E-PROCUREMENT STRATEGIES AND THE PERFORMANCE OF KENYA OWNED PARASTATALS

MWENGA ESTHER KALAU

A RESEARCH PROJECT PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION OF SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

2016

DECLARATION

This research project is my original work and has not been presented for award of any degree in any University for examination purposes.

Signature _____   Date: _____

Mwenga Esther Kalau

D61/68029/2013

This research project has been submitted for examination with my approval.

Signature _____   Date: _____

Dr. Omar Mohamed

Department of Business Administration

School of Business

University of Nairobi

DEDICATION

This research study is dedicated to my family for their relentless motivation through-out the entire MBA Program and especially during this research project.

To my project supervisor Dr. Omar Mohamed for his un-wavered guidance and support to ensure I deliver the best even when I almost gave up. I thank you, Only God Almighty can reward you.

ACKNOWLEDGEMENT

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ABBREVIATIONS AND ACRONYMS

B2B   Business to Business

B2C   Business to Customer

B2E   Business to Employees

CIPS   Chartered Institute of Purchasing and Supplies

EDI   Electronic Data Interchange

ERP   Enterprise Resource Planning

ICT   Information and Communications Technology

P2P   Purchase to Pay

RBV   Resource Based View

SOCState   State Owned Corporations

ABSTRACT

E-procurement strategies simplify the sourcing and purchasing process ultimately improving performance in organizations. Parastatals in Kenya are slowly adopting e-procurement as a tool to improve transparency, efficiency and effectiveness in service delivery through implementation of information systems. The main objective of this study was to determine the effect of E-Procurement strategies on the performance of parastatals in Kenya. The data collected was coded, analyzed, classified, and presented in tables, pie charts and bar charts. The data was analyzed by use of descriptive statistics. Regression analysis was used to establish the impact of e-procurement strategies adoption on performance. The findings of this research study show that the major practices of e-procurement strategies in Kenya-owned parastatals include; online advertisement of tenders, a functioning company website to manage procurement process, online specification of items to be procured and online requisition by company staff. The study concludes that E-procurement strategies are categorized into the extent of adoption, the level of implementation, challenges faced in the e-procurement adoption and impact on the supply chain performance and that the significant variables in measuring performance were reduced lead times, minimal paperwork, low tender costs, reduced redundancy and reduced bureaucracy as the major variables witnessed to have an impact on their supply chain performance.

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

The evolution of technology as a way of transacting business has emerged as a key strategy to paradigm in operation and rank of organizations processes among them being procurement. It is undisputable that the way organizations as well as governments operate has evolved since adoption of Information Technology. Nelson et.al (2001) states that key expenses incurred by organization rise from purchasing an array of products and services. To reduce the total expenditure on this process. Internet technology is preffered and E-procurement has been an area of focus in the recent past by both governments and enterprises.

This study was informed by three distinct theories; Resource Based View theory, Open System and Dynamic Capability. Different electronic technologies bringing Paradigm in business include the E- procurement. The strategies adoption has attracted attention by public and private organizations in the last decade as a strategy of improving performance. E-procurement is an innovation to facilitate improved transactions with its crucial suppliers, Monitoring and control measures are necessary to help reduce costs by keeping communication lines among all parties involved. This system accommodates confirmation and previous agreements leveraging by managers ensuring new price quote is more affordable than the prior. Keeping relevant information neatly organized and time-stamped makes decision making process easier.

Adoption of E-procurement by Parastatals in Kenya is mainly to enhance efficiency, transparency and effectiveness in service delivery by implementing information systems (Njoroge, 2010). Public procurement in Kenya was restructured to accommodate the existence of Public Procurement Oversight Authority. It also implemented electronic procurement in the public sector.

1.1.1 Concept of Procurement

Procurement is process of activities which include renting, leasing, purchasing, hire purchasing, tenancy, licensing, franchising or any other type of contractual work, assets purchasing, and services rendered or products bought (Public Procurement and Disposal Act 2005). The process can be classified into in three diverse ways; sourcing or direct and indirect procurement, and (Minahan & Degan, 2001). Selection, buying and management of supplies for daily running of company constitutes of the indirect procurement, whereas purchase of products and activities to the manufacture of finished products constitutes the direct procurement. Sourcing applies to both direct and indirect procurement and involves a model divided into four phases: informing, negotiating, and settlement (Kim & Shunk, 2003). A significant budget is incurred by organizations to purchase good and services at different stages (Snider & Rendon, 2001).

Procurement is strategic in nature as it aligns organization's strategic objectives to suppliers' performance. An organizations strategic objectives is to source for needs that can enable it achieve its goal and this is achieved through procurement, however in the public sector this has always been ignored mainly because of lack of transparency leading to loss of public funds. In order to minimize such occurrences Various governments' institutions around the globe have adopted technology in the procurement process (Snider & Rendon, 2002).

1.1.2 E- Procurement

E-Procurement uses the internet or information and communication technologies (ICTs) for specific or all stages of the procurement processes for instance to identify, source, negotiate, order, receive, and after purchase review as outlined by Croom 7 Brandon-Jones 2004. E-Procurement is hence an all inclusive process that simplifies the complex procurement processes across the organization.

E-procurement integrates buying and selling of business simulations and calls for distinctions based on applicability according to (Wilson, 2002). Emerging procurement business have identified samples in large numbers, mostly for companies in the public sector with the aim of improving technology such as e-business for attaining the indirect goods process. In the recent past, such samples are also used by organizations in Europe

especially the public sector whereby the Commerce General Secretariat does the purchasing for the Development Ministry of (Panayiotou et al., 2004).Classifications were developed form different studies as either a scheme or a taxonomy in order to categorize tools based on the internet (DeBoer, Harink & Hejinoer, 2002; Kehoe & Boughton, 2001, Whitaker et al., 2001) The classification is paramount as e-procurement differ in many aspects not limited to benefits, goals and costs. Several simulations tested by various states for implementation of e procurement. Including seller oriented, buyer oriented, marketplace of electronic or outsourced managed. In some states these simulations are summarized into three: public private partnerships, the public model and the mixed model.

1.1.3 Organizational Performance

Organizational performance involves monitoring effective organizations management and value delivery to shareholders as well as customers according to Moullin (2007). There are two ways in which organization performance is measured, this includes the financial and Non-financial measures.

Financial measure refers to an organization's ability to generate revenues from primary operations using its assets subsequently evaluating its financial stability.

A quantitative measure of an organization's performance not necessarily linked to monetary units' rather ratio-based performance is referred to as non-financial measure. Monetary metrics are eliminated in either the numerator or denominator of that ratio. Examples include market share, customer or employee satisfaction from surveys, quality of service rendered and the number of innovative products developed.

1.1.4 Kenya Parastatals

Parastatal refers to a corporate body established by or under Act of parliament. Parastatals began as state owned corporations (SOCs) established in the colonial period to drive growth and development in Kenya. The Kenyan constitution mandates parastatals to cater for both commercial and social goals. They are tasked with correcting market failure, implementing socio-political objectives, ensure quality education, proper health facilities, income redistribution as well as development of marginal areas. Parastatals

were remodeled in 1963 at Independence by Sessional Paper no.10 of 1965 into drivers of a stable economy. Major key parastatals in existence were established in 1960s and 1970s. By 1995 there were 240 parastatals the number currently stands at 187 (Parastatals e-news Kenya, 2014). The parastatals are formed to undertake all business activities in key industries by the government with purpose of fulfilling its economic policies. The major purpose of parastatals is in the provision of public utilities.

