An Assessment Of Successful E-Procurement System Implementation In Murang'a County Government, Kenya

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DECLARATION

This thesis is my original work and has not been presented to any higher institution. No part of this work should be reproduced without my consent or that of University.

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DEDICATION

I dedicate this thesis to my parents Mr. Edward Ngunjiri, Mrs. Loise Njeri ,my wife and my son Ryan Ngunjiri for their support, encouragement through my academic life. Also to my loving brothers and sisters. A Godly man who helped me a foundation of ethical values in my life.

ACKNOWLEDGEMENT

First and foremost to God, for his never-ending mercies, and for enabling me through the difficulty patches experienced during this research. The guidance and valuable input I received during the period of this research through my supervisor, Dr. David Kiarie and Dr Pamela Marendi, and the entire staff is highly appreciated.

This research would not have been possible without the cooperation and contribution of those respondents who took their valuable time to respond to my questionnaires. I cannot forget the companionship and support of my classmates whom we have walked this path together during our study in Dedan Kimathi University of Technology.

Last but not the least, special thanks go to all family members especially my wife, my parents and my brothers and sisters for their prayers, encouragement and love, sacrifice, understanding and financial support. In you I always found a shoulder to lean on. Without you, I would not have done it on my own. May God bless you abundantly.

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LIST OF ABBREVIATIONS

E-PROCUREMENT : Electronic Procurement

ICT : Information Communication Technology

GOK : Govenment of Kenya

UN : United Nations

IFMIS : Intergrated Financial Management Information System

PPOA : Public Procurement Oversight Authority

PPDA : Public Procurement and Asset Disposal Act

PFM : Public Financial Management

PPRA : Public Procurement Regulatorty Authority

TAM : Technology Acceptance Model

ABSTRACT

This study was about the E-procurement system. Purpose of this thesis was to assess successful E-procurement implemetation system in Murang'a County Governments. The objectives of the study were ; budgetary allocation, Information technology infrastructure, staff competence, and top management support on the successful e-procurement system implementation in Murang'a County Government. In order to fill this gap the study sought answers to the following four important questions: the effects of budgetary allocation on the successful e-procurement system implementation in Murang'a County? To what extent does staff competence affect the successful e-procurement system implementation in Murang'a County? what are the effects of Information technology infrastructure on the successful e-procurement system implementation in Murang'a County? To what extent does top management support affect successful e-procurement system implementation in Murang'a County? As part of the Government's initiative to reform the Public Finance Management system and restore the public confidence in the use of public funds, the government of Kenya introduced an Integrated Financial Management Information System (IFMIS),e-procurement module that would enhance efficiency in planning, budgeting, procurement, expenditure management and reporting in the National and County Governments. The study is anchored on Technology acceptance model, organizational environment theory, Resource based theory and Technology disruptive innovation. The descriptive study design was adopted for the study. A census conducted on all employees dealing with e-procurement system implementation who constitute the target population. Structured questionnaires for primary data was used to collect data while journals, national treasury reports, Public procurement regulatory authority (PPRA) website, was obtained through secondary data. The questionnaire having being pilot tested to improve the instrument reliability with 28 staff from Nyeri County government. Cronbach Alpha coefficient with a value of 0.70 or above was considered to indicate whether the instrument is reliable. Out of the 96 respondents, 90 respondent representing 93.8%. Collected data was analyzed using statistical package for social sciences, generate descriptive and statistics inferential was employed on the degree test of relationship among the variable with a statistical confidence level at 95%. The study revealed that budgetary allocation for E-procurement system implementation has been a major challenge towards its implementation due to inadequate fund for acquisition of both computer hardware and software required for successful e-procurement system implementation. In addition, inadequate ICT infrastructure, incompatibility of various ICT system and lack of stable internet connectivity affected effective E-procurement system implementation. Lack of training and management top support could hamper effectiveness of E-procurement system implementation but county key employee had been trained and top management has demonstrated support of changing from manual to E-procurement system. The study recommended that Murang'a County government should ensure that physical, human and financial resources are adequately budgeted. The County government should aslo focus on upgrading information technology infrastructure as a way to enhance E-procurement system implementation. The study suggests that further study could look at the adoption level on E-Procurement system in County Government. The study also recommends allocation of adequate funds for infrastructure and capacity building purposes for the successful implementation of the e-procurement. To this end, the County will be able to reap fully the benefits of the Government's e-procurement system initiative.

CHAPTER ONE

1.1 Background of the Study

This chapter provides information on the background to the study. It also provides a statement of the problem, objectives of the study, research questions, and justification of the study, scope and limitations to the study. This study focused on the assessing successful E-procurement implemetation system in Murang'a County Governments.

The management of public organization nowadays is improving in various sectors such as transparent, efficient and effective in service quality (Ancarani, 2008). The evolution of internet connectivityin the e-business models has lead private sector pressuring the public sector to rethink their hierarchical and bureaucratic organizational models (Corsi, 2006). The citizens and businesses people are faced every day with new innovative e-business and e-commerce models implemented by the private sector and made possible by ICT (Information and Communication Technologies) tools and applications, are requiring the same from Government entities. E-Procurement being identified as one of main reform in management of public organization. E-procurement consists of various activities over the internet to deal with procurement functions; requisition, sourcing,tendering, payment, invoicing and contract management (Corsi, 2006). Public pocurement in the Implementation of e-procurement requires skill and resources. It aslo require a well defined management coordination change system training program (Garran, 2009). Other factors that are critical in implementation of e-procurement include: good governance and capacity developments (United Nations, 2011).

With introduction of internet in the information communication technology (ICT) applications, business entities are strained to shift their operations from traditional way to digitization of e-business. (Lee, Ni & Koc, 2001). E-Procurement refer to the use of intergration of all the procurement process or all the stages involved in procuring goods and services including , sourcing, negotiation, ordering, receipt, and post-purchase review (Croom & Brandon-Jones, 2004). Local Authority Strategy for e-procurement report, (2010) identifies the various ways where e-procurement implementation strategy in the

organization should be focused to ensure that the required practices, processes and systems are developed and rolled out in a consistent manner across the public sector. Information Technology being essential as implementation of e-procurement system since, it includes purchase base solutions which are aimed at improving commercial transactions for ordering, logistics and handling systems as well as for systems payment (Weele, 2010). Traditionally, manual procurement has been characterized by, paper based activities where suppliers or vendors of materials or services purchased by an organization. However, as noted by Kiarie (2011), this has often resulted in various inefficiencies, low transparency and low service quality as well as weak oversight roles, delays, poor linkages between procurement and expenditures, and poor record management.

The information technology and e- procurement offers benefits for improvements in the public sector. According to PPDA, (2015) e-procurement has being characterized by accountability, transparency, efficiency,effectiveness, high-value government function. According to Soudry, (2007) 60% of application in procurement initiatives and projects management do not deliver as per expected benefits. Despite the benefits of e-procurement technologies, implementation is still at their early stages (Aboelmaged, 2010). A variety of factors may affect a firm's decision to adopt and implement a particular ICT. In consolidating prior studies examining innovation, (Aboelmaged, 2010) classified variables that potentially influence ICT adoption and implementation into five broad categories: individual, task and innovation related, organizational and environmental characteristics. Patterson *et al*., (2003) also showed that the following organizational and environmental factors positively affected the implementation of ICT in Supply chain management such as: organizational size; decentralized organizational structure; supply chain strategy integration; transactional climate and supply chain member pressure, and environmental uncertainty. During Council of Governors (CoG) and National Treasury on Information Financial Management Intergration System and adoption in the County at Safari Park Hotel in Nairobi deliberated that expert to be engaged on Information Financial Management Intergration System to look on challenges at the Counties and write a report with recommendations on improving and addressing

the teething problems of the system (GoK, 2016). As the research focus on the assessment of successful E-procurement system implemetation in Murang'a County Government.

1.1.1 E-Procurement Implementation

Over the last years, the global operation strategy for achieving competitiveness for a new generation business. Public sectors are therefore attempting to find ways to improve services that will minimize environmental impacts and in turn enhance competitiveness. This can be attained by changing their operations strategy, methods and technologies that include the implementation of e-procurement system. Companies are attempting to find ways to improve their flexibility and responsiveness and in turn competitiveness by changing their operations strategy, methods and technologies that include the implementation of e-procurement paradigm and Information Systems (Elsevier, 2003). In an effort to achieve this, many companies have decentralized their value-adding activities by out-sourcing and implementing e-procurement. The importance of integrating e-procurement is an approach that has evolved out of the integration of considerations. It is defined as the integration of key business processes from end-user through original suppliers that provides products, services, and information and hence adds value for customers and other stakeholders (Lambert et al., 2001). As a result, most countries have recognized public participation in government tendering process by enhancing access to opportunities available in the government authorities such as procurement activity.

With the development of digital system, institutions has move operations from manual systems to online in order to sustain themselves (Oporo, 2014). The public sector have moved to IFMIS system to acquire benefits in private company that have already achieved (Panayiotou, Gayialis & Tatsiopoulos, 2014). Therefore, e-procurement is no longer an afterthought but a necessity for any institution due to the dynamic and competitive business environment (Wangui, 2013). Value customers and other stakeholders can better be attained in an efficient supply chain management. It has been noted that in order for e-procurement to achieve efficiency, it requires information system. Information system is a set of interrelated components that collect (or retrieve),

process, store, and distribute information to support decision making and control in an organization. In addition to supporting decision making, coordination, and control, information system may also help managers and workers analyze problems, visualize complex subjects, and create new products. It consists of both hardware and software that aid in collecting, filtering, processing, creating and distributing data underlying the importance of information system (Laudon and Laudon, 2006).

Most African countries have resorted to legal reforms and adoption of e-procurement. Tanzania for instance put into place e-procurement systems to allow e-sharing, e-advertisement, e-submission, e-evaluation, e-contacting, e-payment, e-communication and e-checking and monitoring to ensure all public procurement activities are conducted online (Sijaona, 2010). In Kenya, public procurement system has been undergoing reforms consistent with the global trend since the last decade. E-procurement is crucial in managing complex procurement procedures. The study therefore, being interested in interrogating how Murang'a County Government apply E-procurement in their procurement activities. The supplier relationships are managed by procurement team, which ensures that what they buy represents the best value in terms of cost, quality, service and innovation. According to them, developing a strong supplier relationship helps ensure that, suppliers essential to their operations are sustainable, contacts are fair and the business they conduct together is mutually beneficial (www.eabl.com/home, 2011). To tap the benefits of good supplier relationships, information is a vital element hence my interest in the assessment of successful e-procurement implementation system in Murang'a county government and tracking of transaction records for easier data acquisition (Ogot, 2009).

1.1.2 Perspective of E-procurement in Kenya

In Kenya the conceptualization of e-procurement has increased popularity in the public organization however, the government made it compulsory for procurement of all public goods, works and services to be done through online platforms. Furthermore, a directive was issued to county governments to conduct all procurement and finance operations online (National Treasury, 2016). Integrated Financial Management Information System (IFMIS) was introduced by government all over the counties. The system intention was to enhance county to offer efficiency thus improving accountability & transparency (United States Agency of International Development, 2014). In the last decade, government of Kenya has seen the importance of the adoption of ICT in service delivery to the public sector. This has increased momentum with the current Government administration. Existing literature reveals that a number of organizations in Kenya have successfully adopted the use of e-procurement technology. Gitahi (2011) cited the example of Nation Media Group which through their digital platform commonly known as N-Soko has enabled their clients to purchase products online. There is however emerging evidence of the slow uptake of the technology despite the benefits that e-procurement offers (Segal and Taylor, 2001).

PPOA Interim Report (2009), outlined plans to introduce electronic procurement in all Kenya's public organizations as a way of curbing corruption and tendering delays. The new technology enabled the company to reduce project costs and completion times by using better project management planning, monitoring methods, project management software tools, and by improving the management skills of its managers through integration with IS. Strong Management leadership and better communication between IS specialists and end users were also essential, (Laudon and Laudon, 2006). In order to integrate key functions such as procurement and accounting; streamline and enhance transparency in management of public funds as well as to provide a framework for standardized reporting, the government adopted the policy requiring all government procuring entities to use the Integrated Financial Management Information System (IFMIS). The Kenyan electronic government procurement (known as Procure to Pay‘) is anchored in the IFMIS system (Gok, 2014).

1.1.3 Public Entities in Murang'a County Government

The promulgation of the new constitution brought in devolution which split the Government into National and County Governments with each having ministries to ensure that Government resources are devolved to facilitate socio-economic development at both national and county levels. It's the responsibility of the both national and county levels to initiate and guide all departments to prepare their ministerial budgets. Murang'a County is a public entity established under constitution. The Kenya public procurement process is established by the public procurement and disposal Act 2015. The act specifies the procedure to be followed by the public entities when making procurement or disposal of a public asset. Murang'a County is one of the counties of Kenya's former Central Province. Its largest town is Murang'a and its capital, called Fort Hall in colonial times (before 1963).

The structure of the County Government of Murang;a is composed of the Governor, Deputy Governor, County Executives, County Secretary and County Officials. The County Government of Murang'a has eleven Departments which include: Agriculture Livestock and Fisheries, Education, Finance and Economic Planning, Health, Planning Land and Housing, Tourism Development, Trade, Energy and Industry, Transport and Infrastructure, Water and Environment, Youth, Gender and Sports and Inspectorate. The Integrated Financial Management Information System (IFMIS) system was created by the Government to enhance efficiency in planning, budgeting, procurement, expenditure management and reporting in the National and County Governments in Kenya. IFMIS was born as a Government's initiative to reform the Public Finance Management (PFM) system and aimed at enhancing accountability and transparency. These reforms whose objective was to strengthen Public Finance Management systems by enhancing transparency, accountability and responsiveness to public expenditure and to fight against wasteful spending and corruption, targeted the core PFM systems of budget formulation and execution, public procurement and revenue collection among others. The IFMIS e-procurement module was launched by the Kenyan Government in August 2014 thereby mandating the public procurement personnel to implement it in their various entities (CIO East Africa, 2014).

1.2 Statement of the Problem

The use of Electronic procurement having being a process that requires formation and restructuring in procurement procedures (Kosgey, 2014). The procedure requires electronic systems for demand estimation, budgets, sourcing, ordering and supply monitoring. Introduction of e-procurement in an organization is associated with increased efficiency, lower transactional costs, reduced corruption and enhanced control and monitoring of public procurement process (Hunja 2011).

Despite Government's sustained and incremental efforts in laying down infrastructure technology strategies in the area of E-procurement in order to boost transparency, efficiency and effectiveness in County governments, it is still apparent that the implementation of E-procurement is still very slow with only nineteen out of the forty seven counties had adopted the IFMIS System by August 2014 (Pressutti,2014). Heeks, (2014) observed despite massive investment by the government for e-procurement system implementation in county governments, 31% of the counties have totally failled in the implemention of e-procurement, 50% of the Counties have partially implemented, while only 19% of the counties have successfully adopted and fully implemented e-procurement systems.

Existing literature reveals that a number of organizations in Kenya have failed in implementation and the use of e-procurement technology (Gitahi, 2015). Orari (2014), studied factors that influence the introduction of e-procurement on retail industry in Kenya and found that there is a lot of resistance to change. This history of e-procurement system implementation since its introduction in Kenya in the year 2003 is riddled with a number of challenges which cannot be ignored. Therefore, this study aims at establishing the necessary e-procurement implementation system and the level of readiness of the Government entities in Murang'a County to implement e-procurement system together with its perceived improved efficiency upon implementation, since limited empirical studies to establish the same in Murang'a County has been carried out. The aims to answer keys questions that the research endeavored to address include; the effects of budgetary allocation on the successful e-procurement system implementation in

Murang'a County, To what extent does staff competence affect the successful e-procurement system implementation in Murang'a County, what are the effects of Information technology infrastructure on the successful e-procurement system implementation in Murang'a County and to what extent does top management support affect successful e-procurement system implementation in Murang'a County. It is in light of this study that seeks to assess successful e-procurement system implementation in Murang'a County Government.

1.3. General Objective

The main objective of the study was to assess Successful E-Procurement System implementation in Murang'a County Governments.

1.3 Specific Objectives

The study specifically sought to:

i. To assess the effects of budgetary allocation on the successful E-procurement system implementation in Murang'a County.
ii. To evaluate how staff competence affect the successful E-procurement system implementation in Murang'a County.
iii. To assess the effect of Information technology infrastructure on the successful E-procurement system implementation in Murang'a County.
iv. To evaluate the effect of top management support on the successful E-procurement system implementation in Murang'a County.

1.5 Research Questions

i. What are the effects of budgetary allocation on the successful E-procurement system implementation in Murang'a County?
ii. To what extent does staff competence affect the successful E-procurement system implementation in Murang'a County?
iii. What are the effects of Information technology infrastructure on the successful E-procurement system implementation in Murang'a County?
iv. To what extent does top management support affect successful E-procurement system implementation in Murang'a County?

1.6 Scope of the Study

The aim of the study was to find out the assessment of successful E-procurement system implemetation in Murang'a County Governments. The study covered the main aspects of the assessment of successful E-procurement system implemetation in Murang'a County Government, that is, budgetary allocation, staff competence, ICT infrastructure and top management support and their effects on the assessment of successful E-procurement system implemetation in Murang'a County Government. The study involved 96 County staff working in the procurement, stores, Executive committee member, Finance and ICT departments.

1.7 Significance of the Study

The era of technology has developed rapidly throughout the years with many developing countries being left out from the benefits of various innovations. Developed countries are seen to be more efficient and effective in various aspects of public service due to implementation of ICT into their structures. This can also be the case for less developed countries especially in Africa. This study being motivated by a desire to establish how challenges encountered in implementation of E-procurement by government can be reduced and benefits tapped. The study could prove very useful to:

Government policy makers- the findings of this study was to provide the policy makers with information on what makes suppliers adopt or not adopt E-procurement. This was significant to the policy makers as they formulate policy on prudential guidelines for E-sourcing.

