing and specialized knowledge of the CEOs. The United Nations research discoveries tend to reverberate the Swiss research where it was observed that administration assumed a basic part in the effective execution of e-obtainment.

In the research conducted by Kangongo & Gakure (2013), the examination discoveries recommend a strong linkage between top administration backing and information levels as key in deciding the level of accomplishment in the e-obtainment usage. E-acquisition usage rides on learning favorable position and the goodwill from top administration. These elements assume a part in the accomplishment of e-obtainment usage. Mose et al. (2013) further notes that the management should be involved in setting the goals and vision which are important to the entity's objectives. Formulation of policies and setting of strategies would take place in order to facilitate technology adoption. Equally, Mose et al (2013) continue to indicate, the management should offer the finances needed for the Electronic Procurement infrastructure development so that it can be adopted easily.

2.3.4 Effect of Legal Frameworks on Electronic Procurement Implementation

Kagendo (2012) identifies that the Public Procurement System in Kenya has developed from a rough framework with no regulations to an organized legitimately controlled framework. The Government's Acquisition framework was initially contained in the Supplies Manual of 1978, which was supplemented by handouts that were issued every now and then by the Treasury. The Executive of Government Supply Services was in charge of guaranteeing the best possible recognition of the Manual's procurements. Open Procurement and Disposal Act, 2005 made the Public Procurement Oversight Authority (PPOA), the Public Procurement Admonitory Board (PPAB) and the Public's duration Procurement Complaints, Survey and Appeals Board as the

Public Procurement Administrative Review Board (PPARB) to hear bids and dissensions emerging from acquirement forms openly elements.

The legal description as indicated by Kagendo (2012) is seems to focus on the overall procurement process. There are no legal specifications on the E-Procurement process. As indicated in the international law, the Kenyan legal framework is also not clear on some issues such as the engagement of government entities on online transactions. This places a challenge on the overall integration of technological procurement advancements in the public sector.

2.4 Critique of Empirical Literature

In the technological aspect of Electronic Procurement implementation, it has been identified that accuracy, reliability and accessibility are relevant in ensuring that the success of Electronic Procurement implementation is realized. However, realization of these factors is only achieved if the alignment of the systems is achieved, hence the need for constant assessment of the overall Electronic Procurement systems (Kagongo & Gakure, 2013; Reddick, 2004; Goo & Nam, 2007; Wong et al., 2007).

When assessing the impact of employee ICT knowledge on Electronic Procurement implementation, it was identified that this knowledge is directly linked to the success or failure of Electronic Procurement implementation. When employees lack ICT skills and knowledge for various reasons, it was identified that an entity had a significant challenge in implementing Electronic Procurement. Moreover, the employees' lack of readiness to learn new technological skills and their resistance to change also hindered the implementation process (Davila et al., 2002; Mbeche et al., 2014, Mose et al., 2013, Eadie et al., 2006).

These studies concurs that ICT acknowledgment is a cross-industry challenge. On the other hand, the degree through which ICT appropriation in acquisition procedures and its consequences for association execution is still not clear. For researchers, ICT and its selection in

acquisition is an up and coming wonder in the business crew, and should be basically broke down. For obtainment directors, ICT reception in acquirement applications makes a need to comprehend the effect of data innovation on the accomplishment of competency on a reasonable level.

There are no studies focusing on the implementation of Electronic Procurement in the construction industry whether locally or globally. Majority of the studies are focusing on the automotive industry (Kangongo & Gakure, 2013; Mohammadi, 2013). The literature available on the impact of the legal framework on Electronic Procurement implementation especially in the Kenyan context is also limited. Most of the literatures have focused on the international scene (Bickerstaff, 2009; European Union, 2012).

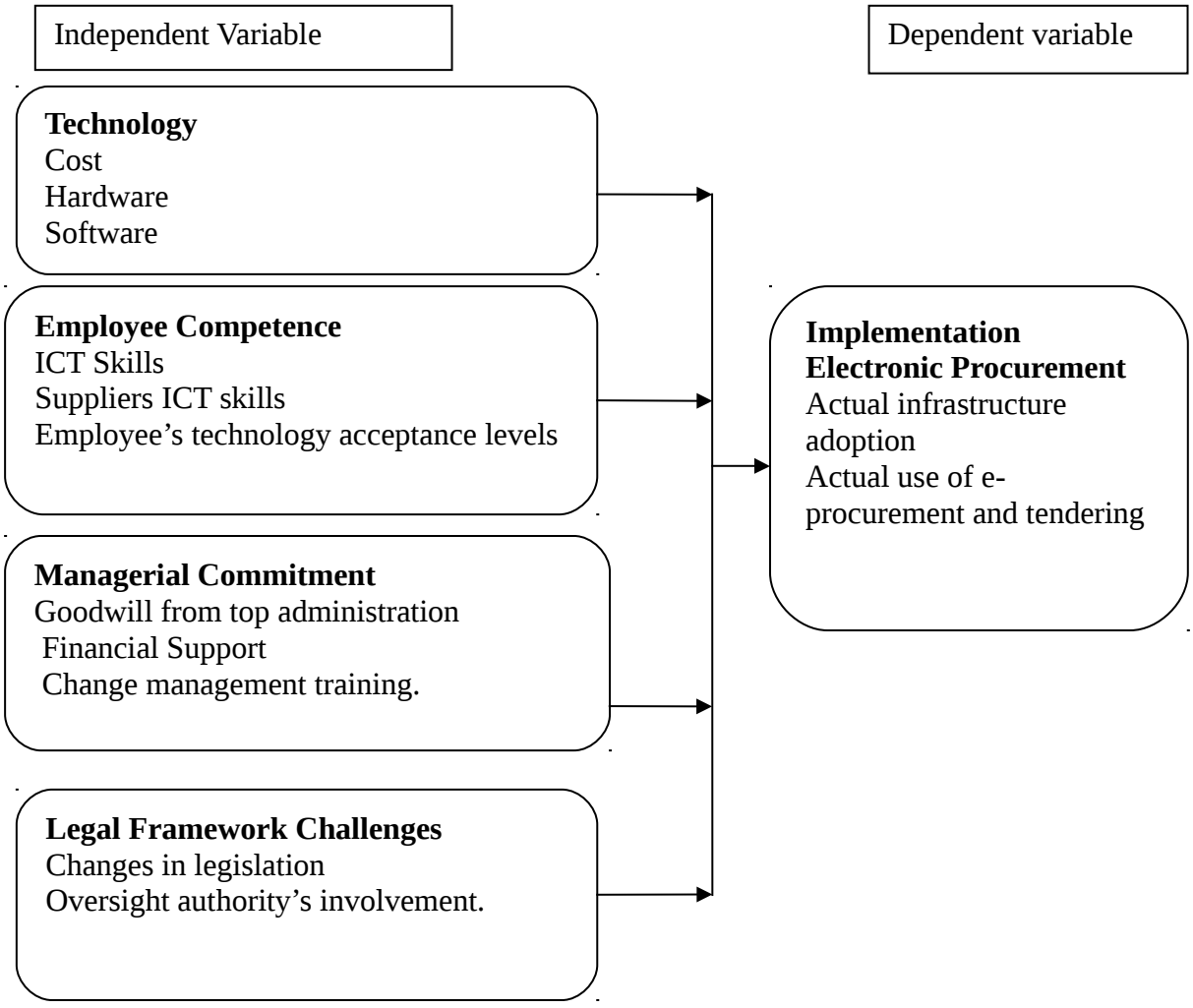
Kagendo (2012) appears to present clear limitations in the legal system in Kenya in as far Electronic Procurement is concerned. Although the relevant changes are focused on the general procurement arena, there are no specific laws handling Electronic Procurement. It is noted that the overall legal framework and in Kenya especially, is not evolving at the same pace as the technological evolvement present in the business sector.

Previous studies by (Ateto, et al., 2013; Pani & Agrahari, 2007 and Makau, 2014) have focused on the challenges facing Electronic Procurement in the public sector. They have also focused on factors that influence successful implementation of Electronic Procurement as well as on the drivers of Electronic Procurement (Eadie et al., 2010). Additionally, there has been more focus on challenges facing Electronic Procurement in the public sector. There is, therefore, a gap to be filled particularly in references to Electronic Procurement implementation in the private sector. This study seeks to fill this gap by evaluating challenges facing Electronic Procurement in the construction industry in Kenya.

