

**ADOPTION OF E-PROCUREMENT AND FINANCIAL PERFORMANCE OF
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY, KENYA**

**ABRAHAM KIPROP SAMOEI
D53/CTY/PT/28058/2014**

**A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF
DEGREE IN MASTERS OF BUSINESS ADMINISTRATION (FINANCE) OF
KENYATTA UNIVERSITY**

NOVEMBER, 2018

DECLARATION

This project is my original work and has not been presented for an award in any other university. No portion of this project should be reproduced without my permission or that of the university.

Signature..... Date.....

Abraham KipropSamoei

D53/CTY/PT/28058/2014

I confirm that the work reported in this project has been carried out by the candidate under my guidance as the appointed university supervisor.

Signature..... Date.....

Dr. Fredrick Ndede

Department of Accounting and Finance

School of Business

Kenyatta University

DEDICATION

This research project is dedicated to all my family members, my children and wife for encouraging and supporting me during the development of this research project.

ACKNOWLEDGMENT

I take this opportunity to thank the Almighty God for giving me enough grace to work on this research project. I appreciate and I am grateful to my supervisor, Dr. Fredrick Ndede, for his leadership and guidance during the process of writing and conducting this research project. I further appreciate Kenyatta University management for providing a favorable environment for learning. I also thank my friends and classmates for their endless encouragement.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGMENT	iv
TABLE OF CONTENTS	v
LIST OF TABLES	viii
LIST OF FIGURES	ix
ABBREVIATIONS AND ACRONYMS	x
OPERATIONAL DEFINITION OF TERMS	xi
ABSTRACT	xii
CHAPTER ONE: INTRODUCTION	1
1.1 Background to the Study.....	1
1.1.1 Adoption of E-procurement	2
1.1.2 Financial Performance of MOEST	4
1.1.3 Ministry of Education, Science and Technology	6
1.2 Statement of the Problem.....	7
1.3 Objectives of the Study	9
1.3.1 General Objective	9
1.3.2 Specific Objectives	9
1.4 Research Questions	9
1.5 Significance of the Study	10
1.6 Scope of the Study	11
1.7 Limitations of the Study.....	11
1.8 Organization of the Study	12
CHAPTER TWO: LITERATURE REVIEW	13
2.1 Introduction.....	13
2.2 Theoretical Review	13
2.2.1 Transactional Cost Theory.....	13
2.2.2 Logistics Theory	14
2.2.3 Technology Acceptance Model Theory.....	16

2.2.4 Technology Diffusion Theory.....	17
2.3 Empirical Review.....	18
2.3.1 E-tendering and Financial Performance.....	18
2.3.2 E-ordering and Financial Performance.....	19
2.3.3 E-sourcing and Financial Performance.....	21
2.3.4 E-informing and Financial Performance.....	23
2.4 Literature Summary Reviewed and Research Gaps.....	24
2.5 Conceptual Framework.....	Error! Bookmark not defined.
CHAPTER THREE: RESEARCH METHODOLOGY	29
3.1 Introduction.....	29
3.2 Research Design.....	29
3.3 Target Population.....	29
3.4 Sampling Design and Sample Size	30
3.5 Data Collection Instruments	30
3.6 Pilot Study.....	31
3.6.1 Validity of the Instrument.....	32
3.6.2 Reliability of the Instrument	32
3.7 Data Collection Procedure	33
3.8 Data Analysis and Presentation	34
3.9 Ethical Consideration.....	35
CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS	36
4.1 Introduction.....	36
4.2 Response Rate	36
4.3 Demographic Information.....	37
4.3.1 Gender of the Respondents	37
4.3.2 Age of the Respondents	37
4.3.3 Education Level of the Respondents.....	38
4.3.4 Work Experience of the Respondents	39
4.4 Descriptive Statistics.....	39
4.4.1 E-tendering and Financial Performance.....	40
4.4.2 E-Sourcing and Financial Performance	41