Suppliers – Suppliers wishing to supply government was more prepared and informed in terms of the investments they are required to make to successfully form an integrated partnership as well as the potential pitfalls they are likely to encounter in the process.

Academicians interested in public E-procurement risks and their management – the findings of the study was to assist other academicians to find gaps in literature on the topic and the study can also be used as a reference point for other related studies.

1.8 Limitation of the Study

Gathering information from this organization was a challenge since these entities felt that they were being investigated and felt that this was classified information and therefore hesitated to release the same to the researcher. To overcome this challenge, researcher presented the research introduction letter from the university and further assured state corporations management that the findings of the study were to be used strictly for the study only. This cleared their fears and enabled the management to disclose much of the information sought for the study.

However, some of the questionnaires could not be returned on time, so the researcher had to write a reminder letter to respondents to remind them about unreturned questionnaires. In this case researcher exercised utmost patience and cares so as to acquire sufficient data from respondents.

1.9 Operational Definition of Terms

E-procurement: Electronic procurement refer to thr use of internet technology in the acquiring works, material and service procurement. Its allow more efficient integration of supply chains management enhance organization and tracing of all transaction records better data acquisition (Mahinda, 2012).

Information Technology: deal with the involvement of the computer and internet infrastructure for enhancing virtual information processing and communication functions (Segal and Taylor, 2001).

Budgetary allocation: is a financial plan used to estimate revenues and expenditures for a specific period of time. A budget allocation is the amount of funding designated to each expenditure line (MelekEker, 2007).

Staff competencies: are those traits, skills or attributes that staff needs to perform their jobs most effectively. The competencies will vary by job and position, but there are some

commonalities that apply to just about any job in just about any organization.The combination of observable and measurable knowledge, skills, abilities and personal attributes that contribute to enhanced employee performance and ultimately result in organizational success (Crompton, 2007).

Top Management support: refer to the level at which senior manager understands the purpose of the e-procurement system functions and the level to which it is involved in information system activities. Refer to highest ranking executives(with titles such as chairman, chairwoman, chief executive e.t.c) (Springer nature, 2017).

County Governement: is the public administration of acounty, borough or parish. County governmentsare the largest political subdivision within a state and mostly function to administer state laws. Municipalgovernment is the public administration of a township, village, borough, city or town (http://www.thefreedictionary.com)

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 (Vaidya, Sajeev & Callender, 2006)

Challenges: something new and difficult which requires great effort and determination or a set of factors that make the execution of a task difficult (Garran, 2009).

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter focuses on the review of concepts and theories related to the topic by providing a critique of the same and deriving the connection between e-procurement system implementation. Theoretical literature deal with information regarding electronic procurement. Empirical literature on the other hand shades light on a few past related studies.

2.2 Theoretical Literature

According to Batenburg (2007) the organizational decision to adopt a new system such as electronic procurement which is normally detailed by top management who detail with the information as positive and negative into the account. However, implementations of electronic procurement decision neglect the benefit of the user's acceptances of electronic procurement (Byans Rue 1997). The study look at theoretical literature as to examine the readiness of electronic procurement implementation by procurement entities in Murang'a County by; Technology Acceptance Model, Organizational environment theory, Resource-based theory and Disruptive innovation theory (Barahona and Elizondo 2012).

2.2.1. Technology Acceptance Model

According to Technology Acceptance Model, there are two specific variables that are fundamental determinants of users' attitude toward using information technology and actual use of the system (Davis (993). Technology Acceptance Model (TAM) has been considered as a powerful model for explaining and predicting usage intention and acceptance behaviour (Yi and Hwang, 2003). Mathieson, Peacock & Chin (2001) argued that TAM's ability to explain attitude toward using an information system is better than the other multi-attribute models. In turn, attitude in TAM is influenced by two key elements determining technological behaviour; these are perceived ease of use and perceived usefulness (Davis, 1989; Igbaria, Parasuraman & Baroudi, 1996). Davis (1989) has defined perceived usefulness as the degree to which a person believes that using the

system will enhance his or her performance and ease of use as the degree to which a person believes that using the system will be free of mental effort.

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. Innovation refers to an idea, practices or object perceived as new by individuals or group of adopters. Relative advantage is defined as the degree to which an innovation is considered as being better than the idea it supersedes. Compatibility refers to the degree to which innovation is regarded as being consistent with the potential end-users' existing values, prior experiences, and needs.To this end, managers and key E-Procurement implementation team ought to understand the external variables amidst other influencers of E- Procurement system 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. The study thus used this theory to assess successful E-Procurement system implementation in Murang'a County Governments.

2.2.2Organization Environment Theory

The Environment Organization theories as develop identify various aspect on the organization which influence technology implementation and adoption such as the; environment and organizational context. (Scott, 2007), Organization context consist of the institution innovations, management top support, culture towards organization, ability of the human resource, the size (Tornatzky, & Fleischer, 2010). The culture toward the organization is usually associated with the sense of core value, and the primary way of working and set of sharing assumption (Scott, 2007). The development of digital system, institutions has move operations from manual systems to online in order to sustain themselves (Oporo, 2014). The public sector have moved to the system to acquire

benefits in private company that have already achieved (Panayiotou, Gayialis & Tatsiopoulos, 2014). Therefore, e-procurement is no longer an afterthought but a necessity for any institution due to the dynamic and competitive business environment (Wangui, 2013). Organizational context captures firm's business scope, top management support, organizational culture, complexity of managerial structure measured in terms of centralization, formalization, and vertical differentiation, the quality of human resource, and size and size related issues such as internal slack resources and specialization (Jeyaraj, Rottman, & Lacity, 2006; Sabherwal, Jeyaraj, & Chowa, 2006; Tornatzky & Fleischer, 1990). Environmental context relates to facilitating and inhibiting factors in areas of operations. Significant amongst them are competitive pressure, trading partners' readiness, socio-cultural issues, government encouragement, and technology support infrastructures such as access to quality ICT consulting services (Scupola, 2009).

The environment, organizational and the technology application originally present, and then later adopted in the information technology studies which provide that useful framework analytical which study the adoption and assimilation of various types of information technology innovative (Tiago and Maria 2010). The environment consists of factor that organization surrounding consist of the stakeholder, which are government, community and the competitive pressure. This usually influences how an institution can interpret the innovation need and the ability that acquire the resources for pressuring the innovative and that effort for deploying (Angeles, 2013). The Technology, organization, and environment model as originally presented, and later adapted in IT adoption studies, provides a useful analytical framework that can be used for studying the adoption and assimilation of different types of IT innovation. The size of the organizational has always being consistent recognized as the adoption to the facilitator (Zhu, Kraemer, & Xu, 2012).Bales and Fearon (2016), view E-procurement as sustainable resources upon which because it is unique, scarce, valuable, cannot be imitated, and are non-substitutable. The competitive advantage in this case manifests in terms of improved lead times, cost efficiency and customer satisfaction. The implemetation of electronic procurement differ due to the size of various organization interms of the numbers and aslo the resources. Where large organization tends to have more resources to enhance the facitation of

adoption,and are more likely to achieve the economy of scale. As compared to small oragization (zhu et al 2012).Further, Pearcy and Guinipero (2008) reiterate that on the concept that the resources controlled by firms are different and relatively immobile. In this study, e-procurement was viewed as an approach that optimizes use of available resources to enhance efficiency and effectiveness in procurement and hence deliver a competitive advantage. The study thus used this theory to to assess successful E-Procurement system implementation in Murang'a County Governments.

2.2.3 Resource-Based Theory

According to Lambert (2005), Resource based theory states that a competitive advantage for a firm can be coined on its resource base. The resources of the organization go beyond finances and materials to encompass methods and processes (Ndunge, 2016). The internal capacity of an organization matters a lot and when an organization has requisite resources, it has capacity to innovate and deal creatively with arising challenges in the market. The application of Information Technology is crucial in supply chain management and procurement (Pressutti, 2013). According to Caridi, Crippa, Perego, Saianesi, and Turmino, (2010), Information Technology can be measured as economic asset that is derived from strategic resources.

Bales and Fearon (2016), view E-procurement as sustainable resources upon which because it is unique, scarce, valuable, cannot be imitated, and are non-substitutable. Further, Pearcy and Guinipero (2008) reiterate that RBT is based on the concept that the resources controlled by firms are different and relatively immobile. In this study, e-procurement was viewed as an approach that optimizes use of available resources to enhance efficiency and effectiveness in procurement and hence deliver a competitive advantage. The competitive advantage in this case manifests in terms of improved lead times, cost efficiency and customer satisfaction. The study thus used this theory to assess successful E-Procurement system implementation in Murang'a County Governments.

2.2.4 Disruptive Innovation Theory

Barahona and Elizondo (2012) viewed the issue of innovation disruption. The theorist key out that electronic procurement being an innovation. According to this it's require a continuous improvement. As a result of being improvement, its disrupt the normal work in the procurement process and operation. This theorist is usually characterized on the following; small as well as costly based on non attractiveness' usually at the initial implementation stages, others at various level of acceptance as well as the system is being implemented

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2.3 Review of Empirical Literature

The much pressure and demand to attain effectiveness, transparency and efficiency in delivery of excellent services , has become a crucial issue in public sector management today (Ancarani, 2008).Government of Kenya has undertaken various procurement reforms to harmonise the processes of procurement in the public sector, despite which, cases of anomalies such as, inefficiency, high cost of projects, discriminative selection and award of contracts, procurement delays caused by bureaucracy, equity issues, openness in the procurement process, are still being reported in public sector (GOK, 2013). PPOA Interim Report (2009) highlighted strategies to establish e-procurement in entire public firms in the country as means of cutting on corruption and shortening delays in tendering. Conferring to the report, the programme was planned to be begin in 2013 after the pilot survey comes to an end. The scheme that is attached to IFMIS was rolled out in August 2014 (Kosgey, 2014).

To eradicate matters concerned with corruption in government procurement, ICT can be of great purpose to reduce financial wastage by enhancing good performance (Jennings, 2001). Khanapuri, Nayak, Soni, and Sharma ,(2011) suggest that corporate procurement can be enhanced through e-procurement yielding profits, establishing good procurement controls. E-procurement also contributes to reduced lead time, procurement cost and enhanced transparency (Bof & Previtali, 2010) The transfer of procurement functions from manual processes to internet use has great impact of reducing cases of corruption in public sector procurement (Panda & Sahu, 2010) Cost benefit was the main driver among other benefits of, transparency, better supplier-buyer relations, streamlined buying process that formed the basis to implement e-procurement (Sophonthummapharn & Parida, 2008).

The potentials of e-procurement have already been proven in a number of studies. According to Public Procurement and Asset Disposal Act (PPDA), (2015) information and communication technologies may be used in procurement and asset disposal proceeding. According to Aberdeen (2011), studies, e-procurement enables companies to decentralize operational procurement processes and centralize strategic procurement

processes as a result of the higher supply chain transparency provided by e-procurement systems. (Kaufmann, 2009).

The use of computerized systems has been adopted in various procurement. The system ensures that movement is monitored and it's possible to track items that have been received and issued, the systems integrates all the activities and this makes it possible for the managers to coordinate all the activities from a central base, most of the manual operations are minimized and security is enhanced, there is effectiveness electronic procurement (Ammer, 2006). Technology application is hoped to ease the problem. The operations that are carried out, as well as to the supply chain management terms that are directly related to these functions. All these terms are directly influenced by the use of computer systems through the Application of Systems Application in applied in which case the core focus is on effectiveness of the process (Clancy, 2006).

The major past activities explained by the theoretical review have not effectively addressed the assess of successful E-Procurement systems implementation in Murang'a County Governments. The review only focused on electronic procurement implementation but failed to explain how the problems can be solved.The issues explained by the review focuses towards achievement of some electronic procurement objectives while the most critical factors that negatively affects, procurement functions were left out .This demonstrates that the theoretical issues cannot contribute towards solving much of the electronic procurement problems and this means that procurement functions will continually be negatively affected by the electronic procurement process. According to National Vocational Qualification (NVQ), comprises of five levels of competency in purchasing and supply management, this are: range of varied work activities of which may be routine and predictable this is usually supervisors responsibility and is mostly applied in procurement, significant range of varied activities performed in a variety of contexts, some activities are complex and none routine, collaborative with others may be a requirement, this is an individual responsibility autonomy and it's applied in electronic procurement (Lamming, 2005).

2.4 Conceptual Framework

According to Young (2009), conceptual framework is a diagrammatical representation that shows the relationship between dependent variable and independent variables. In this study, the dependent variable is the successful E-Procurement system implementation while the independent variables are budgetary allocation, existing IT infrastructure, staff competence and top management support.

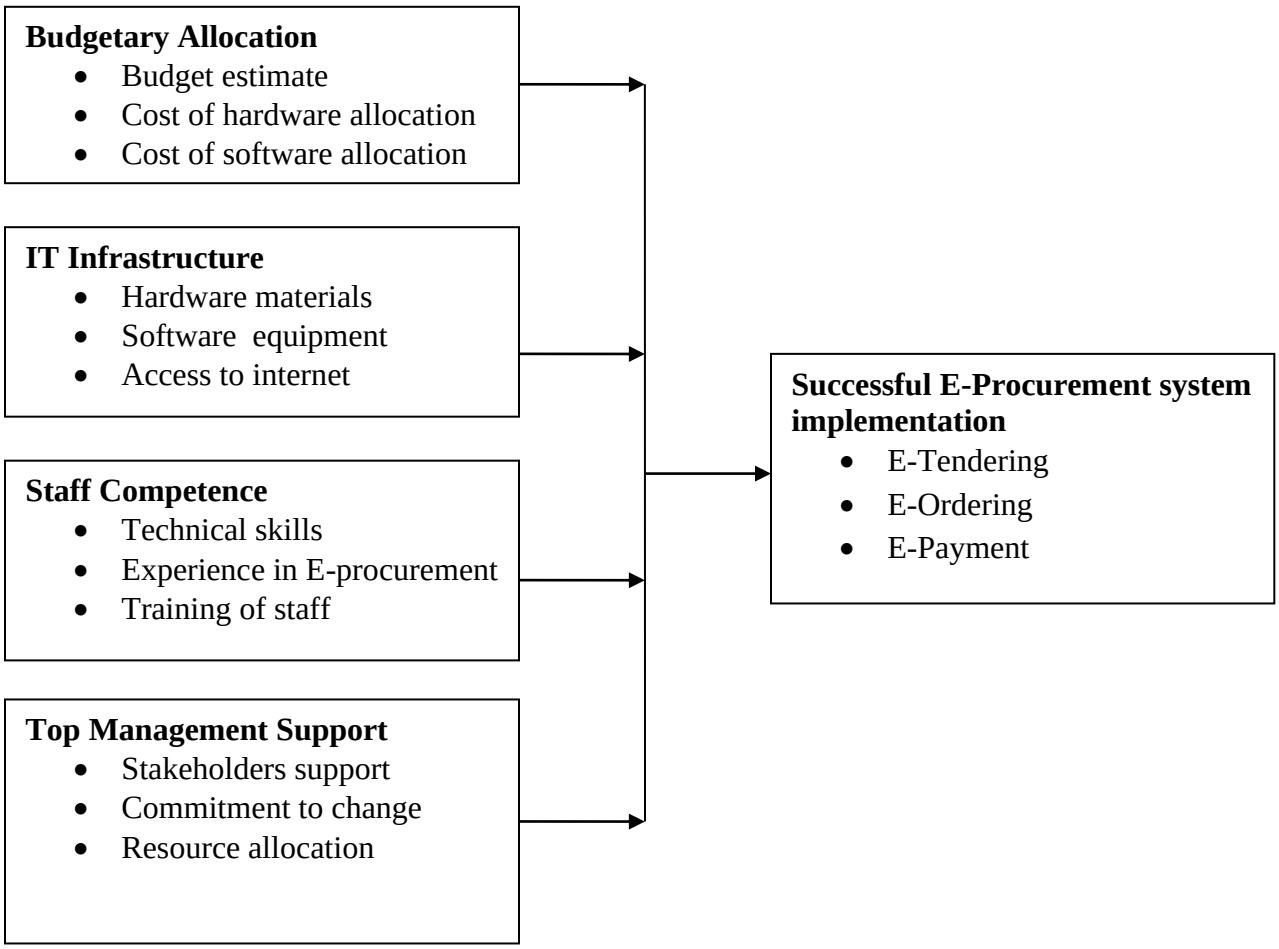

Figure 2.1: Conceptual Framework

2.5 Operational Framework

According to Lyson K (2006), define operational framework as a guide to an organization policies, goals, standards, procedures and trainingor as diagrammatical representation that shows the parameter between dependent variable and independent variables. The framework sets out the way the oraganization does business and promotes a corporate culture and identity.