2.5 Conceptual Framework

The independent variables are Managerial Commitment, Legal Framework challenges, and Employee Competence and Information Technology in Infrastructure. On the other hand the dependent variable is Implementation of Electronic Procurement as represented on Figure 2.3.

Figure 2: Conceptual Framework



Source: Researcher 2015

Technological Challenges in Electronic Procurement is an information technology associated strategy. Adoption of technology involves a lot of planning, identification of right IT experts and costs since IT is usually expensive. To this end, technological challenge may derail adoption of Electronic Procurement in an organization. IT adoption is also a big risk due to costs including down payments involved. To this end, Electronic Procurement may be adopted if the executives are ready to spend big. Information security (including data privacy, storage, and management) are other technological challenges.

Employee Competence affects the implementation of Electronic Procurement**.** Electronic Procurement does not only require huge cost and infrastructural outlays. It requires that an organization has tech-survey employees who are receptive to technological changes and do not mind continual training as the platforms being used keeps advancing. Potential resistance to technological change or employee lack of requisite skills may impede Electronic Procurement adoption.

Managerial Commitment contributes to implementation of Electronic Procurement**.** The role of the executives in an organization is essential as it influences various aspects in an organization. The decision to adopt Electronic Procurement should in the first-place be born and supported by senior executives. Lack of support from managers including top company executives can slow adoption and implementation of appropriate Electronic Procurement.

Legal Framework has a major role in the implementation of Electronic Procurement**.** Information technology today is characterized with fraud monitoring; social media, Cloud computing, technology integration and up-gradation, licensing and copyright requirements, regulatory compliance, evaluating and assessing the IT governance process, and other regulations can slow adoption of Electronic Procurement.

2.6 Operationalization of Variables

Table 1: Operationalization of Variables

Objective	Variable Type	Indicators	Type of data analysis
To investigate whether technology is challenge in adopting electronic procurement in Kenyan construction sector	Independent Technology	Cost Hardware Software	Descriptive Correlation
To examine whether employee's competence in information communication technology is a challenge on adoption of electronic procurement at Kenyan construction sector	Independent Employee competence	ICT Skills Suppliers ICT skills Employee's technology acceptance levels	Descriptive Correlation
To find out the extent in which managerial commitment is a challenge on adopting electronic procurement at Kenyan construction sector	Independent Managerial commitment	Goodwill from top administration Financial Support Change management training	Descriptive Correlation
To find out whether public procurement regulation framework is a challenge on adoption of electronic procurement at Kenyan construction sector	independent Regulation framework	Changes in legislation Oversight authority's involvement	Descriptive Correlation
	Dependent Implementation Electronic Procurement	Actual infrastructure adoption Actual use of e-procurement and tendering	Descriptive Correlation

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a succinct detail of the method used to conduct the study. In detail, it contains the research design, sampling design and sample size, data collection and data analysis. The chapter therefore forms the backbone of this study.

3.2 Research Design

This study followed a descriptive research design. This type of research describes what exists and may help to uncover new facts and meaning. The purpose of descriptive research is to observe, describe and document aspects of a situation as it naturally occurs (Kothari, 2004). The purpose of a descriptive research project is to provide a picture of situations as they naturally happen. This research will use quantitative data. The questionnaires would be used to gather information from respondents regarding the challenges to Electronic Procurement implementation in the construction industry (Fowler, 2009).

The researcher chose descriptive research design because it enabled the researcher to generalize the findings to a larger population. Descriptive research design allowed the researcher to collect quantitative data which can be analyzed quantitatively using descriptive and inferential statistics. This study brought out in depth information on challenges affecting the implementation of Electronic Procurement in the Kenyan construction sector.

3.3 Target Population

Target population is defined as a universal set of the study of all members of real or hypothetical set of people, events or objects to which an investigator wishes to generalize the result. Mugenda and Mugenda (2003) define the target population as a complete set of individuals, case or objects with the same common observable characteristics. The study targeted 1 procurement manager, 1

supply chain manager and at least 3 procurement supply chain officers from 58 companies based in Nairobi (source NCA 2015) and this gave a total of 290 respondents. The study use census.

3.4 Sample Size and Sampling Technique

This section describes the sample size and sampling procedures as shown in the sub sections below.

3.4.1 Sample Size

The researcher adopted the 30% proposed by Mugenda and Mugenda (2003) of the building construction companies in Nairobi. Hence, a total of 58 companies were used for the sample. The study targeted 1 procurement manager, 1 supply chain manager and at least 3 procurement supply chain officers from each company and this gave a total of 86 respondents. The study use 30% of the population to obtain a sample. The sample size was distributed as shown in the Table 3.1 below:

Table 2: Sample Size

Section	Population	sample size
Procurement Manager	58	17
Supply Chain Manager	58	17
Procurement Supply Chain Officers	174	52
Total	**290**	**86**

3.4.2 Sampling Technique

The study adopted stratified sampling. Stratified random sampling is a probability sampling technique in which the researcher divides the entire target population into different subgroups, or strata, and then randomly selects the final subjects proportionally from the different strata. The employees in procurement department were purposively selected to participate in the study. This is because they are the main implementers of e-procurement and also the resident contractors and suppliers.

3.5 Data Collection Instruments

Questionnaires were used as instruments of data collection. The selection of questionnaires as data collection instrument in this research study is informed by the fact that the current study is based on quantitative research approach. According to Mugenda and Mugenda (2003) observe that administering questionnaires is a popular method for data collection in most disciplines because of the relative ease and cost effectiveness with which they are constructed and administered to large samples. The data was collected through drop and pick method which is a convenient and time saving mode of administering questionnaires.

To collect the data, the researcher first met and requested the operations manager to allow him to carry out the study in the organization. Then, the employees were requested to take the questionnaire and complete it at convenience. They were then requested to submit the questionnaires to their respective managers so that the researcher would collect the questionnaire from the manager.

The use of random sampling can lead to the collection of high quality data given that the respondents chosen were picked at random. Simple structured questionnaires were used in the collection of data. Respondents were required to fill in questionnaires appropriately indicating their perception of challenges affecting Electronic Procurement. The respondents were asked to rate various aspects in a Likert scale. The respondents were required to tick where appropriate indicating their opinion regarding the identity of challenges to Electronic Procurement. Since there is a chance that some of the respondents chosen would fail to provide the right information, the researcher select a large number of respondents to ensure that high quality data was collected.

3.6 Validity and Reliability

According to Robinson, Mandelco, Olsen, & Hart (2001) validity is the degree to which result obtained from the analysis of the data actually represents the phenomenon under a study. Validity

was achieved by having objective questions being included in the questionnaire and by pre-testing the instrument to be used through Pilot study in order to identify and change any ambiguous, awkward or offensive questions and technique as emphasized by Cooper and Schnidler (2003). The validity of questionnaires as instruments of data collection was assessed using readability test as well as a field test. All these tests were carried out in order to examine the validity of questionnaires as instruments of collecting data. For this purpose, the 5 procurement personnel were used to pilot questionnaire whereby they were requested to independently fill in the questionnaire and suggest structure of sentences where they felt it was not easily comprehensible. After modification of each sentences as deemed fit by the piloting exercise, the researcher printed the research instrument and went to the field.

Reliability on the other hand refers to a measure of the degree to which research instruments yield consistent results (Mugenda & Mugenda, 2003). In this study, reliability was ensured by pre-testing the questionnaire with a selected sample from some respondents from the 5 construction companies. The researcher then restructured the questions to ensure that the questionnaires would provide reliable data as evidenced by the consistency of understanding of the questions by the respondents as well as the responses they would make. Since all the respondents targeted were procurement officers some consistency of the finding would be realized.

To measure the reliability of the data collection instruments an internal consistency technique using Cronbach's alpha was applied to the gathered data (Mugenda & Mugenda, 2003). Cronbach's alpha is a coefficient of reliability that gives an unbiased estimate of data generalizability and an alpha coefficient of 0.70 or higher indicates that the gathered data was reliable as it had a relatively high internal consistency and was generalized to reflect opinions of all respondents in the target population.