1.1.5 Public Sector and E-Procurement

The public sector involves the central government, local government and public corporations. It is a part of the economy that provides needs that are too delicate to be mandated to the private sector. It comprises of state-owned institutions, nationalized industries and services provided by local authorities. Hence Public procurement is a function with intense information of the government that satisfies need for systems, goods, works, and services in an effective way at the same time obliging to principles of transparency, accountability and proper governance (Witting, 2003: Callender & Schapper, 2003). It has become evident that it is easier to handle procurement process supported by internet technology reducing cost, slow, inefficient and data storage and poor retrieval (Dai & Kuffman 2001, Koorn, Smith & Mueller, 2001s). Several simulations were tested by various countries on e-procurement implementation. They included e-marketplaces, buyer oriented, seller oriented or outsourced management (Lyson & Frghiton) and it's evident that the major uses of the internet are, access to e-mails and web browsing instead of the procurement process. The catalyst to adoption include reluctance by top management to support the process, poor infrastructure, limited legislation, costs incurred in adapting purchasing system that are web-enabled, un awareness and internal systems integration, improper technique standards, uncompliant suppliers on the proper processes.

1.2 Research Problem

Sourcing and purchasing process are simplified by electronic procurement however there is still resistance in the adoption of the system. It is therefore inevitable to identify how to overcome the challenge. Parastatals in Kenya are slowly adopting e-procurement to

enhance transparency, improve efficiency and effectiveness in service delivery through the use of information technology. Magutu, Njihia and Mose (2013) studied the barriers to e-procurement adoption in firms and concluded that ways in which firms adopt to e-procurement are through advertising tenders and selecting suppliers online among others. The study further identifies the five major success factors as monitoring and control of the performance of e procurement systems, information technology reliability and performance by suppliers, commitment to successful adoption by management and employees. The study established the barriers as resistance to change from management and employees, slow process approval by company board and outdated IT equipment among others.

Probable gains of e-procurement in public sector functions notwithstanding, structural and political factors slow down the adoption process (Hensriksen, Helle Zinner, Mahnke & Volker, 2005). Faster embrace calls for rectification of political and factors relating to structure that apply to specific political and administrative context hence need to identify the other contextual factors leading to slow process on Parastatals adopting e-procurement.

A study by Battenberg (2007) on electronic procurement strategies implementation by the industries in Europe, concluded that there are different policies of e-procurement strategies and that firms from countries that are risk averse like Germany and UK werer e-procurement early receptors whereas slow receptors to change like Spain and France were among the last to adopt. Greneun, Herselman and Niekerk (2010) e-procurement regulation in Eastern Cape province administration ascertains that Supply Chain Management benefits are not measureable yet due to the limited knowledge and experience how the government undertakes its e-procurement process.

In Kenya, some organizations have fully embedded e procurement technology an example being the local research by Orori (2011) on factors that affect implementation of e-procurement strategies in the retail sector; a survey of Kenya supermarkets especially in the industry reveals that supermarkets for example Nakumatt and Chandarana are using this system for purchase of their products making it easier to manage larger stores and curb corruption.

The research above indicate there are country specific differences as well as similarities in the embed of e procurement strategies. Based on the underlying findings, this study therefore examines the link between e-procurement strategies and performance.

1.3 Research Objectives

The objectives of this study include;

1. Determine the extent of E-Procurement strategies adoption by parastatals in Kenya.
2. Establish the effects of E-Procurement strategies on parastatals performance in Kenya.
3. To determine factors influencing the success of E-Procurement strategies adoption by Kenya owned parastatals.

1.4 Value of the Study

Adoption of technology has led to wide benefits from the rapid innovations with many developing countries being left out due to their slow adoption. Developed countries are seen to be more efficient and effective in various aspects and processes of public service due to the adoption and better implementation of ICT into their structures. This study is driven by the desire to establish electronic and internet use in the procurement processes and procedures of parastatals to maximize on the outcomes accrued to them.

The study will be helpful for the following;

Academicians especially those with the interest in procurement on adoption of strategies in the efforts to be made to ensure continuity in the successful adoption of the process, the study will assist other academicians to fin.

Government Policy makers- the study will inform policy makers on how best to formulate policy on prudential guidelines also adopt best practices in order to maximize on e-procurement.

Public procuring entities- the findings will assess issues on e-procurement and what strategies to put in place i.e. the soft-wares to adopt in the procurement systems, procuring entities will also be better enlightened on the existent attitudes helping make informed choices.

Suppliers- the findings of the study will enlighten on the benefits and the positive impact of adopting e-procurement in their procurement systems to promote transparency and effectiveness. This will also highlight them in terms of investments required to successful form an integrated partnership and potential pitfalls likely to be encountered during the process.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This section reviews theoretical and empirical literature with a bias on e-procurement strategy and performance of parastatals and the underlying variables. It also points out research opportunities and the critical interpretation of the theoretical as well as empirical literature.

2.2 Theoretical Foundation

This section discusses the three theories that form the basis of this study. These theories include resource based view theory, dynamic capability theory and open systems theory.

2.2.1 Resource Based View (RBV)

Organizations resources are key to superior firm performance. They are the companies sustainable advantage. In RBV proponents, exploiting surrounding opportunities using available resources in a new way is more efficient rather than acquiring new skills for each different opportunity. Resources are allocated efficiently to help an organization achieve greater performance. Hence e-procurement links corporate buying to the internet (Parida & Parida, 2005).

2.2.2 Dynamic Capability Theory

Dynamic capability theory elaborates the organizations ability to deliberately optimize its resources. The ability of a firm to integrate, develop, and leverage on the environmental competitive advantage to adopt to its dynamism according to Teece et al (1997).

E-procurement integrates the in-house and external procurement components to address dynamics in the way organizations achieve operational excellence by reducing cost and saving on time used to procure goods and services in parastatals.

2.2.3 Open System Theory

Open system regularly relates feedback with its external environment. Open systems constantly exchanges feedback, analyse and adjust internal systems with their

environments as necessary to achieve the system's goals, forming a vicious cycle transmit necessary information out to the environment.

2.2.4 E-Procurement Models

Wilson (2012) suggest that there are three main models to consider in addressing requirements related to implementing electronic procurement strategies in the industry especially the public. These models are the public, the private and the public models.

In public model the government incurs the all expenses of investment and risk of building the portal. It is best embedded in Kenya by use of the Integrated Financial Management Information System through the Procure to Pay (P2P) which helps in purchase requisitions by capturing data elevation to integrated financial management, online tendering, enforcement of budget controls and LPO printing to help the government undertake the policy of accommodating system generated documents as the official government documents eliminating parallel manual systems.

In the private model the entire process is mandated to the private institutions that make assumptions of project risk investment. Electronic exchanges that can be termed small revolving around existing business relationships within the sectors are most common in Australian private firms. The exchanges are identified as private electronic marketplaces and are a vital in the evolution of the natural electronic exchange business models. This has led to consolidation of e markets leading to B2B online exchanges among Australian industry (Dai & Kaufman, 2011).

Denmark best applies the mixed model (private and public partnership). The Public Procurement Portal (DOIP) refers to marketplace of electronics where all public and public purchasers and their suppliers can access the functional, design, security and costs of transaction as regulated by sector in public.

The first application is purchase procurement which implies that an organization relies on IT to buy goods like office stationary from predetermined suppliers. The suppliers in turn uses the same systems to manage all purchase related processes. This simply integrates portals in corporate procurement and businesses to employee's applications (B2E). The next application is procurement selling. This is whereby a sole supplier serves different

organizations buying from them using technology for instance e-commerce and e-procurement. Sell-side simulation of e-procurement is common in business to customer (B2C). An optimally designed solution customizes each buyer than the B2C counterparts in sell-side. E-marketplace is the third application and and it is a trading hub constituting of the trading exchanges and industry consortium. Several buying organizations are brought together by the market place model (Lyson & Farington, 2006).

E procurement is not only providing a catalogue on internet it is relative therefore various systems need to be put in place to attain results (Minaham & Degan, 2001).

2.3 E-Procurement and Parastatal Performance

The many attempts to automate the procurement process is a good evidence of the fact that e-procurement is not new nor one of the latest inventions. Many parastatals have leveraged on IT systems to transform the purchasing and other processes as well as automate the same over the past years (Mose, Njihia & Magutu 2013). Despite the vast benefits of e-procurement which includes increased transparency in the procurement processes, there still exists many organizations that have not effectively embraced its practice (Mose, Njihia & Magutu, 2013). The conclusion was that manufacturing firms have embedded e-procurement due to the transparency and reduction in cost which are key strategic pillars to achieving Vision 2030.