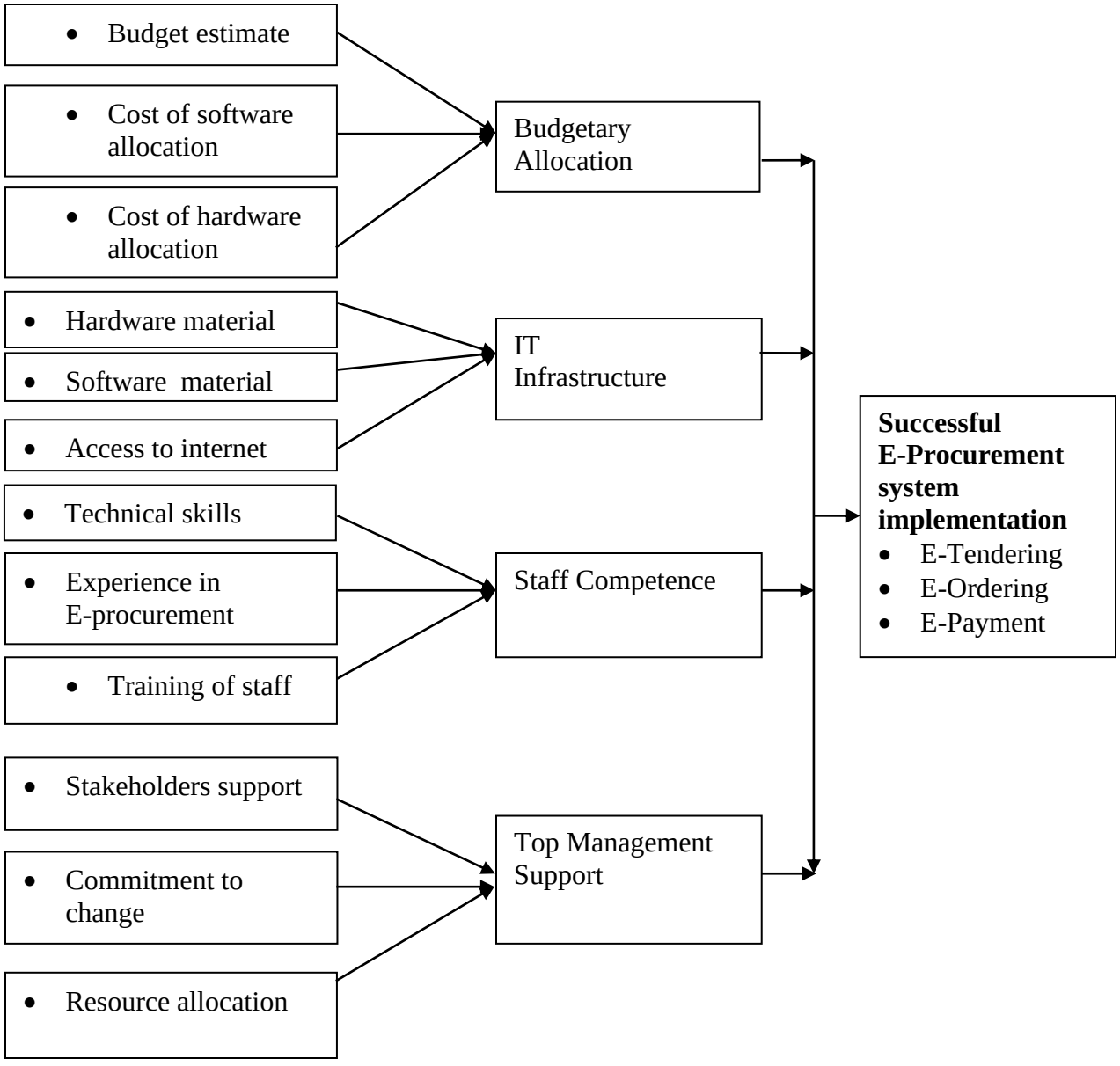

Figure 2.2: Operational Framework

2.5.1 Budgets Allocation

According to (Price Water House Coopers), the high cost of technology is indeed a barrier to implementation of e-procurement. Effectiveness of the e-procurement system is dependent on availability of financial resources in order to meet such technological costs as software and hardware. Other costs include the payments for the various services offered by suppliers and maintenance of the same. Without losing its control and accountability mechanisms, modern budgeting can better support performance management by integrating known financial outcomes with frequent re-forecasting of the budget and linked to analysis of performance trends. A firm financial performance management reporting systems was drawn on a number of information sources and reflects the range of stakeholder and departmental perspectives (MelekEker, 2007).

On the other hand the buyer, evaluate the suppliers evenly, improve supplier performance by developing suppliers capability through training and interchange of human resources. Both the supplier and buyer ensure that the relationship between them is maintained through formation of teams responsible for managing the relationship (Hansen & Mowen, 2005). When the required conditions and resources are present, both purchasing organizations and participating suppliers with significant benefits during and subsequent to new product development. Advantage may be found in areas such as improved technology, shorter product development cycle time, lower cost and higher quality. Prior research has also shown that the study does not always manifest into organizational benefits, and at times, can even contribute additional problems(Christopher, 2012**)**.The resources being term as a physical or entity virtual which are entity of limited or any thing that used by a peron to help him earn a living. Further, continues to a more precisely define as money or equipment that can be by a company to achieve its the goals. Resources being scarce or limited in supply and they command a price and they include; labour, land, capital, and enterprises as indicated by (David & Alex, 2004). Some firm have found it helpful to present a regularly updated board-level report of risks and opportunities, in which the main possible financial up- and downsides are shown alongside each period‟s forecasts. This permits focus on a range rather than a spot forecast (Horngren, 2000).

Where big deviations from budget have occurred, it may be necessary to formulate and report on a recovery plan alongside the routine budget profile. Getting the reporting framework right is critically important so that the Board has the full picture on which to base its decisions. It ensures that everyone is considering issues within the context of a consistent reporting template and using a consistent language. For management it brings the benefit that a common framework for reporting can enhance co-operation between the operational managers and the finance function (Engler, 2005). Resources as any physical or virtual entity of limited availability or any used to help one earn a living. Further, continues to a more precisely define as money or equipment that can be used to help an organization to achieve its objectives. Resources are scarce or limited in supply and they command a price and they include; labour, land, capital, and enterprises as indicated by (David & Alex, 2004).Capital as a resource is a major challenge to any organization and economic planning which is assumed to help modify the restraining influence of limited resources by recognizing the existence particular constraints and by choosing and coordinating investments projects as to channel these scarce factors into their mass productive outlets as indicated by (Christopher, 2012**)**.

2.5.2 Staff Competence

Lack of e-procurement knowledge as reported by the Aberdeen Group, (2006) is a major barrier to implementation of e-procurement. There is thus need to build capacity of the staff in the e-procurement area. Lack of training on application of sustainable procurement strategies hinders implementation of effective procurement practices in many government entities (Armstrong, 2008). Saunders , (2007) reckoned that personnel in procurement are, in a sense, information processors. They receive, analyses, make decisions and distribute information in order to manage the flow of goods and services in the supply chain. According to Price Water House Coopers (2009), Lack of technical expertise is a barrier to adoption of e-procurement. Technology keeps on changing and those implementing e-procurement have to continuously undergo relevant training in order to keep up with the pace. A study by Emmanuel, (2007) showed that in Africa, training of procurement personnel could greatly support effective implementation of e-procurement practices in many public organizations.

A study by Simpson and Power, (2007) found that in many African government organizations, many procurement managers are not trained on implementation of effective procurement practices and this contributes to wastage of procurement funds. A study by Arthur, (2009) notes that many procurement managers in organization in Kenya lack competitive knowledge and skills on how to effectively embrace effective e-procurement practices and this hampers minimization of procurement expenditure. A study by Handfield, (2009) notes that in UK, many public organizations have succeeded in embracing effective e-procurement practices as a result of continuous training of procurement staff and employment of professionally trained procurement staff. Findlay, (2009) notes that in South Africa, many public organizations have not managed to embrace effective e-procurement practices as a result of low level of staff competency, use of poor training methods, lack of qualified procurement staff with technical knowledge and skills on the requirements of effective procurement practices.

The Council qualification comprise of five levels of competency in purchasing and supply management, and these are: range of varied work activities of which may be routine and predictable, this is usually supervisors responsibility and is mostly applied in significant range of varied activities performed in a variety of contexts, some activities are complex and none routine, collaborative with others may be a requirement, this is an individual responsibility autonomy and it's applied in stores (CIPS, 2006). Other competencies that should be demonstrated by the staff are; broad range of complex technical or professional activities performed in variety of contexts most of which are complex and none routine, broad range of complex or professional work activities performed in a variety of contexts, application of significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of context (Arthur,2009)

2.5.3 Information Technology Infrastructure

The dependent on availability of infrastructure to support the process. These include computers and servers. According to Wyld (2009), implementing of e-procurement is hampered by inadequate technical infrastructure in an entity as well as by partners. Information Technology (IT) is a technology that involves use of computers, software and internet connections infrastructure for supporting information processing and communication functions (Crompton, 2007). The use of information technology in public sector has not been effectively implemented since most of the procurement functions are subjected to manual procedures that are slow, inaccurate and ineffective.

In 2009, PPOA acknowledged that there is no enough technology in place to enable the government to take all advantage of internet commerce. It identified issues such as identification of parties in a transaction, synchronization, confidentiality, data confidentiality and bandwidth as the major considerations that the government had to consider before taking full advantage of the benefits of E-procurement. Infrastructures are sets of systems within a place or organization that affects how well it operates for examples, the telephone and transport systems in a country. (Jacob 1998) continues to states that while electronic procurement uses ICT, the drives of the latter are not necessarily those of the former. He further states that even with the introduction of technologies, differs between larger and smaller firms. The adoption of software process, technologies as the determinant also vary from technology to technology for firms of the same size class. He continues to state that linking to observation that in adopting ICT, the task for smaller firms is to undertake the strategic and competitive implications while ICT adoption have been proposed. Such models are not necessarily transferable to electronic procurement adoption, one major problem is the conflict of the networking requirement of the electronic procurement with the findings of a limited immigration between the internet and the interior systems is small and medium enterprises (SMEs) .(Mole Et At 2004).

For companies to participate in electronic procurement they need telephone lines and PCs with internet access. However they are still many areas in the country that still have no

access to telephone and internet services which is why compliance remains low. He further states that it is important that government invests in connectivity, instead of opening the markets that will restrict participation in online procurement to privileged suppliers with web access.(Diaz Manure 2005). The most benefits of electronic procurement systems have only qualitatively expressed without a systematic analysis because measuring the challenges of I.T, especially where the challenges created are beyond the organizations boundaries as in the case of electronic procurement systems has proved to be difficult. As a consequence many organizations are still reluctant to adopt electronic procurement systems since electronic procurement systems require significant investments in infrastructure, technology, integrations and expertise .(Molar and Licker 2001). Dai and Kauffman,(2008) argue that Internet-based e-procurement systems and electronic market solutions need to be compatible to the greatest possible extent with the existing technologies, to have a reasonable chance to be widely adopted. Talluri, (2006) identified internal business risks arguing that implementing an e-procurement solution not only requires that the system itself successfully performs the purchasing process, but it integrates with the existing information infrastructure.

2.5.4 Top Management Support.

The top management team is responsible for setting the vision and goals, bringing about collective commitment for change in processes and organizational structures, and formulating the policies and strategies necessary to put an e-procurement initiative in place (World Bank, 2013). Top management support being as people employed in an organization and also being regards as a prime asset to an organization or business need to invest into to ensure their survival and growth (Armstrong 2006). As unlike the current procurement role, the traditional role of procurement management is to ensure enough supply of parts and materials to support business operations and save money in the process. The jobs that used to require minimal education now requires skilled workers. A decade ago, organizations would operate with a large, unskilled and uneducated workforce. Today it’s not the case in many organizations. He states that without qualified

individual's progress in application of the I.T severely delays or retarded the process (Archer and Yuan 2000).

Orina (2013) failed to address e-procurement readiness by highlighting on the e-procurement system which was introduced by the Government to enhance transparency and accountability. There is also the element of time in that from the year 2013 to date, there has been a time lapse hence several factors have taken place such as the new Government. This study has focused on a specific context which is Murang'a County.
Organization need to invest in human capital. Human capital represents the human factor in the organization. The combined intelligence, skills and expertise that gives the organization its distinctive character. The human element of the organization are those that are capable of learning, changing, innovating and providing the creative thrust which if properly motivated can ensure that long term survival of the organization and thus businesses to invest in this. The reason for failure to adopt e-procurement is limited knowledge and expertise with I.T system (milakovick and Gordon 2007). The reason for failure to adopt e-procurement is limited knowledge and expertise with I.T system. Similarly (Hawking and stein 2004) indicated that expertise as a major reason for reluctance to adopt e-procurement. The labor costs are high even before the effects of crisis facing employers to turn to innovation as a way of beefing up returns. The personnel are responsible for procurement management. The procurement refers to coordination of all activities pertaining purchasing goods and services necessary to accomplish the mission of an enterprise. Purchasing life cycle for a product or service involves information gathering, suppliers contact, background review, negotiation, consumption, maintenance and disposal and renewal as indicated by (Lyson K.J 2000).

According to (Rozner, 2008), a change management strategy should be developed as soon as an e-procurement is conceived, taking into consideration the change implications for diverse stakeholders, that is, from politicians and senior officials to heads of departments, civil servants and the IT personnel who support the new systems. If this aspect is not addressed early in the project, the project constantly is faced with resistance and obstacles from elected politicians, executive officials and personnel who use the

systems regularly. Top management support is critical for creating a supportive climate for the adoption of new technologies and can stimulate change by communicating and reinforcing values through an articulated vision for the organization. Organizational adaptation and training of employees are examples of issues for the successful implementation of organization IT system (Jeyaraj, 2006). According to Markus, (2010) individual end users and entire business units naturally resist any change in business processes that poses uncertainty in security and privacy of their transactions. To ensure that all individuals within the organization are well versed with the newly introduced ICT applications in the procurement process, management of the organization should emphasize on employee training and induction to ensure that they are well equipped with the necessary required skills to handle the new system with accuracy (Amaratunga & Baldry, 2012).

2.6 Critique of Literature reviewed

The study by Kinoti, (2013) dwelt more on the supplier's preparedness to participate in the Government's e-procurement system. Hence it fell short of addressing the Government entities readiness in successful implementation of electronic procurement system. Orina, (2013) failed to address e-procurement readiness by highlighting on the e-procurement system which was introduced by the Government to enhance transparency and accountability. There is also the element of time in that from the year 2013 to date, there has been a time lapse hence several factors have taken place such as the new Government. The study by Kevin Inzofu, (2016) dwelt on Challenges to implementation of electronic procurement in the construction sector. This study has focused on a specific context which is Murang'a County. Limited empirical studies to establish the level of preparedness, receptiveness and impact of the e-procurement to the public entities in Murang'a County has been carried out. Being a new system in the Kenyan public procurement process, several operational adjustments and additional investment into training and purchasing of infrastructural facilities need to be in place before the actual roll out. Therefore, the study aims at establishing the readiness of the Government entities in Murang'a County to implement e-procurement system.

2.7 Research Gaps

The main factors that appear to effect on likely e-procurement system implementation are; budgetary allocation, Information technology infrastructure, staff competence, and top management support on the e-procurement system implementation in Murang'a County. Some of the reasons it lags behind is the size of the organization, type of operation and clients among others as stated by (Peter Stanmark (1999). The major problem is the conflict of networking requirements of e-procurement with the finding of a limited integration between the internet and the internet system in small medium enterprises system to embrace ICT without adopting e-procurement according to (Christopher, M. 1992**)**. In the technological aspect of e- 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).

According to David J & Alex M. (1994) concurred with this when he quoted that resources are scarce or limited in supply and they command a price. The research established competent personnel hinder or caused reluctance in the e-procurement system implementation. He also states that jobs that used to require minimum education now requires skilled workers. Also gives one reason for failure to e-procurement system implementation as limited knowledge and expertise with information systems. 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). 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 public sector. This study seeks to fill this gap by evaluating assessment of successful Electronic Procurement implement syatem in the Murang'a County Government in Kenya.

2.8 Summary of Literature

Governments have been noted to be the single largest purchaser of a national economy (PPOA, 2009). The public procurement systems in low - and middle-income countries have typically been characterized spending money in a less than transparent and inefficient ways. The application of digital technology and e-procurement promises opportunities for improvements that the public sector. Many researchers agree that the benefits of e-procurement include: enhanced transparency and compliance, increased performance and quality, and economic development. Existing literature on e-procurement has emphasized the cost improvements that may be achieved as a result of transactional and process efficiencies. These efficiencies are gained in three ways. Greater opportunity for lower prices from suppliers; reduced work content in the total requisition to payment process; and significant reductions in the time taken to complete the procurement process (Croom, 2000). The study argues that it would be inappropriate for organizations to assume that adoption and implementation of e-procurement would result in automatic increased performance and economic development. This is because an e- procurement system essentially entails the use by two parties; the buyer (organization) and the seller (vendors of goods, services and works). Organizations use the e-procurement system to buy/source for goods, works or services from the sellers. Therefore a market has to be created and activated for the e- procurement system.

The researcher's view is consistent with that of McDermont (2005), who observed that buyer supplier activation as a strategy for successful electronic government procurement has been neglected in existing business literature. Past studies on the subject of electronic procurement have mostly focused on the adoption implementation of e-procurement by firms in the private sector. Only a few studies have attempted to focus on the public sector. Moreover these studies have concentrated on government ministries and state corporations; none has attempted to address the unique case for county governments in

Kenya. Almost all studies were based in the developed countries in Europe and USA with a few exceptions such as those carried out in Uganda and Singapore

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research design, target population, sampling design and sample procedure, sample size, data collection methods, pilot study, data analysis presentation and ethical issues to be observed. All this study will guide the implementation of the research study towards the realization of the objectives enumerated by the researchers in chapter one.

3.2 Research Design

The study adopts a descriptive study approach in this area. This is because the design is concerned with the answering the questions who, what, which, when, where or how much (Lavrakas, 2008), making it informative.This approach is sometimes the only way to study a behavior or situation, because it is either physically or ethically impossible to produce it in an experiment (Saunders, Lewis, & Thornhill, 2009). According (Saunders, Lewis, & Thornhill, 2009) indicate that a descriptive research design give a picture of a situation the way it is without any manipulation of existing variables. Descriptive study was chosen for this study since it enabled the researcher to involve both qualitative and quantitative techniques of data analysis (Mugenda & Mugenda, 2009). The study engages the respondents in assessing successful e-procurement system implementation in Murang'a County Governments.

3.3 Target Population

The target population include employee working in the procuremnet department, Store departments,finance departments, Executive committee member and ICT department. The target population was 96 employees ,which represent the sample size as presented in table 3.1.

