

**INFLUENCE OF E-PROCUREMENT ON ORGANIZATIONAL
PERFORMANCE: THE CASE OF KENYA ASSOCIATION OF
MANUFACTURERS FIRMS IN NAIROBI COUNTY, KENYA**

**BY
AVEDI EVANS KITUZI**

**A Research Project Report Submitted in Partial Fulfillment of the Requirements for
the Award of the Degree of Master of Arts in Project Planning and Management of the
University of Nairobi**

2016

DECLARATION

This research project Report is my own work and has not been submitted before for any other degree at any other institution.

Signature.....

Date.....

EVANS KITUZI AVEDI

ADM No.L50/76085/2014

This research project Report has been submitted for examination with my approval as the university Supervisor.

Signature.....

Date.....

Dr. NAOMI MWANGI, PhD

Senior Lecturer

School of Continuing and Distance Education,

University of Nairobi

DEDICATION

This project report is dedicated to all my family members for their constant and unwavering motivation, encouragement, immeasurable love and affection, moral and financial support which they tirelessly extended to me.

ACKNOWLEDGEMENT

First and foremost I thank the Almighty God for the free gift of life, good health, endurance, knowledge and strength without which this work could not be in existence. I am very grateful to my supervisor Dr. Naomi Mwangi for the guidance and support. A special thanks to my colleagues, friends and fellow students for creating a conducive and supportive environment that made my studies all more enjoyable despite the ups and downs. I am grateful to all of you for supporting me in my pursuit for knowledge. Finally, to my family for their invaluable contributions and support, I say a big thank you and God bless you.

TABLE OF CONTENT

	PAGE
DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENT	v
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF ABBREVIATIONS AND ACRONYMS	xi
ABSTRACT	xii
CHAPTER ONE:INTRODUCTION	1
1.1 Background of the Study	1
1.1.1 Global Perspective of E-Procurement	4
1.1.2 E-procurement and Performance of Manufacturing Firms	7
1.1.3 Firms Registered with Kenya Association of Manufacturers	8
1.2 Statement of the Problem.....	9
1.3 Purpose of the Study	10
1.4 Objectives of the study.....	10
1.5 Research Questions	11
1.6 Significance of the Study	11
1.7 Delimitations of the Study	11
1.8 Limitations of the Study.....	12
1.9 Assumptions of the study.....	12
1.10 Definition of significant terms	12
1.11 Organization of the study	14

CHAPTER TWO:LITERATURE REVIEW.....	15
2.1 Introduction.....	15
2.2 Influence of System Management on Organizational performance	15
2.3 Influence of buyer/supplier collaboration on Organizational performance	18
2.4 Influence of Billing Management on Organizational performance	21
2.5 Influence of Data Transmission on Organizational performance	22
2.6 Theoretical Framework.....	24
2.6.1 Transaction Cost Theory.....	24
2.6.2 The E -Technology Perspective Theory	28
2.6.3 Resource - Based Theory	29
2.7 Conceptual Framework.....	30
2.8 Summary and Knowledge Gaps.....	33
CHAPTER THREE:RESEARCH METHODOLOGY	37
3.1 Introduction.....	37
3.2 Research Design.....	37
3.3 Target Population.....	37
3.4 Sample Size and sampling procedure	38
3.4.1 Sample Size.....	38
3.4.2 Sampling Procedure.....	39
3.5 Data collection instruments.....	40
3.5.1 Pilot testing of the Research instruments.....	40
3.5.2 Validity of the instruments.....	42
3.5.3 Reliability of the instruments.....	43
3.6 Data Collection Procedures.....	43
3.7 Data Analysis techniques.....	44
3.8 Operational definition of the Variables.....	45

3.9 Ethical Considerations	48
CHAPTER FOUR:DATA ANALYSIS, PRESENTATION AND INTERPRETATION	49
4.1 Introduction.....	49
4.2 Questionnaire return Rate	49
4.3 Demographic characteristics of the respondents.....	50
4.3.1 Job Designation of Respondents.....	50
4.3.2 Gender Distribution	50
4.3.3 Level of Education of Respondents	51
4. 3.4 Company’s Duration since Adoption of E-procurement	52
4.4 Data Transmission and Organizational Performance	53
4.5 Buyer/ Supplier collaboration and Organizational Performance	53
4.6 System Management and Organizational Performance	54
4.7 Billing Management and Organizational Performance.....	55
4.8 Performance of the Organization	56
4.9 Regression Analysis.....	57
4.9.1 Model Summary for Organizational Performance.....	58
4.9.2 Analysis of Variance – ANOVA	58
4.9.3 Regression Coefficients	59
CHAPTER FIVE:SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS.....	61
5.1 Introduction.....	61
5.2 Summary of Findings.....	61
5.2.1 Data transmission and Organizational Performance of Manufacturing Firms	62
5.2.2 Buyer/Supplier collaboration and Performance of Manufacturing Firms	62
5.2.3 Systems management and Performance of Manufacturing Firms	62
5.2.4. Billing management and Performance of Manufacturing Firms	63

5.3 Discussions of the Findings	63
5.3.1 Data transmission and Organizational Performance of Manufacturing Firms	63
5.3.2 Buyer/Supplier collaboration and Performance of Manufacturing Firms	64
5.3.3 Systems management and Performance of Manufacturing Firms	64
5.3.4. Billing management and Performance of Manufacturing Firms	65
5.4 Conclusions of the Study	66
5.5 Recommendations of the Study	66
5.6 Suggested areas for Further Research.....	67
REFERENCES.....	68
APPENDICES.....	75
Appendix I: Introductory Letter.....	75
Appendix II: Questionnaire.....	76
Appendix III: List of Manufacturing Firms Registered with KAM in Nairobi County	82
Appendix IV: Research Authorization Permit.....	93
Appendix V: Research Permit	94

LIST OF TABLES

Table 3.1: Sample Size	39
Table 3.2 Operational definition of the variables	46
Table 4.1 Job Designation of Respondents.....	50
Table 4.2 Gender Distribution	51
Table 4.3 Level of Education of Respondents	51
Table 4.4 Company’s duration since E-Procurement adoption	52
Table 4.5 Data Transmission	53
Table 4.6 Buyer/Supplier Collaboration	54
Table 4.7 System Management.....	55
Table 4.8 Billing management.....	56
Table 4.9 Performance of the Organization	57
Table 4.10 Model Summary.....	58
Table 4.11 ANOVA for Overall Organizational Performance	59
Table 4.12 Coefficients Matrix	60

LIST OF FIGURES

Figure 1: Conceptual framework	32
--------------------------------------	----

LIST OF ABBREVIATIONS AND ACRONYMS

B2B	-	Business to Business
B2C	-	Business to Consumer
ERP	-	Enterprise Resource Planning
GDP	-	Gross Domestic Product
ICT	-	Information Communication Telecommunication
KAM	-	Kenya Association of Manufacturers
OPC	-	Operational Purchasing Cost
PLC	-	Product Life Cycle
RBT	-	Resource Based Theory
SCM	-	Supply Chain Management
SPSS	-	Statistical Package for the Social Sciences
TCE	-	Transaction Cost Economics

ABSTRACT

E-Procurement is more than just a system for making purchases online. It has been advocated as a key performance indicator that can improve performance and competence of firms. Some companies implement e-procurement and succeed while others fail. There are some fundamental things the purchasing company needs to achieve when it comes to procurement. These include reducing the time employees spend looking for a product, service or suitable supplier, reducing the time and cost of administering purchases, reducing cycle times, increasing volume with a few preferred suppliers to get better pricing and other conditions, as well as limiting choices to only a number of pre-qualified suppliers to ensure quality. The purpose of this study was to examine the influence of e-procurement on organizational performance, the case of Kenya Association of Manufacturers (KAM) firms in Nairobi County, Kenya. This study had four objectives: to determine the influence data transmission on organizational performance; to determine the influence of buyer/supplier collaboration on organizational performance, to examine the influence of systems management on organizational performance and to establish the influence of billing management on organizational performance of KAM firms in Nairobi County. The study adopted a descriptive approach to establish the influence of e-procurement on organizational performance of manufacturing firms. A sample size of 102 respondents was selected from a list of 499 manufacturing firms in Nairobi, Kenya. Data was collected from the respondents through a questionnaire. The collected data was analyzed by employing descriptive statistics and inferential analysis using statistical package for social science (SPSS) and multiple regression analysis. The data was then presented in tables and charts. The research concludes that a majority of the manufacturers in Nairobi, Kenya have adopted e-procurement strategy to improve organizational performance. The findings indicate that there is a significant positive relationship between the components of e-procurement namely; data transmission, buyer/supplier collaboration, systems management and billing management of the e-procurement process with the organizational performance of manufacturing firms in Nairobi County Kenya. The study recommends that manufacturing firms in Nairobi need to incorporate all the e-procurement components into the system to enable them to improve the overall performance of their firms. The study also recommends that future research will need to be carried in other industries and countries in order to show if the link between e-procurement components and organizational performance can be generalized. These findings of the study will enable managers in manufacturing firms to formulate e-procurement policies that will ensure a positive impact on strategic performance of the firms.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In Kenya manufacturing sector is the third biggest industrial sector after agriculture and transport and communication. It is Kenya's GDP third contributor. This sector has been experiencing fluctuations over the years under different financial conditions mostly contingent in nature (KPMG, 2014). In East Africa, Kenya is the most industrially developed country and manufacturing sector in Kenya constitutes 10 per cent of the industrial sector contribution to GDP (Republic of Kenya, 2014). According to KNBS (2012) the growth in manufacturing industry declined from 4.4 per cent in 2010 to 3.3 per cent in 2011 mainly due to a challenging operating environment. This sector has high, yet untapped potential to contribute to employment and GDP growth. Due to its important role in the overall economic growth, therefore manufacturing sector requires a deeper analysis both at industry level as well as organizational level.

According to Richard, Yip & Johnson (2009), organizational performance encompasses three specific areas of firm outcomes, these are, Product market performance (sales, market share); Shareholder return (total shareholder return, economic value added) and financial performance (profits, return on assets, return on investment). Thus organizational performance comprises the actual output or results of an organization as measured against its intended outputs (or goals and objectives).

The biggest challenge to performance in most organizations is the external environment. The challenges that arise from the external environment include economic, environmental, political, technological and socio- cultural (Snider and Rendon, 2008).

The primary goal of organizational performance is to increase organizational efficiency and effectiveness. Also organizational performance targets continuous improvement to improve organizational efficacy, which involves the process of setting organizational goals and objectives in a continuous cycle. At the organizational level, performance usually involves softer forms of measurement such as customer satisfaction surveys which are used to obtain qualitative information about performance from the viewpoint of customers while at individual and employee level organizational performance usually involves processes such as statistical quality control (Kaplan & Norton, 2001).

E-procurement has the capacity of acting as an integrative technology that enables integration and improvement of processes between departments. Flynn *et al.*, (2010) define internal integration as the degree to which two departments collaborate in the management of both inter and intra departmental processes to provide maximum value for the firm. Researchers have argued that internal integration of various activities in an organization will be able to enhance economic performance.

According to Hawking, Stein, Wyld and Forster (2004), procurement of goods and services represents the single largest cost item for any given enterprise since each dollar a company earns on the sale of a product it spends about \$0.50-0.60 on goods and services. More capital is spent on the procurement of materials and services to support the business's operations than on all other expense items combined (Hawking *et al.*, 2004).

The rise of e-business in the late 1990's led to the development of new opportunities related to procurement: spend management, e-procurement, and joint product design and outsourcing (Lancioni, Smith, and Oliva, 2000). The use of Information Communication Technologies (ICTs) has dramatically changed services, people's expectations and business models of the quality and efficiency of information sharing and service delivery (Brown, 2005; Maniam, 2005). E-procurement systems aid in reducing transaction costs by automating processes, thus replacing human labor with information technology.

There are some fundamental things the purchasing company aims to achieve when it comes to purchasing. These include reducing the time, increasing volume with a few preferred suppliers to get better pricing, reducing the time employees spend looking for a product, service or suitable supplier, cost of administering purchases, reducing cycle times as well as limiting choices to only a number of pre-qualified suppliers to ensure quality. E-procurement has been advocated as a tool that can improve competence and organizational performance through data transmission, buyer/supplier collaboration, systems management and billing management. Previous research has shown that e-procurement may indeed contribute to improved organizational performance (Croom and Jones, 2007; Hawking *et al.* 2004).

Managers of various companies therefore have to plan their procurement activities to ensure that they save on the companies' costs so as to increase the efficiency of the company. Therefore, it is important that any strategy introduced in the organization should focus on the identified objectives in order to gain favour with those that use it. A strategy which improves reduced costs and improves customer delivery, will gain approval with the people involved with the procurement exercises of the organization.

1.1.1 Global Perspective of E-Procurement

Over the years the world has seen a massive change in the management of businesses; from organizations relying more on specialized in-house service functions, conventional multipurpose service functions to outsourced services. Information technology (IT) has helped many businesses in improving their operational efficiencies by providing internet based solutions for their supply chain networks and electronic solutions. From the late 1990s a raft of new e-commerce technologies emerged which revolutionized working practices, threatening existing business models (Chan & Lu, 2004). As a result of this development on the use of e-commerce in business-to-business market, there has been significant adoption of new supply chain related technology and applications by organizations globally (Sheng, 2002).

In a recent survey in Europe, Palma dos Reis and Soares Aguiar (2006) studied the factors leading to the adoption of electronic procurement systems in Portugal. The respondents were people in management positions from 240 large companies in manufacturing, commerce and services sectors. The authors built their hypotheses on the framework of Tornatzky and Fleischer (1990), which describes three aspects of a firm's context that can influence the adoption of technological innovations; these are technological context, environmental context and organizational context. The authors found positive relationships among technological capabilities (technological context), trading partner readiness (environmental context) and firm size (organizational context).

In a field study in Ireland, Nagle et al. (2006) explored the effects B2B relationships have on E-procurement systems. The authors performed an in-depth field study in six selected companies and successfully showed that adversarial type relationships influence

E-procurement systems around the sourcing phases (background review, information gathering, negotiation and supplier contact) demonstrated that collaborative relationships tend to affect the fulfillment and consumption phases more than other procurement activities.

A survey on E-procurement in Australia (Williams and Hardy, 2007) showed that E-procurement has become an increasingly strategic topic in companies in different industries across the private and public. Compared to a similar survey conducted two years before, E-procurement implementations had increased in both scope and reach. More companies were investing in the electronic support of procurement functions and processes.

In Singapore, Kheng and Al-Hawandeh (2002) investigated the adoption of E-procurement and presented stumbling blocks to this initiative from the point of view of Singaporean organizations. Firstly, the laws governing B2B commerce, crossing over to E-procurement, are still not developed. For instance, questions concerning the force and legality of e-mail contracts, role of electronic procurement show only about half of those specific respondents had any formal spending analysis tool in place while the few that had these tools analyzed only half of their total spending. Secondly, technical difficulties related to conversion, data exchange and information such as inefficiencies in locating information over the internet using search engines and the lack of common standards get in the way of the easy integration of electronic catalogs from multiple suppliers. Thirdly, there was concern about privacy and security of procurement transaction data. Fourthly; it required a significant investment in software, hardware, and personnel training to participate in E-procurement which is prohibitive.

In Africa, despite significant recent increases in internet sales in many countries, total B2B plus business-to-customer internet commerce is still low (Walker and Harland, 2008). In spite of the claimed business benefits that can come from embracing E-procurement, the extent of adoption in Organization for Economic Co-operation and Development (OECD) countries is below expectations and progressing slowly (Pires and Stanton, 2005).

In Kenya, e-procurement is at the early adoption stage (Oke *et al*, 2006). This has been attributed to the astronomical costs that are involved in the setting up of the infrastructure as well the skill gap that exists in the labor market. ICT is considered as a key pillar in the success of vision 2030 by the government of Kenya which aims at transforming the country into an industrialized nation by the year 2030. ICT board has been set up by the government to spearhead the ICT revolution in the country which is a positive signal for e-procurement (Oke *et al*, 2006).