3.7 Data Analysis and Presentation

The data was analyzed to summarize the essential features and relationships of data in order to generalize and determine patterns of behavior and particular outcomes. Before processing the responses, the completed questionnaires information were edited for completeness and consistency and then coded. The analysis of data was carried out by use of descriptive statistics. The obtained questionnaires data were coded and organized in excel spreadsheet and analysis done through excel and SPSS software. The results of the analysis were presented in the form of tables, charts and percentages in a manner that is both simple and comprehensive and then used to complete the research report as per the survey objectives and research questions.
Pearson's correlations analysis was conducted at 95% confidence interval so as to establish the relationship between dependent and independent variables.

3.8 Ethical considerations

The researcher ensured that the study upheld quality and also sought the consent of the managers and the respondents were politely invited to participate in the study. Also, the confidentiality and anonymity of the respondents was observed and the participants were not forced but did it voluntarily. Furthermore, their responses have been used for purpose of this study alone.

CHAPTER FOUR
DATA ANALYSIS, PRESENTATIONS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter highlights the research findings on the basis of data collected from the field. The main objective of the study was to determine the challenges facing e-Procurement implementation in the Kenyan construction industry. Data was collected using questionnaires as the data collection instruments whose presentation and interpretation is given below through the use of a frequency distribution tables, pie charts, mean and standard deviation; and multiple regression analysis.

4.1.1 Response Rate

A total of 86 questionnaires were distributed out of which 65 questionnaires were return giving a response rate of 76%. This response was considerable and representative of the population. This response was good enough and representative of the population and conforms to Mugenda and Mugenda (2003) stipulation that a response rate of 70% and above is excellent. These findings are well illustrated in the Figure 3 below.

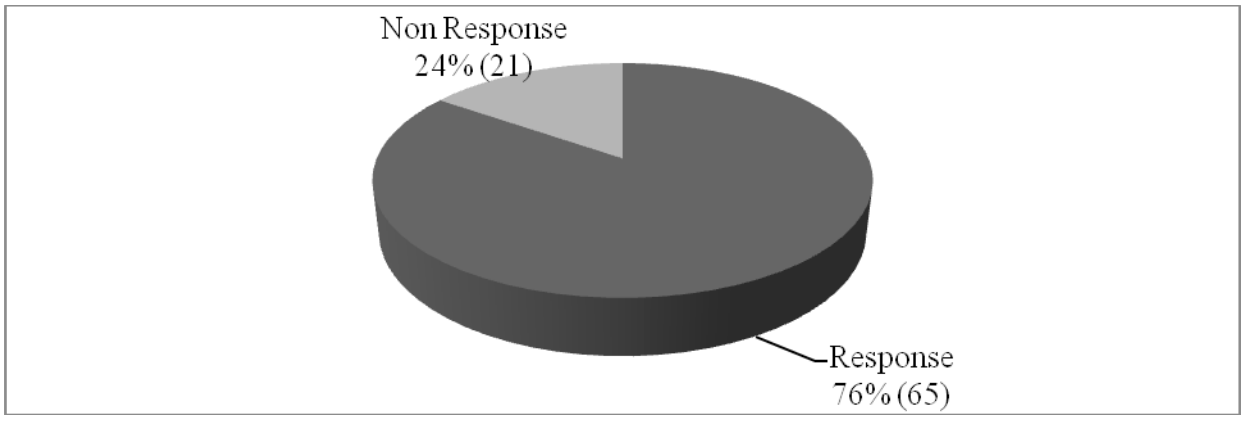


Figure 3: Response Rate

4.1.2 Reliability Analysis

A pilot study was carried out to determine reliability of the instrument used in the collection of data. This was to ensure that the instrument collect reliable and valid data. Reliability analysis was subsequently done using Cronbach's Alpha which measures the internal consistency by establishing if certain item within a scale measures the same construct. Cronbach's alpha of well above 0.7 implies that the instruments were sufficiently reliable for the measurement.

Table 3: Reliability of Data Collection Instruments

Variable	No of Item	Cronbach's
Technology	5	0.8056
Employee Competence	5	0.7417
Managerial commitment	4	0.9271
Legal framework	6	0.9692

4.1.3 Validity of Data Collection Instruments

Validity is the accuracy or meaningfulness and technical soundness of the research. It is the degree to which a test measures what it purports to measure. Mugenda and Mugenda (2008) stated that to enhance validity of a questionnaire, data should be collected from reliable sources, the language used on the questionnaire was kept simple to avoid any ambiguity and misunderstanding. The validity of data collected was made through collecting data from the relevant respondents having been permitted by the University. The validity of the instrument was also established by being given to experts with experience, supervisor who approved the instrument for data collection.

4.2 General Information

The study in this section sought to enquire from the respondents' general information including, gender, age in years, highest level of education attained, years working with the construction company and participation in influencing/ affecting Procurement strategies in the organization. This general information is presented in the following subsections.

4.2.1 Gender Distribution

The respondents were asked to indicate their gender. The findings are illustrated below on Figure 4.

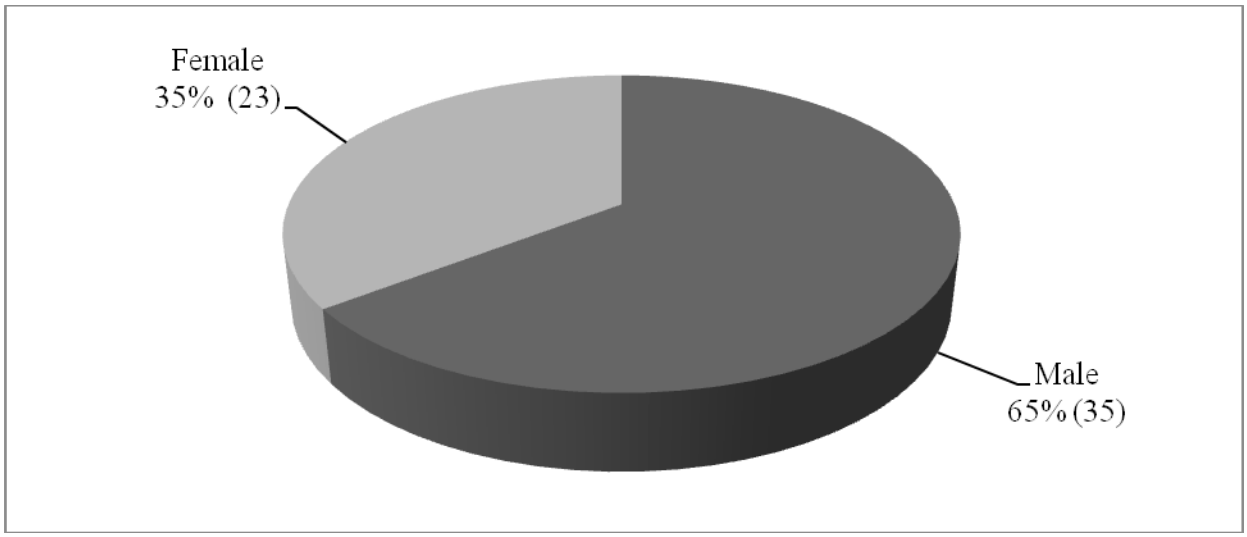


Figure 4: Gender Distribution

As indicated on Figure 4, majority (65%) of the respondents were male while (35%) were female. This shows that all genders were equally represented thus the data collected was relevant and reliable for the study.

4.2.2 Age Distribution

The study sought to determine the age distribution of the respondents. The finding is shown below on the Table 4:

Table 4: Age Distribution

	Frequency	Percent
18-24 years	5	7.7
25-29 years	25	38.5
30-34 years	21	32.3
41-44 years	14	21.5
Total	**65**	**100.0**

As indicated on Table 4, Majority 38.5% were between 25-29 years, 32.3% were between 30-34 years, 21% were between 41-44 years and 7.7% were between 18-24 years. This findings show that the respondents were evenly distributed across adult age groups, and therefore the findings are more representative of the Kenyan adult population.