Table 3.1Target population

Department	Population	Percentage %
Procurement department	18	19%
Store department	28	29%
Executive Committee member	14	15%
Finance department	20	21%
ICT department	16	16%
Total Number	**96**	**100%**

Source: Human resource department **(2018)**

3.4 Sampling Technique and Sample Frame

A sampling frame is a list of population from which a sample was drawn (O'Leary, 2001). The study uses a non-homogeneous sampling design whereby random sampling technique was used to select individual outlets and the individual respondents to be questioned , selected using stratified sampling (Bailey, 2008; Klaus & Oscar, 2008). The choice of the technique was based on the fact that Murang'a county is reclassified into various departmental These departmental perform different functions but are all involved in e-procurement process and are all expected to fully implement and comply with the e-procurement system.

The County has 96 employees involed in the implementation and direct use of e-procurement system. A census of all the 96 employees was done. Mugenda and Mugenda (2009) recommend a census when the target population is small. The list of 96 employee is deemed as small and therefore a census approach was employeed. This involves gathering information from every member of the staff in the target population. This method is considered appropriate because it reduces the biasness in research (Mugenda and Mugenda ,2009).

3.4.1 Data Collection Instruments

The study employed self-administered questionnaires for data collection. According to Berkley (2005) a questionnaire is easy to administer and reduce bias since the owner opinions was not influence the respondents to answer questions in a certain manner unlike if it were telephone or face to face surveys. Majority of the questions in the study was in the form of five point likert scale where 5= Strongly Agree, 4=Agree, 3=Neutral 2= Disagree; 1=Strongly Disagree. Likert type questions are perfered they are quick and economical to administer and score. In addition, these type of questions lend themselves well to item analysis procedures (Blaxter *et al*., 2006). Drop and pick method was used for data collection.

3.4.2 Pilot Study

A pilot study was undertaken with employees of Nyeri county government of procurement department. According to Isaac and Michael, (2005) suggested that 10 to 30 participants are sufficient for a pilot study. The pilot testing was conducted using the questionnaire on 28 employees of Nyeri county government. The pilot testing group was selected through random sampling. The purpose of the pilot testing was to establish the validity and reliability of the research instruments and hence enhance face validity (Joppe, 2000).

3.5 Reliabilityof Research Instruments

According to Mugenda and Mugenda (1999) validity refers to the accuracy and meaningfulness of inferences, which are based on the research results after repeated trials. A pilot study was done by administering the research instruments to 28 respondents who did not take part in the main study to ascertain the appropriateness of the questionnaire wording and the clarity of the instructions. Cronbach's alpha is the most commonly used measure of reliability dependability or stability of a test (Nachmias & Nachmias, 2006). The study used the Cronbach's alpha to determine the reliability of the instrument. A Cronbach's alpha of 0.7 and above was taken as acceptable reliability according to Leedy and Ormrod ,(2005).

3.5.1 Validity of Research Instruments

Validity is the degree to which a test measures what it ought to measure (Bryman, 2008). To ensure content validity, the questionnaire was subjected to thorough examination by two independent resource person to improve content validity. Validity was ensured by formulating questions based on the identified indicators in the operational framework. The study also ensure content validity by consulting the supervisors in the department of business who are well-informed and experienced in research procedures. Input from statisticians and colleagues was sought to ensure that the data collection instruments is valid.According to Mugenda & Mugenda (2003), validity of an instrument is improved through expert judgment.

3.6 Data Analysis and Presentation

Data analysis is the process of organizing the collected data in a way that meaningful conclusion can be drawn (Oso & Onen (2005), The study organized the data to ensure that the raw data is edited to free them from inconsistencies. This involves the scrutiny of the completed instruments in order to detect and reduce as much as possible, errors, incompleteness, misclassification and gaps in the information obtained from the respondents. SPSS version 22.0 was used to ease analysis of data.

Inferential statistics, in form of Pearson correlation coefficient and ANOVA was used to measure the relationship between variables. The study used a 95% confidence level and 0.05% level of significance. The study adopted the following Multiple regression equation to measure the strength of relationship between variables.

$$Y= \beta_o + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + e$$

Where Y= Implementation of e-procurement system

β_o= Intercept

$X_{1=}$ Budgetary allocation

$X_{2=}$IT infrastructure

$X_{3=}$ Staff competence

X_4= Top management support

$\beta_1, \beta_2, \beta_3, \beta_4$= Coefficients

e= error term

The coefficients represent the unit change of dependent variable as a result of a change in the independent variables. Data collected was analyzed quantitatively. Before analyzing the data, it was first edited, coded and entered into excel worksheet(s), where the use of SPSS to analyze the data. This was to ensure accuracy of the data, Frequency distribution tables, bar charts was used to present the results for easier understanding and interpretation using inferential statistics. In addition common themes with be captured through content analysis

3.7 Ethical Considerations

Authorization to conduct the study was sought from Dedan Kimathi University of Technology and the Nyeri county government. Informed consent was sought from all study participants. Questionnaires was not bear names nor contacts of respondents to maintain confidentiality. Data was stored in a password protected computer. Study findings was only used for academic purposes.

CHAPTER FOUR
PRESENTATION OF FINDINGS, ANALYSIS AND INTERPRETATION

4.1 Introduction

This portion of the study examines the data that was collected and analyzed with an aim of interpreting the results from the study. The broad objective of this study was to assess successful E-Procurement system implementation in Murang'a County Covernment. The analysis was guided by the specific objectives and research questions of the study as highlighted in chapter one which were conceptualized in chapter two. Data interpretation was done in line with the research objectives and research questions. The techniques proposed in chapter three for data analysis and presentations were used to do the analysis and presentation.

4.2 Response Rate

Data that was analyzed was obtained from ninety (90) respondents out of the targeted ninety six (96) employees of Murang'a County government. Thus the response rate was achieved at 93.8% which was very good according to (Mugenda & Mugenda, 2003).

Table 4.1: Response Rate

Details	**Targeted**	**Returned**
Numbers	96	90
Percentage	**100%**	**93.8%**

4.3 Reliability Test Results

A pilot study was carried out to find out if the respondents could answer the questions without difficulty. Questionnaire was administered on 28 respondents drawn from Nyeri County government of procurement department. The purpose of the pilot study was to test the reliability of the tool. Reliability of an instrument refers to its ability to produce consistent and stable measurements. Bagozzi (1994) explains that reliability can be seen from two sides: reliability (the extent of accuracy) and unreliability (the extent of inaccuracy). The most common reliability coefficient is the Cronbach's alpha which estimates internal consistency by determining how all items on a test relate to all other items and to the total test - internal coherence of data. The acceptable alpha coefficient

should be at least 0.70, and this study gave the alpha values of all variables which were above 0.70 as shown in Table 4.2.

The E-Procurement system Implementation had alpha of 0.805, budgetary allocation had 0.763, Staff competence had 0.724, Information technology infrastructure had 0.827 while Top management support had 0.840 thus the study was reliable. This indicates strong internal consistency among measures of variable items. This implies that the data collection instrument was therefore reliable and acceptable for the purposes of the study.

Table 4.2: Reliability Statistics

Variables	Number of items	Cronbach's Alpha
Implementation of E-Procurement systems	4	0.805
Budgetary allocation	5	0.763
Staff competence	7	0.724
Information technology infrastructure	6	0.827
Top management support	6	0.840

4.4 General Information

The study sought to find out the general information based on academic qualifications, work experience and the work station of the respondents.

4.4.1 Work Station of the Respondents

The study sought to establish the work station of the respondents working with Murang'a County Government. Figure 4.1 presents the findings on the work station of the respondents. Majority of the respondents (62.1%) work with the procurement related department while 20.7% and 17.1% work in accounts and ICT departments. The finding reveals all the respondents had a role to play in the successful E-Procurement system implementation of in County Governments.

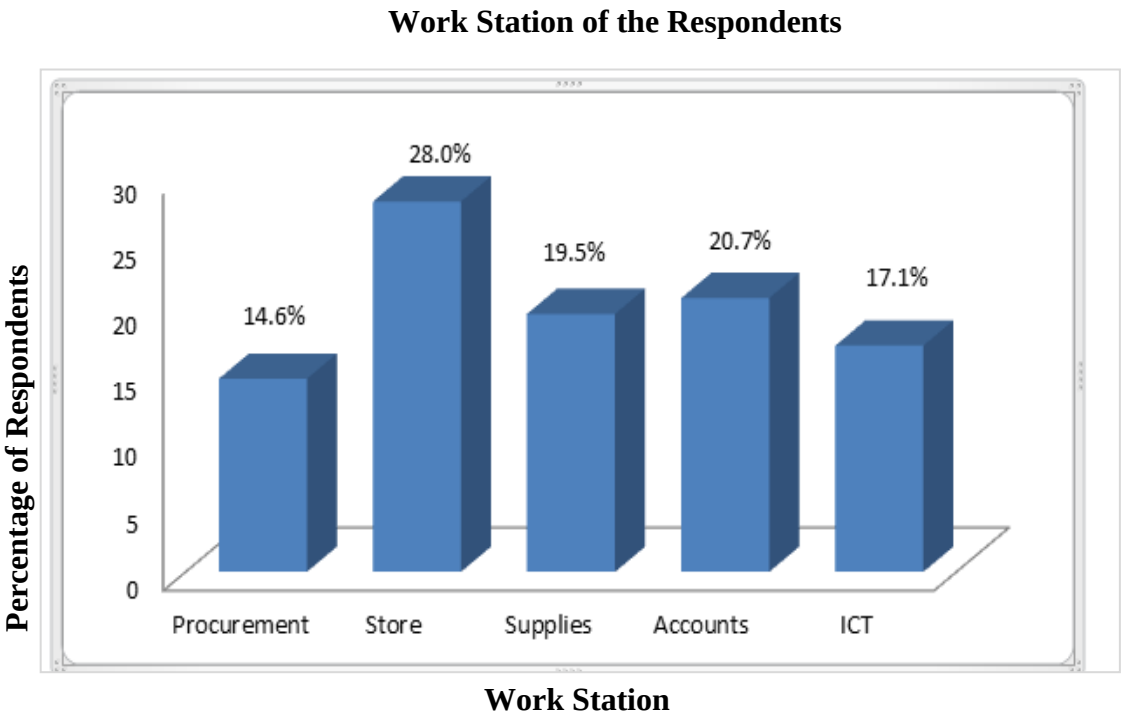

Figure 4.1: Work Station of the Respondents

4.4.2 Education Level of Respondents

Details about the education levels of respondents were obtained. The results in Figure 4.2 indicate that about a quarter had certificate qualification while slightly below half of the respondents had bachelor degree qualification. Based on the findings, respondents were found to have necessary knowledge and skills to rate the successful E-Procurement system implementation in Murang'a County Governments

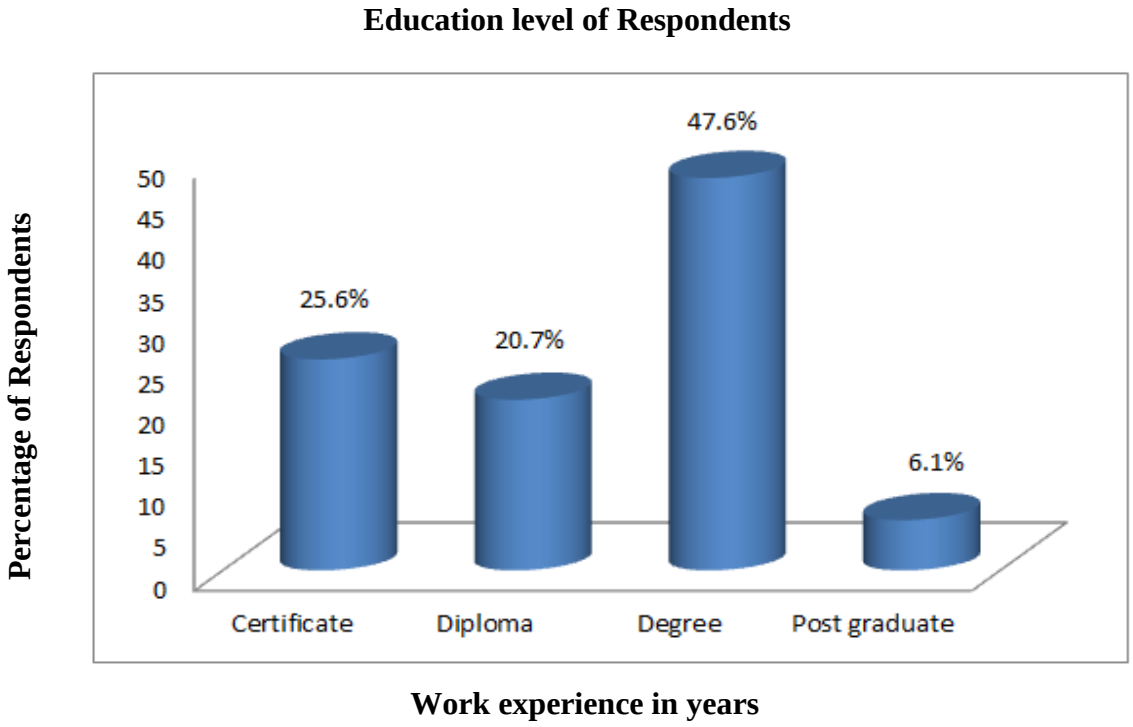

Figure 4.2: Education level of Respondents

4.4.3 Period Working With the Murang'a County Government

The study sought to understand how long the respondents had worked in Murang'a County Government. The researcher considered this information relevant given that the longer the period they had worked, the more familiar they would be able to rate the E-Procurement system implementation in Murang'a County Governments. As shown on Figure 4.3, majority of the respondents are experienced due to their long service in the work place with 53.7% having worked for more than five years. In this case, give n that more than 50% of the total respondents had more than three years in service, it is expected that the respondents had in-depth information regarding the successful E-Procurement system implementation in Murang'a County Governments, and would be able to rate the variable under consideration effectively.

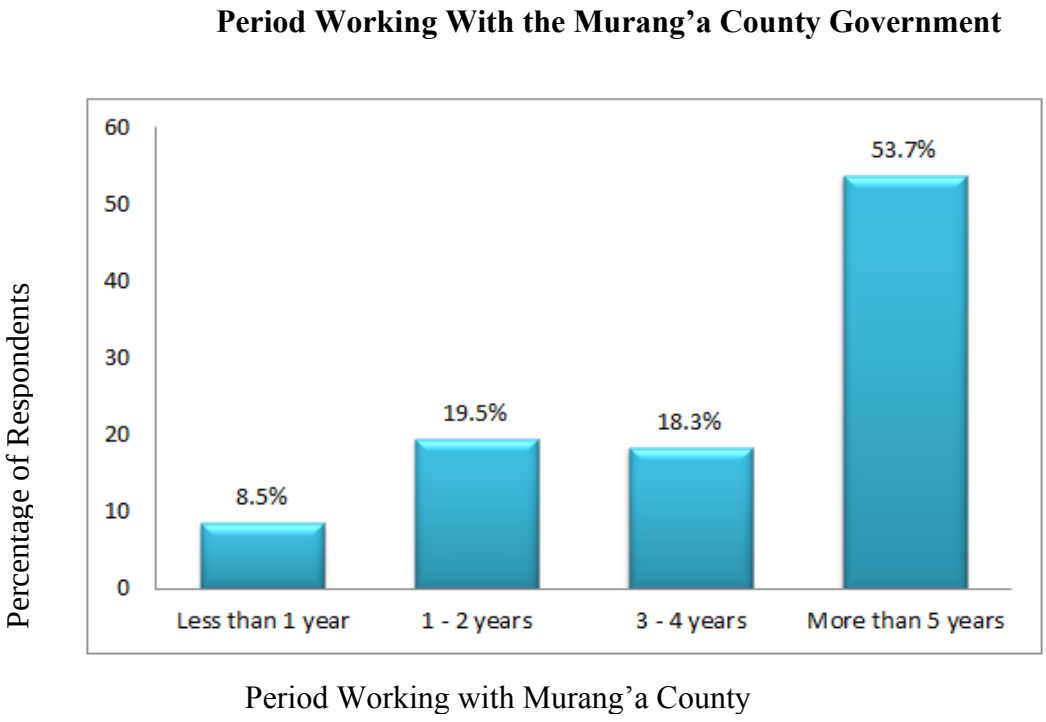

Figure 4.3: Period Working With the Murang'a County Government

4.5 Descriptive Analysis

Descriptive analysis was carried out for the dependent and the independent variables of the study. The results were discussed below,

4.5.1 Budgetary Allocation

The first objective of the study sought to assess the effects of budgetary allocation on the successful E-procurement system implementation in Murang'a County. Descriptive statistics were done to determine the effect of various factors of budgetary allocation. The study revealed that a high percentage 98.9% agreed budgetary allocation for implementation of E-procurement system has been a major challenge towards its implementation with a mean score of 4.48 and standard deviation of 0.50. A substantial percentage 97.8% agreed that budget estimates set aside for implementation of E-procurement is inadequate for acquisition of both computer hardware and software required for successful implementation of the system with a mean score of 4.33 and standard deviation of 0.47. Cost of software and computer hardware to support implementation was another challenge to effective implementation of the system with a

mean score of 4.24 and 3.91 respectively. The County government budget to support implementation of E-procurement system is sufficient had a mean score of 2.19 and standard deviation of 0.99. It is evident from the study that County Government budget to support implementation of E-procurement system is not sufficient. MelekEker (2007), opined that without losing its control and accountability mechanisms, modern budgeting can better support performance management by integrating known financial outcomes with frequent re-forecasting of the budget and linked to analysis of performance trends. The study concludes that effectiveness of the e-procurement system is dependent on availability of financial resources in order to meet such technological costs as software and hardware.