The high costs of slow speeds low, band width capacity and satellite connections have delayed the adoption of e-procurement though some companies through their massive financial capacity have been able to gain a competitive advantage in terms of getting connected early enough. Landing of the high capacity and high speed fiber optic cable in the country made many companies embrace technology as the cable is expected to boost the efficiency of internet making e-procurement a reality (Public Procurement Oversight Authority, 2009). The government through the ministry of finance has also initiated an e-procurement project whose aim is to have e-procurement system implemented in a few selected ministries before full roll out to other government departments (Republic Of Kenya, 2014).

Previous studies by Kalathur *et al*, (2002) on business value and technology adopted exploratory approach as their underlying methodology. Studies suggested that organizations are being strategic in their e-procurement implementation. However, such studies are fragmented across both developing and developed countries. The benefit achievable from e-procurement makes it an important consideration for any business. The depth of the research will be used in the validation of these points, in the context of manufacturing firms in Nairobi County.

1.1.2 E-procurement and Performance of Manufacturing Firms

E-procurement actually automates the procurement and purchasing of a company by integrating the buyers and sellers through relevant IT systems. Although, e-procurement is still in its infancy, some companies have made impressive savings through radical streamlining of their buying activities. The automation of the end to end procurement work flow has taken over the traditional purchase order software since it helps in improve the organizational efficiency and control of the procurement activities and the need. The advent of cloud computing concepts and using the cloud process for e-procurement has automated the procurement process further. The management of contracts and agreements, comparisons, price list verification product, article selection has not only become simplified but also speedy (Chau, 2007).

The impact of web based technology has added speed or value to all the avenues and activities of business in today's dynamic global competition. The ability to provide customers with life cycle costs and cost effective total solution for sustainable value has become vital. Business organizations are now under tremendous pressure to improve their efficiency and responsiveness in terms of operations, resource utilization and product

development, resource utilization with transparency. With the emerging application of internet and information technology (ICT) the companies are forced to shift their operations from traditional way to a virtual e-procurement and supply chain philosophy to transfer the company's activity to automated one (Carabello, 2007).

Although forecasts on the use of e-procurement were downgraded with the burst of the internet bubble in 2001 (Davila *et al*, 2003), statistics still showed an increased growth in the use of e-procurement, for example a recent survey indicated that e-procurement of direct goods is now exceeding that of indirect goods (Bartels, 2004). Reason for the continued growth in e-procurement use is due to the significant benefits both supplier and buyer organizations achieve through its use. The benefits include shorter procurement cycles, reduced inventory levels, lower transaction costs, lower staffing requirements, higher degree of transparency and increased communication between supplier and buyer organizations. Yet, for all the benefits outlined there are many organizations that are taking a wait and see approach to the implementation of e-procurement technologies (Davila *et al.*, 2003).

1.1.3 Firms Registered with Kenya Association of Manufacturers

Kenya Association of Manufacturers was established in 1959 and is the representative organization for manufacturing value-add industries in Kenya. KAM provides an essential link for dialogue, understanding and co-operation, with the Government by representing the views and concerns of its members to the relevant authorities. Its core mandate is to promote uphold standards, enactment, trade and investment, encourage the formulation, and administration of sound policies that facilitate a competitive business environment and reduce the cost of doing business (KAM, 2015)

There are a total of 499 registered firms within Nairobi County categorized under different sectors as indicated in table 3.1. Most of these firms have adopted the use of e-procurement as a strategy in enhancing their performance, not only in procurement processes but of the overall performance organization. Most of the firms' activities have been automated and this enables the firms to save on costs and time.

1.2 Statement of the Problem

According to (Mutindi, Namusonge & Obwogi, 2013), Kenya has been experiencing turbulent times with regard to its organizational performances and this has resulted in declining profits in the manufacturing sector of the economy. Statistics from World Bank show that Kenyan manufacturers of large scale firms have registered declining profits and stagnation for the last five years due to a turbulent operating environment (World Bank, 2014). It is estimated that large manufacturing companies have lost 70 per cent of their market share in East Africa largely attributed to contingencies (Republic of Kenya, 2014).

Many large Manufacturing firms have restructured their operations or relocated, opting to serve the local market through importing from low cost manufacturing areas such as South Africa and Egypt thus resulting in job losses (Nyabiage & Kapchanga, 2014) citing high operating costs turbulent operating environment. This is an indication that many manufacturing firms in Kenya are experiencing organizational performance challenges with many reporting profit warnings due to challenges in the operating environment (Republic of Kenya, 2014). Previous studies have shown that contingent organizational factors are critical drivers to performance of organizations (Brewster & Mayrhofer, 2012).

The manufacturing sector in Kenya has a huge untapped potential contribution to GDP and employment if the challenges facing this sector are properly addressed (Wagana & Kabare, 2015). Even though manufacturing companies undertake many initiatives to introduce procurement professionalism or improve the organization, e-procurement influence on the organizational performance of the manufacturing firms still remains uncertain. The previous studies carried out on e-procurement influence on performance were purely on the public sector. It is on the basis of the uncertainty of the influence of e-procurement on strategic performance of manufacturing firms that the study sought to examine the influence of e-procurement among firms registered with KAM in Nairobi County. There is need to validate the findings of the previous studies with regards to the private sector, specifically, manufacturing firms registered with KAM in Nairobi County, Kenya.

1.3 Purpose of the Study

The main purpose of this study was to examine the influence of e-procurement on organizational performance, the case of firms registered with Kenya Association of Manufacturers in Nairobi County.

1.4 Objectives of the study

The objectives of the study were;

- i) To determine the influence of data transmission on organizational performance.
- ii) To determine the influence of buyer/supplier collaboration on organizational performance.
- iii) To examine the influence of System Management on organizational performance.
- iv) To establish the influence of billing Management on organizational performance.

1.5 Research Questions

The research was guided by the following research questions:

- i) To what extent does data transmission affect organizational performance?
- ii) How does buyer/supplier collaboration affect organizational performance?
- iii) To what extent does system management affect organizational performance?
- iv) How does billing Management affect organizational performance?

1.6 Significance of the Study

Based on studies carried out in developing countries, and more specific in Kenya compared to the developed countries, this study provided valuable information to various stakeholders such as researchers as they conduct studies in this and other related topics. The findings of the study will equally enable managers to formulate e-procurement policies that will ensure a positive impact on strategic performance of the firm.

The findings of this study will also enable manufacturing firms in Nairobi County to understand the benefits they will get from successful implementation of e-procurement strategies as well as the various challenges that they face in implementing e-procurement within their firms.

1.7 Delimitations of the Study

This study focused on the influence of e-procurement in enhancing organizational performance on firms registered with KAM in Nairobi County. The study population included ICT and Procurement managers in 499 firms registered with KAM in Nairobi County, Kenya. Nairobi County is selected because it forms the bulk of manufacturing firms in Kenya.

1.8 Limitations of the Study

The study was conducted at various manufacturing firms in Nairobi County. The sample was small and may be a challenge to generalize to all manufacturing firms in Kenya. Further limitation of this study was that only structured schedules were used to collect data. The study however addressed the limitations by ensuring that stratified sampling method was applied to obtain responses from all the subsectors of the manufacturing companies. In addition, the questionnaire was structured with several structured questions to exhaustively address all the variables of the study.

1.9 Assumptions of the study

It was assumed that the respondents would be honest, cooperative, factual (objective) and trustworthy in their response to the research instruments. It was also assumed that the targeted sample for research was reachable and individuals will respond to the research questions. Further it was assumed the respondents will give responses that are sincere and without bias.

1.10 Definition of significant terms

Billing management: A billing management system calculates usage charges, generate and distribute invoices or statements to members of the e-procurement network. Suppliers also use the billing system to calculate ordering charges or to distribute operating costs for specific orders. Billing management functions must directly interface with back office invoicing systems to automatically generate bills thus E-procurement revenues are generally based on transaction fees

Buyer/Supplier collaboration: This provides internet based technology that enables teams to collaborate in the management of documentation by supporting contract and project

management both before and after contract award within a shared and secure working environment.

Data Transmission: Transmitting data over the Internet involves two facets. These are security and messaging agents. Messaging and data tools enable the Internet-based exchange of transactional data between different buyers and suppliers in the e-procurement marketplace. In order to do this, transactions are sent via the Internet as messages and then integrated into the back-office system thus enabling financial postings that coincide with the payment, invoicing and processes receipt

E-Procurement: E-Procurement is defined as the use of information and communication technologies (ICTs) to carry out individual or all stages of the procurement process which include sourcing, negotiation, ordering, receipt and post procurement review which leads to significant reduction in both cost and time

Manufacturing Firms: Manufacturing companies in Kenya operate various businesses that fall under several sectors as indicated in Table 3.1 and Appendix III. This study will focus on those firms, in Nairobi County, registered with Kenya Association of Manufacturers (KAM).

Organizational Performance: Analysis of Company's performance compared to goals and objectives. Within Manufacturing organizations there are three primary outcomes analyzed, these are shareholder value performance, market performance and financial performance (in some cases, production capacity performance may be analyzed).

System Management: Maintaining an e-procurement system involves configuring and monitoring performance average response time, traffic patterns usage, and transaction sources. To maximize the strategic opportunities and benefits e-procurement systems offer

this information should be used to analyze session times, growth patterns and ultimately to fine-tune the system's performance to fit specific market communities or technical environments.

1.11 Organization of the study

The study is presented in five chapters. Chapter one contains introduction to the study and it entails the background to the study, the statement of the problem, purpose of the study, research objectives, research questions, significance of the study, delimitations of the study, limitations of the study, definition of significant terms and organization of the study. Chapter two of this study presents the theoretical and conceptual framework. The E-technology perspective Theory, Resource based Theory and Transaction Cost Theory were examined in the theoretical framework. Conceptual framework was designed to model the relationships in the study.

Chapter three presents research methodology. In this chapter the research design, target population, sampling procedure, data collection procedures, research instruments and data analysis techniques are examined. Chapter four highlights data presentation, analysis and interpretation. Chapter five of the study presents the summary of findings, discussions, conclusions, recommendations and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The review of literature for the study was drawn from journals, government publications, circulars, documents, books and newspapers dealing with implementation of various E-Procurement project issues globally, regionally and in Kenya as a country. The literature review examines how various studies have analyzed the concept of e - procurement, the influence it has had on firms that have adopted it, the benefits and challenges the firms face as well as the barriers to effective implementation of e - procurement. It also includes theoretical framework, conceptual framework and knowledge gaps.

2.2 Influence of System Management on Organizational performance

Maintaining an e-procurement system involves configuring and monitoring performance average response time, traffic patterns usage, and transaction sources. To maximize the strategic opportunities and benefits e-procurement systems offer this information should be used to analyze session times, growth patterns and ultimately to fine-tune the system's performance to fit specific market communities or technical environments. Once an e-procurement system is up and running, it is important to monitor system security and traffic frequently. Inadequately designed transaction engines can result in breakdowns in security, lack of scalability, poor market, place performance, and ultimately frustrated users.

According to the Aberdeen Group (2011) , E-Procurement has been able to realize the following benefits as a result of incorporating data transmission systems, shortened requisition-to-fulfillment cycles by 70%-80%, lower administrative costs by 73%, reduced

prices paid for materials by 5% to 10%; cut off-contract (“maverick”) buying in half; reduce inventory costs by 25% to 50% on an average.

System management provides the capability of automatic validation of electronic proposals thus enabling the suppliers to be able to receive immediate feedback in their proposals. System management supports the submission of tenders via the web system or via an independent stand-alone application.

Any good e-procurement software system today is designed to greatly reduce effort and time required to complete purchasing transactions by eliminating traditional paper chain of payment reconciliation, approvals, requisitions and receiving. The key features of e-procurement approaches enables users to find an item in an electronic catalog, create a requisition, route the order requisition for approval, create and transmit the order to vendors, and also help to automate the invoicing and payment process (Berger & Zeng, 2006).

Systems management can be counted as one of the main objectives of every organization and firm, which leads to increasing the revenue. Billinge, (2000) exemplifies the bank of Ireland, which took the lead on e-procurement by one million Irish Pounds in one year upon implementing full e-procurement initiatives including data transmission, vendor rationalization programs, process improvement and system implementation. The bank of Ireland took this decision after finding out that its suppliers had not been rationalized in many years and had some 37 standalone purchasing systems plus procurement processes. For purchasing operating resource management (ORM) materials, the bank of Ireland normally spend an average of 330 million Irish Pounds every year. The company reported saving 30%

in one year. So, attaining a great deal of cost savings can definitely be a great achievement for any company.

Cost reduction and savings, value creation to customers, being able to cross-sell additional products and services, delivering similar savings to customers faster and at a lower cost, driving client retention and integration with suppliers are some of the key factors that make organizations and firms decide to adopt e-procurement solutions. Alcoa Inc, one of the world's third largest producers of aluminum (Sprague, 2000) decided to adopt e-procurement in 1999 and therefore signed an agreement with Ariba Inc, software and information technology services company, in order to utilize the Ariba's B2B e-commerce solution for the purpose of being able to reduce cost associated with purchased operating resource costs throughout the organization in addition to planning to integrate with its suppliers and integrate its financial systems. It is quite clear that operating resources are necessary goods and services to operate a company and operating resource expenditures can cover the largest portion of corporate costs. With the help of Intranet and internet as a business communication solution platform, enterprise-wide and inter-organizational business activities can be automated with the help of operating resource management solutions.

For example, Oracle Corporation has attached "procure-to-pay" which handles the whole procurement cycle from spend analysis to payment automatically. Oracle claims a 10–20% of total purchasing costs reduction (Turban, Lee, King, & Chung, 2000). The result of this reduction of time-to-market leads to the reduction of inventory and trapped capital asset related costs like storage costs, tax and others. Dell states that linkage between updated daily demand and inbound flow of supply is crucial for the success of the company; that is,

replacing inventory with information “virtual integration” (Dell, 1999). The vehicle that facilitates virtual integration is the Internet (Prober, 2000).

2.3 Influence of buyer/supplier collaboration on Organizational performance

This provides internet based technology that enables teams to collaborate in the management of documentation by supporting contract and project management both before and after contract award within a shared and secure working environment.

The collaborative management of key buyer and supplier collaboration is an important aspect to logistics management and physical distribution. Hjelmberg *et al*, (2006), for instance, argued that closer buyer-supplier relationships have evolved over the past two decades from transaction processes based on arm’s length agreements to collaborative processes based on information sharing and trust and that collaborative buyer and supplier relationships play an important role in an organization’s ability to respond to unpredictable and dynamic change.

According to (Davenport, 2008), buyer/supplier commitment is an enduring desire to maintain a valued relationship. (Hsu & Chiu, 2004) proposed that the expectation of relationship is important for motivating collaboration in inter-organizational relationships. It was noted that incentive alignment, joint decision making and information sharing are factors that facilitate collaborative action through information exchange between the buyer and supplier.

Companies have been provided with entirely new business models since the internet and intranet first emerged which enables and allow organizations to collaborate externally with their most important suppliers at the same time by internally managing their demand

proactively. Apart from internal winners that are the buyers, suppliers can also benefit a great deal and are ready to accept this business model of e-procurement. Suppliers can benefit through increased sales volume by providing e-catalogs, reduce sale costs by redefining the role of their salespersons, and reduce operating costs by minimizing the costs of reworking error prone manual orders, improve demand insight by making better forecasts about buyer's demand, and last but not least, improve customer relationships by making a team network, being able to reduce overall procurement costs and strengthen their long-term relationships. The main point shall be noted that all these can be achieved through improved and strong information sharing allowed by e-commerce technologies. Thus, sharing volume of real-time and transparent information would be considered a powerful sourcing tool.