4.2.3 Highest Level of Education Attained

The respondents were asked to indicate their highest level of education. The findings are shown below in Table 5:

Table 5: Highest Level of Education Attained

	Frequency	Percent
College/Diploma	19	29.2
Undergraduate	28	43.1
Masters	13	20.0
PhD	5	7.7
Total	**65**	**100.0**

From the findings on Table 5, majority 43.1% of the respondents had undergraduate, 29.2% had college/diploma, 20% had masters and 7% had PhD. This implied that majority of the respondents had relevant knowledge on e-procurement thus the data collected was reliable for the study.

4.2.4 Period Working With the Construction Companies

The study sought to determine the period of time the respondents had been working with the construction companies. The findings are shown on Table 6:

Table 6: Period Working With the Construction Companies

	Frequency	**Percent**
Below 5 years	9	13.8
6-10 years	20	30.8
11-15 years	28	43.1
Above 16 years	8	12.3
Total	**65**	**100.0**

As shown on Table 6, majority 43.1% of the respondents had worked for between 11-15 years, 30.8% for between 6-10 years, 13.8% for below 5 years and 12.3 for above 16 years. This shows that data was collected from individuals who have had experience and gave valid information on e-Procurement implementation in the Kenyan construction industry.

4.2.5 Participation in Influencing/ Affecting Procurement Strategies

The respondents were asked to rate their participation in influencing/ affecting Procurement strategies in their organization. The findings are shown on Table 7;

Table 7: Participation in Influencing/ Affecting Procurement Strategies

	Frequency	Percent
Very Involved	21	32.3
Involved	36	55.4
Never Involved	8	12.3
Total	65	100.0

From the findings on Table 7, majority 55.4 % of the respondents indicated that they were involved, 32.3% were very involved and 12.3% were never involved. This shows that the respondents were involved in the e-procurement activities thus provided relevant and reliable data for the study.

4.3 Influence of Technology on Electronic Procurement Implementation

Several advantages/benefits of electronic procurement were identified against which the respondents were requested to indicate the extent to which it influences electronic procurement implementation. A five point Likert scale was provided ranging from 1 to 5 where: 1= Totally disagree, 2= Disagree, 3= Neural, 4= Agree and 5=Totally agree. From the responses descriptive measures of central dispersion; Mean and Standard Deviation were used for ease of interpretation. The findings are shown below on Table 8:

Table 8: Advantages/Benefits of Electronic Procurement

	Mean	Std. Deviation
Reducing costs	4.18	0.511
Visibility of spent	4.32	0.508
Increases productivity	4.20	0.509
Improved controls	3.60	0.965
Encourages use of technology	3.72	0.892

As shown on Table 8, Visibility of spent had the highest mean of 4.32 with a standard deviation of 0.508 followed by increases productivity which had a mean of 4.20 with a standard deviation of 0.509 and reducing costs had a mean of 4.18 with a standard deviation of 0.511. This shows that the respondents totally agreed that there were advantages/ benefits of electronic procurement. This finding concurs with the conclusions of Daud et al. (2013) who posit Electronic procurement is perceived to be useful within the Malaysian construction companies hence the reason why managers and personnel in the industry strongly want it implemented in their organization despite its associated challenges.

Encourages use of technology had a mean of 3.72 with a standard deviation of 0.892 and improved controls had a mean of 3.62 with a standard deviation of 0.965.

The respondents were further asked if their companies use Electronic Procurement to manage the organization’s procurement process. The findings are shown on Figure 5.

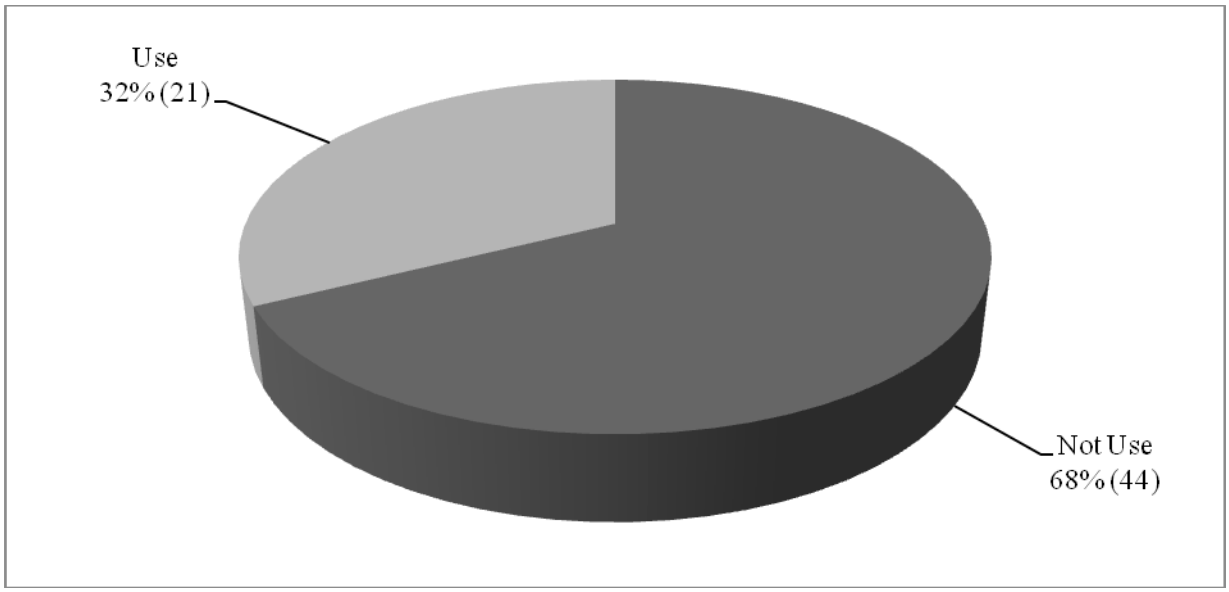


Figure 5: Use of Electronic Procurement

As indicated in Figure 5, majority 68% of the respondents indicated that their companies do not use electronic procurement while 32% use. This concurs with the findings of Baily (2008) who noted that Electronic Procurement suffered several challenges which stifled its implementation in Nigerian construction sector in spite of its numeral advantages – many organizations had not implemented it but there was some awareness of the benefits of Electronic Procurement.

The respondents were further required to rate the extent to which technology has inhibited implementation and use of technology in their organization. The findings are shown on Table 9

Table 9: Extent to which Technology has Inhibited Implementation and Use of Electronic Procurement

	Frequency	Percent
Totally Disagree	1	1.5
Disagree	2	3.1
Neutral	18	27.7
Agree	34	52.3
Totally Agree	10	15.4
Total	65	100.0

From the findings in Table 9, majority 52.3% of the respondents were in agreement, 27.7% were neutral, 15.4% totally agree, 3.1 disagree and 1.5 totally disagree. Majority of the respondents

were in agreement that technology inhibits electronic procurement. This finding concurs with Makau (2014) who established that implementation and application of Electronic Procurement in the public sector is slowed by challenges such as technological challenges, the competence of employees in information and communication technology.

The respondents were requested to rate the aspects of technology that inhibits implementation and use of Electronic Procurement in their organization. The findings are shown on Table 10:

Table 10: Aspects of Technology that Inhibits Implementation and Use of Electronic Procurement

	Mean	Std. Deviation
Huge costs involved	3.75	.719
Employee resistance to change	3.61	.896
Lack requisite training	3.41	.899
Lack of requisite IT skills	4.35	.644
We use obsolete technology	3.49	1.077

As shown on Table 10, lack of requisite IT skills had the highest mean of 4.35 with a standard deviation of 0.644 followed by huge costs involved which had a mean of 3.75 with a standard deviation of 0.719, Employee resistance to change had a mean of 3.61 with a standard deviation of 0.896, obsolete technology had a mean of 3.49 with a standard deviation of 1.077 and lack requisite training had a mean of 3.41 with a standard deviation of 0.899. This shows that the respondents were in agreement on the aspects of technology that inhibits implementation and use of electronic procurement. This finding is consistent with those of Eadie et al. (2010) who concluded that Electronic Procurement system is quite costly and as a result may prevent some firms from establishing an Electronic Procurement system. Also, Goo & Nam (2007) and Wong et al. (2007) indicate the relevance pertaining to reliability of web-based systems. They noted that if an entity is challenged in this technological area, the Electronic Procurement system as well as process will be a liability to the entity because Electronic Procurement systems are mainly based on the web. In addition, poor updating systems may reveal inaccurate information

about the invoice owing to a customer. Such issues present further technological issues pertaining to information reliability as indicated by Wei & Wang (2007).