2.4 E-Procurement Adoption in Organizations

Organizations adopting electronic procurement strategies have been triggered by findings of the (Holland & Locket, 1997) empirical studies that discovered that the supply chain integration process results to a reduction in coordination and search costs. Nelson et al. (2001) ascertain that significant expenses incurred by organizations comprise of purchase different goods and services. To minimize expenditure on the purchase process e-procurement is the preferred option to implement by both governments and enterprises lately. As much as improvement opportunities seem to exist, public and private sector alike are reluctant in adopting electronic (Zheng et al. 2004). Organizations are incorporating e-procurement strategies differently. Looking at two different companies.

The first one is more aggressive to implement technologies in e-procurement, being experimental with diverse solutions. The second type is more reserved as it experiments are selected, mostly with each technology at its time. The second group provides capability relying on the experiences albeit limited to faster tap into technology as there's emergence of dominant design. Technology will become an integral part of supply chain especially in e-procurement and the level of implementation will be higher as more share success stories are shared.

An E-procurement solution makes purchasing less cumbersome by saving on time and cost and is a paradigm in the way organizations acquire goods. Good and services are bought via the Internet hence the application of e-procurement in manufacturing is inevitable as the public sectors use of ICT, seeks to improving transparency, effectiveness, efficiency and responsibility of governments (Paramount category of e government is the process which uses the internet to procure public goods and services).

The factors influencing procurement adoption can be categorized as the negative (barriers) and the positive (promoters). The positive factors are also the propelling factors or the drivers to e procurement adoption. This study also identifies the five success factors as: monitoring the performance of e procurement systems successful adoption commitment by the employer and management, e procurement user acceptance of systems, reliable information technology and supplier performance, and management support. Capability of procurement employee's practice and using procurement tools are among the critical success factors of e procurement adoption (Boech, 2003).

The key outcome of electronic procurement strategy is lower cost achieved by less lead time in searching and ordering for goods and services and timely reconciliation of the invoices (Wilson, 2002). The savings are also realized from validity of automated spending budgets with prior approval for individuals or departments leading to less processing time. The other set of drivers of e procurement adoption are adequate financial support, understanding the priorities of the company, acceptable standards with traditional systems of communication, and suitable security systems (Greunen, Herselman & Niekerk, 2010).

Sotiris and Tatsipoulos (2004) identify the key values of e procurement strategies as reducing supply costs, minimizing cost per tender, savings on lead time, simplified ordering, reduced paper work, lower redundancy, less bureaucracy, standard operating procedures and proper documentation, online feedback, more transparent processes, assured processes and laws and regulations compliance, minimized errors and information easy access. E procurement strategies lead to more adequate purchasing and increased quality of goods and services rendered.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the research methodology to be used in relation to the research design, target population, sampling design, and analysis of data.

3.2 Research Design

According to Cooper & Schindler, 2001. The ultimate goal of research design is to fulfill the objectives. This study employed a descriptive cross sectional survey which involved the use of a structured questionnaire to gather data. A researcher is allowed to examine the study elements in the raw forms without alteration to descreptive research study.

3.3 Population of the Study

According to Cooper and Schindler (2001) a population constitutes of elements in which we make inferences. The study will focus on all the parastatals in Kenya which are 187 according to the Ministry of Devolution (Parastatals e news, 2014). The 187 parastatals will form the population of the study.

3.4 Sampling Design

The data was collected from a stratified random sampling of 35 out of the total 187 parastatals in Kenya. Sample size is a representation of a select population and all its characteristics. It is determined by different factors (Cooper and Schindler (1997). Some of which are the fact that a big variation in the population requires a bigger sample size to increase the precision of estimation which subsequently raises the estimate level. The higher the sample the higher the interest.

Slovin's Formula (Mugenda & Mugenda, 2003): sample size is denoted as n = N/ (1+Ne2) where n, N is the number of samples, total population and error tolerance respectively. When using Slovin formula, tolerance error is first calculated in ranges between 95% and 99% level of confidence (resulting to an error of margin of 0.05 and 0.01 respectively). A level of confidence of 95% is utilized thus 5% or 0.05 was the error of margin. The sample size is calculated as 187/ (1+187(0.05)2) that is 30 parastatals to

be sampled in addition to 5 therefore totaling 35. The number will maximize on the accuracy of data to be of representation to the entire number of parastatals in Kenya and considering the response rates since 30 is considered as a large sample size (Cooper & Schindler, 1997).

3.5 Data Collection

The researcher gathered primary data, by dropping and picking the questionnaires once completely filled from the procurement in the 35 out of 187 parastatals. This study relies on the primary data collected by use of questionnaires from the sample size. The questionnaire has four categories each addressing the study objectives. The first part focused on the background of the parastatals. The second section contained questions on the extent of e-procurement strategies adoption level in organizations. The third was biased on key factors of success and barriers influencing the success of electronic procurement in organizations. The fourth section solicits data on e-procurement strategies adoption effects on organizational performance in terms of quality service delivery.

3.6 Data Analysis

The study will use a quantitative method of data analysis for establishing the extent of adoption, factors affecting e-procurement adoption considering the success factors and the challenges. Data analysis is founded on examining and categorizing the initial purpose of the research and a quantitative approach to the study is usually associated with the reliability and viability (Bryman, 2001). Descriptive statistics will be used to embed quantitative analysis which according to Denscombe (1998) involves transformation of mass raw data into tables, frequency distribution charts and percentages which are key to data interpretation.

The data collected was coded, analyzed, classified, and tabulated into pie charts and bar charts to all the sections enhancing uniformity, understanding and easy interpretation of the data. The questionnaire was coded into different sections to minimize the margin of error and highest accuracy during analysis. The data was processed by use of software to establish the extent of e-procurement adoption, the critical success factors and the challenges. It was interpreted using tables and pie charts to articulate research findings at a glance.

Regression analysis helped to establish relationship between electronic procurement strategies adoption on the parastatal performance

$Y = a + b_1 x_1$

Where

Y = Performance

b_1 = Regression weights attached to variables

x_1 = Extent of adoption

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This study tables the background information in the parastatals, the findings as per the study objectives and a discussion of the results.

4.2 Background Information

4.2.1 Type of Company

The findings show that 64% of the parastatals were large, 26% in middle scale and 10% in small scale organizations. This details are in figure 4.1.

Figure 4.1: Type of Company
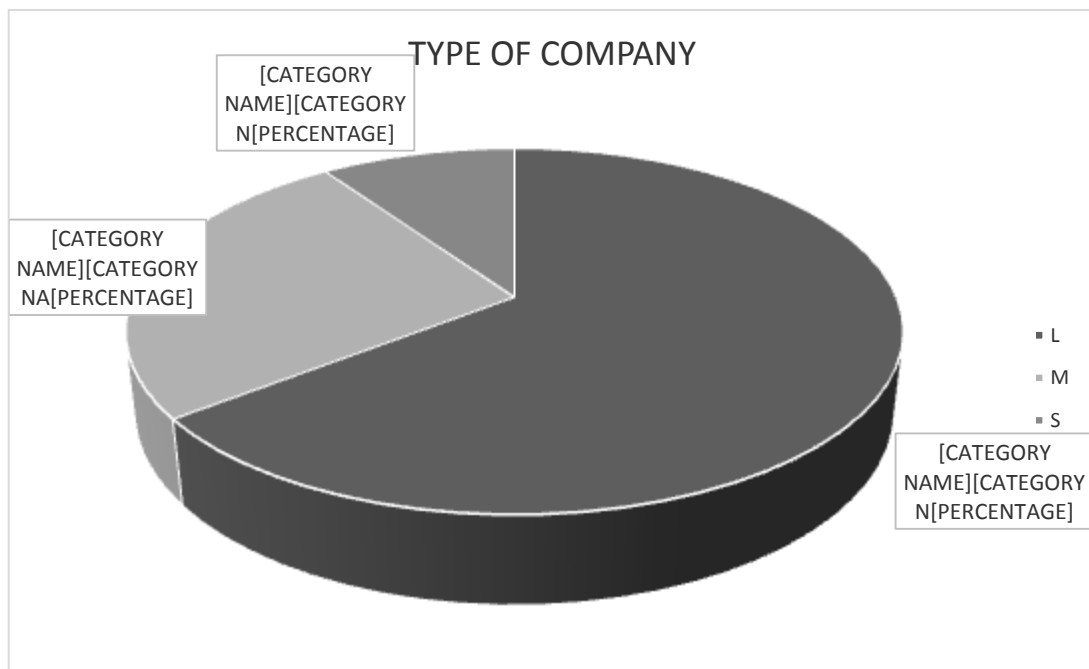
Source: Collected field data

4.2.2 Categories of the Parastatals

It was found that 7% of the parastatals were from agricultural sector, 16% from health sector, 0% from Manufacturing sector, 0% from banking sector, 10% from finance and insurance sector, 19% from education and research sector, 29% from regulatory and

advisory sector, 3% from consultative sector and 16% from other sectors. This ascertains that majority of the responses were from the regulatory and advisory sector and 29% of the parastatals are mainly involved in overseeing the government operations.