E-procurement software can manage many purchasing related tasks automatically including order placement, catalog management, payment reporting and transaction so more time and focus can be dedicated to other activities to be more responsive to the market. The supplier has customized catalog for the buyer that is usually stored in e-commerce server website so the buyer has access to the catalog. The policies for purchasing are predefined in the system of the buyer to avoid incorrect purchase (Avery 1999). In case an unauthorized order was put on the supplier, the e-procurement software refuses to proceed. All the records are kept in the system so any transaction process can be trailed. E-procurement systems can work with different suppliers on condition that the back-end ERP system of the supplier is integrated with the buyer back-end ERP system (Avery 1999). However, these systems have their own drawbacks. Mostly Maintenance Repair and Operations (MRO) items are purchased via e-

procurement since the integration of direct items is a tremendous task to accomplish due to the fact that many different processes and activities need to be integrated

Improving the performance of supply chain contributes to greater value creation for the customer, and includes both intangible (e.g. capacity utilization) and tangible (e.g. cost) factors (Croom & Jones 2007, Presutti 2003). So a value creation perspective is pivotal in enhancing supply chain performance.

One way of improving the performance is adopting joint-learning strategy which focuses on know-how buyer/supplier collaboration and mutual competency creation. Information sharing can decrease OPC by reducing the transaction cost as well as improving in managing and controlling the supply chain. Maintaining information sharing decreases the extent of uncertainty and this leads to increase in performance (Chang, H. H., Tsai, Y. C., & Hsu, C. H 2013).

General Electric's (GE's) Trading Process Network (TPN) is a good example of buyer/supplier collaboration by employing e-sourcing. Purchasing department asks for proposal on the internet from suppliers which have been prequalified beforehand then suppliers bid. After analyzing the responses, the buyer negotiates and places an order with the chosen supplier. TPN also processes the transactions automatically so the operational processes are taken care of automatically which lead to reduction of OPC. Turban E, Lee J, King D, Chung MH believe TPN affect the supplier selection and the components of contract agreement of the purchasing process (Turban, Lee, King, and Chung 2000). ERP software providers added e-procurement capabilities to their systems now that they have recognized the benefits of e-procurement. GE's Trading Process helped reduction in material costs by

finding new supplier that earned GE 5% to 20% cost reduction. Benefits of TPN is the reduction of sourcing cycle time by 25 to 30%, shrinking time-to – market by 10 to 15%, reduction of time to market leads to the reduction of inventory and trapped capital asset related costs like storage costs and tax.

2.4 Influence of Billing Management on Organizational performance

A billing management system calculates usage charges, generate and distribute invoices or statements to members of the e-procurement network. Suppliers also use the billing system to calculate ordering charges or to distribute operating costs for specific orders. Billing management functions must directly interface with back office invoicing systems to automatically generate bills thus E-procurement revenues are generally based on transaction fees

Effective pricing enables buyers to negotiate best deals and sellers to liquidate excess inventory. Two major pricing options are used; these are Fixed Pricing and Dynamic Pricing. Fixed pricing is based on a predetermined price list or catalog prices negotiated between a buyer and seller. Dynamic pricing allows buyers and sellers to trade goods and services at prices determined by market forces instead of by a predetermined catalog or price list. An example of dynamic pricing includes business services such as reverse auctions, exchanges and auctions.

Billing management helps in reducing transaction costs by providing a higher level of accuracy in requisition, invoicing and payment through process automation and electronic documentation (Xu *et al*, 2005).

By comparison, orders placed outside of an e-procurement system are unable to transmit errors and require additional resources during payment and invoicing (Croom, 2007). Siemsen *et al* (2008) argue that even when use is mandated, individuals find ways to circumvent official purchase processes in case they are dissatisfied with e-procurement provisions. Procurement and Contracting practices have control weaknesses with moderate risk exposures that require management attention related to contracting and government procurement clarity, monitoring mechanisms and planning on procedural requirements and expectations (Maleyeff, 2003).

In some studies, e-procurement has been credited with increased accountability across functions. Subramaniam and Shaw, (2002) suggest that the migration from traditional procurement processes to e-procurement is one of the most effective ways to improve price establishments and billing management among users. However, other studies argue that simply implementing e-procurement does not itself guarantee increased compliance. Specifically, it is argued that user perceptions of e-procurement provision may influence levels of contract and system and deserves further exploration (Turban *et al*, 2006).

2.5 Influence of Data Transmission on Organizational performance

Transmitting data over the Internet involves two facets. These are security and messaging agents. Messaging and data tools enable the Internet-based exchange of transactional data between different buyers and suppliers in the e-procurement marketplace. In order to do this, transactions are sent via the Internet as messages and then integrated into the back-office system thus enabling financial postings that coincide with the payment, invoicing and processes receipt

The impact of e-procurement on an organization routines and process has concentrated primarily on the internal alignment characteristics of practices and systems within IT/IS strategy (Heijden *et al*, 2003). Security is an important aspect of any Internet transaction hence protecting buyer's confidential information and ensuring that only designated buyers have access to supplier product information is critical to ensuring confidence in any e-procurement system.

According to (Aberdeen Group, 2011) quality service has become a significant differentiator and the most powerful competitive weapon which many leading organizations possess. Supply chain management offers great potential for organizations improve organizational performance and reduce costs. Additionally pressures of shorter desired delivery time, shorter product life cycles and increased product variety have made it increasingly difficult to achieve high service levels with limited resources.

Since the introduction of commercially viable computers, both industry and government have sought ways to use information to improve processes, lower costs and raise productivity. One of the earliest forms of electronic commerce to be widely adopted was electronic funds transfer (EFT) between banks, using proprietary networks. These systems formed the basis for the millions of transactions now undertaken every day with credit cards and other forms of electronic payment. In the airline industry, electronic reservations and ticketing systems were developed and connected between carriers and travel agents, to lower the cost of doing business and to improve customer service (Malone *et al*, 1989).

Cisco has been rated as the leading firm in the world in achieving integration of processes and data across multiple levels in the supply chain (Kraemer and Melville, 2004). Cisco

created a virtual organization of linking its supply chain partners to a network of platforms which enables all of its business transactions to take place over the web. The customer network Cisco Connection Online (CCO) allows customers and resellers to place, configure and manage orders using automated ordering software. Users also have access to online technical assistance; a forum of intelligent agents and technical experts which support customer service. The supply side extranet Manufacturing Connection Online (MCO) is a resource for contract manufacturers, suppliers and logistics service providers giving access to real time order and data fulfillment. The vendors have direct access to order information allowing agile and swift response to customer requirements.

2.6 Theoretical Framework

The main purpose of this study was to examine the influence of E- Procurement on organizational performance. Singleton 1988 states that all studies should be grounded on theory. According to the Oxford English dictionary, a theory is an idea used to account for a situation or justify a course of a course of action. It is a supposition or a system of ideas intended to explain something, especially one based on general principles independent of the thing to be explained.

2.6.1 Transaction Cost Theory

Transaction cost economics states that organization encounter the challenge of opportunism when they are in a situation bargaining with a small number of other organization. Hence then having more suppliers reduces this risk and affords the organization the ability to negotiate better procurement deals as the buyer is less dependent on any particular supplier (Dedrick *et al.*, 2008). Dedrick *et al.*(2008) states that the number of suppliers chosen by an

organization encompasses an optimal balance among the following key transaction factors: fit, coordination costs and risk opportunism.

Information technology has the potential of reducing coordination costs as procurement processes are standardized and automated, thus reducing the cost of working with more suppliers. This mostly benefits the buying organization especially for commodity items such as copper pipes. Information technology allows organization to reduce the number of suppliers and focus on low cost suppliers of standard goods and consolidated their purchases to obtain volume discounts (Dedrick *et al.*, 2008)

The use of information technology (IT) facilitates the reduction of coordination costs. For example, electronic market places, facilitated through IT, reduce the cost of searching and obtaining information about product prices and offerings (Bakker *et al.*, 2008). Collaboration facilitates information sharing by lowering transaction costs as companies can reduce supply chain uncertainty and thus the cost of contracting. For example if a supplier is unable to accurately predict the price of its product inputs, it will be reluctant to enter into a contract, which locks it into a fixed price for an extended period of time (Arrowsmith, 2002).

Uncertainty in the context of supply chain, and more specifically in manufacturing, is caused by new product development uncertainty, demand uncertainty, technology uncertainty and supply uncertainty (Koufteros, 1999). Supply uncertainty relates to unpredictable events that occur in the upstream part of the supply chain. Among the causes to supply uncertainty are late deliveries and shortages of materials. Clearly, supply uncertainty can disrupt manufacturing and have an adverse effect on sales where distributors and retailers down the chain are also affected. Demand uncertainty can be defined as unpredictable events that occur

in the downstream part of the supply chain (Koufteros, 1999). Demand uncertainty (or demand risk) can result from new product adoptions, short product life cycles (PLCs), seasonality or volatility of fads (Johnston, 2005).

Another uncertainty related to manufacturing is new product development which stems from unpredictable events during the process of product prototyping, product design, and market research. Finally, technology uncertainty refers to the fuzziness in the selection of a suitable technology platform (Koufteros, 1999). An example is the trade-off between a fool-proof manufacturing technology (perhaps dated), compared to a prospective technology offering better price to performance but whose viability is uncertain (Klein, 2007). Furthermore, uncertainty can also arise from social uncertainties (such as strikes), natural (such as fire, earthquake), and political (such as fuel crisis) (Johnston, 2005)

The concept of uncertainty is the key to TCE, which assumes that individuals act opportunistically and have bounded rationality. The early transaction cost literature did not make a distinction between different forms of uncertainty. More recent literature has disaggregated the construct of uncertainty (Melville *et al*, 2004). For example, (Wendin, 2001) built on (Khalifa & Shen, 2008) and distinguished between primary and secondary (behavioral) uncertainty. Primary uncertainty refers to the underlying transaction and arises from mainly exogenous sources such as technology, uncertainty relating to natural events, consumer preferences, regulations, and uncertainty relating to natural events (Sulek *et al*, 2006). Primary uncertainty may lead to coordination problems, technological difficulties, and communication problems that can as a consequence adversely impact the execution of transactions. Secondary uncertainty on the other hand refers to the risk of opportunism on transactions that are executed through incomplete contracts.

Similarly, (Sulek *et al*, 2006) classified uncertainty as primary, supplier and competitive uncertainty. Primary uncertainty is consistent with Wendin, C. (2001) and refers to the lack of knowledge of states of nature (Sulek *et al*, 2006). Competitive uncertainty arises from the strategic actions of potential, actual competitors or innocent actions (McManus, 2002). Supplier uncertainty is basically behavioral uncertainty and refers to possible opportunism by upstream or downstream partners. In organizational theory uncertainty refers to environmental uncertainty (Trent, 2007) and includes a number of factors such as uncertainty regarding suppliers and competitors actions, as well as uncertainty in technology and regulations, which captures both primary and secondary uncertainty.

The presence of demand uncertainty and the lack of information sharing in the supply chain lead to problem known as the bullwhip effect: which is the amplification of demand variability as orders move up the supply chain (Featherman & Pavlov, 2003). Johnson & Whang, (2002), provides evidence for this finding from the food industry, whereas (Nagle *et al*, 2006) reports on the bullwhip effect in the automotive sector. The bullwhip effect can be alleviated through sharing demand information in the supply chain, which reduces information uncertainty and asymmetry (Lee *et al.*, 2003). Therefore, limiting uncertainty through information sharing reduces companies' internal risk as companies optimize capacity planning, production and inventory. Although, information sharing seems to bring with it many benefits, it can simultaneously increase transaction risk, as higher levels of business transparency leads to opportunistic behavior. Nevertheless, uncertainty as a factor might affect companies' initiatives to share information. This also agrees with contingency theory, which states that the rate of change in an environment and amount of uncertainty affects the development of internal features in organizations (Larsson *et al*, 2008).

2.6.2 The E -Technology Perspective Theory

E-procurement enables customers and suppliers to increase networking channel through the internet in terms of production planning, demand management and inventory management, (Lee, 2003). E- Procurement facilitates frictionless procurement paradigm (Brousseau, 2000). The research by Min & Galle (2002) recognizes the extensive nature of e-procurement which refers to e-procurement as a business-to-business (B2B) purchasing practice that utilizes electronic procurement to identify potential sources of supply to purchase goods and services, interact with suppliers and transfer payment.

The internet has been widely adopted by companies with the aim of improving organizational performances both in internal processes and in external processes (Barratt & Rosdahl, 2002). Despite the fact that business-to-business (B2B) trade has enjoyed a longer existence online than business-to-consumer (B2C) (Barratt & Rosdahl, 2002) the benefits of e-procurement in a B2B setting are significant (Min & Galle, 2002). Previous studies have claimed that e-procurement has become the catalyst that allows companies to integrate their supply chains from end-to-end from supplier to the end user with shared performance, availability and pricing data that allows buyers and suppliers to work to optimum and mutually beneficial schedules and prices (Morris *et al*, 2000).

Usually companies adopt e-procurement systems in order to manage the purchase products and services (Min & Galle, 2002). In summary it has been noted that the influence of e-procurement adoption remains in a formative stage, falling short of the type of e-collaboration and e-sourcing suggested by (Morris *et al*, 2000). Common e-procurement

tools are direct auctions and online catalogues where reverse auctions remain unpopular with sellers (Basheka & Bisangabasaija, 2010).

2.6.3 Resource - Based Theory

The quest for Information Technology has long been a central tenet of the field of supply chain management and procurement (Pressutti, 2003). Within this field, resource-based theory (RBT) has emerged as a promising new framework for analyzing the sustainability and sources of Information Technology (Baily, 2008). According to RBT, Information Technology measured as economic rent (Caridi *et al*, 2004) derives from strategic resources. Such Information Technology is sustainable to the extent that the resources on which it is based are inimitable, rare, valuable, and non-substitutable (Bales & Fearon, 2006). Further, RBT rests on the premises that resources controlled by firms are relatively immobile and heterogeneous (Pearcy & Guinipero, 2008). The imperfect mobility of resources (including inimitability and no substitutability) is due to a variety of isolation mechanisms (Roth, 2001) which include co-specialization of assets (Teo & Benbasat, 2003) unique historical conditions (Berger & Calabrese, 2005), causal ambiguity (Liao *et al*, 2007), social complexity, and tacit knowledge and skills (Puschmann & Alt, 2005). Given that organizational resource-based theory and learning both seek the objective of sustaining competitive advantage as far as information technology is concerned, it seems logical for organizational learning to be identified as a strategic resource within the resource-based view.

Firms often derive Information Technology from resources (e.g. capabilities and new knowledge) which have been developed based on lessons from previous experiences and

time. Information Technology derived from such resources might be sustainable because attempt by other firms to duplicate them do not have the necessary the learning capability, organizational knowledge or the time required to accumulate them. Given the dynamic nature of IT, it is believed that the sustainability of such an advantage must be defined in dynamic and time sensitive terms.

2.7 Conceptual Framework

According to Mathieson, (2001), a conceptual framework is a written or virtual product that explains, either in narrative or in graphically form, the main things to be studied, the key elements being variables, concepts and the presumed relationships among them. Conceptual framework, according to (Stratman & Roth, 2004), are structured from a set of broad theories and ideas that help a researcher in properly identifying the problem they are looking at, frame their research questions and find suitable literature. Most academic research uses a conceptual framework at the outset because it helps the researcher to clarify his research question and objectives.

Specifically, the study sought to investigate the influence of e-procurement on organizational performance. According to Shakir *et al* (2007), every part of an organization contributes to external customer satisfaction by satisfying its own internal customers. This implies that whatever influence of e-procurement has on the supply chain department it will inevitably affect other departments because they rely on procurement to bring in materials at the right price, quality, and time and from the right source which are used to produce goods for the end customers. Recognizing the importance of the internal customer is very important. If poor internal service level exists then the final service to the external customers will be diminished (Olhager & Selldin, 2003).