4.4.3 E-Ordering and Financial Performance	42
4.4.4 E-Informing and Financial Performance.....	43
4.4.5 Measures of Financial Performance.....	44
4.5 Inferential Statistics.....	46
4.5.1 Correlation Analysis	46
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	52
5.1 Introduction.....	52
5.2 Summary of Study	52
5.3 Conclusions	53
5.4 Recommendations for Policy and Practice	54
5.5 Recommendations for Further Study	56
REFERENCES.....	57
APPENDICES	63
Appendix I: Letter of Introduction.....	63
Appendix II: Questionnaire.....	64

LIST OF TABLES

Table 2.1: Reviewed Literature Summary and Research Gaps	24
Table 3. 1: Target Population.....	30
Table 3. 2: Results of Reliability Test	32
Table 4.1: Rate of Response	36
Table 4. 2: Age of the Respondents	37
Table 4.3: Work Experience of the Respondents.....	39
Table 4.4: E-tendering and Financial Performance	40
Table 4. 5: E-sourcing and Financial Performance.....	41
Table 4.6: E-ordering and Financial Performance	42
Table 4.7: E-informing and Financial Performance.....	43
Table 4.8: Measures of Financial Performance	44
Table 4.9: Correlation Analysis	46
Table 4.10: Regression Analysis.....	48
Table 4.11: ANOVA Results	48
Table 4.12: Determination of Coefficients	49

LIST OF FIGURES

Figure 2.1: Conceptual Framework	28
Figure 4.1: Respondents' Gender	37
Figure 4.2: Level of Education	38

ABBREVIATIONS AND ACRONYMS

ICT:	Information Communication and Technology
IT:	Information Technology
KESSP:	Kenya Education Sector Support Programme
MOEST:	Ministry of Education, Science and Technology
MTP:	Medium Term Plan
NESP:	National Environmental Science Program
NSE:	Nairobi Security Exchange
ROA:	Return on Assets
ROE:	Return on Equity
SPSS:	Statistical Package for the Social Sciences
ST&I:	Science, Technology & Innovation
SWAP:	Sector Wide Approach to Programme Planning
TAM:	Technology Acceptance Model
TCT:	Transaction Cost Theory

OPERATIONAL DEFINITION OF TERMS

Adoption of e-procurement	this refers to the incorporation of the e-procurement by both the consumer-business or government-business purchase of supplies process.
E-informing	Gathering and distributing information of purchasing process both to and from internal and external parties, using internet technology
E-ordering	refers to the method of using the internet to collect orders
E-procurement	This refers to consumer-business or government-business purchase of supplies, work or services by use of the internet as well as systems of net-working like interchange of electronic data and other information
E-sourcing	refers to the process of getting bids from willing suppliers by use of an online network of portal
E-tendering	A process that is internet based whereby the complete process of tendering are done online starting with the advertisements, followed by receiving of tender documents, evaluation of the tender applications and awarding of the tender.
Financial Performance	This refers to the ability of an organization to efficiently use its available resources and it can be measured in terms of level of unsupported expenditure, value for money and public debt (pending bills).