Figure 4.2: The Parastatals

ORGANIZATION SECTOR

[CATEGORY NAME][CATEGORY N[PERCENTAGE]

OTHERS [PERCENTAGE]

HEALTH [PERCENTAGE]

CONSULTATIVE [PERCENTAGE]

FINANCE [PERCENTAGE]

REGULATORY AND ADVISORY [PERCENTAGE]

EDUCATION [PERCENTAGE]

A
B
E
F
G
H
I
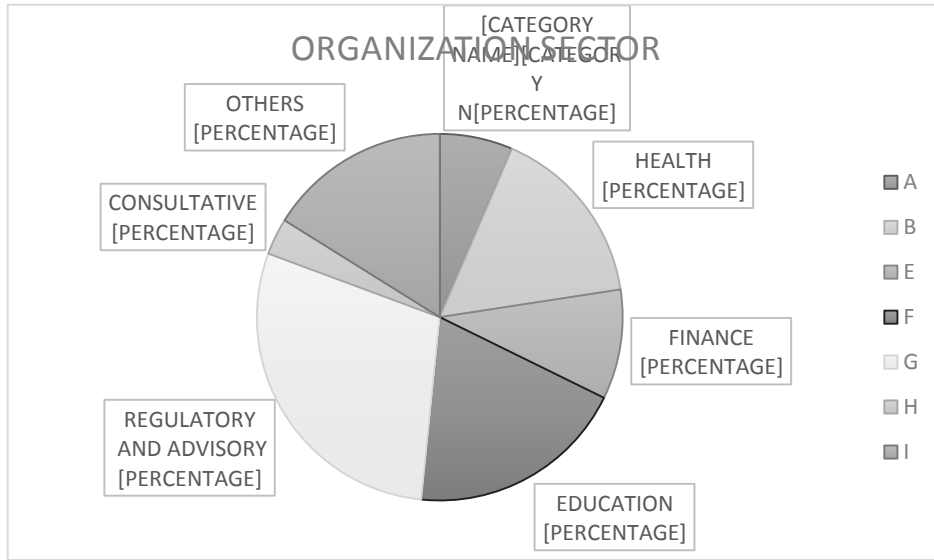
Source: Collected field data

4.2.3 E-Procurement Adoption

Figure 4.3 shows that 61% of the parastatals had adopted e-procurement while 39% had not yet adopted e-procurement in their organization. This is a clear indication of government efforts in adopting e-procurement in their parastatals.

Figure 4.3: E-Procurement Adoption

E-PROCUREMENT ADOPTION

NO, 39%

YES, 61%
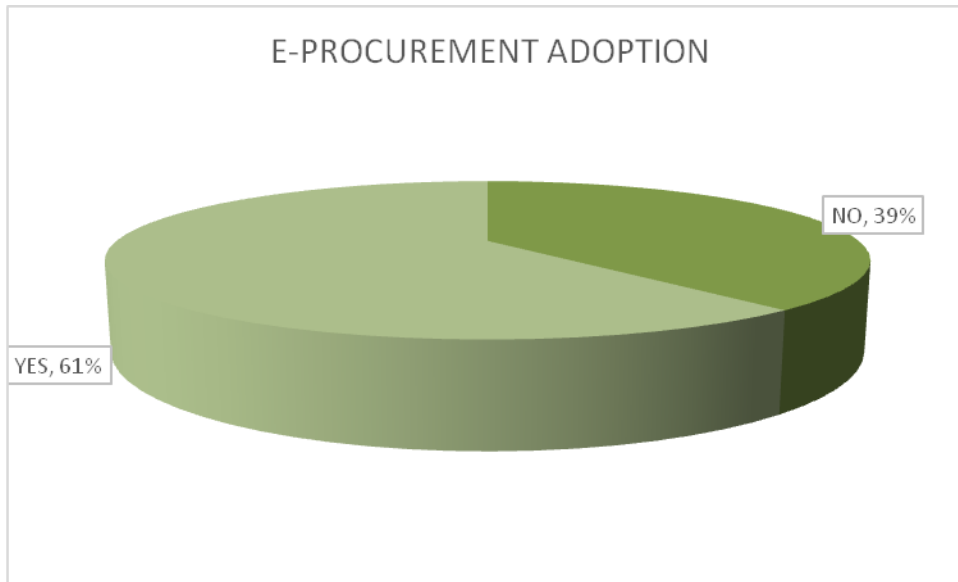
Source: Collected field data

4.2.4 Years of Adoption

This section was used to show the duration the organization had adopted the e-procurement into their systems. Years of e-procurement adoption in an organization with A representing 1-5 years and B 6-15 years.

Figure 4.4: The Years of E-Procurement Adoption

YEARS OF ADOPTION

	A	B
Total	16	3

NUMBER OF ORGANIZATIONS
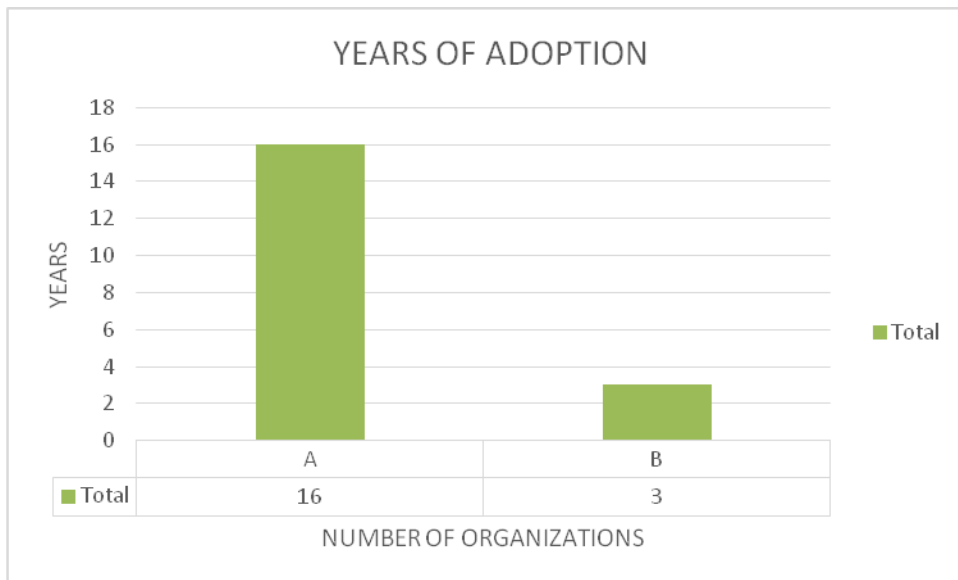
Source: Collected field data

Figure 4.4 shows findings that among 31 respondents 16 indicated that their organization had e-procurement in different periods of 1-5 years and 3 of the respondents had adopted e-procurement from 6-5 years. The majority having adopted e-procurement for 1-5 years shows that firms are in their stages of adoption and recently embracing it.