Furthermore, there has been an increasing focus on Supply Chain Management (SCM) which is creating a greater emphasis on the supply management link in the supply chain. This focus will continue to grow as firms continue to embrace and adopt e-procurement in order to take advantage of the internet (Presutti, 2003). Unlike the other functions such as marketing, the role of procurement has often been down played in many organizations. It is often held in low regard by its internal customers who see the function as bureaucratic thus difficult to deal with (Mathieson, 2001). Based on this review, the following hypothesis was formulated

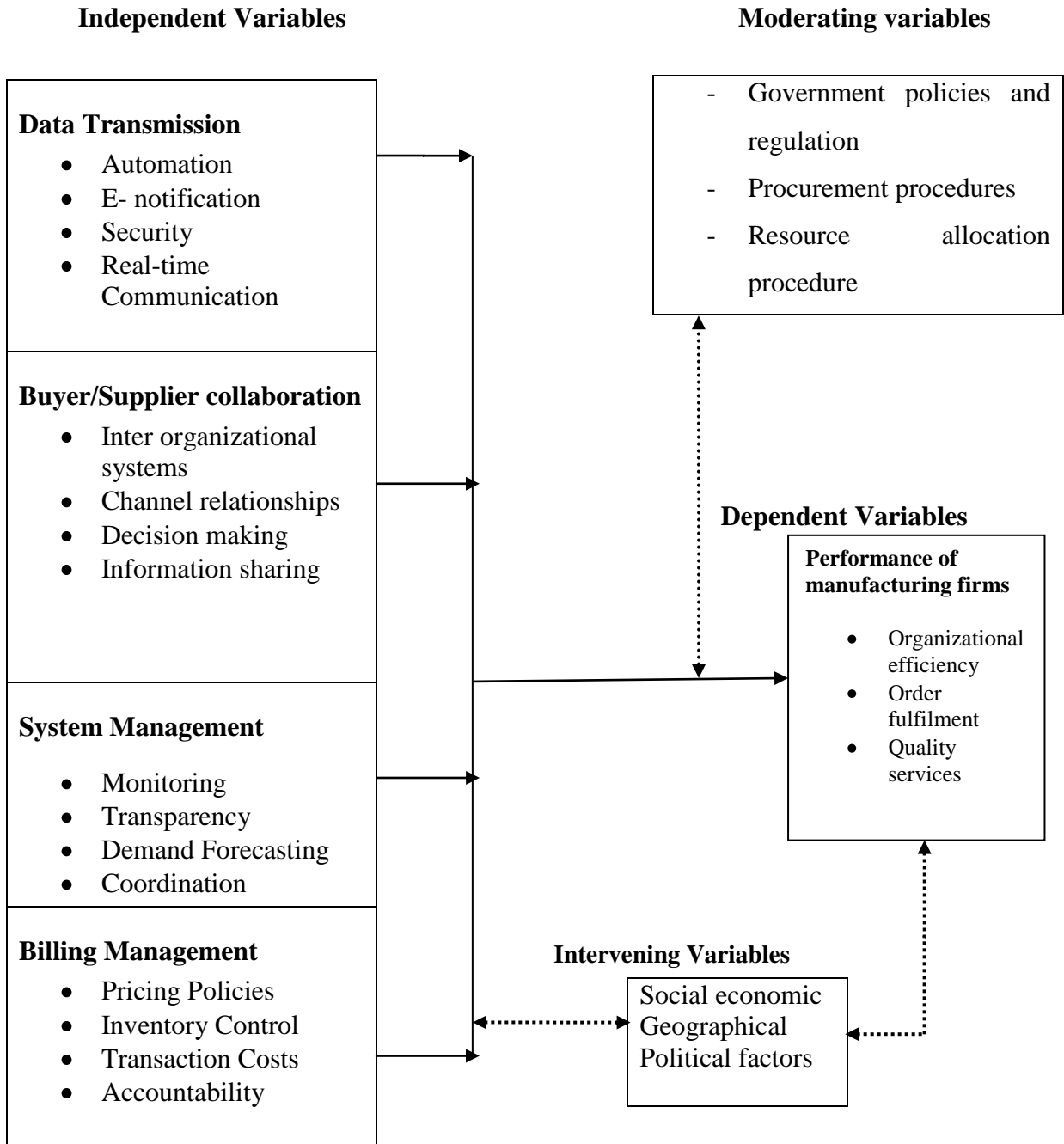


Figure 1: Conceptual framework

Data transmission systems provides the capability of automatic validation of electronic proposals, in order for the suppliers to be able to receive immediate feedback in their

proposals in a timely manner, hence making e-procurement cost effective thus influencing organizational performance. Buyer/supplier collaboration enables teams to collaborate in the management of documentation and supports contract and project management both before and after contract award within a secure and shared working environment, thus enhancing organizational performance

System management information is used to analyze session times, to fine-tune the system's performance and growth patterns, and to fit specific technical environments or market communities hence effectively influencing organizational performance. Billing management fosters effective pricing that enables buyers to negotiate the best possible deals and sellers to liquidate excess inventory which in turn positively influences organizational performance

All the above mentioned independent variable influences the final outcome or implementation of e-procurement in manufacturing firms. When interventions are put in place key benefits like Cost savings, improved efficiency and better relations with suppliers are achieved thus improving organizational performance. Moderating variables between independent and dependent variable for this study were government policies and regulations. Intervening may be geographical constrains or social, economic and political factors

2.8 Summary and Knowledge Gaps

Data transmission influences organizational performance of manufacturing firms by supporting the submission of tenders, either via the web system or via an independent, stand-alone application. The system provides the capability of automatic validation of electronic

proposals, in order for the suppliers to be able to receive immediate feedback in their proposals in a timely manner, hence making e-procurement cost effective thus influencing organizational performance.

Buyer/supplier collaboration enables teams to collaborate in the management of documentation and supports contract and project management both before and after contract award within a secure and shared working environment. Stakeholder collaboration is very crucial as it enhances greater customer expectations fosters Channel relationship, faster decision making and information sharing.

Effective pricing enables buyers to negotiate the best possible deals and sellers to liquidate excess inventory. A billing management system calculates usage charges, generate and distribute or invoices or statements to buyer-seller members of the e-procurement network.

System Management helps to maximize the strategic opportunities and benefits e-procurement systems offer, this information should be used to analyze session times, to fine-tune the system's performance and growth patterns, and to fit specific technical environments or market communities.

According to Lysons & Gillingham, (2003) firms have made considerable gains as a result of having e-procurement systems installed. The use of internet and technology based systems in procurement has led to lower costs and efficiency in the process (Heijden, 2003). Some firms on the Kenyan corporate scene have adopted the use of e-procurement as a strategy in enhancing procurement performance though not to the meaningful extent (Hamner, 2009).

There were studies done on the adoption of e-procurement by the public sector in the developed world.

There will be need to validate the findings of past studies in the context of the developing countries and in specific the private sector as the developing countries, since the implementation of e-procurement, will adversely affect positively performance in terms of increasing the effective and efficiency of e-procurement in the private sector. Besides, the studies have been carried out rest entirely on the public sector, but there will be need to deploy this service to the private sector especially in the manufacturing firms. Thus, this study will focus on how e-procurement strategy influences organizational performance in manufacturing firms in Kenya.

Though E-procurement has been touted as a revolutionary tool in supply chain management, manufacturing firms are still slow in embracing it. This is in spite of the advantages that its adoption would confer to the organizations and its suppliers alike. Key benefits identified include: Cost savings, improved efficiency and better relations with suppliers. Many past studies examining this phenomenon have advanced several factors that constitute major hindrances to the adoption of e-procurement. These factors include: perceived complexity of e-procurement, resistance to change, culture, lack of proper regulatory mechanisms, cost and non- availability of IT infrastructure and absence of clear e-procurement adoption and implementation strategies.

Among these hindrances, organizational culture has been found to be the greatest challenge to e-procurement adoption. Collaboration with suppliers can be encouraged by the introduction of e-procurement tools. These make visible the management of information

needed to enable more effective collaboration. As more data becomes visible and can be shared, makes e-procurement identify for collaborative initiative and shared framework contracts.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents all the aspects of research methodology used in this study. These include research design, target population, sampling procedure, data collection, data analysis and ethical consideration. The validity and reliability of the research instruments are also discussed.

3.2 Research Design

The research design applied was descriptive research design which involved the analysis of data collected from a population, or a representative subset, at one specific point in time (Orodho, 2003). The research design constitutes the blue print for the collection, measurement and analysis of data, (Kothari, 2005). The choice of this design was appropriate for this study since it utilized a questionnaire as a tool of data collection and helped to establish the behavior of employees towards embracing e-procurement in manufacturing firms. (Mugenda and Mugenda, 2003) asserts that this type of design enables one to obtain information with sufficient precision so that hypothesis can be tested properly. It is also a framework that guides the collection and analysis of data.

3.3 Target Population

Mugenda and Mugenda, (2003) describes the target population as complete set of individual cases or objects with some common characteristic to which the research want to generalize the result of the study. Population also refers to the larger group from which a sample is taken (Orodho, 2003). According to the Kenya Association of Manufacturers (KAM), there are a total of 499 large scale manufacturing companies operating in Nairobi. Hence, the target population for this study was all 499 manufacturing firms in Nairobi, Kenya and

comprised of 499 ICT Managers/Officers and 499 Procurement managers/Officers. E-procurement and its influence on Organizational performance was relevant at this level prompting the choice of these groups of respondents directly involved in the implementation of e-procurement policy.

3.4 Sample Size and sampling procedure

The study used stratified random sampling method to select companies from the various subsectors of the manufacturing sector in Nairobi County, Kenya. The strata were the different sub-sectors of the manufacturing sector as indicated in Table 3.1.

Stratified random sampling method as described in Cooper and Schindler (2006) was applied to come up with the sample size, since the population in different manufacturing firms is considered heterogeneous. A simple random sample was unrepresentative and hence stratified random sampling was adopted. Stratified random sampling ensured that each manufacturing sector was represented and the population was heterogeneous.

3.4.1 Sample Size

Sampling frame is defined as the complete list of all members of the total population (Saunders & Lewis 2012). According to Cooper and Schindler (2006) every sample must have a non-zero probability of selection. Taking a nonzero probability of selection of 0.101 the sample size will be:

$$0.101 = \frac{\text{Sample Size}}{499} \quad \text{this gives a sample size of } 51 \left\{ \begin{array}{l} \text{taking 2 respondents from each} \\ \text{gave a total of 102 respondents} \end{array} \right\}$$

Table 3.1: Sample Size

Strata (Sector)	No. of Firms	Percentage in Sector	Proportionate Sample	Respondents(2 per sample)
Building	20	4.0	2	4
Food, Beverages	71	14.2	7	14
Chemical	70	14.0	7	14
Energy	34	6.8	4	8
Plastics	68	13.6	7	14
Textile	35	7.0	3	6
Wood Products	17	3.4	2	4
Pharmaceutical	21	4.2	2	4
Metal and Allied	66	13.2	7	14
Leather	7	1.4	1	2
Motor	27	5.4	3	6
Paper	63	12.6	6	12
Total	499	100	51	102

3.4.2 Sampling Procedure

The samples size of this study was 102 respondents. In order to collect enough data and information, the study sampling frame was put into clusters. Since the population is highly heterogeneous, a cluster sampling was used to select 102 respondents from 499 firms registered by Kenya Association of Manufacturers in Nairobi County Kenya. In this technique, the total population was divided into groups (or clusters) and a simple random sample of the groups was selected. Then the required information was collected from a simple random sample of the elements within each selected group. This was done for every element in these groups or a subsample of elements was selected within each of these groups.

3.5 Data collection instruments

According to (Mugenda & Mugenda, 2003) data collection is the means by which information is obtained from the selected subject of an investigation. Both primary and secondary data was collected during the research. Primary was collected using a questionnaire covering the influence of E-procurement in manufacturing sector performance. The questionnaire contained both structured and unstructured questions. The open-ended questions were used to limit the respondents to given variables in which the researcher is interested, while unstructured questions was used in order to give the respondents room to express their views in a more pragmatic manner (Kothari, 2005). Secondary data was gathered from existing credible and recognized source. The data comprised of materials that are desirable, current, accurate, sufficient and relevant collected from library text books, internet and magazines and personnel file in the organization.

3.5.1 Pilot testing of the Research instruments

It involved checking for the suitability of the questionnaires. The quality of research instruments determines the outcome of the study. According to Mugenda, (2003) pilot test is necessary in order to check the validity of a study. A pilot test was conducted using questionnaires administered to ICT managers and procurement managers. This constituted 10% of the 51 manufacturing firms that are registered by Kenya Association of manufacturers for ICT managers and for procurement managers ($10\% \text{ of } 51 = 5.1 = 5$) was selected using simple random sampling. In each of the firm the ICT and the procurement managers were targeted. This constituted to respondents in each manufacturing firms and therefore the total number of the respondents for the pilot was 10 respondents.

The pilot was undertaken to pretest data collection instrument for validity and reliability. According to (Orodho, 2003) a pilot study is necessary for testing the reliability of data collection instruments. Cooper & Schindler, (2006) explains reliability of research as determining whether the research truly measures that which it was intended to measure or how truthful the research results are. Pilot study is thus conducted to detect weakness in design and instrumentation and to provide accurate data for selection of a sample (Young, 2009). The validity of the questionnaire was determined using construct validity method. Construct validity is the degree to which a test measures an intended hypothetical construct (Mugenda, 2003).

Using a panel of experts familiar with the construct is a way in which this type of validity can be assessed; the experts can examine the items and decide what that specific item is intended to measure (Kothari, 2005).

The study used different groups of experts in the field of procurement and issued them with the questionnaires. The experts were required to assess if the questionnaires helps in establishing the influence of e-procurement in manufacturing firms Nairobi County in Kenya. The coefficient of data gathered from the pilot study was computed with assistance of Statistical package of social Sciences (SPSS) version 21. The recommendations from the procurement experts and the pilot study respondents were used to improve on data collection instruments. Data validity played an important role towards generalization of the gathered data to reflect the true characteristics of the study problem.

The preliminary or first draft of questionnaires was given to a panel of five experts in the field of procurement. These experts were asked to review the instrument and make recommendations for improving its validity.

These recommendations were then incorporated into a second draft of the instrument which was then given to a small sample of relevant professionals. This pilot sample was asked to comment on the ease with which they understood and complete the test questions.

3.5.2 Validity of the instruments

In this study, construct validity was used to check how the questions were phrased to ensure that they conveyed the intended meaning. Validity is the accuracy and meaningfulness of inferences which is based on research results. It is the degree to which results obtained from the analysis of data actually represent the variables of the study. The questionnaires were given to some professionals to critique it and assure construct validity of the instrument. It ensured that the questionnaire remained focused, accurate and consistent with the study objectives.

The validity is the degree to which data collected by instruments can be said to be valid for the purpose of the analysis and making inferences from the data (Mugenda & Mugenda, 2003). There are two major types of validity; internal and external validity. Internal validity refers to the extent to which the designers of a study have taken into account alternative explanations for any causal relationships they explore. External validity refers to the extent to which the results of a study are generalizable or transferable. It is the degree to which research findings can be generalized to populations and environments outside the experimental setting. External validity has to do with representativeness of the sample with

regard to the target population. Validity in this study was ensured through stratified random sampling which ensured that all subsectors of the Manufacturing sector were represented.

3.5.3 Reliability of the instruments

Reliability is the extent to which results are consistent over time. If the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable (Orodho, 2003).

The study conducted factor analysis to select a subset of variables from a larger set based on the original variables with the highest correlations with, the principal component factors. Reliability analysis was conducted using Cronbach's alpha to determine whether the data gathered on each variable had a significant relationship with the influence of e-procurement on organizational performance.

3.6 Data Collection Procedures

Data collection is the means by which information is obtained from the selected subject of an investigation (Mugenda & Mugenda, 2003). Prior to the commencement of data collection, permission was sought from the University and the National Commission for Science Technology and Innovation (NACOSTI). Data collection involved a self-administered questionnaire. The researcher dropped the questionnaires personally at the respondent's place of work. 102 questionnaires were distributed to the ICT and Procurement managers to fill in. After one month, duly filled questionnaires were collected for further processing of data at the end of the data collection period.