ABSTRACT

The core and critical challenge mostly experienced by MOEST include application of effective supply chain management procedures and practices as well as poor information and communication technology integration among others. MOEST is operating in emerging markets that have multi-businesses linked through supply chain management practices cross-subsidization and are therefore generally viewed as having a complex supply chain management system. The concept of finance considerably contributes to the performance of public institutions. In the current dynamic business environment, organizations require reliable and fast information so as to improve their decision making regarding adapting in an effort to improve organizational performance. The general objective of this study was to determine how e-procurement adoption affects the financial performance of Ministry of Education, Science and Technology, Kenya. The specific objectives were to find out the effect of e-tendering, e-sourcing, e-ordering and e-informing on financial performance of Ministry of Education, Science and Technology, Kenya. Descriptive research design was used. The population of the study was employees in the Ministry of Education, Science and Technology. The study used census method, implying that all the individuals in the target population were used. The study's sample size was 40 staff working in information technology, accounts, procurement and finance departments. Primary data was collected from respondents via questionnaires. Descriptive statistics included percentages, frequencies, mean and standard deviation. Inferential statistics made use of multiple regression analysis. Statistical analysis of the data gathered revealed that e-tendering, e-sourcing, e-ordering and e-informing have a statistically significant effect on financial performance. The study found that e-tendering has a significant effect on the financial performance in the Ministry of Education, Science and Technology ($r=0.788$, $p\text{-value}=0.006$). In addition, E-sourcing had a significant effect on the financial performance in the Ministry of Education, Science and Technology ($r=0.611$, $p\text{-value}=0.016$). Further, e-ordering had a significant effect on financial performance in the Ministry of Education, Science and Technology ($r=0.578$, $p\text{-value}=0.021$). Also, e-informing had a significant effect with financial performance in the Ministry of Education, Science and Technology ($r=0.852$, $p\text{-value}=0.000$). The study recommends that MOEST should ensure that procurement policies and regulations are adhered to so as to be ethical in the tendering process. MOEST should enhance their e-sourcing activities so as to gain control over their tender processes and an audit path for compliance purpose and to support collaboration and allow various stakeholders to easily work together. MOEST should practice e-ordering in order to improve employee productivity, receive accurate orders, create a better experience for customers. Since e-informing has a positive influence on financial performance, the study recommends that it is important for MOEST to obtain the information of the suppliers on their previous clients as well as their experiences. It is also important to consult references for product/service quality, electronically, so as to improve the financial performance of MOEST.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Any procurement principle's goal is to obtain the correct service or product, at the correct time, at the correct place, at the correct price in the possible manner that is most efficient. If procurement is carried out correctly, the accruing benefits from best practices like those include; save money, value addition and time to their product or service (Aboelmaged,2010). Archer and Yuan (2010) observe that communication technologies and information are transforming the organizations ways of doing business especially e-commerce and e-business adoption. Organizations in many industries utilize electronic procurement (e-procurement) by trying to raise the supply/purchasing management function efficiency as well as reducing the price.

The process of procurement entails specifying and identifying the initial need by users, by the search,contracts negotiation and sourcing stage as well as placement of order which include mechanisms of receipt registration, payment triggering and supporting post-supply evaluation. According to Croom and Johnston (2013) systems of e-procurement symbolizes a vital development for the process of purchasing thereby offering gains to the organizations by the process of purchasing, reductions of price and gains of efficiency. E-procurement is quickly changing how the organizations coordinate and structure the relationships of their business. Therefore, evaluating the factor affecting adoption of e-procurement on organizational financial performance becomes critical.

1.1.1 Adoption of E-procurement

Any organizations success relies on financial management which is sound. All firms that are private or public which have been put under statutory management for the last ten years experienced the problems of liquidity and did not pay their financial requirements of short term when it was time to (NSE, 2010). Due to liquidity problems, public projects were either delayed or not completed as anticipated. Business and people without internet access may not participate in the processes of e-procurement (Njihia, 2013). There also have been challenges with e-procurement system malfunctioning to a case that National and County Governments cannot literally pay the suppliers bills, creating problems for the firms and in the process causing a confidence crisis. There are infrastructure issues too which is required in supporting electronic procurement. This is a pushback against the anti-corruption aspect of the system.

E-procurement is a solution of technology which enhances corporate buying by use of the internet (Jain &Bandyopadhayay, 2018).Eadie, Perera, Heaney and Carlisle (2017) indicate that e-procurement symbolizes an effective and vital development in the e-business employment in chain management of supply, note that an organization which uses e-procurement benefits from reduction of price in tendering, reduction of time in sourcing of materials, lower costs of administration, procurement staff reduction as well as communication improvement. Adoption of e-procurement is constructed to include e-tendering e-sourcing, e-ordering and e-informing.

As a major strategy in the development of initiatives and different programs of electronic procurement, contributing additional opportunities for businesses industry,

leading to an economy that is globally competitive and assisting to secure an economic growth that is sustained (Lou & Alshawi, 2009). Vaidya, Sajeez and Callender (2016) observe that the primary benefit government agencies pursue to obtain adopting e-tendering is to lower the price of business doing and services delivery which are a bit community efficient. Vaidya, Sajeez and Callender (2016) further indicate that the gains from introduction of system of e-tendering in the sector of government is to bring the best value for the money of the tax payers, high effectiveness and efficiency, practice of consistent tendering all over government, enhances general initiative of e-commerce; as well as environmentally as a result of chiefly 'paperless' process.