4.3 Findings

4.3.1 Extent of Adoption

In this section, the variables assessed included the online advertisement of tender, online submission of proposals by suppliers, a functioning company website to manage procurement process, online specification of items to be procured, online requisition by company staff and online call for proposals. The level of adoption of e-procurement in Table 4.1 shows findings on e-procurement strategies adoption extent to which respondents agreed with their practices. The response from the select sample size was interpreted using five point scale by Likert. According to the scale, standard deviation was used to determine the mean (weighted average). Variables with a mean of below 3.0 were rated as to strongly disagreed or not considered at all while those with a mean above 3.0 were rated as strongly agreed. The higher the standard deviation the higher the dispersion level among the respondents.

Table 4.1: Extent of Adoption

	Online .Tenders	Online .Proposal	Functioning Website	Online Specification	O.Requisition	Online Calls
Mean	**3.74**	**2.64**	**3.10**	**3.26**	**3**	**2.80**
Standard Error	0.20	0.25	0.23	0.27	0.27	0.24
Median	4	2	3	4	3	3
Mode	4	1	2	4	1	2
Standard Deviation	**1.12**	**1.40**	**1.30**	**1.48**	**1.50**	**1.32**
Sum	116	82	96	101	93	87
Count	31	31	31	31	31	31

Source: Collected field data

Table 4.1 shows that significant number of respondents agreed that the variables they were already practicing included: online advertisement of tenders, a mean of 3.74 and standard deviation of 1.12, a functioning company website to manage procurement process a mean of 3.10 and standard deviation of 1.30, online specification of items to be procured a mean of 3.26 and a standard deviation of 1.48 and online requisition by company staff a mean of 3.0 and standard deviation of 1.53.

Figure 4.5: Ranking of the Extent of Adoption Practices Based on their Mean
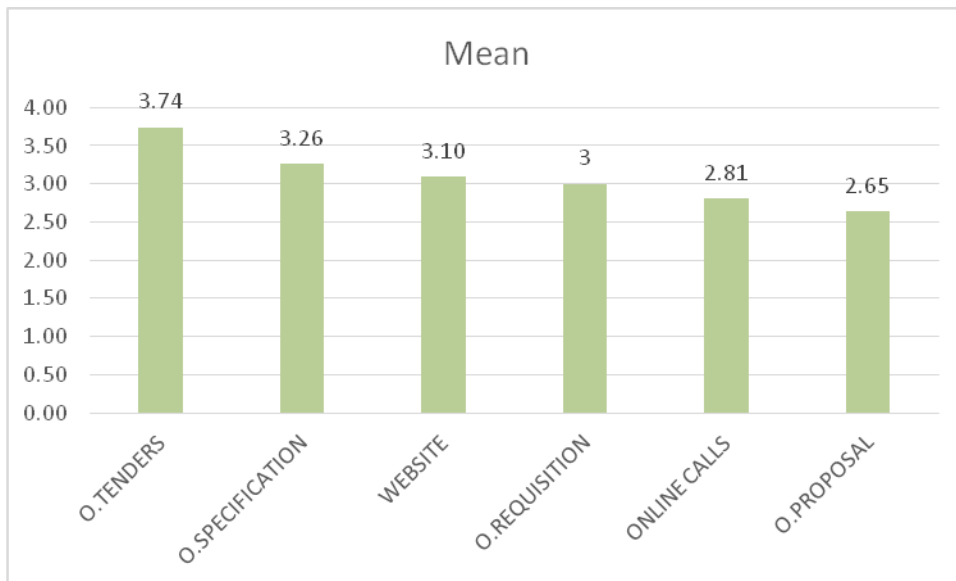
Source: Collected field data

4.3.2 Level of Implementation

This section caters for the non-practical strategies of e-procurement in firms. Extent of implementation four divisions were made to represent the stages of implementation: feasible study, system analysis and design, implementation and operational. Table 4.2 shows that findings on the respondents level aligned with the level of implementation in their firms. The variables with a mean below 3.5 were rated as to strongly disagreed or not considered at all while the mean above 3.5 were rated as strongly agreed. A high standard deviation substitutes a higher level of dispersion among the respondents

Table 4.2: Level of E-Procurement Implementation

	Feasibility Study	System Analysis	Implementation	Operational
Mean	**3.37**	**3.50**	**3.50**	**3.20**
Standard Error	0.34	0.21	0.22	0.25
Median	3.5	3	4	3.5
Mode	4	3	3	4
Standard Deviation	**1.25**	**1.14**	**1.22**	**1.35**
Count	30	30	30	30

Source: Collected field data

Table 4.2 shows that a significant number of respondents overwhelmingly agreed to be in process of implementing e-procurement by system analysis and design to identify user requirement a mean of 3.5 and a standard deviation of 1.14 and implementation by training of staff, acquisition of computers, purchase of software a mean of 3.5 and a standard deviation of 1.22.

Figure 4.6: Rank on the Level of Implementation of E-Procurement
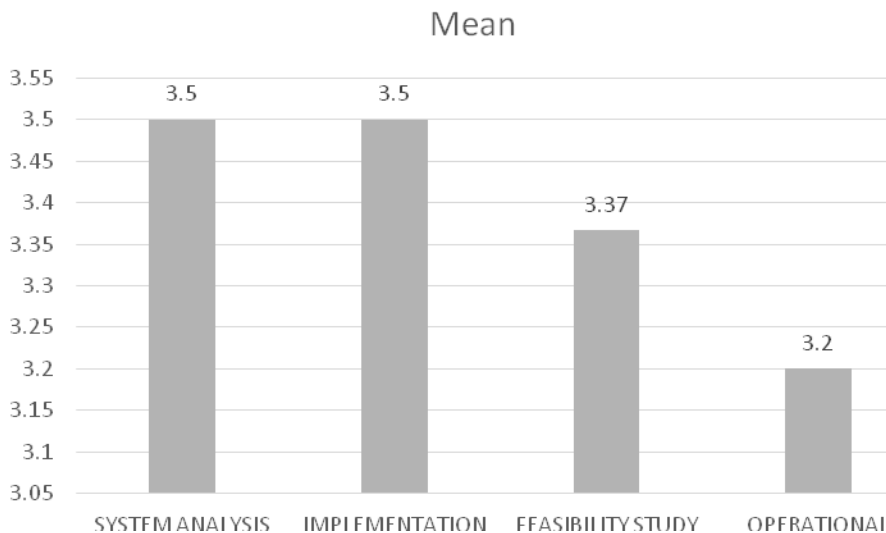
Source: Collected field data

4.3.3 Critical Success Factors

The key success factors can also be termed as the drivers of successful e-procurement adoption in firms and they include: top management support, employee commitment, reliable I.T network, supplier performance, monitoring performance, user acceptance, financial support, and suitable security system. The drivers were used as the variables to identify the critical success factors the respondents agreed on. The table 4.3 shows the findings on the level of agreement on the critical success factors.

Table 4.3: The Key Success Factors to Successful E-Procurement Adoption in Organization

	Mgt	Employee	I.T	Supplier	Mornitor	User Accept	Financial	Security
Mean	**4**	**4.48**	**4.55**	**4.26**	**4.39**	**4.39**	**4.48**	**4.19**
Standard Error	0.21	0.13	0.14	0.12	0.11	0.14	0.11	0.16
Median	4	5	5	4	4	5	5	4
Mode	5	5	5	4	4	5	5	5
standard deviation	**1.15**	**0.72**	**0.77**	**0.68**	**0.62**	**0.80**	**0.63**	**0.87**
Sum	124	139	141	132	136	136	139	130
Count	31	31	31	31	31	31	31	31

Source: Collected field data

Table 4.3 implies that significant number of respondents agreed that employee commitment of a mean of 4.48 and a standard deviation of 0.72, reliable I.T network of a mean of 4.55 and a standard deviation of 0.77 and financial support lead the critical success factors to successful adoption of e-procurement strategies.