Primary and secondary data was collected during the research. Primary data was collected using a questionnaire covering the influence of E-procurement on organizational

performance in manufacturing sector performance. The questionnaire contained both structured and unstructured questions. The open-ended questions were used to limit the respondents to given variables in which the researcher is interested, while unstructured questions were used in order to give the respondents room to express their views in a more practical manner (Kothari, 2005). The data comprised of materials that are desirable, current, accurate, sufficient and relevant collected from library text books, internet and magazines and files in the organizations.

3.7 Data Analysis techniques

According to (Sharma, 2005) data analysis is the process of collecting, modeling and transforming data in order to highlight useful information, suggesting conclusions and supporting decision making. It involves examining what has been collected in a survey or experiment and making decision and inferences

Data analysis aims at reporting information collected from respondents of this study. Findings were presented, analyzed and discussed in conjunction with the objectives of the study so as to select the most accurate and quality information from the feedback by the various respondents.

This study was expected to produce both quantitative and qualitative data to explain the influence of e-procurement exhaustively. Once the questionnaires were received they were coded and edited for completeness and consistency. The data was analyzed by employing descriptive statistics and inferential analysis using statistical package for social science (SPSS). This technique gives simple summaries about the sample data and presents quantitative descriptions in a manageable form, (Orodho, 2003).

Together with simple graphics analysis, descriptive statistics form the basis of virtually every quantitative analysis to data, (Kothari, 2005). Correlation analysis to establish the relationship between the independent and dependent variables was employed. The data was then presented using frequency distribution tables, bar charts and pie charts for easier understanding.

A multiple regression analysis was conducted to determine the influence of the independent variables; Data Transmission, Buyer/supplier collaboration, Systems Management and Billing management on performance of manufacturing firms. This was denoted as;

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \epsilon; \text{ where;}$$

Y= Performance

X₁= Data Transmission

X₂= Buyer/supplier collaboration

X₃= Systems Management

X₄= Billing management

a= Constant in the Model (Co-efficient of Intercept)

b₁.....b₄ = Regression coefficient (Slope) and **€** = Error Term in the Equation

3.8 Operational definition of the Variables

An operational definition is a definition that defines the exact manner in which variable is measured. The table 3.2 below indicates the types of variables and how these variables were measured in the course of the research.

Table 3.2 Operational definition of the variables

Objectives/Research Questions	Variable	Indicators	Measurement scale	Method of data collection	Instrument/ Data collection tools	Data Analysis Technique
To determine the influence of data transmission on organizational performance.	Data Transmission Independent Variable	Automation E-notification Security Real time Communication	Likert/ordinal	Administering Questionnaires	Questionnaires	Multiple regression Analysis Frequencies and percentages Correlation analysis
To determine the influence of buyer/supplier collaboration on organizational performance.	Buyer/supplier collaboration Independent Variable	Interorganizational systems Channel relationships Decision making Information sharing	Likert/ordinal	Administering Questionnaires	Questionnaires	Multiple regression Analysis Frequencies and percentages Correlation analysis

To examine the influence of Systems Management on organizational performance.	Systems Management Independent Variable	Transparency Coordination Monitoring Demand forecasting	Likert/ordinal	Administering Questionnaires	Questionnaires	Multiple regression Analysis Frequencies and percentages Correlation analysis
To establish the influence of billing Management on organizational performance.	Billing Management Independent Variable	Inventory Control Pricing Policies Transaction Costs Accountability	Likert/ordinal	Administering Questionnaires	Questionnaires	Multiple regression Analysis Frequencies and percentages Correlation analysis
To examine the influence of e-procurement on organizational performance: the case of Kenya Association of Manufacturers firms in Nairobi County	Organizational Performance Dependent Variable	Organizational efficiency Order fulfilment Quality services	Likert/ordinal	Administering Questionnaires	Questionnaires	Multiple regression Analysis Frequencies and percentages Correlation analysis

3.9 Ethical Considerations

Ethical issues considered were the issues of informed consent (the researcher having received consent from the subject before data collection commenced and after the subject had been adequately informed about the research), the right to privacy (protecting the identity of the participant from the reader) and protection from harm (this entailed physical, emotional or any other harm to the subject in the course of the research).

Authority from relevant departments was sought before conducting the research by use of cover letter that explained the intention of the study. Consent was obtained, firstly, by talking to the management of the selected manufacturing firms and the respondents who were instrumental in conducting the research to gain their trust, permission and support to conduct the research on their premises. Secondly, the researcher informed the respondents, as fully as possible, of the nature and purposes of the research, the procedures to be used, the expected benefits to the participant and/or society, furthermore the potential of reasonably foreseeable risks, fear, stresses, and discomforts and how they would be addressed.

The respondents were made to understand what was expected and they were given the opportunity to ask questions and have them answered by the researcher. Finally, the participant's consent to participate in the research was voluntary, free of any coercion or promises of benefits unlikely to result from participation. There was assurance that value of the research would be upheld. The information would solely be used for purposes of fulfilling the objectives of this study. Authority was sought from relevant department(s) before conducting the research by use of cover letter that explains the intention of the study.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the analysis of data collected from the field based on the study by use of questionnaire, analyzing, discussing and interpreting it. The study investigated the influence of e- procurement on organizational performance of firms registered with KAM in Nairobi County; established the influence of data transmission and billing management on the organizational performance of firms registered with KAM Nairobi County, examined the influence of systems management and determined how buyer/supplier collaboration affects the organizational performance of firms registered with KAM in Nairobi County. This chapter presents the major data analysis techniques that were used during the study and the findings and results of the application of the variables using descriptive and inferential statistics. Data was analyzed, results interpreted on the basis of the objectives of the study.

4.2 Questionnaire return Rate

Return rate is the extent to which the final data sets includes all sample members and is calculated as the number of respondents with who completed the questionnaires and divided by the total number of respondents in the entire sample including non-respondents. The data was collected from the manufacturing firms in Nairobi County Kenya which are registered with the Kenya Associations of manufacturers. The sample of the study consisted of 102 respondents and 86 were returned and analyzed. This represents 84.3% return rate.

4.3 Demographic characteristics of the respondents

The study sought to establish the background information of respondents in terms of job designation, gender distribution, level of education and duration since adoption of e-procurement

4.3.1 Job Designation of Respondents

The study sought to establish the role and job designation of respondents. The results are as shown in Table 4.1.

Table 4.1 Job Designation of Respondents

Designation	Percentage (%)
Procurement Managers	68
ICT Managers	32
Total	100

An overwhelming 68% of the respondents were senior procurement management designate and 32% indicating ICT managers designate respectively as shown in the table 4.1. This was a very important profile distribution for this study since the respondents were the right people with adequate information relevant to this study hence best placed.

4.3.2 Gender Distribution

The researcher further sought to establish the respondents' gender distribution. The results are as indicated in the Table 4.2.

Table 4.2 Gender Distribution

Gender	Frequency	Percent
FEMALE	27	32.0
MALE	59	68.0
Total	86	100

A majority of 68% of the respondents were male while 32% were female as shown in Figure 4.2. This was a good distribution which depicts a fair balance of gender. Since majority of the responses for this study relies on the perceptual measures of the respondents, this gender distribution is expected to accommodate the opinions and views from both sides of the gender divide.

4.3.3 Level of Education of Respondents

The researcher also sought to establish the respondents' highest level of education. The results are as indicated in the Table 4.3.

Table 4.3 Level of Education of Respondents

Education Level	Percentage (%)
Diploma	2
Bachelor's Degree	71
Postgraduate	27
Total	100

Respondents' level of education was sought and majority (71%) of the respondents indicated that they have at least a degree level of education while sizeable (27%) possess a higher degree at postgraduate level and 2% had a Diploma as shown in table 4.3. This is highly expected since the respondents are at a senior management level where the skills, knowledge

and competencies are supposed to be high. Nevertheless, the well-educated respondents mean that they were well informed and furnished this study with better information which added value.

4. 3.4 Company’s Duration since Adoption of E-procurement

The study sought to establish the number of years since E- procurement adoption. It was ensured that each manufacturing company that was sampled had adopted e-procurement. The results are shown in Table 4.4.

Table 4.4 Company’s duration since E-Procurement adoption

Number of Years	Frequency	Percent
1-5 YEARS	41	48
6-10 YEARS	38	44
11-15 YEARS	5	6
ABOVE 16 YEARS	2	2
Total	86	100

For each company sampled, the period of e-procurement adoption was also sought. A range of years were given which were categorized to come up with various range for easy presentation. 48% of the respondents indicated their company adopted e-procurement between 1 to 5 years, 44% indicated between 6 to10 years, 6% indicated 11 to 15 years and another 2% gave above 16 years.

The size of the firms’ workforce ranged from 50 to 2,000 employees. This is a workforce size that can provide a rich, adequate and diverse pool of knowledge among the employees which is the critical construct focused in this study.

4.4 Data Transmission and Organizational Performance

The study sought to find out extent to which data transmission systems have influenced organizational performance of manufacturing firms.

Table 4.5 Data Transmission

	N	Minimum	Maximum	Mean	Std. Deviation
Automation	86	2.00	4	3.1163	.51834
Security	86	2.00	4	3.3140	.55860
Real-Time Communication	86	3.00	5	3.7326	.67605
E- Notification	86	3.00	4	3.5349	.50171
Aggregate Score	86			3.42445	.563675

From the findings, respondents agreed that; automation (mean 3.12), security (mean 3.31), real time communication (mean 3.73) and e - notification (mean 3.53) have been integrated into the organizations and have an influence on the performance of procurement processes of their firms as shown by an aggregate mean of 3.42.

4.5 Buyer/ Supplier collaboration and Organizational Performance

The study sought to find out the influence of buyer/supplier collaboration on organizational procurement of different manufacturing firms. The responses to the statements ranged between 3 and 5.

Table 4.6 Buyer/Supplier Collaboration

	N	Minimum	Maximum	Mean	Std. Deviation
Inter-organizational systems	86	3.00	5.00	3.4302	.54321
Channel relationships	86	3.00	5.00	3.4767	.56832
Decision making	86	3.00	5.00	3.6395	.52943
Information sharing	86	3.00	5.00	3.6279	.53240
Aggregate Score	86			3.543575	.54334

The respondents agreed that buyer/supplier collaboration have been integrated into the procurement function with inter organizational systems (mean = 3.43), channel relationships (mean = 3.48), decision making (mean = 3.64) and information sharing (mean = 3.63) as shown in Table 4.6.

4.6 System Management and Organizational Performance

The study further investigated the influence of system management on organizational performance. Table 4.7 presents descriptive findings on system management component of e-procurement.

Table 4.7 System Management

	N	Minimum	Maximum	Mean	Std. Deviation
Transparency	86	1.00	5.00	3.8256	.76990
Coordination	86	3.00	5.00	3.7442	.55701
Demand Forecasting	86	3.00	5.00	3.7442	.53547
Monitoring	86	3.00	5.00	3.7093	.48182
Aggregate Score	86			3.755825	.58605

From table 4.7, the responses ranged between 1 and 5 on transparency while responses to coordination, Demand forecasting, and monitoring ranged between 3 and 5. From the study, the respondents agreed that transparency (mean = 3.83), coordination (mean = 3.74), demand forecasting (mean = 3.74), monitoring (mean = 3.71) are factors of system management that influence the organizational performance of manufacturing firms in Kenya.

4.7 Billing Management and Organizational Performance

The study sought to establish the influence of billing management on organizational performance. To examine the influence of billing management on organizational performance in manufacturing firms, the study rated key billing management indicators in e-procurement as shown in table 4.8.

Table 4.8 Billing management

	N	Minimum	Maximum	Mean	Std. Deviation
Inventory Control	86	3.00	5.00	3.7558	.45854
Transaction Costs	86	3.00	5.00	3.8023	.45555
Accountability	86	3.00	5.00	3.8140	.44752
Pricing Policies	86	3.00	5.00	3.7907	.43700
Aggregate Score	86			3.7907	.4496525

The response to these factors ranged from 3 to 5. The respondents agreed that Inventory Control (mean = 3.76), Transaction costs (mean = 3.80), Accountability (mean = 3.81), Pricing policies (mean = 3.79) influence the e-procurement performance of a firm.

4.8 Performance of the Organization

The study sought to establish the respondents' level of agreement on some statements on the evaluation of the performance of the organization on several areas.

Table 4.9 Performance of the Organization

	N	Minimum	Maximum	Mean	Std. Deviation
Increased adherence to power processes and procedures	86	3.00	5.00	3.8140	.47308
Production of better quality products and services	86	3.00	5.00	3.8488	.44767
Procurement planning has significantly improved	86	3.00	5.00	3.8837	.41780
Better procurement benchmarks have been set up	86	3.00	5.00	3.8953	.40668
Enhancement of procurement integrity and transparency	86	3.00	5.00	3.8837	.41780
Overall performance has generally improved	86	3.00	5.00	3.8837	.41780
Aggregate Score	86			3.6045	.43107

The responses to the statements on increased adherence to power processes and procedures, production of better quality products and services, procurement planning, procurement benchmarks, enhancement of procurement integrity and transparency and enhancement of procurement integrity and transparency ranged between 3 and 5. These responses were presented by a mean of 3.81, 3.80, 3.88, 3.86, 3.88 and 3.88 respectively.

4.9 Regression Analysis

The variables have a curvilinear relationship thus requiring use of analysis of variance (ANOVA) in order to develop a predictive model. From the correlation matrix, regression analysis was carried out in order to develop a model showing the relationship between e-procurement components (independent variables) and organizational performance of manufacturing firms (dependent variable). The purpose of the regression analysis was to get the relationship between the variables and come up with predictions model.

4.9.1 Model Summary for Organizational Performance

The study further analyzed regression analysis of the influence of E- procurement on organizational performance. A model summary for organizational performance was derived from the correlation matrix as presented in table 4.10.

Table 4.10 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.350	.122	.079	.45397	1.547

From the model summary, 12.2% of variations in the dependent variable can be explained by changes in the independent variables.

4.9.2 Analysis of Variance – ANOVA

Analysis of variance determines whether mean scores of the influence of e-procurement components on organizational performance of manufacturing firms differ significantly from each other. It also determines whether the various variables interact significantly with each other.

Table 4.11 ANOVA for Overall Organizational Performance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.330	4	.582	2.826	.030
	Residual	16.693	81	.206		
TOTAL		19.023	85			

The ANOVA was derived from the correlation matrix and was computed by way of dividing the established variations of the group averages by the expected variations. As can be observed in table 4.11 of the Analysis of variance (ANOVA) for regression coefficients, the results demonstrate that the significance of F statistics is 0.03 which is less than 0.05 confidence level. Therefore, it implies that there is a significant relationship between e-procurement and organizational performance of manufacturing firms in Nairobi County Kenya. An F ratio of more than 1 implies that each of the identified factors have an effect on organizational performance. From table 4.11, the computed $F = 2.83$ and this implies that all the factors identified have significant influence on organizational performance.

4.9.3 Regression Coefficients

An estimation of the model coefficients emanating from the correlation matrix was done through analysis of the dependent and independent variables. The estimated co-efficient are shown on table 4.12

Table 4.12 Coefficients Matrix

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.420	.564		4.288	.000
X ₁	Data Transmission	.208	.098	3.4244	3.7304	.036
X ₂	Buyer/Supplier collaboration	.224	.090	3.5436	3.8576	.015
X ₃	System Management	.014	.081	3.7558	3.8508	.861
X ₄	Billing Management	.016	.107	3.7907	3.9137	.882

The correlation matrix coefficients were used to derive a prediction model for the effects of e-procurement strategy components on performance of manufacturing firms. Thus the correlation coefficients derived from the matrix have been used to come up with a standard prediction model.

The following equation was derived from the regression coefficients in the matrix.

$$Y = 2.42 + 3.42X_1 + 3.54X_2 + 3.76X_3 + 3.79X_4$$

The ANOVA carried out helped in determining whether the independent variables have a significant effect on the dependent variable. The ANOVA enabled the researcher develop a predictions model on the influence of E- procurement on organizational performance.