Use of internet in decisions making strategies concerns where and how products and services are sourced (Farrington & Lysons, 2012). Barbara and Maxfield (2013) observed that, keeping pace with competition and delivering against strategic objectives procurement have to use state-of -the art technologies entailing e-sourcing. E-sourcing is a great and fast growing component where it requires various forms from sell-side and buy-side e-catalogs to post specifications and solicits of bids whereby sellers as well as buyers come together to trade.

During the sourcing of items many transactions that are of low value are performed, raising the effectiveness of the transactions of procurement to become valuable. Jahanshahi, Rezaei, Nawaser and Pitamber (2012) explains that the process of making and approving requisition of purchasing, placement of purchasing orders and reception of services and goods that are ordered, by use of a system of software that is based on the technology of the internet that improves greatly the performance of the supply chain. In e-ordering case the services and goods which are ordered are indirect

services and goods, that is, services and goods that are non-product related. Kim (2017) states that e-ordering improves greatly the performance of the supply chain because the placement of purchasing orders and reception of services and goods are ordered is enabled by using the technology of the internet.

Stonebraker (2006) observe that e-informing is a type of Enterprise Resource Planning (ERP) which is not associated directly with any stage in the process of purchasing such as ordering or contracting. E-informing means the gathering as well as the distributing process of the information of purchasing both to and from external and internal parties, by use of the technology of the internet. Making sure that shared information quality has turned out to be an effective idea of the management of the supply chain. Croom and Johnston (2013) states that E-informing makes sure that quality together with accuracy, adequacy, criticality, timeliness and credibility improving performance of supply chain that is more noticeable.

1.1.2 Financial Performance of MOEST

A subjective measure of how perfectly a firm may make use of assets from its principal business mode generating revenues (Metcalf, 2011). Performance of finances is as well used like an overall measure of the general financial health of a firm over a specified time period and may be used in comparison of the firms that are in similar industry or comparison of sectors in aggregation. Naser and Mokhtar (2014) indicates that the topic of financial performance always had interested the scholars and remains still a great concern area to the practitioners of business of all organization types. The health of an organization as well as its survival is affected by financial performance.

Harrington and Wilson (2012) argue that different ways have been used to measure performance of finances, items which are in statement of cash flow and income and financial position statement may be used like the business ability to achieve its financial obligations is measured by liquidity as they take place affecting not the common business operations of the company, it as well gives a sign of the ability of the business to endure risks by availing information concerning the ability of the operations to go on operating after a key financial adversity. Performance that is high is a sign of efficiency and effectiveness of management in using the resources of the company and has an impact which is positive to the economy of the country at large.

The measurement of financial performance in the public sector is not similar to that in the private sector. While private institutions have an objective to maximize profit, most public institutions seek to ensure efficient and effective utilization of available funds. According to Mule, Mukras and Nzioka (2015) analysis of profitability concentrates on the connection between expenses and revenues and on the profit levels relative to investment size in business for example sales returns shows the much that is earned by a firm in connection to sales made, Return on Assets (ROA) indicates the ability of the firm to utilize its assets and Return on Equity (ROE) discloses the investment returns. Organizations are often looking for ways of attaining great performance and thus formulation of many theories has been done and studies which firms conduct in the effort of determining the factors which affect the firm's performance.

Mihaiu (2014) indicates that the analysis of the public sector performance is of great importance to public institutions, which most of the times experience high volumes of public debt. In most countries public institutions have accumulated public debt as a

result of the imbalance between revenue and cost of service delivery. Mihaiu (2014) therefore highlights that it is necessary for institutions to give value for money. The combination of the citizens needs and the limited government budget, pressurize the government to realize the importance of ensuring that there is value for money. According to Public Sector Accounting Board (2013), indicated that the financial performance in the public sector is measured in terms of budget compliance, annual deficit/surplus, tangible assets and sources and use of cash. In Kenya, Office of the Auditor General (2017) reports that the financial performance measure of public institutions included inadequacies in accounting of unsupported expenditures, imprest management and pending bills (public debt).