Figure 4.7: Rank of the Critical Success Factors to Successful E-Procurement Adoption in Firms
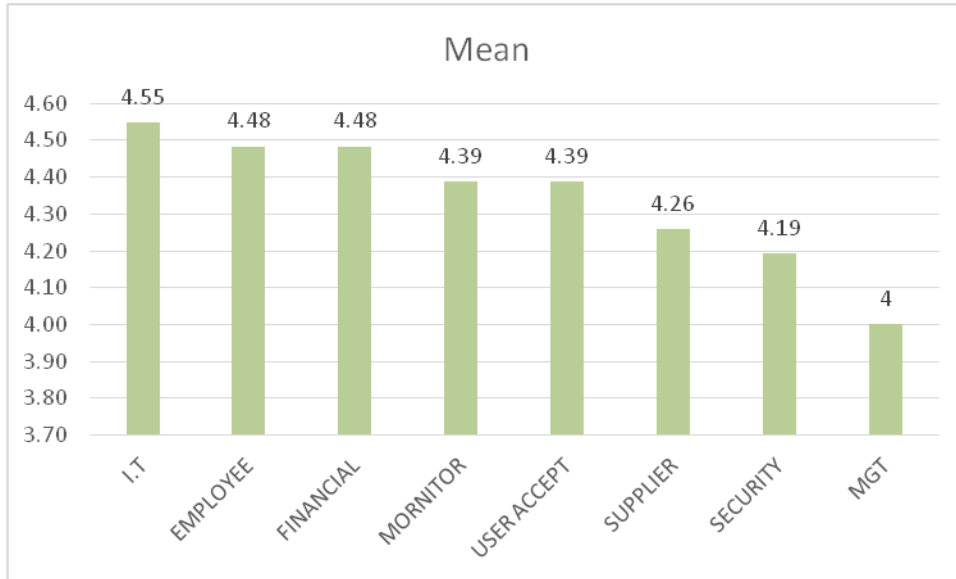
Source: Collected field data

4.3.4 E-Procurement Strategies and Performance

E-procurement performance can be measured by various variables such as transparency, accountability, real time response to customers, Low tender cost, low bureaucracy, reduced redundancy and low supply costs. Analysis was guided by variables that impact e-procurement strategies adoption on the respondents.

Table 4.4: Variables used to Measure E-Procurement Strategies on Performance

	R.L.T	Min.P	L.T.C	No Red.	L.B	Quality	L.S.C	R.S.C	T.R	Transp	Acc.	Int. I
Mean	3.74	3.68	4.00	3.84	3.55	4.06	4.06	3.94	4.19	4.00	4.19	4.19
Standard Error	0.21	0.21	0.15	0.20	0.22	0.15	0.17	0.19	0.16	0.19	0.11	0.13
Median	4	4	4	4	4	4	4	4	4	4	4	4
Mode	4	4	4	4	4	4	4	4	4	4	4	4
STD	1.15	1.17	0.86	1.13	1.21	0.85	0.93	1.06	0.87	1.06	0.60	0.70
Sum	116	114	124	119	110	126	126	122	130	124	130	130
Count	31	31	31	31	31	31	31	31	31	31	31	31

Source: Collected field data

Figure 4.8: The Ranking of the E-Procurement Strategies on Performance Variables
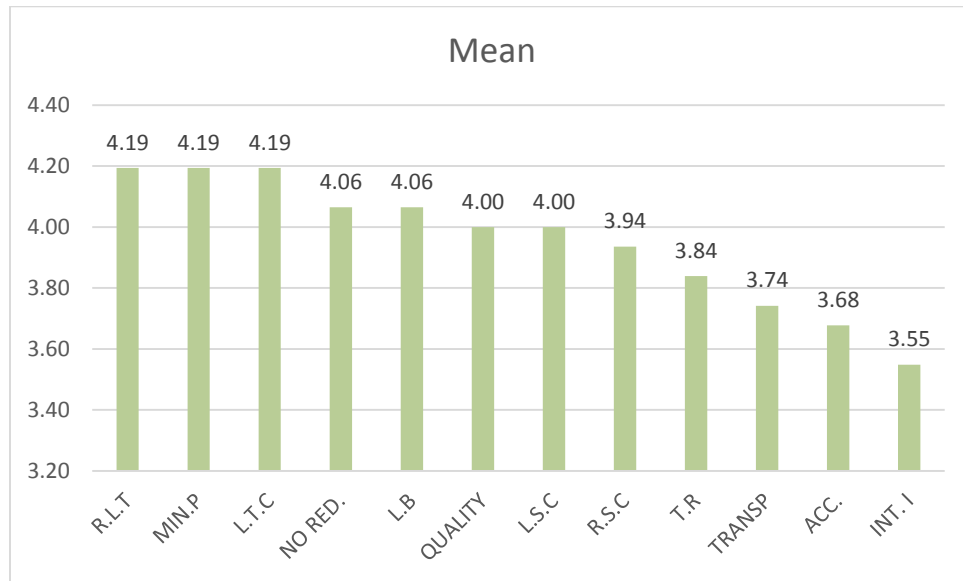
Source: Collected field data

Figure 4.8 above shows the findings in order of ranking with reduced lead times, minimal paperwork, low tender costs, reduced redundancy and reduced bureaucracy as the major variables witnessed to have an impact on Kenya owned parastatals performance.

The impact of strategies of electronic procurement adoption on the organization performance was analyzed by regression analysis as illustrated in Table 4.5.

Table 4.5: Regression Analysis

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0.35
R Square	0.12
Adjusted R Square	0.09
Standard Error	0.61
Observations	31
ANOVA	

	Df	SS	MS	F	Significance F
Regression	1	1.476869208	1.476869208	3.973006324	0.055718213
Residual	29	10.78005005	0.371725864		
Total	30	12.25691926			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	**3.08**	0.447487539	6.873073659	1.49931E-07	2.160400039	3.99083	2.1604	3.99083
Extent of Adoption	**0.28**	0.138725246	1.993240157	**0.055718213**	-0.007212254	0.560238	-0.00721	0.560238

Source: Collected field data

Y= intercept+ extent of adoption

Y= 3.08+ 0.28 extent of adoption i.e. if the % of the extent of adoption =1% the supply chain performance could be estimated as 0.28*(1%) + 3.08

The P value relationship is observed by pure chance if its 0.06 means 6% chance that the relationship among independent variable (supply chain performance) and dependent variable (extent of adoption) that model established doesn't exist.

From the regression square 12% chance that regression line fits the data.

4.4 Discussions

4.4.1 Extent of Adoption of E-Procurement Strategies in Kenya-Owned Parastatals

The findings of this research study show that the major practices on the extent of e-procurement adoption in Kenya-owned parastatals include; online advertisement of tenders, a functioning company website to manage procurement process, online specification of items to be procured and online requisition by company staff.

According to Matunga (2013) the Kenya procurement systems have been a mirrage, hence firms have embraced common practices such as e-tendering, e-quotations, and e-sourcing. All this is aimed at reducing lost time and errors as a result of paper exchange and data re-entry.

Egbu (2003) in his publication about effect of e-procurement strategies on effective e procurement highlights that effective e-procurement entails e-reverse auctions, e-tendering, e-sourcing and e-MRO.

The above range of studies have pointed out e-procurement as an important strategy to effective e-procurement and firms are in effort to embracing the strategy by the above stated extent of adoption practices. The high percentage of respondents being 64% have acquired an undergraduate and above on the level of education and may have attributed to the efforts in the extent of adoption.

4.4.2 The Level of E-procurement Strategies Implementation in Parastatals

The findings on the level of electronic procurement implementation among parastatals shows that they have implemented e-procurement vastly by system analysis and design to identify user requirement and implementation by training of staff, acquisition of computers, purchase of software.

System analysis and Design on the other hand involves the ability to effectively combine with other Information systems maximizing e-procurement operational performance. The seamless combination with existing systems is also key to decision making for the adoption and further development and of an e-procurement system (Subramanium & Shaw, 2002).

E-procurement systems involves financial factors (payment, budget, allocation and authorization of funds) therefore the critical need for systems specification and investment in e-procurement implementation as posited by Lihn (2003)

4.4.3 Critical Factors to Successful E-procurement Strategies Adoption in Parastatals

The significant key success factors to e-procurement strategies adoption in firms as revealed in the findings include; employee commitment, reliable I.T network and financial support. This is because majority of the respondents were from the senior level of management therefore existence of the top management support in the adoption.