CHAPTER FIVE
SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND
RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of findings, discussions, conclusions, recommendations and suggestions on the areas the researcher felt might require further investigation through research activity. This study sought to investigate the influence of e-procurement on organizational performance of manufacturing firms registered with KAM in Kenya. The conclusion relates directly to the objectives/research questions and the recommendations were deduced from discussion and conclusion.

5.2 Summary of Findings

The study sought to explore the influence of e-procurement on organizational performance of manufacturing firms registered with KAM in Nairobi County Kenya. The study made inference on the research hypotheses that; data transmission systems, buyer/supplier collaboration, systems management and billing management have no significant influence on organizational performance. The study had R^2 of 0.122. This means that 12.2% variation of organizational performance is explained/ predicted by joint contribution of data transmission systems, buyer/supplier collaboration, systems management and billing management.

From the study findings, it can be concluded that to a larger extent, majority of the manufacturers in Nairobi County, Kenya have adopted e-procurement in influencing organizational performance.

5.2.1 Data transmission and Organizational Performance of Manufacturing Firms

The study sought to find out the extent to which data transmission affected organizational performance of manufacturing firms in Nairobi, Kenya. Research findings revealed that data transmission has a positive and significant effect on organizational performance (aggregate Mean= 3.42). From the findings data transmission affected the performance manufacturing firms in Nairobi, Kenya. On overall, majority of the respondents with an average percentage rated all data transmission factors as influencing organizational performance to a moderate extent, a large extent, and a very large extent respectively. The study therefore, concluded that factors such as automation, E-notification, security and real-time communication in procurement of goods, services and works influenced how data transmission affected organizational performance of manufacturing firms in Nairobi County Kenya.

5.2.2 Buyer/Supplier collaboration and Performance of Manufacturing Firms

The study sought to find out the extent to which buyer/supplier collaboration in e-procurement affected performance in manufacturing firms in Nairobi County Kenya. From the findings the respondents agreed that buyer/supplier collaboration have been integrated into the procurement function and has a positive influence on organizational performance with an aggregate mean of 3.54.

5.2.3 Systems management and Performance of Manufacturing Firms

The study sought to find out the extent to which systems management in e-procurement affected performance in manufacturing firms in Nairobi County Kenya. From the findings the respondents indicated that systems management affected the procurement function of a

firm with an aggregate mean of 3.76 which in turn had great influence on the overall performance of manufacturing firms in Kenya.

5.2.4. Billing management and Performance of Manufacturing Firms

The study sought to find out the extent to which billing management affected e-procurement performance in manufacturing firms in Nairobi County Kenya. From the findings, respondents indicated that billing management component of e-procurement influenced organizational performance in manufacturing firms in Nairobi Kenya with an aggregate mean of 3.79.

5.3 Discussions of the Findings

The study sought to explore the influence of e-procurement on organizational performance of manufacturing firms registered with KAM in Nairobi County Kenya. The purpose of discussion was to look at the findings of the study, compare the findings with what has been found out by other researchers and presented arguments for the findings based on what was discovered during literature review.

5.3.1 Data transmission and Organizational Performance of Manufacturing Firms

Research findings revealed that data transmission has a significant and positive influence on organizational performance (aggregate Mean= 3.42). Melville and Kraemer, (2004) asserts that data transmission which involves sending Request For Invoices and Request For Purchases to suppliers and receiving the responses from suppliers backed with the use of the internet results to improved organizational performance. Furthermore Aberdeen Group,

(2011) echoes that data transmission provides a centralized system that helps organizations to improve efficiencies, accountability, reduce traditional tendering costs thus increasing increase organizational performance.

5.3.2 Buyer/Supplier collaboration and Performance of Manufacturing Firms

From the findings the respondents agreed that buyer/supplier collaboration have been integrated into the procurement function with an aggregate mean of 3.54. Hjelmberg, (2006) states that buyer/supplier collaboration plays an important role in an organization's ability to respond to dynamic and unpredictable change thus its one of the quickest ways for firms to boost their bottom line in a competitive economy thus improved organizational performance.

In a similar view Davenport, (2008) asserts that buyer/supplier collaboration is an enduring desire to maintain a mutual and valued relationship. Through commitment, buyers/sellers allocate resources to sustain goals of collaboration thus allowing organizations personnel to spend more time on addressing strategic level of handling total value chain for the organization hence improving organizational performance.

5.3.3 Systems management and Performance of Manufacturing Firms

From the findings the respondents indicated that systems management affected the procurement function of a firm with an aggregate mean of 3.76 which in turn had great influence on the overall performance of manufacturing firms in Kenya.

Cognate to the results, Sprague, (2000) argues that systems management greatly improves the e - procurement performance since the placing of purchase orders as well as receiving goods and services ordered is made possible by the use of internet technology. Concurrently, Berger & Zeng, (2006) argues that system management removes the need for paperwork leading to increased productivity, improved customer service and eradicates repetitive manual processes thus improving supply chain performance. Further support to the study is by Aberdeen Group, (2011) who asserts that system management allows customers to order services and products through their website thus improving overall organizational performance.

5.3.4. Billing management and Performance of Manufacturing Firms

From the findings, respondents indicated that billing management component of e-procurement influenced organizational performance in manufacturing firms in Kenya with an aggregate mean of 3.79. In conformity with the findings, Xu et, (2005) observes that billing management helps to reduce transaction costs by improving a higher level of precision in requisition, invoicing payment through electronic documentation and process automation. In turn this ensures quality with precise timeliness, credibility, accuracy, criticality and adequacy thus more e-procurement performance becomes noticeable. In line with the findings of the study, a study by Subramaniam and Shaw (2002) found out that the moving from traditional procurement processes to e-procurement is one of the most effective ways of improving price establishments and real-time exchange of information thereby reducing time to market and thus impacting positively on organizational performance.

5.4 Conclusions of the Study

The aim of this study was to explore the influence of e-procurement on the organizational performance of manufacturing firms in Nairobi, Kenya. Based on previous studies the components of e-procurement were expected to have positive relation with performance of manufacturing firms in Nairobi.

The output from the findings indicate that there is a significant positive relationship between the components of e-procurement namely data transmission systems, buyer/supplier collaboration, billing management and systems management with the organizational performance. Prior to e-procurement, procurement often dealt with administrative routine duties as well such as individual transactions, converting purchase requests into purchase orders or ensuring the correct amount of inventory is maintained and therefore, the use of e-procurement technologies in e-procurement is aimed at realizing faster and more efficient operational procurement processes hence reducing procurement costs and thereby enhancing organizational performance.

5.5 Recommendations of the Study

Manufacturing firms in Nairobi need to incorporate all the e-procurement components into the system. This will enable them to improve the overall organizational performance of their firms. The manufacturing firms need to find out ways of encouraging employees to make use of e-procurement systems. If employees are encouraged to use the e-procurement, adoption of the same will greatly improve.

It is therefore recommended that Enterprise resources planning (ERP) systems in particular should be concerned with trying to integrate and co-ordinate the various internal functional

areas in order to break down those functional boundaries and ensure decisions for areas like marketing, operations and financial decisions are all made using the same data. Customer Relationship Management systems can also be used to co-ordinate the supply chain by ensuring better sharing of information. In summary use of information technology in e-procurement is considered to be a driver of innovation strategy action.

5.6 Suggested areas for Further Research

This study is a milestone for future research particularly in Kenya. The findings emphasized the importance of the components of e-procurement in the organizational performance of Manufacturing firms in Nairobi County Kenya, which is data transmission systems, buyer/supplier collaboration, systems management and billing management of the e-procurement systems and processes in manufacturing firms in Kenya. Future research will need to be carried in other industries and counties in order to confirm if the link between e-procurement components and organizational performance can be generalized. Further studies should be carried out on the challenges of e-procurement and their remedies.

REFERENCES

- Aberdeen Group (2011). *Best Practices in E-procurement: The Abridged Report*, Aberdeen Group, and Boston, MA.
- Arrowsmith S. (2002). Reviewing the GPA: The Role and Development of the Plurilateral Agreement after Doha, *Journal of International Economic Law*, pp.761-790.
- Avery, S. (1999). *Online Buy Systems Help Clean up Business Processes*, *Purchasing*, October 21, 1999, pp. S38–40.
- Baily, P. J. H. (2008), *Procurement Principles and Management*. Harlow, England: Financial Times. ISBN-13: 978-0273713791 pp 394.
- Bakker, E., Zheng, J., Knight, L. and Harland, C. (2008). Putting E-Commerce Adoption in A Supply Chain Context, *International Journal of Operations & Production Management*, Vol. 28, pp. 313-3303
- Bales, W.A. and Fearon, H.E. (2006). *Presidents' Perceptions and Expectations of the Purchasing Function*, Report by the Center for Advanced Purchasing Studies, Tempe, A Z.
- Barratt, M. and Rosdahl, K. (2002). Exploring Business-To-Business Market Sites, *European Journal of Purchasing and Supply Management*, Vol. 8 No. 2, pp. 111-122
- Bartels, A. (2004b). Trends 2005: *E-Procurement/E-sourcing*: The 'Glass Floor' Effect Persists, IT View Trends, November 2, Forrester Research, Cambridge, MA.
- Basheka, B. C. & Bisangabasaija, E. (2010) Determinants of Unethical Public Procurement in Local Government Systems of Uganda: A Case Study. *International Journal of Procurement Management*, 3(1), 91–104
- Berger P.D, and Zeng A.Z (2006). Single Versus Multiple Sourcing in the Presence of Risks. *Journal of Operational Research Society*, vol. 57, no. 3, pp. 250-261
- Billinge, C. (2000). Everyone Needs a Leader in Understanding E-Procurement Survey. *The Financial Times* P. 14.
- Brewster, C. J. and W. Mayrhofer (eds.) (2012). *Handbook of Research on Comparative Human Resource Management*, Cheltenham: Edward Elgar Publishing Inc.
- Brousseau, E. (2000). *Information Technologies and Inter-firm Relationships: The Spread of Inter-organizational Telematics Systems and Its Impact on Economic Structure*, International Telecommunications Society, Venice, June.

- Brown, D. (2005). *Electronic Government and Public Administration*. International Review of Administrative Sciences. 71(2), 241-254.
- Bwoga, W. & Kamau, P. (2011). Public Procurement: Lessons from Kenya, Tanzania and Uganda. *OECD Working Paper NO.208*. OECD Development Centre
- Carabello,L.(2007). *E-Procurement Can Reduce Expenses*, Healthcare Financial Management, Vol. 55 No. 12, pp. 82-83.
- Caridi, M., Cavalieri, S., Diazzi, G. and Pirovano, C. (2004). Assessing the Impact of E-Procurement Strategies Through The Use Of Business Process Modeling and Simulation Techniques, *Production Planning & Control Journal*, Vol. 15 No. 7, pp. 647-61.
- Chan, S. and Lu, M. (2004), “Understanding internet banking adoption and use behavior: a Hong Kong perspective”, *Journal of Global Information Management*, Vol. 12, pp. 21-43.
- Chau, P.Y.K. and Tam, K.Y. (2007). *Factors Affecting the Adoption of Open Systems: An Exploratory Study*, MIS Quarterly, Vol. 21, pp. 1-24.
- Chang, H. H., Tsai, Y. C., & Hsu, C. H. (2013). E-procurement and supply chain performance, *Supply Chain Management: An International Journal*, Vol. 18 No.1, 2013 pp.34–51.
- Cooper R.D., and Schindler P.S., (2006). *Business Research Methods*, Tata McGraw Hill Edition.
- Croom, S., and Brandon-Jones, A. (2007). Impact of E-Procurement: Experiences from Implementation in the UK Public Sector. *Journal of Purchasing and Supply Management*, 13(4), 294-303.
- Davenport, T. (2008). *Putting the Enterprise into the Enterprise System*, Harvard Business Review, Vol. 76 No. 4, pp. 121-31.
- Davila, A. and Palmer, R. (2003a). Moving Procurement Systems to the Internet: The Adoption and Use of E-Procurement Technology Models, *European Management Journal*, and Vol. 21, pp. 11-23.
- Dedrick, J., Xin Xu, S., & Xiaogou Zhu, K (2008). How does information technology shape supply chain structure? Evidence on the number of suppliers. *Journal of Management Information Systems*, 25(2), 41 – 72
- Dell, M. (1999). Direct from dell. New York: Harper-Collins; 1999 p. 36, 188.

- Featherman, M. and Pavlov, P. (2003), Predicting E-Services Adoption: A Perceived Risk Facets Perspective, *International Journal of Human Computer Studies*, Vol. 59 No. 4, pp. 451-74.
- Flynn, B., Huo, B. and Xhao, X. (2010). The Impact of Supply Chain Integration on Performance: A Contingency and Configuration Approach. *Journal of Operations Management* 28 (1) pp 58-71.
- Hamner, M. and Qazi, R. (2009). Expanding the Technology Acceptance Model to Examine Personal Computing Technology Utilization in Government Agencies in Developing Countries, *Government Information Quarterly*, Vol. 26, pp. 128-36.
- Hawking, P., Stein, A., Wyld, D. and Foster, S. (2004). E-procurement: Is the Ugly Duckling Actually a Swan Down Under? *Asia Pacific Journal of Marketing and Logistics*, Vol. 16 No. 1, pp. 3-26.
- Heijden, H., Verhagen, T. and Creemers, M. (2003), Understanding Online Purchase Intentions: Contributions from Technology and Trust Perspectives, *European Journal of Information Systems*, Vol. 12, pp. 41-8.
- Hjelmborg S. E., Jakobsen P. S., Poulsen S. T. (2006) *Public procurement law: the EU directive on public contracts*, Copenhagen, Djøf Publishing.
- Hsu, M.-H and Chiu, C.-M.(2004). *Internet self-efficacy and electronic service acceptance*, *Decision Support Systems*, Vol. 38 No. 3, pp. 369-81.
- Johnson, M. and Whang, S. (2002), “E-Business and Supply Chain Management: An Overview and Framework”, *Production and Operations Management*, Vol. 11 No. 4, pp. 413-23.
- Johnston, R. (2005). The Determinants of Service Quality: Satisfiers and Dis-Satisfiers, *International Journal of Service Industry Management*, Vol. 6 No. 5, pp. 53-71.
- Kaplan, R.S., & Norton, D.P. 2001. *The balanced scorecard: Translating strategy into action*, Boston MA, Harvard Business School Press.
- Khalifa, M. and Shen, K. (2008). Explaining the Adoption of Transactional B2C Mobile Commerce, *Journal of Enterprise Information Management*, Vol. 21 No. 2, pp. 110-24.
- Kheng, C.B. and Al-Hawandeh, S.(2002). The adoption of electronic procurement in Singapore, *Electronic Commerce Research*, 2(1/2): 61-73.
- Klein, R. (2007).Customization and Real Time Information Access in Integrated E-Business Supply Chain Relationships, *Journal of Operations Management*, Vol. 25, pp. 1366-81.