4.4 Effect of Employee Competence on Electronic Procurement Implementation

The respondents were asked if they feel adequate to accept and use Electronic Procurement in their current organization and the responses are shown on Figure 6

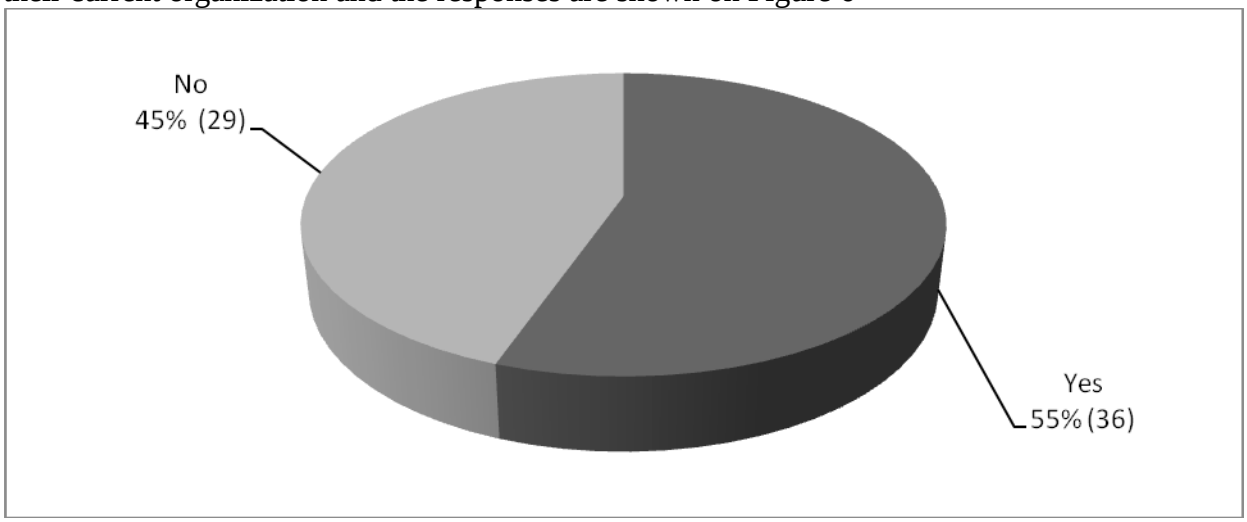


Figure 6: Employees readiness to accept and use Electronic Procurement

As indicated in the finding in Figure 6, majority 55% of the respondents indicated that they were ready to accept and use electronic procurement and 45% were not ready. This finding concurs with Schoenherr & Tummala (2007) who indicated that whether IT is complex or simple, specialized tools, skills and knowledge are needed. The public sector is bombarded by employees who feel helpless because they are unable to use the right technology to further the goals and objectives of their organizations.

The respondents were further asked to rate employee incompetence as inhibitor to implementation and use of Electronic Procurement in the Kenyan construction sector. The findings are shown on Table 11.

Table 11: Employee Incompetence as Inhibitor to Implementation and Use of Electronic Procurement

	Frequency	Percent
Totally Disagree	2	3.1
Disagree	3	4.6
Neutral	9	13.8
Agree	10	15.4
Totally Agree	41	63.1
Total	**65**	**100.0**

As indicated in Table 11, majority 63.1% totally agree that employee incompetence is inhibitor to implementation and use of Electronic Procurement, 15.4% agree, 13.8% were neutral, 4.6% disagree and 3.1% totally disagree. This finding are consistent with Kirk (2013) who added that if employees do not have adequate knowledge and skills in information and communication technology, the implementation of Electronic Procurement may not be successful. Also Makau (2014) established that technological challenges, the competence of employees in information and communication technology as the inhibitors to Electronic Procurement implementation in Kenya.

In addition, the respondents were asked to rate in a scale of 1-5 (Where 1= totally disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=totally disagree) the extent to which they agreed or disagreed with several statements on Electronic Procurement. The findings were as shown in Table 12.

Table 12: Respondent Opinion on Electronic Procurement

	Mean	Std. Deviation
It is complex	3.80	.963
Not compatible with our organization	3.24	.927
Should not be tried	3.49	.920
It has relative advantage	3.12	.866

From the findings in Table 12, It is complex had the highest mean of 3.8 with a standard deviation of 0.963 followed by should not be tried which had a mean of 3.49 with a standard deviation of 0.920, not compatible with our organization had a mean of 3.24 with a standard deviation of 0.927 and it has relative advantage had a mean of 3.12 with a standard deviation of 0.866. This finding concurs with those of Anttiroiko (2008) who noted that the lack of basic facility to facilitate e-tendering including irregular power supply, the high cost of establishing an Electronic Procurement system and poor telecommunication network coupled with employees' lack of necessary skills and proficiency to handle e-tendering processes were major challenges inhibiting implementation of Electronic Procurement in Nigeria.

The respondents were further asked to indicate whether organizations in the Kenyan construction sector have adequately enhanced employee skills and attitude to embrace Electronic Procurement. The findings are shown on Table 13.

Table 13: Enhanced Employee Skills and Attitude to Embrace Electronic Procurement

	Frequency	Percent
Totally Disagree	2	3.1
Disagree	5	7.7
Neutral	28	43.1
Agree	20	30.8
Totally Agree	10	15.4
Total	65	100.0

As shown on Table 13, majority 43.1% of the respondents were neutral on whether organizations in the Kenyan construction sector have adequately enhanced employee skills and attitude to embrace Electronic Procurement, 30.8% agree, 15.4 totally agree, 7.7% disagree and 3.15 totally disagree. This finding is consistent with those of Hawking et al. (2004) noted that if an organization has employees equipped with the relevant technical knowledge and skills, they have a higher likelihood of accepting and implementing Electronic Procurement applications successfully that organization that lack the same.

4.5 Effect of Managerial Commitment on Electronic Procurement Implementation

The study sought to establish the effect of managerial commitment on electronic procurement implementation. Respondents were asked to rate their senior management's involvement on the procurement process in their current organization. The findings are shown on Table 14.

Table 14: Senior Management's Involvement on the Procurement Process

	Frequency	Percent
Totally Disagree	1	1.5
Disagree	4	6.2
Neutral	14	21.5
Agree	39	60.0
Totally Agree	7	10.8
Total	**65**	**100.0**

As indicated in Table 14, majority 60% of the respondents agree that senior management were involved on the procurement process, 21.5% were neutral, 10.8% totally agree, 6.2% disagree and 1.5% totally disagree. This is consistent with Mohammadi (2013) whose findings revealed that many entities are dependent on the commitment and motivation of the top level managers in influencing junior officers towards a certain course. Furthermore, Teo et al. (2008) note that if the managers at the top level fail to support this implementation process, it becomes a failure.
Respondents were further asked to indicate the extent they feel management has been supportive as regards implementation and use of Electronic Procurement in the Kenyan construction sector. From the responses mean and standard deviation was calculated and the findings are shown on Table 15.

Table 15: Extent to which Management Support Electronic Procurement Implementations

	Mean	Std. Deviation
Approval of implementation budgets	3.15	.905
Organizing skills improvement programs	3.35	.810
Meeting Costs on Training programs	3.21	.838
Leading the implementation process	3.10	.910

From the findings in Table 15, organizing skills improvement programs had the highest mean of 3.35 with a standard deviation of 0.810 followed by meeting Costs on Training programs which had a mean of 3.21 with a standard deviation of 0.838, approval of implementation budgets had a mean of 3.15 with a standard deviation of 0.905 and leading the implementation process had a mean of 3.10 with a standard deviation of 0.910. This finding concurs with those of Mose et al. (2013) concluded that management commitment is the most critical success factor in Electronic Procurement implementation in large scale firms in Nairobi. The support of the management is relevant in ensuring that the implementation of Electronic Procurement is successful. If there is no support, the employees tend to lack direction on how to implement the relevant processes pertaining to Electronic Procurement.