Table 4.3: Budgetary Allocation

Budgetary Allocation Factors	SD %	D %	N %	A %	SA %	Mean	Std. Dev
Budgetary Allocation for implementation of E-procurement system has been a major challenge towards its implementation	0.0	0.0	1.1	52.2	46.7	4.48	.50
The County government Budget to support implementation of E-procurement system is sufficient	30.0	32.2	26.7	11.1	0.0	2.19	.99
The cost of computer hardware to support implementation of E-procurement is a major challenge to the County government on implementation of the system	4.4	6.7	2.2	66.7	20.0	3.91	.94
The cost of software is prohibitive and a major challenge during implementation of E-procurement system	0.0	2.2	0.0	68.9	28.9	4.24	.57
The budget estimates set aside for implementation of E-procurement is inadequate for acquisition of both computer hardware and software required for successful implementation of the system	0.0	0.0	2.2	66.7	31.1	4.33	.47

SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree

4.5.2 Staff Competence

The second objective of the study sought to evaluate how staff competence affects the implementation of the E-procurement system in Murang'a County. Descriptive statistics were done to determine the effect of various factors of staff competence. The study revealed that majority of the respondents 75.6% strongly agreed that staff competence in use of E-procurement makes its implementation easy hence training with a mean score of 4.51 and standard deviation of 0.86. 50% of the respondents strongly agreed that training on E-procurement implementation is an important factor for its successive implementation had mean score of 4.50 and standard deviation of 0.50. Absence of competent staff with the right technical skills, experience and lack of training were cited as the major challenge to successful implementation with a mean score of 4.24 and standard deviation of 0.43.

Murang'a County has competent staff in the use of E-procurement which has aided in its implementation had a mean score of 3.52 and standard deviation of 1.12. Key employees of the county were trained of E-procurement system prior to its implementation had a mean score of 3.26 while Murang'a County staffs have the technical knowledge with regard to use of E-procurement and staff are experienced in the use of e-procurement which has eased its implementation had a mean score of 2.77 each. The finding therefore revealed that Murang'a County staffs do not have the technical knowledge and experience with regard to use of E-procurement.

The finding of the study support Price Water House Coopers (2009), who propounded that lack of technical expertise is a barrier to adoption of e-procurement. They stated that technology keeps on changing and those implementing e-procurement have to continuously undergo relevant training in order to keep up with the pace. Armstrong (2008), noted that Lack of training on application of sustainable procurement strategies hinders implementation of effective procurement practices in many government entities. Saunders (2007) reckoned that personnel in procurement are, in a sense, information processors. They receive, analyses, make decisions and distribute information in order to manage the flow of goods and services in the supply chain. Lack of e-procurement

knowledge as reported by the Aberdeen Group (2006), is a major barrier to implementation of e-procurement. Therefore there is need to build capacity of the staff in the e-procurement area.

Table 4.4: Staff Competence

Staff Competence Factors	SD %	D %	N %	A %	SA %	Mean	Std. Dev
Staff competence in use of E-procurement makes its implementation easy	0.0	0.0	24.4	0.0	75.6	4.51	.86
Muranga County has competent staff in the use of E-procurement which has aided in its implementation	0.0	24.4	24.4	25.6	25.6	3.52	1.12
Murang'a County staffs have the technical knowledge with regard to use of E-procurement.	0.0	48.9	25.6	25.6	0.0	2.77	.84
Murang'a county staff are experienced in the use of e-procurement which has eased its implementation	0.0	48.9	25.6	25.6	0.0	2.77	.84
Training on E-procurement implementation is an important factor for its successive implementation	0.0	0.0	0.0	50.0	50.0	4.50	.50
Key employees of the county were trained of E-procurement system prior to its implementation	0.0	0.0	74.4	25.6	0.0	3.26	.44
Absence of competent staff with the right technical skills, experience and lack of training is a major challenge to successful implementation and use of E-procurement system	0.0	0.0	0.0	75.6	24.4	4.24	.43

SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree

4.5.3 Information Technology Infrastructure

The third objective of the study sought to assess the effect of Information technology infrastructure on the implementation of E-procurement system in Murang'a County. The analysis show that a high percentage 97.8% agreed that major challenge towards adoption and implementation of E-procurement system are inadequate ICT infrastructure, in compatibility of various ICT system and lack of internet with a mean score of 4.28 and standard deviation of 0.45. A substantial percentage 94.4% agreed that incompatibility of E-procurement with other ICT modules used in the County offices has slowed its adoption had a mean score of 4.03 and standard deviation of 0.18. E-procurement system is compatibility with other County ICT systems and infrastructure had a mean score of 3.26 and standard deviation of 0.44. Internet access services has been provided for in the County government offices had a mean score of 3.24 while the current ICT infrastructure is well managed to support day to day application of E-procurement and Murang'a County offices has adequate IT Infrastructure to support successful implementation of E-procurement system had a mean score of 2.28 and 2.24.

The finding of the study revealed that Murang'a County offices do not have adequate IT Infrastructure to support successful implementation of E-procurement system hence incompatibility of E-procurement system with other ICT modules used in the County offices has slowed its adoption. Crompton (2007), stated that Information Technology involves use of computers, software and internet connections infrastructure for supporting information processing and communication functions. According to Wyld (2009), implementing of e-procurement is hampered by inadequate technical infrastructure in an entity as well as by partners. Therefore Murang'a County government should embark on investing in information technology which involves acquisition of computers, software and internet connections infrastructure for supporting e-procurement.

Table 4.5: Information Technology Infrastructure

Information Technology Infrastructure Factors	SD %	D %	N %	A %	SA %	Mean	Std. Dev
Muranga County offices has adequate IT Infrastructure to support successful implementation of E-procurement system	12.2	51.1	36.7	0.0	0.0	2.24	.66
The current ICT infrastructure is well managed to support day to day application of E-procurement	11.1	50.0	38.9	0.0	0.0	2.28	.65
E-procurement system is compatibility with other County ICT systems and infrastructure	0.0	0.0	74.4	25.6	0.0	3.26	.44
Incompatibility of E-procurement with other ICT modules used in the County offices has slowed its adoption	0.0	0.0	3.3	91.1	3.3	4.03	.18
Internet access services has been provided for in the County government offices	0.0	25.6	24.4	50.0	0.0	3.24	.84
Inadequate ICT infrastructure, in compatibility of various ICT system and lack of internet Muranga county offices has been the major challenge towards adoption and implementation of E-procurement system	0.0	0.0	2.2	70.0	27.8	4.28	.45

SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree

4.5.4 Top Management Support

The fourth objective four of the study sought to evaluate the effect of top management support on the implementation of E-procurement system in Murang'a County. This indicates that majority of the respondent 88.9% agreed that top management support towards adoption and implementation of E-procurement is an important factor for successful implementation with a mean score of 4.34 and standard deviation of 1.11. A high percentage 84.4% agreed that lack of top management support and other stakeholders have been a major challenge towards implementation of E-procurement system with a mean score of 4.13 and standard deviation of 1.03. Resource allocation towards E-procurement project in the County indicates top management support for its successful implementation had a mean score of 3.49 and standard deviation of 1.38.

Commitment to change from manual to electronic procurement have the support of top management had a mean score of 3.27 while top management of the county have sabotaged implementation of E-procurement system and the major Stakeholders (Leaders, suppliers, employees, service providers) in the county have supported implementation of E-procurement system had a mean score of 2.78 and 2.76 respectively. The finding of the study that top management support is an important factor for successful implementation e-procurement is with concurs Peterson, (2008), who opined that commitment of senior managers is one of the most frequently cited factors deciding the success or failure of an information system. Diamond & Khemani (2006), argued that project commitment at the highest levels of the political system, as well as bureaucracy, and continuous participation from the direct users of the system and other stakeholders in all phases of the project, is necessary for success.

Table 4.6: Top Management Support

Top Management Support factors	SD %	D %	N %	A %	SA %	Mean	Std. Dev
Top management support towards adoption and implementation of E-procurement is an important factor for successful implementation of the same	5.6	5.6	0.0	26.7	62.2	4.34	1.11
The major Stakeholders (Leaders, suppliers, employees, service providers) in the county have supported implementation of E-procurement system	8.9	48.9	0.0	42.2	0.0	2.76	1.10
Commitment to change from manual to electronic procurement have the support of top management	0.0	24.4	24.4	51.1	0.0	3.27	.83
Resource allocation towards E-procurement project in the County indicates top management support for its successful implementation	11.1	22.2	0.0	40.0	26.7	3.49	1.38
Lack of top management support and other stakeholders have been a major challenge towards implementation of E-procurement system	0.0	15.6	0.0	40.0	44.4	4.13	1.03
Top management of the county have sabotaged implementation of E-procurement system	24.4	24.4	0.0	51.1	0.0	2.78	1.30

SD=Strongly Disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly Agree

4.5.5 Implementation of E-Procurement Systems

The study performed the trend analysis of the percentage yearly change in E- ordering, E-Tendering and E- Payment showing to show the proportional application of e-procurement system that was implemented successfully, not successful, pending and done manually. The findings of the study were as shown in Figure 4.4 to 4.6

a) E- ordering

The trends indicated that high percentage of ordering was done manually with slight decrease from year 2014 to 2016. On contrary the percentage of ordering done electronically recorded a slight increase for the same period. On the same note the percentage of the orders not successful decreases. The percentage of orders pending decreased in year 2015 and later had a slight increase from year 2015. The implication is that high percentage of ordering of goods and services was being done manually in year 2014 in Murang'a County Government but the trend has changed and the county has embrace e-ordering as shown by the increasing trend of ordering done successfully and decreasing trend of e-ordering done successfully as shown in Figure 4.4 below.

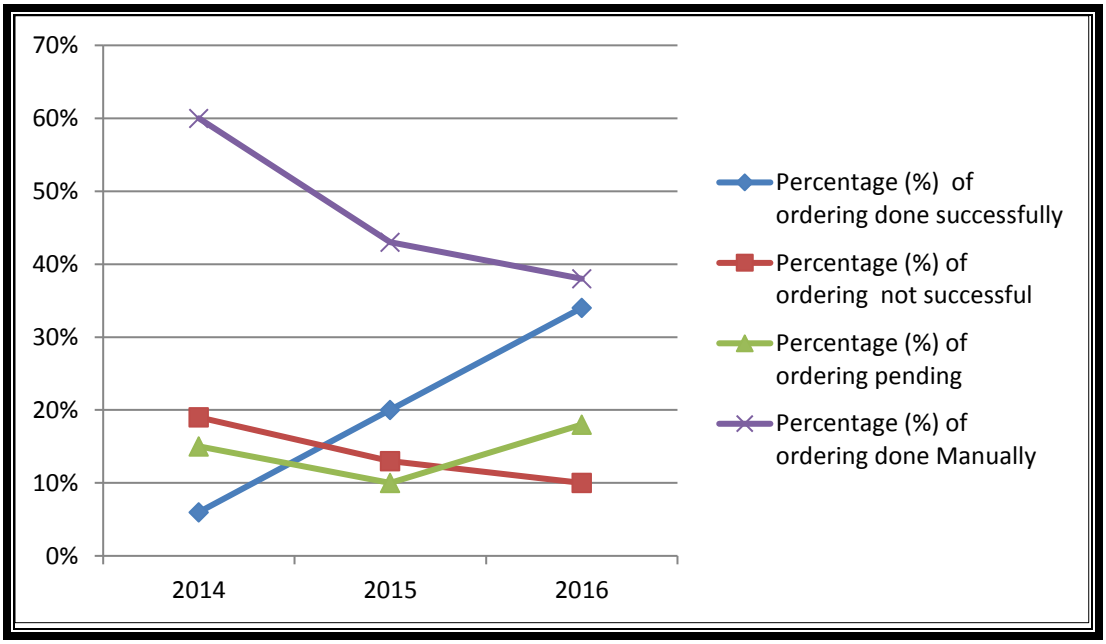

Figure 4.4: Trend analysis for application of e-ordering

b) E-Tendering

The trend analysis drawn indicates the annual decrease in percentage of the tendering done manually. There was slight increase in percentage of the electronic tendering done successfully. Compared to the year 2014, tenders not successful increased in the year 2015 but reduced by the year 2016 while tenders pending reduced in the year 2015 but increased in the year 2016. The implication is that high percentage of tendering of goods and services was being done manually in year 2014 in Murang'a County Government but

the trend has changed and the county has embrace e-tendering as reflected by the increasing trend of ordering done successfully and decreasing trend of e-tendering done successfully as shown in Figure 4.5 below.

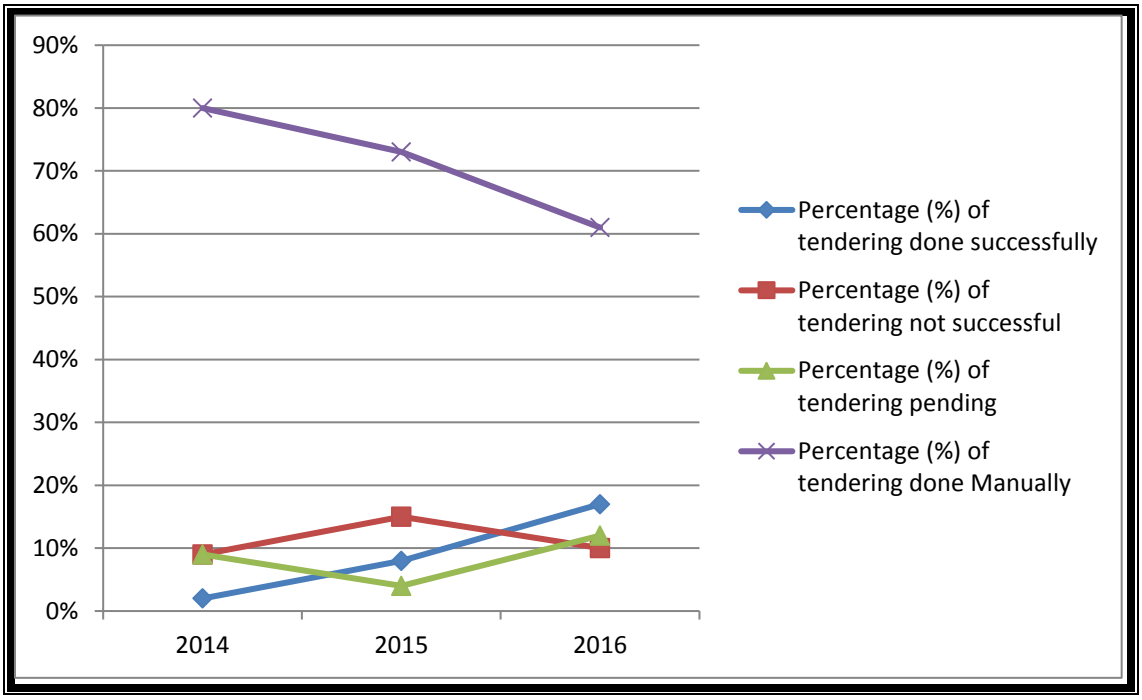

Figure 4.5: Trend analysis for application of e-tendering

c) E- Payment

Trend analysis conducted on e-payment application indicated that more than 50% of the payments were done electronically in the year 2014 and there has been an increasing trend of making e-payment in Murang'a County Government. About quarter of the payment was done manually but there has been a decreasing trend where few transactions are being paid manually. The study also shows that pending payments are on the decreasing trend from the year 2014 to 2016 as shown in Figure 4.6 below.

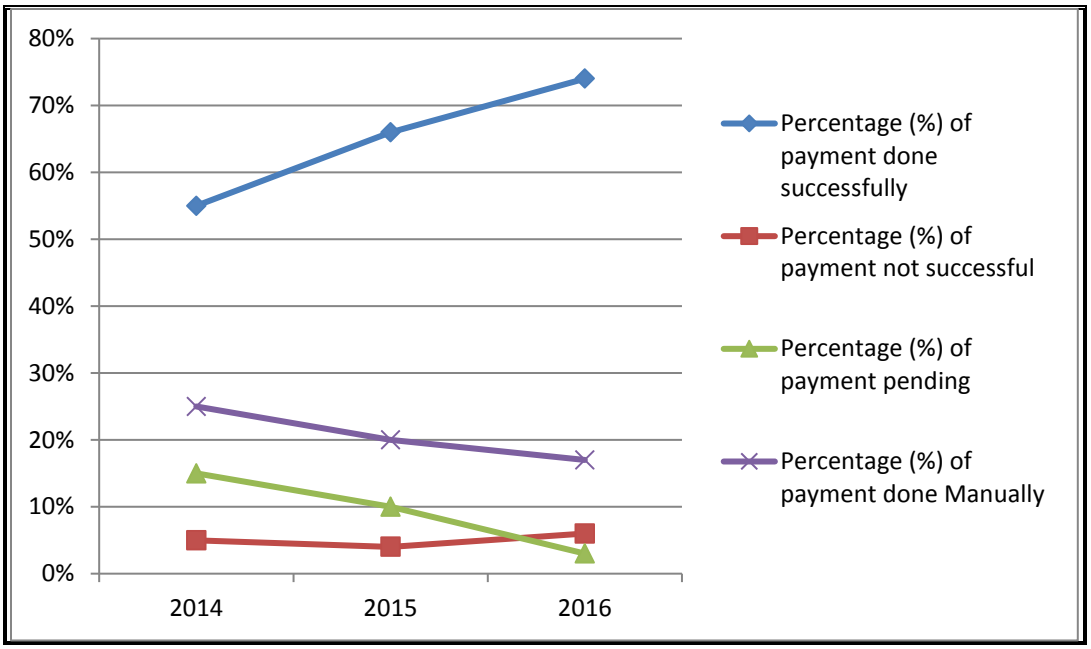

Figure 4.6: Trend analysis for application of e-payment

4.6 Test of Regression Assumptions

Prior to running regression analysis, the researcher sought to establish whether regression assumptions are met by the regression model. The key assumptions of regression models include that there should be linear relationship between variables, no or little multicollinearity, multivariate normality among others.