1.1.3 Ministry of Education, Science and Technology

The mission of the Kenya Ministry of Education, Science and Technology (MOEST) is to coordinate, provide and promote lifelong education, research and training for sustainable development of Kenya. From 2008, the sector of education has gone through key changes which will influence the sector's planning. These changes entail The Kenyan constitution of 2010 promulgation, Sessional paper no. 14 Of 2012, policy of Science, Technology and Innovation (ST&I) and 8 parliament Acts enacted for policies implementation.

The Education, Science and Technology Ministry employed a Sector Wide Approach to Programme Planning (SWAP) over the 2005-2010 periods. This was realized in the Kenya Education Sector Support Programme (KESSP), which provided an Investment Programme that is multi-sector driven. Over the second period of MTP the NESP is anticipated to run the sector's development strategies. The present restructuring

process of the Education, Science and Technology Ministry and the need of responding to the needs of the Kenya Constitution of 2010; the Kenya Vision 2030 and the Jubilee Manifesto plays part in the aspirations for equitable and affordable quality education, training, science&technology realization. Thus, this forms the necessity of the development of the Education, Science and Technology Ministry Strategic Plan for the 2013-2018 periods.

1.2 Statement of the Problem

In addition, Education, Science and Technology Ministry has not in the last one decade been performing as expected in procurement and in the financial performance. In an Ethics and Anti-Corruption Commission (2018) report, the Ministry was ranked the fourth most corrupt entity in the country. The report indicates that over sh. 70 million was lost in procurement processes and corruption cases in the year 2017. In the year 2012, Britain -The biggest bilateral lender of Kenya stopped the funding towards free primary education after failing to account 4.2 billion Kenyan shillings (Oduor, 2016). Public Procurement Oversight Authority (2015) indicates that there was lack of prequalification of suppliers for specialized and complex tendering procedures that has led to expensive procurement and unacceptable procurement practices in the Ministry of Education, Science and Technology.

Besides, there was lack of standard bidding documents as provided by the regulations for requisitioning, processing, solicitation and contracting of procurements. The PPOA (2015) report also indicates that there was incompleteness of records, data and documentation relating to the procurement processes. Also, the report indicated that the Ministry does not have clear and documented operational procedures to undertake

proper procurement functions in the Ministry and its semi-autonomous government agencies. According to the Office of the Auditor General (2017) the public debt in the Ministry of Education, Science and Technology increased from the financial year 2012 to 2013 by 98.06 percent. It also increased by 98.51 per cent in the year 2014. Between the year 2015 and 2016, the level of unsupported expenditure increased from Ksh. 3,886,029 to Ksh. 43,840,320 by 91.13 per cent.

Orori (2011) studied the influencing factors of the e-procurement introduction in the industry of retail business. A Kenya retail chain supermarkets survey; Njoroge (2010) on procurement practices influencing factors in Kenya in the industry of construction and Mburu (2011) on e-procurement role in enhancement of effectiveness in the industry of telecommunication (A Study Case of Kenya Safaricom Limited). Meso (2010) studied on Kenya Public Procurement, a challenge of governance and legal technological critical analysis, Orina (2013) in her E-procurement factors of readiness study in the public sector in Kenya discovered that change resistance, not being enthusiastic, skills of the staff as well as to some degree policies of procurement affected the e-procurement readiness in public institutions. Of the studies reviewed, none incorporated the e-procurement effect on performance of finances in the public sector and thus the study purposes.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of this study was to investigate how adoption of e-procurement affects Financial Performance of Ministry of Education, Science and Technology, Kenya

1.3.2 Specific Objectives

- i. To find out the effect of e-tendering on financial performance of Ministry of Education, Science and Technology, Kenya.
- ii. To examine the effect of e-sourcing on financial performance of Ministry of Education, Science and Technology, Kenya
- iii. To assess the effect of e-ordering on financial performance of Ministry of Education, Science and Technology, Kenya
- iv. To investigate the effect of e-informing on financial performance of Ministry of Education, Science and Technology, Kenya

1.4 Research Questions

- i. What is the effect of e-tendering on financial performance of Ministry of Education, Science and Technology, Kenya?
- ii. What is the effect of e-sourcing on financial performance of Ministry of Education, Science and Technology, Kenya?

iii. What is the effect of e-ordering on financial performance of Ministry of Education, Science and Technology, Kenya?

iv. What is the effect of e-informing on financial performance of Ministry of Education, Science and Technology, Kenya?