- KNBS (2012), Leading Economic Indicators. Kenya National Bureau of Statistics.
- KNBS (2014), Leading Economic Indicators. Kenya National Bureau of Statistics.
- Kothari, T., Hu, C. and Roehl, W. (2004). *E-Procurement: an Emerging Tool for the Hotel Supply Chain Management*, Hospitality Management, Vol. 24, pp. 369- 89.
- Koufteros, X. (1999). Testing a Model of Pull Production: A Paradigm for Manufacturing Research Using Structural Equation Modelling, *Journal of Operations Management*, Vol. 17 No. 4, pp. 467-88.
- KPMG (2014). *Kenya-Business Environment Survey*. Available at kpmg.com/Africa
- Lancioni, R., Smith, M. and Oliva, T. (2000). *The Role of Internet in Supply Chain Management Logistics Catches Up With Strategy*, Industrial Marketing Management, 29(1), 45-56.
- Larsson, R., Bengtsson, L., Henriksson, K. and Sparks, J. (2008). The Inter-Organizational Learning Dilemma: Collective Knowledge Development in Strategic Alliances, *Organization Science*, Vol. 9, pp. 285-305.
- Lee, F.K., Sheldon, K.M., & Turban, D. (2003). Personality and the Goal Striving Process: The Influence of Achievement Goal Patterns, Goal Level, and Mental Focus on Performance and Enjoyment. *Journal of Applied Psychology*, 88, 256–265.
- Liao, C., Chen, J.-L, and Yen, D. (2007). Theory of Planning Behavior (TPB) and Customer Satisfaction In The Continued Use of E-Service: An Integrated Model, *Computers in Human Behavior*, Vol. 23 No. 6, pp. 2804-22.
- Lysons, K, & Gillingham, M. (2003). *Purchasing and Supply Chain Management*. Pear Education Limited: England.
- Maleyeff, J. (2003). *Benchmarking Performance Indices: Pitfalls and Solutions*, Benchmarking, Vol. 10, pp. 9-29.
- Malone, T.W., Yates, J. & Benjamin, R.I. (1989). *Electronic Markets and Electronic Hierarchies*: Effects of information technology on market structure and corporate strategies Communications of the ACM 30: 484–497.
- Maniam, K. (2005). *Networking Government: E-Government in Malaysia*. Paper presented (keynote speaker) at Conflux 2005, The Grand Hotel, New Delhi, India, 17-19 October 2005.

- Mathieson, K. (2001). Predicting User Intentions: Comparing the Technology Acceptance Model with the Theory of Planned Behavior, *Information Systems Research*, Vol. 2 No. 3, pp.173-91
- Melville, N., Kraemer, K. and Gurbaxani, V.(2004). Information Technology and Organizational Performance: An Integrative Model of IT Business Value, *MIS Quarterly*, Vol. 28, pp.283-322.
- Min, H. and Galle, W. (2002). E-Purchasing: Profiles of Adopters and Non-Adopters, *Industrial Marketing Management*, Vol. 32, pp. 227-33
- Morris, A., Stahl, A. & Herbert, R. (2000). *E-procurement: Streamlining Processes Maximize Effectiveness*. Luminant Worldwide Corporation: Houston, TX
- Mugenda, O., & Mugenda. A. (2003) *Research Methods: Qualitative and Quantitative Approaches*. Nairobi: Africa Centre for Technology Studies.
- Mutindi, U.J.M., Namusonge, G.S. Obwogi, J. (2013). Effects of Strategic Management Drivers on Organizational Performance: A Survey of the Hotel Industry in Kenyan Coast. *International Journal of Arts and Commerce* Vol. 2 No. 11 December. Nairobi, Kenya: Applied Research and Training Services. ACTS Press
- Nagle, T., Finnegan, P. & Hayes, J. (2006). The Effects of Business-To-Business Relationships on Electronic Procurement Systems: An Exploratory Study, *Proceedings of the European Conference on Information System (ECIS 2007)*, 7-9 June, St. Gallen.
- Nyabiage, J. and Kapchanga, K. (2014) *Thousands of jobs on the line as tens of firms shut down local units*. The Standard Digital, Sunday, October 12th.
- Olhager, J. & Selldin, E. (2003). Enterprise Resource Planning Survey of Swedish Manufacturing Firms, *European Journal of Operational Research*, Vol. 146, pp. 365-73.
- Oke, S.A., Charles-Owaba, O.E. (2006b). Application of fuzzy logic control model to Gantt charting preventive maintenance scheduling, *International Journal of Quality & Reliability Management*, Emerald, Bradford, Vol. 23 No.4, pp.441-5.
- Orodho A. J, (2003). *Essentials of Educational and Social Science Research methods: Qualitative and Quantitative Approaches*. Nairobi Acts Press.
- Palma dos Reis, A. and Soares Aguiar, A. 2006. *Electronic Procurement Systems: Identifying Factors that Foster their Adoption*: proceedings of the European Conference on Information Systems (ECIS 2006), 12–14 June, Goeteborg, Sweden.

- Pearcy, D. & Guinipero, L. (2008). Using E-Procurement Applications to Achieve Integration: What Role Does Firm Size Play? *Supply Chain Management: An International Journal*, Vol. 13 No. 1, pp. 26-34.
- Pires, G. and Stanton, J. 2005. A research framework for the electronic procurement adoption process: drawing from Australian evidence, *Journal of Global Business and Technology*,1: 12-20.
- Pressutti, W. (2003). Supply Management and E-Procurement: Creating Value Added in the Supply Chain, *Industrial marketing Management*, Vol. 32, pp. 219-26.
- Prober LM. EVA. (2000). *A better financial reporting tool*, Pa CPA J Fall 2000 pp.27–33
- Puschmann, T. and Alt, R. (2005). Successful Use of E-Procurement in Supply Chains, *Supply Chain Management: An International Journal*, Vol. 10/2, pp. 122-33.
- Republic of Kenya, (2014). Kenya.um.dk. Economy. [online] Available at: <http://kenya.um.dk/en/about-kenya-new/economy-new//>
- Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: towards methodological best practice. *Journal of Management*, 35(3), 718- 804.
- Saunders, M., & Lewis, P. (2012). *Doing Research in Business & Management: An Essential Guide to Planning Your Project*. Essex: Pearson Education Limited.
- Shakir, M., Smith, G. and Gulee, E. (2007). E-Procurement: Reaching Out to Small and Medium Businesses, *MIS Quarterly Executive*, Vol. 6 No. 4, pp. 225-38.
- Sheng, M.L. 2002. *The impact of Internet-based technologies on the procurement strategy*, in proceedings of the 2nd International Conference on Electronic Commerce, Taipei, December 2002.
- Siemsen, E., Roth, A. and Balasubramanian, S. (2008). How Motivation, Opportunity and Ability Drive Knowledge Sharing: The Constraining Factor Model, *Journal of Operations Management*, Vol. 26, pp. 426-45.
- Snider, K. and Rendon, R. (2008). Public Procurement: Public Administration and Public Service Perspectives. *Journal of Public Affairs Education*.
- Sprague, C., Pahountis, L. & Jennings, B. (2000). E-Procurement Little glamour, Lots of value. *ProQuest Central*. pp.4-7.
- Stratman, J.K. and Roth, A.V. (2004). *Enterprise Resource Planning Competence: A Model, Propositions and Pre-Test, Design-Stage Scale Development*, Proceedings of the 30th Annual Meeting of the Decision Sciences Institute, New Orleans, pp. 199-201.

- Subramaniam, C. and Shaw, M.J. (2002). A Study of the Value and Impact of B2B E-Commerce: The Case of Web-Based Procurement, *International Journal of Electronic Commerce* 6(4): 19-40.
- Sulek, J.M., Maruchek, A., Lind, M.R. (2006). Measuring Performance in Multi-Stage Service Operations: An Application of Cause Selecting Control Charts, *Journal of Operations Management*, Vol. 24 No.5, pp.711-27.
- Teo, H.H. and Benbasat, K.K.W.I. (2003). *Predicting intention to adopt interorganizational linkages: an institutional perspective*, *MIS Quarterly*, Vol. 27, pp. 19-49.
- Tornatzky, L. G. and Fleischer, M. 1990. *The Process of Technology Innovation*. Lexington, MA: Lexington Books.
- Trent, R.J. (2007). *Strategic Supply Management: Creating the Next Source of Competitive Advantage*. J. Ross Publishing, USA.
- Turban, E., Lee J., King, D. & Chung, M.H. (2000). *Electronic commerce*, Upper Saddle River, NJ: Prentice-Hall; 2000 p.198.
- Wagana, D. & Kabare, K. (2015). The influence of Corporate Governance on Corporate Performance Among Manufacturing Firms in Kenya: A Theoretical Model. *International Journal of Academic Research in Business and Social Sciences*, Vol. 5, No. 4 ISSN: 2222- 6990
- Walker,H., and Harland,C .2008. E-procurement in the United Nations: influences, issues and impact, *International Journal of Operations & Production Management*, 28(9): 831-857
- Wendin, C. (2001). *Slash Purchasing Costs*. Smart Business Magazine, 14:5, pp. 66-67.
- Williams, S. and Hardy, C. (2007). *E-Procurement: Current Issues and Future Challenges: proceedings of the European Conference on Information Systems (ECIS 2006)*, 12–14 June, Go'teborg, Sweden, 131–142.
- World Bank (2014). “*Anchoring High Growth: Can Manufacturing contribute more?*” World Bank Report 2014
- Young, N. (2009). *Understanding the Research Process and Methods. An Introduction to Research Methods*, Las Vegas: Acts Press.
- Xu, H., Sharma, S.K. and Hackney, R. (2005). Web Services Innovation Research: Towards a Dual-Core Model, *International Journal of Information Management*, Vol. 25, pp. 321-34.

APPENDICES

Appendix I: Introductory Letter

14th May, 2016

Evans Kituzi Avedi

Tel: +254 722 611182

Email: evansavedi@gmail.com

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: INTRODUCTORY LETTER – RESEARCH PROJECT

I am a graduate student in the School of Continuing and Distance Education at the University of Nairobi. In partial fulfillment of the requirements of the degree of Master of Arts in Project Planning and Management, I am conducting a research on *“Influence of e-procurement on organizational performance: The case of Kenya association of manufacturers firms in Nairobi county,”*

I kindly request your input through filling this questionnaire. Please note that your honest responses will be strictly confidential and purely for academic purpose.

Your acceptance to complete this questionnaire is greatly appreciated.

Thanking you in advance for your co-operation

Yours Faithfully,

Evans Kituzi Avedi

Reg No.: L50/76085/2014

Appendix II: Questionnaire

Dear Respondent,

I am Evans K. Avedi, a postgraduate student at the School of Continuing and Distance Education, University of Nairobi. I would appreciate your help by answering the following questions using the scales indicated. The aim of the questionnaire is to explore the influence of e-procurement on organizational performance: the case of Kenya association of manufacturers firms in Nairobi County. This information will be used strictly for academic purposes only and will be treated with utmost confidence.

SECTION A: ORGANIZATIONAL PROFILE

1. Name of Organization.....

2. Department.....

3. Job Designation.....

4. Gender

Male Female

5. Level of education

O/A level

Certificate/Diploma

Bachelors

Post graduate

Other specifications

6. Has your company adopted e-procurement?

Yes

No

7. How many years have elapsed since your company adopted e-procurement?

1 – 5 Years

6 – 10 Years

11- 15 Years

Above 16 Years

8. Total Population of employees in your company.....

SECTION B: EXTENT OF E-PROCUREMENT IN MANUFACTURING FIRMS IN
NAIROBI COUNTY, KENYA

PART A: Data Transmission

Please indicate the extent to which the following Data transmission systems have been integrated into the procurement function of this organization. Use a scale of 1-5, where (1- Not at all, 2-small extent, 3-moderate extent, 4-large extent and 5- very large extent)

Data Transmission	1	2	3	4	5
Automation					
E – notification					
Security					
Real time communication					

In your own opinion do you think Data Transmission has an influence on procurement performance in your firm? Give any two opinions

.....
.....

PART B: Buyer/supplier collaboration

Please indicate the extent to which the following buyer/supplier collaboration factors have been integrated into the procurement function of this organization. Use a scale of 1-5, where (1-Not at all, 2-small extent, 3-moderate extent, 4-large extent and 5- very large extent)

Buyer/supplier collaboration	1	2	3	4	5
Inter organizational systems					
Channel relationships					
Decision making					
Information sharing					

2. Outline two importance of Buyer/supplier collaboration in the procurement process of your firm.

.....
.....

PART C: System Management

Please indicate the extent to which the following System Management Indicators have been integrated into the procurement function of this organization. Use a scale of 1-5, where (1- Not at all, 2-small extent, 3-moderate extent, 4-large extent and 5- very large extent)

Systems Management	1	2	3	4	5
Monitoring					
Transparency					
Demand Forecasting					
Coordination					

Highlight on the reasons for Systems Management in manufacturing firms in Kenya and how does that lead to effective procurement performance in those organizations? Give any two reasons.

.....
.....

PART D: Billing Management

Please indicate the extent to which the following indicators for Billing Management have been integrated into the procurement function of this organization. Use a scale of 1-5, where (1-Not at all, 2-small extent, 3-moderate extent, 4-large extent and 5- very large extent)

Billing Management	1	2	3	4	5
Inventory Control					
Transaction costs					
Accountability					
Pricing Policies					

Suggest how Billing Management assists in coping with the increasing uncertainty, both on demand and supply sides, and becomes a crucial requirement to making demand and supply decisions. Provide any two suggestions.

.....
.....

PART E: Performance of the Organization

The questions in this sub-section are on the evaluation of performance of the organization in several areas. Use a scale of 1-5, where (1-definitely false, 2-False, 3-Neither, 4-True and 5-Definitely true)

Performance of the Organization	1	2	3	4	5
In general, with the adoption of e- procurement the state of the organizational performance brought about by these changes in the procurement function can be described as;					
There is increased adherence to power processes and procedures					
We are producing better quality products and services					
The Procurement planning has significantly improved					
Better procurement benchmarks have been set up					
There is enhancement of procurement integrity and transparency					
The overall performance has generally improved					

THANK YOU FOR YOUR VALUED PARTICIPATION

Appendix III: List of Manufacturing Firms Registered with KAM in Nairobi County

BUILDING, MINING AND CONSTRUCTION

Athi River Mining Ltd	Homa Lime Company Ltd	Manson Hart Kenya Ltd
Bamburi Cement Limited	Kay Salt Ltd	Mombasa Cement Ltd
Bamburi Special Products Ltd	Kemu Salt Packers	Orbit Enterprises Ltd
Central Glass Industries	Kenbro Industries Ltd	Saj Ceramics Ltd
Flamingo Tiles (Kenya)Limited	Kenya Builders and Concrete Ltd	Savannah Cement
Glenn Investments Ltd C/O The Mehta Group Ltd	Malindi Salt Works	Skylark Construction Ltd

FOOD AND BEVERAGES

Africa Spirits Ltd	Brookside Dairy Ltd	Premier Flour Mills Ltd
Agriner Agricultural Development Limited	Candy Kenya Ltd	Premier Food Industries Limited
Al-Mahra Industries Ltd	Capwelll Industries Ltd	Proctor & Allan (E.A.) Ltd
Alpha Fine Foods Ltd	Chirag Kenya Limited	Promasidor (Kenya) Ltd
Alpine Coolers Ltd	Kakuzi Ltd	Trufoods Ltd
Annum Trading Company Limited	Excel Chemical Ltd	Unga Group Ltd
Aquamist Ltd	Kenya Wine Agency Limited	Usafi Services Ltd
Belfast Millers Ltd	Highlands Canner Ltd	Uzuri foods Ltd
Bidco Oil Refineries Ltd	Super Bakery Ltd	ValuePak Foods Ltd
Bio Foods Products Limited	Jambo Biscuits (K) Ltd	W.E. Tilley (Muthaiga) Ltd

British American Tobacco Kenya Ltd	Kenafic Industries Limited	Kevian Kenya Ltd
Broadway Bakery Ltd	Kenblest Limited	Koba Waters Ltd
Cadbury Kenya Ltd	Kenya Breweries Ltd	Kwality Candies & Sweets Ltd
Coca cola East Africa Ltd	Kenya Nut Company Ltd	London Distillers (K) Ltd
Confec Industries (E.A) Ltd	Kenya Sweets Ltd	Manji Food Industries Ltd
Crown Foods Ltd	Nestle Kenya Ltd	Melvin Marsh International
Deepa Industries Ltd	Palmhouse Dairies Ltd	Kenya Tea Development Agency
East African Breweries Ltd	Patco Industries Limited	Mini Bakeries (Nbi) Ltd
Eastern Produce Kenya Ltd	Pearl Industries Ltd	Mount Kenya Bottlers Ltd
Farmers Choice Ltd	Pembe Flour Mills Ltd	Nairobi Bottlers Ltd
Frigoken Ltd	Nairobi Flour Mills Ltd	NAS Airport Services Ltd
Glacier Products Ltd	United Millers Ltd	Wrigley Company (E.A.) Ltd
Global Fresh Ltd	Softa Bottling Co. Ltd	
Gonas Best Ltd	Spice World Ltd	
Hail & Cotton Distillers Ltd		
CHEMICAL		
Basco Products (K) Ltd	Elex Products Ltd	Pan Africa Chemicals Ltd