Vaidja, Sajeev and Callender (2006) studied key factors influencing e-procurement and discovered that there should be deeper engagements and commonality on what the relevant CSFs is made up of and how to achieve success of the adoption in the public sector.

Mose, Njihia and Magutu (2013) study reveals that that most manufacturing firms have adopted e-procurement through the five key success factors as: reliable information technology, employees and management commitment to success adoption, effective supplier performance, e procurement performance monitoring, e procurement systems acceptance and support from top management.

With regards to financial enablers as the driver to electronic procurement adoption Boech, (2003) states that procurement staff capability practice and use of tools is a driver to successful strategies adoption. Training involves use of funds and with a strong financial support this is made easier.

4.4.4 E-Procurement Strategies and Performance in Kenya-Owned Parastatals

The study found out that the significant variables in measuring performance were reduced lead times, minimal paperwork, low tender costs, reduced redundancy and reduced bureaucracy as the major variables witnessed to have an impact on their supply chain performance.

Presutti (2003), Edmiston (2003), Panayiotou, Gayalias and Tatsipoulos (2004) identify the major e procurement benefits as low supply and tender cost, lead time savings, simple order process, reduced paper work, reduced redundancy, less bureaucracy, standard operating procedures and documentation standardization, online reporting, ensured

processes and procurement laws and regulations compliance, reduced errors and ease of information access.

It is paramount for an organization to periodically evaluate the key aspects of e procurement strategies since its paramount in control and evaluation of the overall performance of the organizations.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a findings summary followed by conclusions and recommendations. The chapter presents the above according to the research objectives.

5.2 Summary

The main aim of the study was to relate e-procurement strategies on Kenya owned parastatals performance.

The study concluded that e-procurement is slowly being adopted among parastatals with practices such as online advertisement of tenders, a functioning company website to manage procurement process, online specification of items to be procured and online requisition by company staff being widely practiced.

The other parastatals that have not practically adopted e-procurement are in the stages of implementation with majority involved in the system design and analysis stage that entails the identification of user requirements, acquisition of computers, purchase of software and even training of staff.

The main factors influencing embedding of e-procurement strategies by parastatals in Kenya also known as critical success factors on the lead include reliable I.T network, employee commitment, and financial support. Critical success factors such as user acceptance, suitable security system and top management support are not highly ranked as e-procurement strategies drivers.

The major challenges and risks facing e-procurement strategies imlementation in the parastatals include poor infrastructure, poor supplier conformance, resistance to change by employees and heavy investment.

The measure of impact of e-procurement embedding on supply chain performance is witnessed by reduced lead times, minimal paperwork, low tender costs, reduced redundancy and reduced bureaucracy.

5.3 Conclusion

The study concludes that E-procurement strategies can be categorized into the extent of adoption, the level of implementation, challenges faced in the e-procurement strategies adoption and impact on the supply chain performance.

The extent of e-procurement strategies embed in parastatals is mainly through advertisement of tenders online, the existence of a functioning company website, and online specification of items to be procured and the ability of staff to make requisitions online.

The main level of implementation among Kenyan parastatals include the system design and analysis where they get to identify the user requirements, the implementation stage which entails training of their staff, acquisition of computers and purchase of software.

The leading critical success factors to successful e-procurement adoption among Kenyan parastatals include employee commitment, reliable I.T network and financial support.

On the challenges facing the e-procurement strategies and performance among Kenya-owned parastatals include poor infrastructure, poor supplier conformance, resistance to change by employees and heavy investment during adoption are ranked to be on a higher level.

The study concludes that the effect of e-procurement strategies on parastatals performance is seen through reduced lead times, minimal paperwork, low tender costs, reduced redundancy and reduced bureaucracy.

5.4 Recommendations for Improvement

This research study recommends that the government should emphasize on the factors influencing electronic procurement strategies adoption in the organizations. The research study also recommends that the Kenyan government should constantly monitor and address the barriers and risks that face the adoption of e-procurement strategies

This research study further recommends that e-procurement should be widely adopted to help curb the malpractices in the procurement process therefore reducing the errors and funds lost by the malpractices.

5.5 Limitations of the Study

Respondents having been asked to indicate the variables they considered as the barriers and impediments associated with e-procurement adoption in their firms include poor infrastructure, poor supplier conformance, and resistance to change by employees and heavy investment during adoption were found to be the major risks and challenges associated with e-procurement adoption in their firms.

The findings seem to be in agreement with a study on e-procurement Battenberg 2007 which concluded that there exists differences in e-procurement strategies in different countries and that firms from countries such as Germany and the UK which have low uncertainty avoidance are implementers of e-procurement while slow adaptors to change countries like Spain and France have slow rates of adoption. Greneun, Herselman and Niekerk (2010) cite that the reason for the differences in adoption is because of the challenges posed by the e-procurement adoption such as corruption and lack of proper regulation.

As such there is need for Kenya to fight corruption especially in the procurement process as it involves large public funds and with the high literacy level as shown in the education and qualification level analysis can be used to curb the challenges since the participants are aware of the regulations guidelines i.e. by the Public Procurement Oversight Authority (P.P.O.A).

5.6 Recommendations for Further Studies

This study was limited to parastatals in Kenya, I therefore recommend further studies on the factors influencing e-procurement strategies and performance in other non-governmental organizations in Kenya considering the critical success factors, extent of adoption, challenges and risks they face and the impact on supply chain performance.

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Appendix I: List of Parastatals of Kenya

OFFICE OF THE VICE PRESIDENT

1) National Museums of Kenya.*
2) Betting Control and Licensing Board.
3) N.G.O. Co-ordination Bureau.

MINISTRY OF FINANCE.

1) Kenya Revenue Authority
2) Retirements Benefits Authority*
3) Kenya Re-Insurance Corp.
4) Capital Markets Authority*
5) Consolidated Bank of Kenya
6) National Bank of Kenya*
7) Cooperative Bank of Kenya
8) Kenya Commercial Bank
9) Central Bank of Kenya
10) Deposit Protection Fund Board
11) Kenya Post Office Savings Bank
12) Kenya Accountants and Secretaries Examination Board (KASNEB)
13) Kenya National Assurance (2001) Limited
14) Capital Markets Tribunal
15) States Corporations Appeals Tribunal
16) Kenya Institute for Public Policy Research and Analysis

MINISTRY OF WATER AND IRRIGATION

1) National Water Conservation & Pipeline Corporation
2) National Irrigation Board
3) Kenya Water Institute*
4) Water Services Regulator Board
5) Water Apportion ate Board
6) Lake Victoria South Water Services Board
7) Coast Water Services Board
8) Sothern Water Services Board
9) Sewerage and Drainage
10) Rift-valley Water Services Board
11) Lake Victoria North Water Services
12) Athi Water Services Board
13) The Tana Water Services Board

14) Water Resources Management Authority
15) Water Services Trust Fund
16) Kerio Valley Development Board

MINISTRY OF AGRICULTURE

1) Tea Board of Kenya*
2) Pyrethrum Board of Kenya
3) Horticultural Crops Development Authority
4) Coffee Board of Kenya
5) Agricultural Finance Corporation*
6) National Cereals & Produce Board
7) Kenya Plant Health Inspectorate Board
8) Chemilil Sugar Company
9) Mumias Sugar Company
10) Sony Sugar Company
11) Kenya Sugar Board*
12) Pests Control Products Board
13) Nyayo Tea Zones Development Corporation
14) Nzoia Sugar Company
15) Kenya Sugar Reaserch Foundation
16) Kenya Seed Company*
17) Kenya Agricultural Research Institute
18) Coffee Research Foundation
19) Tea Reaserch Foundation
20) Sugar Arbitration Board
21) Agricultural Information Resource Centre
22) Kenya Sisal Board
23) Bukura Agricultural College