1.5 Significance of the Study

The government is in the forefront in ensuring implications of financial performance on e-procurement are inspired to authorities that are responsible and the government in taking the important step in solving the problems which are facing the Kenya e-procurement adoption in the public sector. The study findings give guidelines to the makers of policy while the policy is formulated on e-procurement prudential guidelines. In the Public Sector, the procuring entities may be enlightened better on attitudes that are existent, supplier's propensity integration and this therefore may help them in making of choices that are informed.

The potential suppliers wishing to provide the public sector may be prepared and informed more in the investment terms they are needed to make to form successfully a partnership that is integrated and the possible challenges they in the process probable to come across. While in academia, the study findings may help some other academicians to search for literature gaps on the topic and the research may as well be used as appoint of reference for other studies that are related. The study gives an overall understanding of adoption of e-procurement in the context of the public sector of Kenya. This brings about value addition to the knowledge body in gap bridging between practices and theories in the context of the public sector e-procurement application.

1.6 Scope of the Study

The study paid focus on e-procurement determinants. Particularly, the study therefore will concentrate on the impact on tendering, sourcing, ordering and informing on financial performance. The analysis unit was the Education, Science and Technology Ministry (MOEST) and the observation unit was procurement staff, accountants, finance officers and information technology staff drawn from the departments in MOEST. They are technical and support staff team which ensures smooth operations as they are knowledgeable with financial matters in the Ministry. Data was collected in the month of November and December, 2017 using questionnaires. Descriptive design of research was employed and the study focused on the financial performance of MOEST for the last 5 years (2012 – 2016).

1.7 Limitations of the Study

This study experienced several limitations. First, the respondents were not willing to fill the questionnaires and provide the information needed to meet the objectives of the study as they considered it confidential. Nonetheless, they were guaranteed that their information would remain a secret and would be treated with high confidentiality. In addition, this study was limited to the Ministry of Education, Science and Technology which limited the scope and hence the findings could not be generalized to other ministries and public institutions. In addition, this study did not focus on the private sector in Kenya.

1.8 Organization of the Study

This project of research comprises of the section of preliminary as well as the five chapters. The part of preliminary comprises of the page of the title, declaration, dedication, acknowledgement, contents table, tables list, figures list, abbreviations and acronyms and finally the terms definition and abstract as well. Chapter one contains the study background, problem statement, objectives, significance, scope, limitations and study organization. Chapter two entails the theoretical review of literature, empirical review of literature, literature review summary, research gaps as well as conceptual framework. Chapter three comprises of the methodology that presents the design of research, population target, design of sampling, instrument of research, procedure of collection of data, analysis of data and considerations which are ethical. Chapter four has the findings of the research and discussion that presents the rate of response, information background and descriptive as well as inferential statistics. Chapter five outlines summary of the study, conclusions, policy recommendations and practice as well as recommendations for further studies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter contains a review that is extensive of relevant literature which is available on the conceptualized varied variables in the study. Theoretical and empirical literature that is relevant is brought to the fore by the review which stands like a basis for the study research. The chapter presents the research gaps and conceptual framework which indicates the research variable connections.

2.2 Theoretical Review

This part describes the various theories that are related to the study variables. Formulation of theories is done in order to understand, predict and explain the challenges and also extend the knowledge existing within the critical bounding assumptions limits.