4.6.1 Linearity Tests

Linear regression requires the relationship between the independent and dependent variables to be linear. To test the linearity between variables Pearson's Product Moment Coefficient Correlation was used. Coefficient Correlation is usually symbolized by the letter (r) which range from -1 to +1. Positive r values indicate positive relationship while negative r values indicate negative relationship. Zero r value indicates no linear association. In order to conduct correlation analysis the set of parameters that measured each variable were aggregated by computing the average. Correlation analysis output revealed that budgetary allocation had positive and significant effect on implementation of E-Procurement systems r = 0.877, p value 0.000< 0.05 at 0.05 significance level. Staff

competence had positive and significant effect on implementation of E-Procurement systems r = 0.668, p value 0.000< 0.05 at 0.05 significance level. Information technology infrastructure had positive and significant effect on implementation of E-Procurement systems r = 0.794, p value 0.000< 0.05 at 0.05 significance level. Top management support had positive and significant effect on implementation of E-Procurement systems r = 0.779, p value 0.000< 0.05 at 0.05 significance level. In this study all the independent variables were found to have positive relationship with implementation of E-Procurement systems in Murang'a County. The findings of the analysis are as indicated in Table 4:7

Table 4.7 Correlation analysis

		implementation of E-Procurement systems	Budgetary allocation	Staff competence	Information technology infrastructure	Top management support
implementation of E-Procurement systems	Pearson Correlation	1	.877**	.668**	.794**	.779**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	90	90	90	90	90
Budgetary allocation	Pearson Correlation	.877**	1	.563**	.914**	.671**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	90	90	90	90	90
Staff competence	Pearson Correlation	.668**	.563**	1	.483**	.884**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	90	90	90	90	90
Information technology infrastructure	Pearson Correlation	.794**	.914**	.483**	1	.592**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	90	90	90	90	90
Top management support	Pearson Correlation	.779**	.671**	.884**	.592**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	90	90	90	90	90

**. Correlation is significant at the 0.01 level (2-tailed).

4.6.2 Normality Test for E-Procurement system implementation

To test for normality of regression model the study employed the graphical method. The results from the graphical method are presented in the Figure 4.7 below

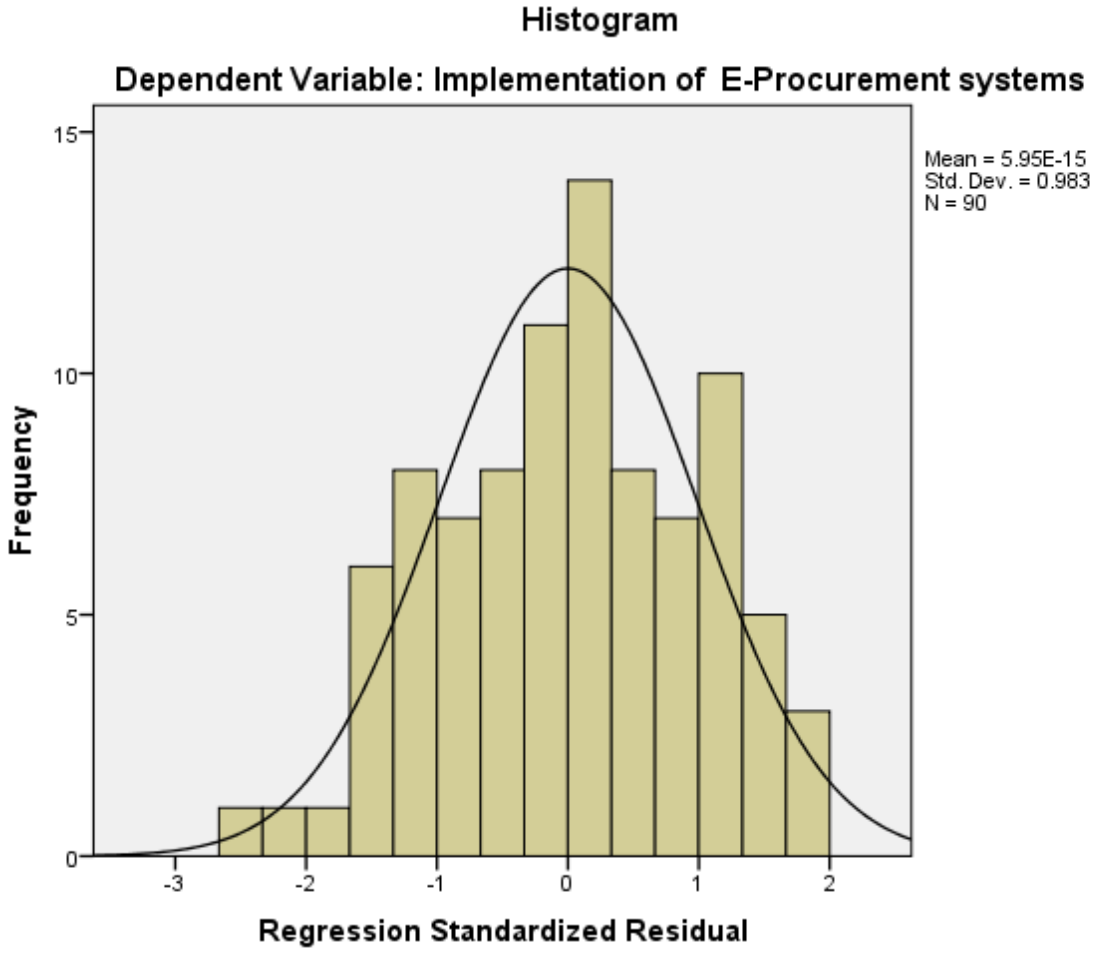

Figure 4.7: Normal P-P Plot

The results from the normality test indicated that the residuals are normally distributed which implies that implementation of E-Procurement systems met the linear regression assumption that there is normality between variables.

4.6.3 Test of Multicollinearity

A situation in which there is a high degree of association between independent variables is said to be a problem of multi-collinearity which results into large standard errors of the coefficients associated with the affected variables. Multicollinearity occurs when more than two predictor variables are inter-correlated, Kothari (2004). According to Mugenda and Mugenda (2012), multi-collinearity can occur in multiple regression models in which some of the independent variables are significantly correlated among themselves. To test for multicollinearity, Variance Inflation Factor (VIF) or tolerance, a diagnostic method was used to detect how severe the problem of multicollinearity is in a multiple regression model. VIF statistic of a predictor in a model indicates how much larger the error variance for the unique effect of a predictor (Baguley, 2012). Using the VIF method, a tolerance of less than 0.20 and a VIF of more than 5 indicates a presence of multicollinearity. If two or more variables have a Variance Inflation Factor (VIF) of 5 or greater than 5, one of these variables must be removed from the regression analysis as this indicates presence of multicollinearity (Runkle *et al*., 2013).From Table 4.8 there is no VIF with a value of 5 or greater than 5 and therefore no presence of multicollinearity.

Table 4.8: Multicollinearity Test Results

Model	**Collinearity Statistics**	
	Tolerance	**VIF**
Budgetary allocation	.546	1.831
Staff competence	.756	1.322
Information technology infrastructure	.506	1.976
Top management support	.821	1.218

4.7 Influence of budgetary allocation of E-procurement system on implementation

The bivariate linear regression analysis results of budgetary allocation on the implementation of E-procurement system were as shown in Table 4.9 to 4.11

Table 4.9: Model Summary on Budgetary Allocation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877[a]	.770	.767	.56889

a. Predictors: (Constant), Budgetary allocation

From the regression results in Table 4.9, the R value was 0.877 indicating that there is a relationship between budgetary allocations on the implementation of E-procurement system in County Government. The R squared (R^2) value of 0.770 shows that 77.0 percent of the implementation of E-procurement system is explained by budgetary allocation all other factors held constant. The remaining 23.0 percent is explained by other factors.

Table 4.10: Model ANOVA on Budgetary Allocation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	95.120	1	95.120	293.916	.000[b]
	Residual	28.480	88	.324		
	Total	123.600	89			

a. Dependent Variable: implementation of E-Procurement systems

b. Predictors: (Constant), Budgetary allocation

The model was significant with the F ratio = 293.916 at p value 0.000< 0.05. This is an indication that budgetary allocations when considered singly have a significant effect on the implementation of E-procurement system in County Government.

Table 4.11: Model Coefficients on Budgetary Allocation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.729	.178		4.100	.000
	Budgetary allocation	.823	.048	.877	17.144	.000

a. Dependent Variable: implementation of E-Procurement systems

Budgetary allocation had positive and significant effect on implementation of E-Procurement systems with $\beta = 0.823$ at p value 0.000 which is less than 0.05. From Table

4.11, the bivariate linear regression model equation fitted using unstandardized coefficients is; $Y= 0.729 + 0.823X_1 + e$ where 0.729 is the constant and X_1 is budgetary allocation index. This means that budgetary allocations positively and significantly influence implementation of E-Procurement systems in County Government. It also means that an increase of one unit of X_1 increases Y by 0.823. The indication was that budgetary allocation is a major factor that affects implementation of E-Procurement systems. The finding of the study that budgetary allocation affects implementation of E-Procurement systems assert earlier findings by Christopher (2012), who found out that capital as a resource is a major challenge to any organization and economic planning which is assumed to help modify the restraining influence of limited resources by recognizing the existence particular constraints and by choosing and coordinating investments projects as to channel these scarce factors into their mass productive outlets. David & Alex (2004), noted that resources are scarce or limited in supply and they command a price and they include; labour, land, capital, and enterprises.

4.8 Influence of staff competence of E-procurement system on implementation.

The bivariate linear regression analysis results of staff competence on the implementation of E-procurement system were as shown in Table 4.12 to 4.14

Table 4.12: Model Summary on Staff competence

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.668[a]	.446	.440	.88190

a. Predictors: (Constant), Staff competence

From the regression results in Table 4.12, the R value was 0.668 indicating that there is a relationship between staff competence on the implementation of E-procurement system in County Government. The R squared (R^2) value of 0.446 shows that 44.6 percent of the implementation of E-procurement system is explained by staff competence all other factors held constant.

Table 4.13: Model ANOVA on Staff Competence

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.158	1	55.158	70.920	.000[b]
	Residual	68.442	88	.778		
	Total	123.600	89			

a. Dependent Variable: implementation of E-Procurement systems

b. Predictors: (Constant), Staff competence

The model was significant with the F ratio = 70.920 at p value 0.000 < 0.05. This is an indication that staff competences when considered singly have a significant effect on the implementation of E-procurement system in County Government.

Table 4.14: Model Coefficients on Staff Competence

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.384	.279		4.960	.000
	Staff competence	.631	.075	.668	8.421	.000

a. Dependent Variable: implementation of E-Procurement systems

Staff competence had positive and significant effect on implementation of E-Procurement systems in Murang'a County Government with $\beta = 0.631$ at p value 0.000 which is greater than 0.05. From Table 4.14, the bivariate linear regression model equation fitted using unstandardized coefficients is; $Y= 1.384 + 0.631X_1 + e$ where 1.384 is the constant and X_1 is staff competence index. This means that staff competences positively and significantly influence implementation of E-Procurement systems in County Government. It also means that an increase of one unit of X_1 increases Y by 0.631. The indication was that staff competence is a factor that affects implementation of E-Procurement systems in Murang'a County Government. Armstrong (2008), staff competence is a set of defined behaviors that provide a structured guide enabling the

identification, evaluation and development of the behaviors in individual employees. It includes knowledge, skills, abilities and personal attributes that contribute to enhanced employee performance and ultimately result in organizational success. Garran (2009), noted that implementation of e-procurement in public procurement requires resources and specialized skills.

4.9 Influence of Information technology infrastructure of E-procurement system on implementation

The bivariate linear regression analysis results of information technology infrastructure on the implementation of E-procurement system were as shown in Table 4.15 to 4.17

Table 4.15: Model Summary on Information Technology Infrastructure

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.794[a]	.630	.626	.72105

a. Predictors: (Constant), Information technology infrastructure

From the regression results in Table 4.15, the R value was 0.794 indicating that there is a relationship between information technology infrastructure on the implementation of E-procurement system in County Government. The R squared (R^2) value of 0.630 shows that 63.0 percent of the implementation of E-procurement system is explained by information technology infrastructure all other factors held constant.

Table 4.16: Model ANOVA on Information Technology Infrastructure

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	77.848	1	77.848	149.733	.000[b]
	Residual	45.752	88	.520		
	Total	123.600	89			

a. Dependent Variable: implementation of E-Procurement systems

b. Predictors: (Constant), Information technology infrastructure

The model was significant with the F ratio = 149.733 at p value 0.000< 0.05. This is an indication that information technology infrastructure when considered singly have a significant effect on the implementation of E-procurement system in County Government.

Table 4.17: Model Coefficients on Information Technology Infrastructure

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.090	.219		4.983	.000
	Information technology infrastructure	.736	.060	.794	12.237	.000

a. Dependent Variable: implementation of E-Procurement systems

Information technology infrastructure had positive and significant effect on implementation of E-Procurement systems with $\beta = 0.736$ at p value 0.000 which is less than 0.05. From Table 4.17, the bivariate linear regression model equation fitted using unstandardized coefficients is; $Y= 1.090 + 0.736X_1 + e$ where 1.090 is the constant and X_1 is information technology infrastructure index. This means that information technology infrastructure positively and significantly influences implementation of E-Procurement systems in County Government. It also means that an increase of one unit of X_1 increases Y by 0.736. The indication was that information technology infrastructure is a major factor that affects implementation of E-Procurement systems. The finding of this study supports Mambo, Ombui & Kagiri (2013), who noted that technological resources have been consistently identified as an important factor for successful information systems adoption. According to Burton-Jones & Hubona (2006), organizations adopt new technologies to improve the efficiency and effectiveness of various work processes, unfortunately, many technology-based products and services never reach their full potential, and some are simply rejected. Oyugi (2010), noted that lack of supportive ICT infrastructure and absence of ICT skills amongst procurement staff greatly affect the implementation of effective e-procurement practices in public organization in Kenya.

4.10 Influence of top management support of E-procurement system on implementation

The bivariate linear regression analysis results of top management support on the implementation of E-procurement system were as shown in Table 4.18 to 4.20

Table 4.18: Model Summary on Top Management Support

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.779[a]	.607	.602	.74303

a. Predictors: (Constant), Top management support

From the regression results in Table 4.18, the R value was 0.779 indicating that there is a relationship between top management support on the implementation of E-procurement system in County Government. The R squared (R^2) value of 0.607 shows that 60.7 percent of the implementation of E-procurement system is explained by top management support all other factors held constant.

Table 4.19: Model ANOVA on Top Management Support

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	75.015	1	75.015	135.872	.000[b]
	Residual	48.585	88	.552		
	Total	123.600	89			

a. Dependent Variable: implementation of E-Procurement systems

b. Predictors: (Constant), Top management support

The model was significant with the F ratio = 135.872 at p value 0.000 < 0.05. This is an indication that top management support when considered singly has a significant effect on the implementation of E-procurement system in County Government.

Table 4.20: Model Coefficients on Top Management Support

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.861	.248		3.477	.001
	Top management support	.761	.065	.779	11.656	.000

a. Dependent Variable: implementation of E-Procurement systems

Top management support had positive but significant effect on implementation of E-Procurement systems with $\beta = 0.761$ at p value 0.000 which is less than 0.05. From Table 4.20, the bivariate linear regression model equation fitted using unstandardized coefficients is; $Y= 0.861 + 0.761X_1 + e$ where 0.861 is the constant and X_1 is top management support index. This means that top management support positively and significantly influences implementation of E-Procurement systems in County Government. It also means that an increase of one unit of X_1 increases Y by 0.761. The indication was that top management support has no effect on implementation of E-Procurement systems. The study revealed that top management poses a challenge but its effect is minimal. Jeyaraj (2006), noted that top management support is critical for creating a supportive climate for the adoption of new technologies and can stimulate change by communicating and reinforcing values through an articulated vision for the organization. According to Archer & Yuan (2010), management support is another key influence on new electronic service implementation. Positive management support for e-procurement can ensure system implementation success. Therefore if the e-procurement system does not have the full support of the top management team, there is every reason for it to fail. It is important to make sure that the top management has given full support for the adoption of e-procurement. Implementation of e-procurement involves more than only the automation of the system tasks and processes.

4.11 Overall Regression Analysis on E-procurement system implementation.

The study carry out multiple regression analysis between the independent and dependent variables of the study. In order to conduct multiple regression analysis the set of items that measured each independent variable were aggregated by computing the average. Multiple linear regression analysis was then used to test whether there existed interdependency between independent variables (budgetary allocation, staff competence, information technology infrastructure and top management support) and dependent variable (implementation of E-Procurement systems). The findings of the multiple regression analysis for each of the four independent variables are discussed in Table 4.21 to Table 4.23.

Table 4.21: E-procurement system implementation on Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.935[a]	.875	.869	.42673

a. Predictors: (Constant), Top management support, Budgetary allocation, Staff competence , Information technology infrastructure

From the regression results in Table 4.21, the R value was 0.935 indicating that there is a relationship between budgetary allocation, staff competence, information technology infrastructure and top management support on implementation of E-Procurement systems in Murang'a County. The R squared (R^2) value of 0.875 shows that 87.5 percent of the implementation of E-Procurement systems is explained by budgetary allocation, staff competence, information technology infrastructure and top management support. The remaining 22.5 percent is explained by other factors.