4.6 Effect of Legal Framework on Electronic Procurement Implementation

The study sought to determine the effect of legal framework on electronic procurement implementation. The respondents were asked whether legal framework influences the implementation of Electronic Procurement and the findings are shown on Figure 7.

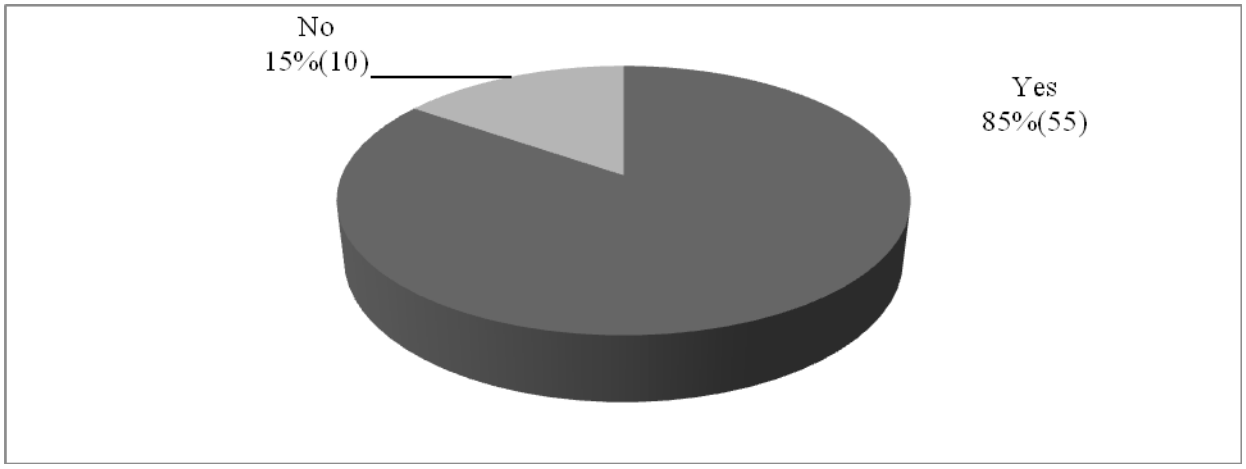


Figure 7: Influence of legal framework in the implementation of Electronic Procurement

As show on Figure 7, majority 85% of the respondents indicated that legal framework influences the implementation of Electronic Procurement while 15% indicated no. This is in accordance to

Eadie et al (2006) who posits that the legal are top most obstruction for electronic e-acquisition and second for CDR-based Electronic Procurement.

Several statements on how law on IT as inhibitor to Electronic Procurement implementation in Kenyan construction sector were identified and the respondents were required to indicate the extent to which it affects their organization. From the responses mean and standard deviation were calculated. The findings are shown on Table 16.

Table 16: law on IT as Inhibitor to Electronic Procurement Implementation

	Mean	Std. Deviation
Licensing and issues on copyright	3.41	.984
Regulatory compliance	3.00	1.157
Difficulty in sharing information	3.32	1.067
High complexity of e-tendering process	3.89	.966
Poor reliability of e-tendering systems	3.21	1.147

As shown on Table 16, high complexity of e-tendering process had the highest mean of 3.89 with a standard deviation of 0.966 followed by licensing and issues on copyright which had a mean of 3.41 with a standard deviation of 0.984, difficulty in sharing information had a mean of 3.32 with a standard deviation of 1.067, poor reliability of e-tendering systems had a mean of 3.21 with a standard deviation of 1.147 and regulatory compliance had a mean of 3.00 with a standard deviation of 1.157. The finding concurs with the findings of Kirk (2010) who noted that the legal framework governing procurement practices that did not fully support Electronic Procurement implementation was a major inhibitor of Electronic Procurement implementation in most developing markets. Also, Eadie et al. (2010) identified the fear of security issues related with technology and the uncertainty that surrounds the legal system that government Electronic Procurement as the major inhibitors to Electronic Procurement in UK construction sector.

The respondents were further required to indicate the extent to which legal framework is an inhibitor to implementation of Electronic Procurement in the Kenyan construction sector. The findings are shown on Table 17.

Table 17 : Extent to which Legal Framework is an Inhibitor to Implementation of Electronic Procurement

	Frequency	Percent
Totally Disagree	3	4.6
Disagree	19	29.2
Neutral	24	36.9
Agree	13	20.1
Totally Agree	6	9.2
Total	65	100.0

From the findings on Table 17, majority 36.9% of the respondents were neutral, 29.2% disagree, 20.1 agree, 9.2% totally agree and 4.6% totally disagree. This finding is in accordance to Bickerstaff (2009) who noted that the legal framework does not need to generally evolve at the same pace as the technological. Although it is necessary that the law evolves with society, organizations should adopt technology but in obedience to the existing legal structures.

4.7 Implementation Electronic Procurement

The respondents were asked to indicate the extent to which the following statements on Electronic Procurement implementation in Kenyan construction sector applied to their companies. The findings are shown on Table 18.

Table 18: Implementation Electronic Procurement

	Mean	Std. Deviation
Actual infrastructure adoption	3.06	1.043
Actual use of e-procurement and tendering	3.63	.977

From the finding in Table 18, actual infrastructure adoption had a mean of 3.06 with a standard deviation of 1.043 and actual use of e-procurement and tendering had a mean of 3.63 with a standard deviation of 0.977.

The respondents were further required to indicate the extent to which actual infrastructure adoption and use of e-procurement and tendering influence electronic procurement implementation in Kenyan construction sector.

Table 19: Extent of Influence in Implementation of Electronic Procurement in Kenyan Construction Sector

	Frequency	Percent
Totally Disagree	4	6.3
Disagree	8	12.3
Neutral	23	35.4
Agree	22	33.8
Totally Agree	8	12.2
Total	**65**	**100.0**

As indicated in Table 19, majority 35.4% were neutral on the extent of influence in implementation of electronic procurement in Kenya construction sector, 33.8% were in agreement, 12.3% disagree, 12.2% totally agree and 6.3% totally disagree. This finding concurs with Oyediran & Akintola (2011) who established that although there are many benefits associated with e-tendering, though there are quite a number of challenges that stifle the process of e-tendering.

4.8 Correlation Analysis

Pearson's correlations analysis was conducted at 95% confidence interval so as to establish the relationship between implementation of electronic procurement and technology, employee competence, managerial commitment and legal framework.

As shown on Table 4.17, there is a positive correlation between implementation of electronic procurement and the factors (employee competence, managerial commitment and legal framework) 0.162 with employee competence, 0.118 with management commitment and a magnitude of 0.161 with financial literacy respectively. There was a negative correlation between implementation of electronic procurement and technology of magnitude -0.271. The independent variables also had a positive significant correlation relationship with P-values of 0.029, 0.198, 0.348 and 0.199 respectively. A correlation coefficient value (r) ranging from 0.10

to 0.29 is considered to be weak, from 0.30 to 0.49 is considered medium and from 0.50 to 1.0 is considered strong.

Table 20: Correlation Analysis

*. Correlation is significant at the 0.05 level (2-tailed).

		Implementation Of Electronic Procurement.	Technology	Employee Competence	Management Commitment	Legal Framework
Implementation Of Electronic Procurement	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	65				
Technology	Pearson Correlation	-.271*	1			
	Sig. (2-tailed)	.029				
	N	65	65			
Employee Competence	Pearson Correlation	.162	-.259*	1		
	Sig. (2-tailed)	.198	.037			
	N	65	65	65		
Management Commitment	Pearson Correlation	.118	.045	.035	1	
	Sig. (2-tailed)	.348	.722	.784		
	N	65	65	65	65	
Legal Framework	Pearson Correlation	.161	.207	.151	.131	1
	Sig. (2-tailed)	.199	.098	.229	.299	
	N	65	65	65	65	65

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of the findings, conclusion and recommendations of the study based on the objective of the study which was to determine the challenges facing e-Procurement implementation in the Kenyan construction industry.