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

1) National Council for Science & Technology (NCST)
2) Public Universities Inspection Board
3) University of Nairobi*
4) Moi University
5) Egerton University
6) Jommo Kenyatta University of Agriculture and Technology
7) Kenyatta University
8) Maseno University
9) Kenya Education Staff Institute
10) Kenya National Examination Council

11) Kenya Literature Bureau
12) Jommo Kenyatta Foundation
13) Kenya Institute of Education
14) Commission for Higher Education
15) Higher Education Loans Board*
16) Teachers Service Commission*
17) Western University College of Science and Technology

MINISTRY OF ENERGY

1) Kenya Power and Lighting Company*
2) Kenya Pipeline Company*
3) Kenya Electricity Generating Company (KENGEN)
4) National Oil Corporation of Kenya
5) Kenya Petroleum Refinery
6) Energy Tribunal
7) Electricity Regulatory Board
8) Rural Electrification Authority
9) Energy Regulatory Commission

MINISTRY OF TRANSPORT

1) Kenya Airports Authority
2) Kenya Ports Authority
3) Kenya Ferry Services Limited
4) Kenya Railways Corporation*
5) Transport Licensing Board
6) Kenya Civil Aviation Authority
7) Transport Licensing Appealing Tribunal
8) Kenya National Shipping Line

MINISTRY OF INDUSTRIALIZATION

1) Numerical Machining Complex
2) Kenya Agricultural & Development Institute
3) Kenya Industrial Property Institute
4) East African Portland Cement*
5) Kenya Industrial Estates
6) Kenya Bureau of Standards
7) Industrial Development Bank Capital Limited
8) Kenya Industrial Property Institute*

MINISTRY OF TRADE

1) Kenya Investment Authority*
2) Export Processing Zones Authority
3) Kenya National Trading Corporation
4) Kenya Wine Agencies Limited
5) Industry Property Tribunal
6) Industrial & Commercial Development Corporation(ICDC)

MINISTRY OF LIVESTOCK & FISHERIES DEVELOPMENT

1) Kenya Marine & Fisheries Research Institute
2) Kenya Diary Board
3) Kenya Meat Commission
4) Kenya Veterinary Board
5) Co-operative College of Kenya*
6) New Kenya Co-operative Commission

MINISTRY OF REGIONAL DEVELOPMENT AUTHORITIES

1) Ewaso Ngiro North Development Authority
2) Ewaso Ngiro South Development Authority
3) Lake Basin Development Authority
4) Coastal Development Authority
5) Kerio Valley Development Authority
6) Tana & Athi River Development Authority

MINISTRY OF INFORMATION & COMMUNICATION

1) Communication Commission of Kenya
2) Telkom Kenya Ltd
3) Kenya Film Commission
4) The Kenya Information & Communication Technology
5) Postal Corporation of Kenya
6) Kenya Broadcasting Corporation

MINISTRY OF HOUSING

1) National Housing Corporation*

MINISTRY OF GENDER, SPORTS, CULTURE & SOCIAL SERVICES

1) Kenya Cultural Centre
2) National Sports Stadia Management Authority
3) National Disability Council
4) Gender Commission
5) Kenya National Library Services*

MINISTRY OF HEALTH

1) Kenyatta National Hospital*
2) Kenya Medical Training College
3) National Hospital Insurance Fund*
4) Moi Teaching & Referral Hospital, Eldoret
5) Kenya Medical Research Institute
6) Kenya Medical Supplies Agency
7) Radiation Protection Board

MINISTRY OF TOURISM & WILDLIFE

1) Kenya Wildlife Service*
2) Kenya Tourist Development Corp
3) Kenya Tourist Board
4) Catering Training & Tourism Development Levy Trustees
5) Kenya Utalii College*
6) Kenyatta International Conference Centre

MINISTRY OF ENVIRONMENT & NATURAL RESOURCES

1) Kenya Forest Service
2) Kenya Forestry Research Institute
3) National Environmentally Management Authority*

MINISTRY OF JUSTICE & CONSTITUTIONAL AFFAIRS

1) Public Complaints Standing Committee

MINISTRY OF PLANNING AND NATIONAL DEVELOPMENT

1) Poverty Eradication Commission
2) Kenya National Bureau of Statistics*

MINISTRY OF NATIONAL HERITAGE

1) Public Archives Advisory Council

Source : Google search- "List of Kenya Parastatals."

N/B

The * represents parastatals to be sampled in Nairobi

Appendix II: Questionnaire

SECTION A: GENERAL INFORMATION AND COMPANY PROFILE

Kindly answer all the questions by ticking in the brackets and writing in the space provided

1. Size of company

   ( ) Large Scale Organization i.e. more than 1000 employees

   ( ) Medium Size Organization i.e. 101-1000 employees

   ( ) Small Size Organization i.e. 100 employees

2. Organization sector/ category of operation

   ( ) Agriculture

   ( ) Health

   ( ) Manufacturing

   ( ) Bank

   ( ) Finance and Insurance

   ( ) Education and Research

   ( ) Regulatory and Advisory

   ( ) Consultative Professionals

3. Has your company adopted e-procurement?

   ( ) YES

   ( ) NO

4. How many years have elapsed since the e-procurement adoption?

   ( ) 1-5

   ( ) 6-10

   ( ) Above 10

5. Was the adoption process successful?

   ( ) YES

   ( ) NO

   ( ) PARTIALLY

SECTION B: INDICATE THE EXTENT TO WHICH YOU AGREE WITH THE FOLLOWING STATEMENTS CONCERNING E-PROCUREMENT ADOPTION IN YOUR FIRM.

Use of 5 point scale

1. Strongly Agree
2. Agree
3. Not Sure
4. Disagree
5. Strongly Disagree

Extent Of Adoption	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
6.Our tenders are advertised online					
7.Our suppliers submit proposals online					
8.We have functioning website to manage the entire procurement process					
9.We specify items to be procured and post to company website					
10.Our company staff makes requisitions online					
11. We do online call for proposals					
12. Others specify					

SECTION C: WHAT IS THE LEVEL OF IMPLEMENTATION OF E-PROCUREMENT IN YOUR FIRM?

Level Of E-Procurement Implementation	No Effect	Little	Moderate	Some	Great
13. Feasibility study i.e. to determine the need to have e-procurement					
14. System analysis and design i.e. identify the user requirements.					
15. Implementation i.e. training of staff, acquisition of computers, purchase of software.					
17. Operational i.e. online purchase and active working					
18. Others specify					

SECTION D: TO WHAT EXTENT ARE THE FOLLOWING FACTORS CRITICAL TO SUCCESSFUL E-PROCUREMENT ADOPTION?

Critical Success Factors	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
19. Top management support					
20. Employee commitment					
21. Reliable IT network					
22. Supplier performance					
23. Monitoring performance					
24. User acceptance					
25. Financial support					
26. Suitable security system					
27. Others specify					

SECTION E: WHAT ARE THE CHALLENGES AND RISKS YOUR FIRM FACES DUE TO ADOPTION OF E-PROCUREMENT.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
28. Corruption					
29. Poor infrastructure					
30. Poor supplier conformance					
31. Resistance to change by employees					
32. Lack of e-procurement approval by company board					
33. Existence of old IT equipment					
34. Complex decision strategies in adoption					
35. Lack of managerial support					
36. Lack of skilled personnel					
37. Heavy investment during adoption					
38. Lack of technical standards					
39. Corporate culture erosion					
40. High cost of implementation					
43. Difficulty in equipment automation					

SECTION F: PLEASE INDICATE YOUR LEVEL OF AGREEMENT FOR YOUR SUPPLY CHAIN ON THE FOLLOWING FACTORS.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
45. Our customers are satisfied and loyal					
46. We have reduced lead times					
47. Our paperwork is minimal					
48. Our cost per tender are low					
50. We Have little bureaucracy					
51. Our products are of high quality					
52. We have experienced low search costs					
53. Reduced supply cost					
54. Time response to customer					
56. Encourages Accountability					
57. Our information is integrated					
58. Others specify					

THANK YOU FOR TAKING YOUR TIME TO COMPLETE THE QUESTIONNAIRE