Table 4.22: E-procurement system implementation on Model ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	108.122	4	27.030	148.438	.000[b]
	Residual	15.478	85	.182		
	Total	123.600	89			

a. Dependent Variable: implementation of E-Procurement systems

b. Predictors: (Constant), Top management support, Budgetary allocation, Staff competence , Information technology infrastructure

The model was significant with the F ratio = 148.438 p value 0.000 < 0.05. This is an indication that budgetary allocation, staff competence, information technology infrastructure and top management support when combined together had a significant effect on implementation of E-Procurement systems in Murang'a County.

Table 4.23: E-procurement system implementation on Model Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-.426	.236		-1.807	.074
Budgetary allocation	.615	.049	.655	12.619	.000
Staff competence	.229	.107	.095	2.150	.034
Information technology infrastructure	.301	.053	.308	5.712	.000
Top management support	.211	.041	.219	5.173	.000

a. Dependent Variable: implementation of E-Procurement systems

From the regression coefficient table, budgetary allocation staff competence, information technology infrastructure and top management support had positive and significant effect on implementation of E-Procurement systems with $\beta_1 = 0.615$ at p value 0.000, $\beta_2 = 0.229$ at p value 0.034, $\beta_3 = 0.301$ at p value 0.000 and $\beta_4 = 0.211$ at p value 0.000 which

is less than 0.05 respectively. The optimal regression equation for this study can be stated as: $Y= -0.426 + 0.615X_1 + 0.301X_3 +0.229X_2 + 0.211X_4 + e$. where X_1 is budgetary allocation index, X_2 is information technology infrastructure index X_3 is staff competence index, and X_4 is top management support. In this study all the independent variables were retained in the optimal model since they were found to have statistically significant effect on implementation of E-Procurement systems in Murang'a County.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter is a synthesis of the entire report that contains the summary of the findings, conclusion and policy recommendations arising from the study. Research gaps identified during the study are also identified as basis for future studies.

5.2 Summary of the Findings

This study aimed at assessing the challenges affecting E-Procurement system implementation in Murang'a County Governments. The specific objectives of the study were to assess the effect of budgetary allocation, staff competence, Information technology infrastructure and top management support on the implementation of E-procurement system in Murang'a County. Overall, the Major finding of the study revealed that implementation of E-procurement system is greatly influenced by budgetary allocation and information technology infrastructure.

5.2.1 Budgetary Allocation and E-Procurement system Implementation

The first objective of the study was to assess the effects of budgetary allocation on the implementation of E-procurement system in Murang'a County. In order to ascertain the relationship between budgetary allocations on the implementation of E-procurement system, the researcher regressed the two variables. At 95 percent confidence level the results of regression analysis indicated a positive and statistically significant relationship between budgetary allocations and implementation of E-procurement system. The findings of the descriptive statistic further indicated that budgetary allocation for implementation of E-procurement system has been a major challenge towards its implementation due to inadequate fund for acquisition of both computer hardware and software required for successful implementation of the system.

5.2.2 Staff Competence and E-Procurement system Implementation

The second objective of the study sought to evaluate how staff competence affects the implementation of the E-procurement system in Murang'a County. The two variables were regressed in order to ascertain the relationship between them. At 95 percent confidence level the results of regression analysis indicated a positive and statistically significant relationship between staff competence and implementation of the E-procurement system. The findings of the descriptive statistic further indicated that absence of competent staff with the right technical skills, experience and lack of training is a major challenge to successful implementation and use of E-procurement system. However Murang'a County government had competent staff who could implement E-procurement effectively. This was achieve by the training undertaken by the key staff hence training on E-procurement implementation is an important factor for its successive implementation.

5.2.3 I.T Infrastructure and E-Procurement system Implementation

The third objective of the study sought to assess the effect of Information technology infrastructure on the implementation of E-procurement system in Murang'a County. The overall result derived from regression analysis at 95 percent confidence level indicated a positive and statistically significant relationship between information technology infrastructure and implementation of E-procurement system. Descriptive statistic further indicated that the major challenge towards adoption and implementation of E-procurement system are inadequate ICT infrastructure, incompatibility of various ICT system and lack of stable internet connectivity. In addition, the study revealed that Murang'a County offices do not have adequate IT Infrastructure to support successful implementation of E-procurement system. The area of staff training, the study reveal that developing the skills, competences of employees, operational flexibility and the form of training, proper monitoring and planning of training influences e-procurement implementation to a great extent.

5.2.4 Top Management Support and E-Procurement system Implementation

The fourth objective of the study sought to evaluate the effect of top management support on the implementation of E-procurement system in Murang'a County. In order to ascertain the relationship between top management support and implementation of E-procurement system, the study regressed the two variables. At 95 percent confidence level the results of regression analysis indicated a positive and statistically significant relationship between top management support and implementation of E-procurement system. The findings of the descriptive statistic further indicated that lack of top management support and other stakeholders have been a major challenge towards implementation of E-procurement system. Top management support towards adoption and implementation of E-procurement is an important factor for successful implementation. The study reveal that top management in most of the department in Murang'a County Government are extremely committed to e-procurement system implementation with monitoring processes, supportive organizational structure, set goals, strategies and baseline, coordination of activities and collective commitment influencing e-procurement implementation to a great extent.

5.3 Conclusions of the Study

The study focused on the challenges affecting E-Procurement system implementation in Murang'a County Governments. This would be beneficial to the management in understanding key challenges affecting effective mentation of E-Procurement systems. The study revealed that budgetary allocation had positive and statistically significant effect on implementation of E-Procurement systems hence a major challenge on implementation. It was evident from the study that County Government budget to support implementation of E-procurement system is not sufficient. In addition, computer hardware and software were found to be inadequate. The study concludes that effectiveness of the e-procurement system is dependent on availability of financial resources in order to meet such technological costs as software and hardware.

Staff competence had positive and statistically significant effect on implementation of the E-procurement system in Murang'a County. The study revealed that key employees of the County were trained of E-procurement system prior to its implementation hence may staff competence could not be a hindrance to effective implementation. However absence of competent staff with the right technical skills, experience and lack of training is a major challenge to successful implementation and use of E-procurement system.

Information technology infrastructure had positive and statistically significant effect on implementation of the E-procurement system in Murang'a County. The study concludes that the major challenge towards adoption and implementation of E-procurement system are inadequate ICT infrastructure, incompatibility of various ICT system and lack of stable internet connectivity.

Top management support had positive and statistically significant effect on implementation of the E-procurement system in Murang'a County. The study revealed that top management are committed to change from manual to electronic procurement and had set aside resource allocation towards E-procurement project in the County though the amount is inadequate.

5.4 Recommendations of the Study

A number of recommendations can be made. The study findings show that budgetary allocation a major challenge of effective implementation of E-Procurement systems. Therefore Murang'a County government should ensure that physical, human and financial resources are adequately budgeted for E-procurement system implemetation.

The findings revealed that staff competence is an important factor for successive implementation of the E-procurement system. Following these findings, this study recommends that County governments should continue embarking on training key staff prior to its implementation

Information technology infrastructure was also found to be a major challenge towards adoption and implementation of E-procurement system. These relates to inadequate ICT infrastructure, incompatibility of various ICT system and lack of stable internet

connectivity. Following these findings, this study recommends that County government should focus on upgrading information technology infrastructure in order to enhance implementation of the E-procurement system. County government should focus on ensuring that implementation of E-procurement system is supported by all the stakeholders especially the top management.

5.5 Areas for Further Research

This study makes an important contribution in our understanding that budgetary allocation and information technology infrastructure are the main challenge affecting implementation of E-Procurement systems in Murang'a County Governments and recommend what needs to be done in order to enhance implementation of E-Procurement systems. Arising from this study, there are number of recommendations for further research. Undertake a study focusing on the adoption level of E-Procurement systems in County Government. Future study's may also adopt a case study research design for other Counties which would further add value in understanding the challenges affecting E-Procurement system implementation in Murang'a County Governments. This study considered four variables, budgetary allocation, staff competence, Information technology infrastructure and top management support. Future studies should also focus on other types of composite variables which may pose factor affecting Adoption of E-Procurement system.

REFERENCES

Aberdeen Group, (2006), Best Practices in e-Procurement. *Information Technology Enabled Global Customer Service*. Ayshire. Prentice Hall Publishers.

Aberdeen, (2005), *Best practices in E-procurement: Reducing costs and increasing value through online buying.* Aberdeen Group Publication

Aboelmaged, M. (2010), *Predicting e-procurement adoption in a developing country: an empirical integration of technology acceptance model and theory of planned behaviour.*Industrial Management & Data Systems, 110(3), 392-414.

Amaratunga and Baldry, (2012), "Integrating ERP using EAI: A model for post hoc evaluation", *European Journal of Information Systems,* Vol. 14,

Ancarani, A. (2008). *Towards Quality e-Services in the Public Sector: The Evolution of Web Sites in the Local Public Service Sector.* Managing Service Quality. Approaches Nairobi Acts press

Angeles, (2013). *"Exploring radio frequency identification technology and its impact on business systems*". Information Management & Computer Security Approaches Nairobi Acts press

Archer and Yuan, (2010), *"Enterprise information systems projects implementation: A case study of ERP in Rolls-Royce", International Journal of Production Economics*

Armstrong, (2008), *Purchasing and Supply chain Management*, 2nd Edition, McGraw-Hill Publishers, and Florida 6th edition. Pearson Education Limited.

Arthur, (2009), *Purchasing and Supplies* 6th edition. Pearson Education Limited, Harlow Publishing Publishers.

Bailey W .R. (2008).*Human Performance Engineering: Designing High Quality Performance*, *Professional User Interfaces For Computer Products and Systems* (5th ed) Prentice Hall, New York

Bailey, 2008; Klaus and Oscar, (2008). *Logistics and Supply Management* Financial times1 pitnon Publishers Barkha Nath Printers, India.

Bales and Fearon (2016), *Purchasing and Supplies Management Simplified*, 1st edition, Salemi Publication Limited, Nairobi, Kenya

Barahona, J. and Elizondo, E. A.(2012). *The Disruptive Innovation Theory Applied to National Implementations of E-procurement*. Electronic Journal of e-Government Vol 10 Issue 2

Batenburg, (2007), *Purchasing and Supply chain Management*, 2nd Edition, McGraw-Hill Publishers, and Florida.

Berkley (2005) *Materials Management and Purchasing* 6th Edition Persona Education Limited England biases in IT innovation adoption research. *Journal of I.T*

Blaxter *et al*., (2006). *Storage and supply of materials*: 6th edition. Pearson Education Limited, Harlow.

Bof & Previtali, (2010), *Purchasing and supplies chain management* 7th Edition, Ashford Press, Harlow.

Bof, F.,and Previtali, P. (2007): Organizational Pre-Conditions for E-procurement in Governments: The Italian Experience in the Public Health Care Sector.‖ *The Electronic Journal of e-Government, 5*(1): 1-10.

Bryman, (2008) *Globalization and the Digital Divide,* New York Publisher, New York City

Bagozzi (1994), *Storage and supply of materials*, 4th Edition, England, Pearson education Ltd..

Burton-Jones and Hubona,(2006), *Globalization and the Digital Divide*, *Management* 56th edition 12, Donnery and sons company England New York publisher, New York City.

Bushan G. (2003). "*PC World*", Making supply meets Demand in An uncertain world,*Harvard Business review*, May-June, 83-93 New Delhi.

Byans Rue (1997) *Purchasing and Supply Management*; 4 th Edition Pearson Publishers: Prentice Hall: Great Britain,

Caridi, Crippa, Perego, Saianesi, and Turmino, (2010). *Purchasing and Supply ChainManagement*: 6th edition. Pearson Education Limited, Harlow.

Chene, (2009), *Purchasing and Supply Chain Management*, 5th Edition, Mc Graw-Hill, USA, Prentice Hall,

Christopher, M. (2012). *Logistics and Supply Management* Financial times 1 pitnon 4th Edition, England, Pearson education Ltd..

Claire *et al*., (2006) *Purchasing and Supply chain management* 7th Edition, Prentice Hall inc. Great Britain.

Clifford McCue and Alexandra V. Roman (2012).," *E-Procurement*: Myth or Reality?".,

Corsi,(2006) Effect of E-Procurement Practices on Effective Procurement in Public Hospitals:American International Journal of Contemporary Research Vol. 3;

Cristiana, (2008) "*Public procurement and social policy in Advancing Public Procurement and distribution*: Practices, Innovation and Knowledge-sharing, Press, Boca Raton,

Crompton 2007: *Supply chain management*; CRC press Inc, Florida USA.Croom &Johnston, 2007 *Best practice procurement public and private sector perspective.*

Croom and Johnston, (2003), *Best practice procurement public and private sector perspective.*Public Procurement and distribution: 7th Edition, Ashford Press, Harlow.

Croom, S. and Brandon-Jones, A. (2004*).“E-Procurement: Key issues in e-Procurement implementation and operation in the public sector”,* 13thInternational Purchasing & Supply Education & Research Association (IPSERA) *Conference, April 4-7, Catania, Italy.*

Dai and Kauffman,(2008) *Purchasing and Supply Management* 5th Edition Pearson Education Limited England.

David and Alex, (2004) *Purchasing and Supplies Management*: a comparison with private sector purchasing", *Journal of Purchasing and Supply Management*, Vol. 10 No.6,

Dawson, (2009), *Purchasing and Supplies Management Simplified*, 1st edition, Salemi Education Limited England

Dawson, (2009), *Purchasing and Supplies Management Simplified*, 1st edition, Salemi Publication Limited, Nairobi, Kenya.

Diamond and Khemani,(2006).*Logistics Information management*, Second edition; Pearson Education Limited England.

Emmanuel, (2007). *A Study of Purchasing Practices in Taiwan,"* International Journal of Operations and Production Management, 20 (12), 1427-45.

Engler, (2005). *Logistics Management*: *the Integrated Supply Chain process*,First Edition; Pearson publishers

Findlay, (2009), *Vertical Integration of Industrial Organization*, Cambridge University Press, Cambridge, UK. pp. 141-159.

Garran, 2009: *“Supply Chain Management in business today international* 7th Edition, Ashford Press, Harlow. UK.

Gibbs, and Kraemer, (2014). *“Moving Procurement systems to the Internet: the Adoption and the use of E-Procurement Technology Model.” European Management Journal, 21* (1): 11-23.

Gitahi (2011), *“Understanding of Supply Chain*”, International Journal of Engineering Science and Technology (IJEST) Vol. 3 No. 3Golder (2007*) Purchasing and Supplies* 4th Edition Pitman publishing Publishers

Government of Kenya (2015). *E-procurement Processes in Kenyan County Tendering.* IFMISDepartment: Retrieved from http://www.ifmis.go.ke,

Government of Kenya (GOK), (2011). *Strategic Plan for GoK IFMIS* (2011- 2015). National Government Printer

Guinipero, L. (2008). *"Optimizing supply chain management using fuzzy approach".* Journal of Manufacturing Technology Management, 17 (6), pp.737 – 749.

Gunasekaran, A. and Ngai, E. (2008). Adoption of E- procurement in Hong Kong; An empirical Research, *International Journal production economics*, 33, 133.

Gunasekaran, A. and Ngai, E.W.T. (2014), "Information systems in supply chain integration and management", *European Journal of Operational Research*, Vol. 159, No. 2, pp. 269.

Gunasekaran. A and Ngai., E.W.T(2008)., *Supply chain management: relationships, chains and networks".* British Journal of Management 7 (Special Issue), 63}80.

Handfield (2009) *Purchasing and Supply Chain Management* 6th Edition Publication Limited, Nairobi, Kenya.

Handfield, (2009) Strategic sourcing process model. *Journal of Business &Industrial and Labor Relations Review,* Vol.17, No.1. pp. 99-120.

Hansen and Mowen, 2005) An overview of EC policy on public procurement: *European Journal of Operational Research*. Vol.202, No.1. pp. 16-24

Heeks, (2014) Procurement Processes and Performance: *Efficiency and Effectiveness of the Procurement Function* Harlow Publishing Publishers International Journal of Production Economics 90, 79-102

Horngren, (2000). Power influences in the supply chain. *Journal ofOperations Management.* Vol.26, No.2. pp. 148-163.

Hunja (2011) "Customer Perceptions of E-Service Quality in Online Shopping," International Journal of Retail and Distribution Management, 33 (2/3): 161-177.

Isaac and Michael, (2005) *Purchasing and Supply Chain Management* 6th Edition Publication Limited, Nairobi, Kenya.

Jennings 2001, Supply chain management practices and organizationperformance. *Journal of Supply Chain Management*. Vol.26, No.2. pp.148-163.

Jeyaraj, A., Rottman, J. and Lacity, M. (2006). Continuing professional development: Introduction to research statistics. *Journal of Social Science*. Vol.34, No.7. pp. 149-162

Johnston,(2005). Centralised and decentralized procurement functions. *Journal of supply chain Management*. Vol.29, No.4. pp. 66-73.

Kabaj. O. (2008). *The Challenges of African Development*. UK: Oxford. Journal of public procurement, vol. 12, .issue 2, 221-248

Kakwezi, D. & Nyeko, P. K. (2010). Procurement Processes and Performance: *Efficiency and Effectiveness of the Procurement Function.*

Kangogo and Gakure (2013) Factors affecting electronic procurement implementation in automobile industry of Kenya. *International Journal of Management Sciences, 1*(6), 193-203.

Kashorda, Waema, Omosa and Kyalo, (2007) "*Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies"*. McGraw-Hill, New York.

Kauffman, J. and Kriebel,A. (2009) "*Purchasing and supplies chain Management*.(4th Ed).NewJersy: Kogan Page Publishers.

Ken (2007) The purchasing chessboard: 64 methods to reduce cost and increase benefits. *International Journal of Operations Management*. Vol. 23 Iss: 1, pp.50 - 68

Kheng, C. B., and Al-Hawamdeh, S. (2014). The adoption of electronic procurement in Singapore. *Electronic Commerce Research*, *2*(1-2), 61-73.

Kishor *et al*., (2006) *"Management Information System"* 10th Edition, Prentice Hall, Pearson International Edition.