5.2 Summary of the Findings

This section presents a summary of the findings as per the research objectives and the research questions.

5.2.1 Influence of Technology on Electronic Procurement Implementation

The study found out the benefit of electronic procurements which included visibility of spent, increases productivity, reducing costs, encourages use of technology and improved controls. The study reveals that companies had not adopted electronic procurement and that technology had inhibits electronic procurement in most of the organizations due to technological changes. This finding is in accordance to the European Commission (2012) that the information technology infrastructure level and how it is used, in as far as the developing countries are concerned, continues to remain an obstacle to a full incorporation of Electronic Procurement.

The study further revealed that other aspects of technology that inhibits implementation and use of Electronic Procurement in their organization included; lack of requisite IT skills, huge costs involved, employee resistance to change, obsolete technology and lack requisite training. This finding concurs with Beauvallet, Boughzala and Assar (2011) who found out that if there development process of the virtualization platforms is not completed, performance handicaps is

suffered by the implementation process of Electronic Procurement. Inadequate connectivity and access, inclusive of limited absorption and Electronic Procurement technologies utilization can also cause these performance handicaps.

5.2.2 Effect of Employee Competence on Electronic Procurement Implementation

The study established that employees were not ready to accept and use electronic procurement and employee incompetence was an inhibitor to implementation and use of Electronic Procurement in the Kenyan construction sector. This finding is consistent with those of Mose et al (2013) who noted that employee readiness to make Electronic Procurement to succeed greatly impacted its implementation process. They further noted that some of the identified readiness or willingness was brought about by the lack of technological skills characterizing a significant share of employees in the organizations.

The study also reveal that electronic procurement was complex, should not be tried, not compatible with their organization and it has relative advantage. Also, the study established that training on technology and appropriate talent matching with job is essential for effective Electronic Procurement implementation in the Kenyan construction sector. This finding is in agreement with that of Mbeche, Ngari & Richu (2014) who conducted a research on the Electronic Procurement skills level in employees as a challenge affecting Electronic Procurement implementation. The researchers identified that the level of employees' skills in Electronic Procurement positively affected Electronic Procurement implementation.

5.2.3 Effect of Managerial Commitment on Electronic Procurement Implementation

The study found out that managerial commitment on electronic procurement implementation was very important to implementation of budgets, as well as in training on IT to improve employee's skills. This finding is in line with that of Mohammadi (2013) who focuses on the success factors

of implementing Electronic Procurement on the automotive industry in Iran. According to his findings, engagement of the managers at the top levels of the organization in the implementation process of Electronic Procurement the researcher notes that many entities are dependent on the commitment and motivation of these top level managers.

The study further found out that management was responsible for organizing skills improvement programs, meeting costs on training programs, approval of implementation budgets and leading the implementation process. This finding concurs with that of Mose et al. (2013) who notes that the management should be involved in setting the goals and vision which are important to the entity's objectives. Formulation of policies and setting of strategies would take place in order to facilitate technology adoption. The management should offer the finances needed for the Electronic Procurement infrastructure development so that it can be adopted easily.

5.2.4 Effect of Legal Framework on Electronic Procurement Implementation

The study found out that legal framework influences the implementation of Electronic Procurement greatly where legal issues relating to licensing and issues of copyright, regulatory compliance, sharing of information, coupled with poor systems and structures where major inhibitors of Electronic Procurement. This is inconsistent with Kagendo (2012) who identifies that the Public Procurement System in Kenya has developed from a rough framework with no regulations to an organized legitimately controlled framework.

5.3 Conclusions

The study concludes that technology was part of the challenge to Electronic Procurement implementation in the construction sector. Technological challenges such as the cost of new technology fear of new technology by employees, lack of requisite training and skills about

technology makes employees to prefer status quo which inhibits implementation of Electronic Procurement in the Kenyan construction sector. This is in line with findings of Panda, Sahu and Gupta (2011) who identified that the reliability and availability of software and hardware in Electronic Procurement is significant.

The study further concludes that the employees in the construction sector are not ready to accept Electronic Procurement in their organization due to incompetence and preference. Notably, the employees' jobs are either not matched with their job while others are simply not competent to accept change, hence resistant. This is consistent with Mbeche, Ngari & Richu (2014) that constant research is needed in order to ensure that the employees are up to date with the knowledge needed to place them at a competitive advantage.

The study also concludes that top management did not support Electronic Procurement initiatives in the organization appropriately. The senior management officers are reluctant to approve Electronic Procurement implementation budgets, as well as in training on IT to improve employee's skills thus employees are incompetent and not ready to accept new technology. Furthermore, lack of support from the senior management means the junior supports' proposals are ever unsuccessful. This concurs with Mohammadi (2013) who indicated that top management commitment is the most significant factor in implementing Electronic Procurement.

The legal framework being the back bone of any business operation was also found to have a major impediment to the implementation of e-procurement systems. Legal protection of confidential information and the ability to authenticate and enforce electronic contracts were clearly the most cited challenges. Lack of support from the existing legal infrastructure and means for protecting and safeguarding business interest legally while using electronic platform was also seen to be a key challenge. This is clearly shown by the fact that currently the ICT policy in existence has not fully created a supportive legal framework where related issues are

addressed. This contradicts with the legal description as indicated by Kagendo (2012) seems to focus on the overall procurement process. There are no legal specifications on the E-Procurement process.

5.4 Recommendations

The study recommends that the organizations in the industry should hire competent staffs and deploy them appropriately according to their skills and competence. This can be achieved by ensuring that the personnel are sought only when the organization needs one, and the vacancy should be filled through a competitive process. This can ensure that organizations in the sector have the required skill for their needs including use of and acceptance of new technology.

The study further recommends that change initiatives should begin and supported by the senior management so that the employees can follow suit. The management can invite the services of hired consultants to initiate the process, and then champion the training from within the organization. Emphasis should be acceptance of technology and change in the organization to help the employees to overcome the fear for change and new technology.

The study recommends that the construction sector should bolster its internal regulations to help the organizations to adhere to code of good practice as so that they can influence the economy much better. Sector regulations should be geared towards implementation of Electronic Procurement so as to ensure that the investor’s money is well applied and can be verified through technology. In this regard, both the sector and the government should sensitize and regulate on application of Electronic Procurement in the construction sector. This is essential since supportive regulatory systems and structures can enhance acceptance and implementation of Electronic Procurement in a sector.

5.5 Recommendation for Further study

The study recommends that future studies should focus on the effect of Electronic Procurement on financial performance of a firm with focus on financial performance measures such as; net income, return on investment or return on equity. Establishing the relationship between Electronic Procurement and initiatives and financial performance can help organizational managers to employ appropriate steps on Electronic Procurement.

Also, future studies should focus on factors to effective implementation of Electronic Procurement in the Kenyan construction sector. Other that knowing the challenges to its implementation, establishing the appropriate factors to consider can help the organizations in the sector to implement Electronic Procurement effectively.

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APPENDICES

APPENDIX I

QUESTIONNAIRE

CHALLENGES TO IMPLEMENTATION OF ELECTRONIC PROCUREMENT IN THE CONSTRUCTION SECTOR

Date _____

Please take a few minutes to complete this questionnaire. Your honest answers will be completely anonymous, but your views, in combination with those of others are extremely important in this research. Kindly answer all questions.

PART A: DEMOGRAPHIC INFORMATION

(*Please tick one box for each of the questions 1-7)*

1. Gender

   Male [ ] Female [ ]

2. Please indicate your age category

   18-24 years [ ] 25-29 years [ ] 30-34 years [ ]

   35-39 years [ ] 41-44 years [ ] 45 years and above [ ]

3. What is the highest educational level that you have attained?

   College/Diploma [ ] Undergraduate [ ] Masters [ ] PhD [ ]

4. How many years have you worked with the construction company?

   Below 5 years [ ] 6-10 years [ ] 11-15 years [ ]

Above 16 years [ ]

5. In your current role, how closely do you rate your participation in influencing/ affecting Procurement strategies in your organization?