Bayer East Africa Ltd	Eveready Batteries East Africa Ltd	Polychem East Africa
Beiersdorf East Africa Ltd	Faaso Exporters Ltd	Procter and Gamble East Africa Ltd
Blue Ring Products Ltd	Galaxy Paints and Coating Co. Ltd	PZ Cussons EA Ltd
BOC Kenya Limited	Grand Paints Ltd	Reckitt Benckiser (E.A.) Ltd
Buyline Industries Limited	Haco Tigerbrands East Africa Ltd	Revolution Stores Ltd
Canon Chemicals Limited (Former United Chemicals) Ltd	Henkel Kenya Ltd	Rumorth Group of Companies Ltd
Carbacid (CO2) Limited	Interconsumer Products Ltd	S C Johnson And Son Kenya
Chemicals And Solvents (EA) Ltd	Johnson Diversey East Africa	Sadolin Paints (E.A.) Ltd
Chrysal Africa Limited	KAPI Limited	Sanergy
Coates Brothers (E.A.) Limited	Kel Chemicals Limited	Soilex Prosolve Limited
Continental Products	Kip Melamine Co. Ltd	Strategic Industries Limited
Coopers K- Brands Ltd	Kridha Limited	Supa Brite Ltd
Coopers Kenya Ltd	Maroo Polymers Ltd	Superfoam Ltd
Crown Berger Kenya Ltd	Match Masters Ltd	Syngenta East Africa Ltd
Crown Gases Ltd	MEA Ltd	Synresins Ltd
Crown Paints (Kenya) Ltd	Metoxide Africa Ltd	Tata Chemicals Magadi Ltd

Darfords Enterprises Ltd	Milly Glass Works Ltd	Tri-Clover Industries (K) Ltd
Deluxe Inks Ltd	Murphy Chemicals Ltd	Twiga Chemical Industries Limited
Desbro Kenya Limited	Oasis Limited	Unilever East And Southern Africa
Diversey Eastern and Central Africa Limited	Odex Chemicals Ltd	Vitafoam Products Limited
Eastern Chemicals Industries	Orbit Chemicals Industries Limited	Westminister Paints and Resins Ltd
	Orbit Enterprises Ltd	
	Osho Chemicals Industries Ltd	
ENERGY, ELECICALS AND ELECTRONICS		
Alloy Steel Casting Ltd	Karan Biofuel Ltd	Power Technics Ltd
Amedo Centre Kenya Ltd	Kenwest Cables Ltd	Powerex Lubricants
Assa Abloy East Africa Limited	Kenya Power Ltd	Reliable Electricals Engineers (Nrb) Ltd
Aucma Digital Technology Africa Ltd	Libya Oil Kenya Limited (Formerly Mobil Oil Kenya)	Socabelec (EA) Ltd
Avery East Africa Ltd	Manufacturers and Suppliers (K) Ltd	Solimpexs Africa Ltd
Baumann Engineering Limited	Marshall Fowler (Engineers)	Sollatek Electronics (Kenya) Limited
Biogas Power Holdings (EA) Ltd	Metlex International Ltd	Specialised Power Systems Ltd
Centurion Systems Limited	Metsec Ltd	Synergy-Pro

East African Cables Ltd	Mustek East Africa Limited	Virtual City Ltd
Holman Brothers (E.A) Ltd	Optimum Lubricants Ltd	Vivo Energy Kenya Ltd
Iberafrica Power (EA) Ltd	PCTL Automation Ltd	
International Energy Technik Ltd	Pentagon Agencies	
PLASTICS AND RUBBER		
ACME Containers Ltd	Kentainers Ltd	Safepak Limited
Afro Plastics (K) Ltd	Kenya Suitcase Manufacturers Limited	Sameer Africa Ltd
Betatrad (K) Ltd	King Plastic Industries Ltd	Sanpac Africa Ltd
Bluesky Industries Ltd	Kinpush Enterprises Ltd	Shiv Enterprises (E) Ltd
Bobmil Industries Ltd	L.G. Harris and Co. Ltd	Signode Packaging Systems Ltd
Brush Manufacturers	Laneeb Plastic Industries Ltd	Silpack Industries Limited
Cables and Plastics Ltd	Mombasa Polythene Bags Ltd	Solvochem East Africa Ltd
Canaaneast Company	Metro Plastics Kenya Limited	Springbox Kenya Ltd
Complast Industries Limited	Nairobi Plastics Ltd	Styloplast Limited
Coninx Industries Ltd	Ombi Rubber Rollers Ltd	Sumaria Industries Ltd
Dune Packaging Limited	Packaging Industries Ltd	Super Manufacturers Ltd
Dynaplas Limited	Packaging Masters Limited	Techpak Industries Ltd

Elgon Kenya Ltd	Plastic Electricons	Thermopak Ltd
Eslon Plastics of Kenya Ltd	Plastics and Rubber Industries Ltd	Top Pak Ltd
Five Star Industries Ltd	Polly Propelin Bags Ltd	Treadsetters Tyres Ltd
Fleya Kenya Limited	Polyblend Limited	Umoja Rubber Products Limited
General Plastics Limited	Polyflex Industries Limited	Uni-Plastics Limited
Hi-Plast Ltd	Polythene Industries Ltd	Vectus Kenya
Jamlam Industries Ltd	Premier Industries Limited	Vyatu Ltd
Jumbo Chem	Prosel Ltd	Wonderpac Industries Ltd
Kamba Manufacturing (1986) Ltd	Pyramid Packaging Ltd	Zaverchand Punja Ltd
Kenpoly Manufacturers Limited	Raffia Bags (K) Ltd	
Kenrub Ltd	Rubber Products Ltd	
TEXTILES		
Adpack Limited	Kenwear Garment Manufacturers	Spin Knit Limited
Alltex EPZ Ltd	Kikoy Co. Ltd	Spinners and Spinners Ltd
Alpha Knits Ltd	Le Stud Limited	Squaredeal Uniforms Centre Ltd
Ashton Apparel EPZ Ltd	Leena Apparels Ltd	Straightline Enterprises
Bedi Investments Limited	Lifeworks Shukrani Limited	Summit Fibres Limited
Brilliant Garments	Longyun Garments	Sunflag Textile and Knitwear Mills Ltd

Fantex (K) Ltd	Midco Textiles (EA) Ltd	Tarpo Industries Limited
Kamyn Industries Limited	New Wide Garments (K) Ltd	Teita Estate Ltd
Kavirono Filments Ltd	Ngecha Industries Ltd	Thika Cloth Mills Ltd
Kema (EA) Limited	Senior Best Garments Kenya EPZ Ltd	United Aryan (EPZ) Ltd
Ken-Knit (Kenya) Ltd	Shin-Ace Garments Kenya (EPZ) Ltd	Vajas Manufacturers Ltd
		Wildlife Works (EPZ) Ltd World of Kikoys
WOOD PRODUCTS		
Economic Housing Group Ltd	Panesar's Kenya Ltd	Shayona Timber
Elburgit Enterprises Ltd	PG Bison Ltd	Timber Treatment International Ltd
Fine Wood Works Ltd	Rai Plywoods (Kenya) Ltd	Timsales Ltd
Furniture International Limited	Rosewood Furniture Manufacturers	Woodtex Kenya Ltd
Kenya Wood Limited	Shah Timber Mart Ltd	
PHARMACEUTICALS		
African Cotton Industries Ltd	Elys Chemical Industries Limited	Novelty Manufacturing Ltd
Alpha Medical Manufacturers Ltd	Gesto Pharmaceuticals Ltd	Oss.chemical (K) Limited
Beta Healthcare International	Glaxo Smithkline Kenya Ltd	Pharm Access Africa Ltd
Biodeal Laboratories Ltd	KAM Industries	Pharmaceutical Manufacturing Co. (K) Ltd

Biopharma Ltd	Laboratory and Allied Limited	Regal Pharmaceuticals Ltd
Cosmos Limited	Manhar Brothers (K) Ltd	Revital Healthcare (EPZ) Ltd
Dawa limited	Medivet Products Ltd	Universal Corporation Limited
PAPER		
Adpak International Limited	General Printers Limited	Paperbags Limited
Allpack Industries Ltd	Graphics and Allied Ltd	Pressmaster Ltd
Andika Industries Ltd	Guaca Stationers Ltd	Printing Services Ltd
Associated Paper and Stationery Ltd	Highland Paper Mills Ltd	Printpak
Autolitho Ltd	Icons Printers Ltd	Printpak Multi Packaging Ltd
Bag And Envelope Converters	Interlabels Africa Ltd	Printwell Industries ltd
Bags and Balers Manufacturers (K) Ltd	International Paper and Board Supplies Ltd	Punchlines Ltd
Cempack Solutions Ltd	Kartasi Industries Limited	Ramco Printing Works Ltd
Chandaria Industries Ltd	Kenafric Diaries Manufacturers Limited	Regal Press Kenya Ltd
Colour Labels Ltd	Kenya Litho Ltd	Sintel Security Print Solutions Ltd
Colour Packaging Limited	Kim-Fay East Africa Ltd	Soloh Worldwide InterEnterprises Ltd
Colour Packaging Limited	L.A.B International Kenya Limited	Stallion Stationary Manufacturers Ltd

Colour Packaging Limited	Label Converters	Standard Group Ltd
De La Rue Currency and Security Print Ltd	Manipal International Printing Press Ltd	Statpack Industries Ltd
Dodhia Packaging Limited	Modern Lithographic (K) Ltd	Taws Limited
East Africa Packaging Industries Limited	Mufindi Paper Ltd	Tetra Pak Ltd
Elite Offset Ltd	Nation Media Group Limited Printing Plant	The Rodwell Press Ltd
Ellams Products	National Printing Press Limited	Twiga Stationers and Printers Ltd
Ellams Products Ltd	Packaging Manufacturers (1976) Ltd	Unesco Paper Products Ltd
English Press Limited	Palmy Enterprises	United Bags Manufacturers Ltd
Flora Printers Ltd	Paper House of Kenya Ltd	Paper House of Kenya Ltd
MOTOR VEHICLE		
Alamdar Trading Company Limited	Chui Auto Spring Industries Ltd	Mann Manufacturing Co. Ltd
Associated Battery Manufacturers (EA) Ltd	CICA Motors	Megh Cushion Industries Ltd
Associated Vehicle Assemblers Ltd	Foton East Africa Ltd	Mutsimoto Company Limited
Auto Ancillaries Ltd	General Motors East Africa Limited	Pipe Manufacturers Ltd

Auto Springs Manufacturers Ltd Company	Impala Glass Industries Ltd.	Sohansons Limited
Autofine Filters and Seals Ltd	Kenya Grange Vehicle Industries Ltd	Theevan Enterprises Ltd
Automotive and Industrial Battery Manufacturers	Kenya Vehicle Manufacturers Limited	Toyota Kenya Ltd
Banbros Ltd	King-Bird (K) Ltd	Unifilters Kenya Ltd
Bhachu Industries Ltd	Labh Singh Harnam Singh Ltd	Varsani Brakelinings Ltd
LEATHER AND FOOTWEAR		
Alpharama Limited	C and P Shoe Industries Ltd	Zingo Investments Limited
Bata Shoe Company (Kenya) Ltd	Leather Industries of Kenya Limited	
Budget Shoes Limited	Sandstorm Africa Limited	
METAL AND ALLIED		
African Marine and General Engeeniring Co. Ltd	Elite Tools	Napro Industries Limited
Allied East Africa Ltd	Elite Tools Ltd	Narcol Aluminium Rolling Mills Ltd
Alloy Steel Casting Ltd	Farm Engineering Industries Limited	Ndume Ltd
Apex Steel Limited	Friendship Container Manufacturers Limited	Orbit Engineering Ltd
Apex Steel Limited - Rolling Mill Division	Friendship Container Manufacturers Ltd	Richfield Engineering Ltd
Ashut Engineers Ltd	General Aluminum Fabricators Ltd	Rolmil Kenya Ltd
ASL Limited- Steel Division	Greif East Africa Ltd	Sheffield Steel Systems Ltd
ASP Company Ltd	Hobra Manufacturing Ltd	Soni Technical Services Ltd

Athi River Steel Plant	Insteel Limited	Southern Engineering Co. Ltd
Blue Nile Wire Products Ltd	Kaluworks Ltd	Specialised Engineering Co. (EA) Ltd
Booth Extrusions Limited	Kens Metal Industries	Standard Rolling Mills Ltd
Brollo Kenya Limited	Kenya General Industries Ltd	Steel Structures Ltd
City Engineering Works (K) Limited	Khetshi Dharamshi and Co. Ltd	Steelmakers Ltd
Cook 'N Lite Ltd	Kitchen King Ltd	Steelwool (Africa) Ltd
Corrugated Sheets Ltd	Laminate Tube Industries Limited	Tarmal Wire Products Ltd
Crystal Industries Ltd	Mabati Rolling Mills Limited	Technosteel Industries Limited
Davis and Shirliff Ltd	Marvel Lifestyle Ltd	Tononoka Steel Ltd
Devki Steel Mills Ltd	Mecol Limited	Vicensa Investments Ltd
Doshi Enterprises Ltd	Metal Crowns Ltd	Viking Industries Ltd
East Africa Glassware Mart Ltd	Modulec Engineering Systems Ltd	Warren Enterprises Ltd
East Africa Spectre Limited	Nail and Steel Products Ltd	Welding Alloys Limited
East African Foundry Works (K) Ltd	Nampak Kenya Ltd	Wire Products Ltd

Source: Kenya Association of Manufacturers, 2015

Appendix IV: Research Authorization Permit



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 3310571, 2219420
Fax: +254-20-318245, 318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No.

Date:

NACOSTI/P/16/86460/12229

6th July, 2016

Evans Kituzi Avedi
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Influence of E-Procurement on organizational performance: The case of Kenya Manufacturers Firms in Nairobi County, Kenya*," I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **5th July, 2017**.

You are advised to report to **the Chief Executive Officers of selected Firms, the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.


BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The Chief Executive Officers
Selected Firms.

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.

National Commission for Science, Technology and Innovation is ISO 9001: 2008 Certified

Appendix V: Research Permit

THIS IS TO CERTIFY THAT:


MR. EVANS KITUZI AVEDI
of UNIVERSITY OF NAIROBI, 0-200
NAIROBI, has been permitted to conduct
research in Nairobi County

on the topic: INFLUENCE OF
E-PROCUREMENT ON ORGANIZATIONAL
PERFORMANCE: THE CASE OF KENYA
MANUFACTURERS' FIRMS IN NAIROBI
COUNTY, KENYA.

for the period ending:
5th July, 2017.

Applicant's
Signature

Permit No. : NACOSTI/P/16/86460/12229
Date Of Issue : 6th July, 2016
Fee Received :Ksh 1000

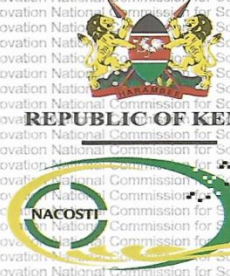


Director General
National Commission for Science,
Technology & Innovation

CONDITIONS

- 1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit**
- 2. Government Officers will not be interviewed without prior appointment.**
- 3. No questionnaire will be used unless it has been approved.**
- 4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.**
- 5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.**
- 6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice**

REPUBLIC OF KENYA



NACOSTI
National Commission for Science,
Technology and Innovation

RESEARCH CLEARANCE
PERMIT

Serial No. A 9994

CONDITIONS: see back page