Kishor Vaidya, A. S. (2006). Critical Factors That Influence E-Procurement Implementation Success In The Public Sector. *Journal of Public Procurement., 6*(1 & 3), 70-99.

Kishore, R., Rao, H.R, Goo, J., and Nam, K. (2006), "The role of service level agreements in relational management of information technology outsourcing: an empirical study", MIS Quarterly, Vol. 33 No. 1, pp. 119-145.

Kosgey (2014): Managing supplier relationships. *Journal of Business Logistics*. Vol. 28 No.1, pp.111- 35.

Kraemer, and Xu., (2012). *"Managing in knowledge-based competition".* Journal of Organizational Change Management.

Lambert (2005) *Purchasing and supply chain management* (2nd Ed). NewJersey: Pearson Publishers

Lavrakas, (2008). *"Supply Chain Metrics".* The International Journal of Logistics Management, 12 (1), pp.1 – 19.

Layne and Lee,(2007) What drives market transactions in B2B exchanges?‖*Communications of the ACM*, Vol. 49 No. 4, pp. 89-93.

Lee, G.-G. & Lin, .H.-F. (2005). "Customer Perceptions of E-Service Quality in Online Shopping," International Journal of Retail and Distribution Management, 33 (2/3): 161-177.

Lee, Ni and Koe,2001: Adopters and Non-Adopters of e-Procurement in Singapore: An Empirical Study‖, *Omega*, Vol. 37, No. 5, pp. 972-987.

Leedy and Ormrod ,(2005).. "*Operational intelligence discovery and knowledge mapping approach in a supply network with uncertainty"*. Journal of Manufacturing Technology Management.

Lieberth (2013): *Globalization and the Digital Divide*, New York publisher, New York City Limited, Bristol.

Lin, Lee and Lee, 2005). *"Optimizing supply chain management using fuzzy approach".* Journal of Manufacturing Technology Management.

Lyson K., (2006), *Purchasing and Supply Chain Management,* 7th edition, Prentice Hall, New York

Lysons, K and Farrington, B. (2012).*Purchasing and supply chain management*, 8th edition New Jersey: Prentice Hall.

Mahinda,2012: *Globalization and the Digital Divide*, New York Publisher, New York City

Mambo, Ombui and Kagiri, (2013). "*The utilization of Information Systems in Enhancing Supply Chain Management in the Public Sector: a Case Study of the Ministry of Tourism".* JKUAT 2009

Markus, (2010)*, "Information Systems, a Management Perspective",* Addison Wesley, Indian University.

McDermont (2005), *"Purchasing Principles and Management"* 9th ed. Prentice Hall London.

MelekEker, 2007: *The Effect of E-Procurement Practices on efficient procurement* in public hospitals. 7th edition, Prentice Hall, New York

Mugenda & Mugenda, (2009), *Human Capital. "A Theoretical and Empirical Analysiswith Special Reference to Education"*, Columbia University Press, New York .

Mugenda, O.M and Mugenda, A.G.(2003). *"Research Methods: Quantitative andQualitative Approaches".* Nairobi: Acts Press.

Mutula M. S. (2015). Comparison of sub-Saharan Africa's e-government status with developed and transitional nations. *Journal of Information Management & Computer Security, 16*(3), 235-250.

Nagurney, A. (2010), Optimal supply chain network design and redesign at minimal total cost and with demand satisfaction. *International Journal of Production Economics*, *128*(2), 200-208

National Treasury of Government of Kenya, (2016) *IFMIS Re-Engineering Strategic Plan (2013-2018), Kenya*

Ndunge, (2016), *"*Factors influencing efficient public procurement in the free 161 primary education. *Journal of supply chain Management*. Vol.33, No.11. pp. 131-134.

Newing, (2011), *"A Study of Purchasing Practices in Taiwan,"* International 20 Journal of Operations and Production Management, 20 (12), 1427-45.

O'Leary, (2001). *Purchasing and supplies chain Management*. (5TH Ed).New Jersy: Pearson publishers.

Odhiambo & Kamau, (2003), "*E-Business and E-Commerce Management"* 2nd Edition Prentice Hall. London.

Ogot, P. O., Njihia, J. M., and Mose, J. M. (2009). The critical success factors and challenges in e-procurement adoption among large scale manufacturing firms in Nairobi, Kenya. *European Scientific Journal, 9*,(10), 5–15.

Oporo, D. (2014). Factors influencing e-procurement application at Kenya Revenue Authority. *Unpublished MBA project,* University of Nairobi.

Orari, (2011), An analysis of the works and supplies directives of the european communities, *Public Procurement Law Review*.Vol. 1 No.1, pp.40-56.

Orina, (2013). *"Moving Procurement systems to the Internet: the Adoption and the use of E-Procurement Technology Model." European Management Journal, 21* (1): 11-23.

Oso and Onen (2005), "*Realizing the promise of enterprise systems"*. Boston, MA: Harvard Business School Press, 2000.

Oyugi (2010), *"Understanding of Supply Chain*", International Journal of Engineering Science and Technology (IJEST) Vol. 3 No. 3

Panayiotou N., Sotiris G. & Tatsiopoulos I. (2014). An e-procurement system for governmental purchasing, International Journal of Production Economics 90, 79-102.

Panda and Sahu, (2010), Public procurement practices in developing countries. *Journal of supply chain Management*. Vol.31, No.11. pp. 136-144.

Parida V. and Sophonthummapharn U. (2008). *E-procurement: An Indian and Swedish perspective*, Department of business administration and social science, Luleå University of Technology,

Patterson *et al*., (2003), *"Handbook in Operations Research and Management Science":* Supply Chain Management Design, Coordination and Operation, North Holland.

Patterson et al..2003:E-procurement model for the public sector of Kenya. *Unpublished MBA Thesis,* University of Nairobi. School of Computing and Informatics

Pearcy and Guinipero (2008) Public procurement practices. *Journal of Purchasing*. *Journal of supply chain Management*. Vol.33, No.11. pp. 131-134.Perspectives in business informatics research", springer nature, 2017

Peterson, (2008). *"Small Company Attitude towards ICT based Solutions: Some of the key elements to improve it",* Institute of Education Technologies Hahan National Research Council Palermo, Italy.

PPOA (2009). Procurement under uncertain lead times, a dual-sourcing technique. *Procurement Journal*. Vol.14, No.18. pp. 137-147Pressutti, (2013) *A Study of Purchasing Practices in Taiwan,"* International 20 Journal of Operations and Production Management, 20 (12), 1427-45.

Pressutti,(2013). "Factors influencing compliance to procurement regulations in public sector. *Supply chainJournal*. Vol.36, No.9. pp. 111-124.

Price Water house Coopers (2009), *Outsourcing comes of age: the rise of collaborative partnering,* available at: www.pwc.com/en_GX/gx/operations-consulting-services/pdf/ outsourcingcomesofage.pdf.

Public Procurement Oversight Authority, (2009).Trends in Electronic Procurement. *Kenya Procurement Journal*.4 (2), 1-2.Publishing. *Purchasing and Supply Chain Management* Publication Limited, Nairobi, Kenya.

Rankin,Chen and Christian ,2006: *Electronic Markets and Electronic Hierarchies, Communications* of the ACM, 30(6484-497.

Reddick ,2010: *E-procurement readiness factors in Kenya's Public sector* (Doctoral dissertation, University of Nairobi).

Republic of Kenya (2003). *Economic Recovery Strategy for Wealth and Employment-Creation*, 2003-2007. Nairobi: Government Printer.

Republic of Kenya (2006)- National ICT Policy.‖ 2006. *Ministry of Information and Communications*.http://www.information.go.ke/docs/ICT%20Policy.pdf

Rodin and Brown, (2008)*." Supply chain management: relationships, chains and networks".* British Journal of Management 7 (Special Issue),

Roger,2010: *Purchasing and Supply Chain Management* 6th Edition Publication Limited, Nairobi, Kenya.

Roma and McCue, (2012), critical factors that influence e- procurement adoption success in the public sector, *Journal of Public Procurement*, volume 6, issues 1 & 3, 70-99 2006.

Rotich G.K, (2015). Analysis of use of e-procurement on performance of the procurement functions of county governments in Kenya: International Journal of Economics, Commerce and Management. United Kingdom vol. 11, issue 6,

Rozner, (2008), *Research Methods in Psychology*; Houghton Mifflin Company, Boston New York 2nd Edition

Sanjeeve (2009) Critical factors that influence e-procurement implementation success in the public sector. *Journal of public procurement*, *6*(1/2), 70.

Saunders , (2007), *"IFHP working party multi-functional and Intensive Land use"* Portland meeting reportSaunders,

Lewis, and Thornhill, (2009)" Role of inventory optimization..*Journal of supply chain Management*. Vol.32, No.7. pp. 139-142

Scott, (2007), "*Selection of logistics service provider: An analytic network process (ANP) approach*", *OMEGA*, Vol. 35.

Segal and Taylor,2001 : *Identifying factors affecting acceptance of e-procurement systems*: An initial qualitative study at an Australian City Council, 3(2), 7-17.

Simpson and Power, (2007), "RFID tags: Commercial applications v. privacy rights", *Industrial Management and Data Systems*, Vol. 105.

Soudry (2007) : The completion of the internal market: an application of public choice the application of chaos theory, supply chain management: *An International Journal of Supply Chain*. Vol. 11 Iss: 2, pp.108 – 114

Springer nature, (2017), *"*Evaluation of factors influencing effective procurement Management. Journal of Management. Vol. 21, vol. 8 pp.455-71Talluri, (2006). "*Foundations of Behavioral Research"*. New York: Subject Publications.

Tiago and Maria, (2010)*, "The use of information systems for logistics and supply chain management in South East Europe: Current status and future direction",* Omega International Journal of Management Science

Tornatzky, and Venkatesh,(2000), *"*Effects of records management on the efficiency of the Procurement. *supply chain Management*. Vol.20, No.11. pp. 132-139.

United Nations (2011).*E-Procurement: Towards Transparency and Efficiency in Public Service Delivery.* Report of the Expert Group Meeting4-5 October, United Nations Headquarters, New York

United States Agency of International Development (2013). *Addressing Procurement Bottlenecks. A Review of Procurement Bottlenecks in Public* Sector Medicine *Supply Chains and Practical Approaches Taken.* Arlington: USAID.

United States Agency of International Development, (2008). *Intergrated Financial Management Information System.* Retrieved from www.usaid.gov on 20th February, 2016

Vaidya, A. Sajeev and Callender,G (2006).*Critical Factors that Influence E-Procurement Implementation Success in the Public Sector.* Journal of Public Procurement, Volume 6, Issues 1 & 3, 70-99

Van Weele, 2010 Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research, 11,* 342-365.

Venkatesh, (2010), "*Knowledge of the firm, combinative capabilities*.(2nd Ed). London: Kogan Page Publishers

Wangui, K. (2013). The effect of e-procurement on supply chain management at Teachers' Service Commission. *Unpublished MBA project,* University of Nairobi

Weele, (2010), *"Supply Chain Management Performance Evaluation,"* Working Paper 4/02, Faculty of Business and Economics, Monash University.

World Bank (2004): Key procurement functions typically and expertise requirement.

World Bank (2006):*International Review of Law, Computers & Technology* Vol. 18, Issue. 1, Data & Statistics: Kenya.

World Bank (2007) : The World Facebook https://cia.gov/cia//publications/factbook/geos

World Bank (2013) :*Electronic Government Procurement (e-GP):* World Bank Draft Strategy. Washington, DC: Author.

Wyld (2009). IT alignment in supply chain relationships: a study of supplier benefits" *Journal of Supply Chain Management,* Vol. 41 No.2, pp.4-13.

Young (2009*), "Understanding the Research Process and Methods*" An Introduction to Research Methods. Las Vegas: Acts Press.

Zhu *et al*., (2012), "On a responsive supply chain information system", *International Journal of Physical Distribution and Logistics Management*,

Zhu, K. and Kraemer, K.L. and Xu (2012) *Post-adoption variations in usage and value of e-business by organizations*: Cross-country evidence from the retail industry, "Information Systems Research, Vol. 16, No. 1, pp 61-84.

APPENDIX I: QUESTIONNAIRE

INTRODUCTION

E-procurement: E-procurement is the application of internet technology in works, material and service procurement. E-Procurement systems allow more efficient integration of supply chains and provide better organization and tracking of transaction records for easier data acquisition (Ogot, 2009).

Please respond to the following by ticking in the space provided. Thank you.

PART ONE:

SECTION A: GENERAL INFORMATION

1. In which department do you work in?

- Procurement department ☐
- Store department ☐
- Executive committe member ☐
- Finance department ☐
- ICT department ☐

2.Highest Level of education:

- Certificate ☐
- Diploma ☐
- Degree ☐
- Post graduate ☐

3. For how long have you worked with Murang'a County government?

- Less than 1 year ☐
- 1 – 2 years ☐
- 3 – 4 years ☐
- More than 5 years ☐

PART TWO

In this section, kindly use the scale below to indicate your level of agreement with the given statements by placing a tick (√) in the appropriate box

5- Strongly Agree (SA); 4-Agree (A); 3- Neutral (N); 2- Disagree (D); 1- Strongly Disagree (SD)

SECTION B: BUDGETARY ALLOCATION

(Applicable to Procurement and Finance department)

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Budgetary Allocation for implementation of E-procurement system has been a major challenge towards its implementation					
The County government Budget to support implementation of E-procurement system is sufficient					
The cost of computer hardware to support implementation of E-procurement is a major challenge to the County government on implementation of the system					
The cost of software is prohibitive and a major challenge during implementation of E-procurement system					
The budget estimates set aside for implementation of E-procurement is inadequate for acquisition of both computer hardware and software required for successful implementation of the system					

SECTION C: ICT INFRASTRUCTURE

(Applicable to ICT department)

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Muranga County offices has adequate IT Infrastructure to support successful implementation of E-procurement system					
The current ICT infrastructure is well managed to support day to day application of E-procurement					
E-procurement system is compatibility with other County ICT systems and infrastructure					
Incompatibility of E-procurement with other ICT modules used in the County offices has slowed its adoption					
Internet access services has been provided for in the County government offices					
Inadequate ICT infrastructure, in compatibility of various ICT system and lack of internet in Muranga county offices has been the major challenge towards adoption and implementation of E-procurement system					

SECTION D: STAFF COMPETENCE

(Applicable to Procurement, Store, Finance, ICT and Executive Committee member)

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Staff competence in use of E-procurement makes its implementation easy					
Muranga County has competent staff in the use of E-procurement which has aided in its implementation					
Murang'a County staffs have the technical knowledge with regard to use of E-procurement.					
Murang'a county staff are experienced in the use of e-procurement which has eased its implementation					
Training on E-procurement implementation is an important factor for its successive implementation					
Key employees of the county were trained of E-procurement system prior to its implementation					
Absence of competent staff with the right technical skills, expereience and lack of training is a major challenge to successiful implementation and use of E-procurement system					

SECTION E: TOP MANAGEMENT SUPPORT

(Applicable to Procurement, Store, Finance, ICT infrastructure and Executive Committee member)

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Top Management Support Towards adoption and implementation of E-procurement is an important factor for successful implementation of the same					
The major Stakeholders (Leaders, suppliers, employees, service providers) in the county have supported implementation of E-procurement system					
Commitment to change from manual to electronic procurement have the support of top management					
Resource allocation towards E-procurement project in the County indicates top management support for its successful implementation					
Lack of top management support and other stakeholders have been a major challenge towards implementation of E-procurement system					
Top management of the county have sabotaged implementation of E-procurement system					

SECTION F: IMPLEMENTATION OF E-PROCUREMENT SYSTEM

(Applicable to Procurement department)

Kindly indicate the percentage the application of e-procurement system was implemented successfully, not successful, pending and done manually.

i. E- ordering

Application	2014	2015	2016
Percentage (%) of ordering done successfully			
Percentage (%) of ordering not successful			
Percentage (%) of ordering pending			
Percentage (%) of ordering done Manually			

ii) E-Tendering

Application	2014	2015	2016
Percentage (%) of tendering done successfully			
Percentage (%) of tendering not successful			
Percentage (%) of tendering pending			
Percentage (%) of tendering done Manually			

iii) E- Payment

Application	2014	2015	2016
Percentage (%) of payment done successfully			
Percentage (%) of payment not successful			
Percentage (%) of payment pending			
Percentage (%) of payment done Manually			

THE END

THANK YOU FOR YOUR COOPERATION

Appendix II: Introductory Letter

Paul Mukuria,
Dedan Kimathi University of Technology,
P.O Box 567,
Nyeri.

Dear Respondent,

REF: COLLECTION OF DATA

I'm a student from Dedan Kimathi University of technology currently undertaking a research study which is a part of my course work fulfillment. I'm carrying out a research concerning the challenges affecting implementation of E-procurement systems in County Governments.

I'm therefore kindly requesting your co-operation through filling the questionnaires and providing me with any other information concerning my research work. The information given was treated with at most privacy and confidentiality and was used for nothing else but educational purposes.

Yours faithfully,

Paul Mukuria.

Appendix III: Study Schedule

ACTIVITY	Period in Months									
	2018							2019		
	Jan	March	May	July	Sep	Nov	Dec	Jan	Feb	March
Development of Topic										
Concept paper preparation										
Proposal writing										
Presentation of research proposal										
Pilot test										
Data collection										
Data interpretation and analysis										
Submission of report and final project finding										
Publish the report										

Appendix IV: Budget

S/NO	ITEM	TOTAL AMOUNT
1	Research proposal and typesetting of document	20,000
2	Photocopying services	8,000
3	Binding services	8,000
4	Data collection and analysis	26,000
5	Traveling expenses	9,000
6	Publishing	30,000
7	Miscellaneous	2,000
	TOTAL EXPENSES	103,000