Very Involved ( ) Quite Involved ( ) Involved
Never Involved ( ) Not at all ( )

SECTION B: TECHNOLOGY AND ELECTRONIC PROCUREMENT IMPLEMENTATION

6. Please rate the following advantages/benefits of Electronic Procurement. Please tick appropriately the extent to which you agree with the benefit of Electronic Procurement to your organization.

Benefit	1. Totally Disagree	2. Disagree	3. Neutral	4. Agree	5. Totally Agree
Reducing costs					
Visibility of spent					
Increases productivity					
Improved controls					
Encourages use of technology					

7. Does your organization use Electronic Procurement to manage the organization's procurement process?

Yes [ ] No [ ]

8. In your opinion, rate the extent to which technology has inhibited implementation and use of technology in your organization. Tick appropriately.

Totally Disagree ( ) Disagree ( ) Neutral ( ) Agree ( ) Totally Agree ( )

(b) Please explain your answer above

……

9. Please rate in a scale of 1-4 by ticking appropriately the following aspects of technology that inhibits implementation and use of Electronic Procurement in your organization.

Technology	1. Totally Disagree	2. Disagree	3. Neutral	4. Agree	5. Totally Agree
Huge costs involved					
Employee resistance to change					
Lack requisite training					
Lack of requisite IT skills					
We use obsolete technology					

10. In your view, why do you think there is a slow uptake of Electronic Procurement

……

……

SECTION C: EFFECT OF EMPLOYEE COMPETENCE ON ELECTRONIC PROCUREMENT IMPLEMENTATION

11. Do you feel adequate to accept and use Electronic Procurement in your current organization?

Yes [ ] No [ ]

(b) Please explain your answer above

……

……

12. To what extent do you rate employee incompetence as inhibitor to implementation and use of Electronic Procurement in the Kenyan construction sector?

Totally Disagree ( ) Disagree ( ) Neutral ( ) Agree ( ) Totally Agree ( )

(b) Please explain your answer above

……
……..

13. To what extent do you associate Electronic Procurement with the following terms in a scale of 1-4.

Technology	1. Totally Disagree	2. Disagree	3. Neutral	4. Agree	5. Totally Agree
It is complex					
Not compatible with our organization					
Should not be tried					
It has relative advantage					
Eases tracking of transactions					

14. Do you feel that organizations in the Kenyan construction sector have adequately enhanced employee skills and attitude to embrace Electronic Procurement?

Totally Disagree ( ) Disagree ( ) Neutral ( ) Agree ( ) Totally Agree ( )

(b) Please explain your answer above

……
……..

15. In your view, suggest a key aspect that organizations should address for employees to be receptive to implementation and use of Electronic Procurement.

…….

…….....

SECTION D: EFFECT OF MANAGERIAL COMMITMENT ON ELECTRONIC PROCUREMENT IMPLEMENTATION

16. In your opinion, how would you rate your senior management's involvement on the procurement process in your current organization?

Totally Disagree ( ) Disagree ( ) Neutral ( ) Agree ( ) Totally Agree ( )

(b) Please explain your answer above

……

……

17. In your view, do you think your organizations senior managers have supported the procurement function as it should be?

Yes [ ] No [ ]

(b) Please explain your answer above

……

……

……..

18. To what extent do you feel management has not been supportive as regards implementation and use of Electronic Procurement in the Kenyan construction sector? Please rate the aspects below.

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

19. To what extent do you feel management commitment is important for effective implementation and use of Electronic Procurement in the Kenyan construction sector?

Totally Disagree ( ) Disagree ( ) Neutral ( ) Agree ( ) Totally Agree ( )

(b) Please explain your answer above

……

……

……..

SECTION D: EFFECT OF LEGAL FRAMEWORK ON ELECTRONIC PROCUREMENT IMPLEMENTATION

20. In your view, does legal framework affect the implementation of Electronic Procurement?

Yes [ ] No [ ]

(b) Please explain your answer above

……

……

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21. To what extent would you rate the following aspects related to law on IT as inhibitors to Electronic Procurement implementation in Kenyan construction sector. Tick appropriately.

Technology	1. Totally Disagree	2. Disagree	3. Neutral	4. Agree	5. Totally Agree
Licensing and issues on copyright					
Regulatory compliance					
Difficulty in sharing information					
High complexity of e-tendering process					
Poor reliability of e-tendering systems					
Others……					

22. To what extent do you rate the legal framework as an inhibitor to implementation of Electronic Procurement in the Kenyan construction sector?

Totally Disagree ( ) Disagree ( ) Neutral ( ) Agree ( ) Totally Agree ( )

(b) Please explain your answer above

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SECTION E: IMPLEMENTATION ELECTRONIC PROCUREMENT

23. To what extent would you rate the following aspects related Electronic Procurement implementation in Kenyan construction sector. Tick appropriately.

	1. Totally Disagree	2. Disagree	3. Neutral	4. Agree	5. Totally Agree
Actual infrastructure adoption					
Actual use of e-procurement and tendering					

24. To what extent would you rate the actual infrastructure adoption and use of e-procurement and tendering in electronic procurement implementation in Kenyan construction sector. Tick appropriately.

Totally Disagree ( ) Disagree ( ) Neutral ( ) Agree ( ) Totally Agree ( )

THANK YOU FOR YOUR PARTICIPATION!

APPENDIX II

LIST OF BUILDING CONSTRUCTION FIRMS IN NAIROBI

1. Maridadi Building Contractors, Nairobi
2. Arcon works limited
3. Mandhir Construction Limited, Nairobi
4. Malva Construction Limited, Nairobi
5. M R Shah Construction (K) Limited, Nairobi
6. Lee Construction Limited, Nairobi
7. LaljiJavda and Sons, Nairobi
8. LaljiBhimjiSanghani, Nairobi
9. Kualam Limited, Nairobi
10. Kishore Construction Limited, Nairobi
11. Kirethi General Construction Company Limited, Nairobi
12. Kalpna Builders, Nairobi
13. Jagat Sign and Company (1996) Limited, Nairobi
14. Fubeco (China Fushun) , Nairobi
15. Faburex Construction (K) Limited, Nairobi
16. Expert Systems Limited, Nairobi
17. Elite Earth Movers Limited, Nairobi
18. Dunhill Building Contractors Limited, Nairobi
19. Dickways Construction Company Limited, Nairobi
20. Chirag Builders Limited, Nairobi
21. China Jiangsu International, Nairobi
22. Channa Construction Limited, Nairobi
23. Chalbene Limited, Nairobi
24. Cementers Limited, Nairobi
25. Bomco Building Contractors Limited, Nairobi
26. Beulah Contractors and Transporters, Nairobi
27. Beach Construction Company, Nairobi
28. Avco Builders Limited, Nairobi 48
29. Arcade Construction Company Limited, Nairobi
30. Rxe Roofing Products Ltd, nairobi
31. Aquarium and Garden Pond Supplies, nairobi
32. Ongata Works Ltd, Nairobi
33. Nanjing Construction, Nairobi
34. Zenith Development Limited, Nairobi
35. Willadams Builders and General Contractors, Nairobi
36. Wilken Building Contractors Limited, Nairobi
37. Uttam Construction, Nairobi
38. Unispan Limited, Nairobi

39. Twiga Construction Company, Nairobi
40. Triple Nine Associates Limited, Nairobi
41. Terrazzo Enterprises, Nairobi
42. Sumbacon Systems Limited, Nairobi
43. Shona Singh and Piara Singh Company, Nairobi
44. Shamanek Limited, Nairobi
45. Scrachit Company Limited, Nairobi
46. Renocon, Nairobi
47. Reno Masters Kenya Limited, Nairobi
48. Putton Limited, Nairobi
49. Parbat Siyani Construction Limited, Nairobi
50. Ongata Works Limited, University Way, Nairobi
51. Ongata Works Limited, Nairobi
52. Nones Company Limited, Nairobi
53. New Con (K) Limited, Nairobi
54. Nasib Engineering and Construction Limited, Nairobi
55. Muthaiga Properties Limited, Nairobi
56. MuljiDevraj and Brothers Limited, Nairobi
57. Mohinder Singh Mohan Singh and Company, Nairobi
58. Model Builders and Civil Engineers (K) Limited, Nairobi.

SOURCE: National Construction Authority (2015)