2.2.1 Transactional Cost Theory

This theory was guided by Transaction Cost Theory (TCT) as advocated by Williamson (1989). The theory argues that organization come across the opportunism challenge when in a situation of bargaining with few other organizations. Therefore, then when suppliers are more, this lowers the risk and affords better procurement deals negotiating ability for the organization as the one purchasing depends less on

any specific supplier (Dedrick, XinXu & Xiaogou Zhu, 2008). The author further argues that the chosen suppliers number by an organization includes a balance that is optimal among the following major factors of transaction: opportunism of risk and costs of coordination.

This theory is anchored on the premise that connection between environmental and human factors is the cause of increasing costs of transaction in the system of the economy (Hart, 2006). Factors that contribute to costs of transaction interdependence may lead to their rise or reduction. Thus, the effort of lowering the costs of transaction ought not to target reducing a single factor effect but the interdependence effects between factors (Ghoshal, 2008). As such, in the procurement of goods and services for state corporations, transactional cost can be reduced by automating procurement processes.

During tender evaluation and award stages in an open tendering in state corporations, financial evaluation is normally carried out to make a decision on the winning bidder. As such, the analysis of the amount quoted by various bidders in terms of cost and overheads is normally conducted in order to determine the actual price chargeable that can be negotiated. As one of the major e-procurement adoption objectives is to enhance cost reduction by eliminating transaction cost, transaction cost theory best explains e-tendering variable.

2.2.2 Logistics Theory

The theory of Logistic was designed in order to help in management of transportation and logistics (Garver & Williams, 2018). Russo, et al. (2016) indicates that the origin

of the logistic theory concept has been motivated by a lot of research fields that include the quality revolution, management of materials notions and logistics that are integrated. Swanson, Francisco and Stock (2017) indicates that logistics may be defined as an organizing, controlling and planning of different activities in the in-flow of material, from raw material till the finished products and the manufactured products reverse flows with the purpose of demands of customers satisfaction in the market as well as providing a customer service that is good, costs reduction, capital which is less tied-up and less impact on the environment (Altun, Khan, Alizadeh, Ozel&Butt).

Logistics can as well be defined as activities which relate to the reception of the correct service or product in the correct quantity, in the correct quality, in the correct place, at the correct time, delivery to the correct customer and at the correct price. In most circumstances, logistics is seen from an operative way perspective of transportation and movement of materials from one place to another or production of services. This operations credibility is based on how effective is the systems design which results to this type of logistics. Systems of logistics entails responsibilities which are operative that include the purchase and operation of routine, administration and responsibilities that are constructive and detailed plan or design (Al-Saffar& Kim, 2017).

The theory to the study connects management of logistics as that part of procurement management which controls, plans and implements the effective, efficient reverses and forward flow and services and goods storage as well as information that is related between the origin point and the consumption point so as to meet the needs of the customer. The theory explains the e-ordering variable.

2.2.3 Technology Acceptance Model Theory

The Technology Acceptance Model (TAM) was proposed by Liebenberg, Benadé&Ellis, (2018). This theory forms a basis of tracing how variables that are external affect attitude, intention to use and belief. TAM posits two beliefs which are cognitive: perceived usefulness and perceived ease of use. One's initial system of a technology use according to TAM is affected indirectly or directly by the behavioral intentions of the user, attitude, the systems perceived usefulness and the systems perceived ease. TAM proposes also that factors which are external play part with an intention to actualize the effects that are mediated on perceived ease of use and benefits (Davis, 1989).

Generally, variables which relate to the behavioral intention of using technology of information or to the initial utilization of technological information could be categorized into four groups: context of the individual, context of the system, social context and context of the organization. As social context means social influence on information technology use and personal acceptance, context of the organization puts more emphasis on information technology use and one's support which has influence in the organization.

Marangunic and Granic (2014) figured out accessibility and visibility of the system, relevance as variables of context of a firm. They affirmed that the organizational context influences perceived ease of use and perceived benefits of an information communication technology. According to Wu and Wang (2005) reported the same that accessibility of information communication technology contributes to greater

business returns with better technology of communication use in comparison with the manual operation.

This model informs the study through stating that before adoption of e-procurement, attitude of the employees has to be assessed by administrators across this new technology of information, so as to avoid waste of resources and implementation failure. A policy willing and process that is well designed may be pre-conditions that are crucial for the implementation of e-procurement. The theory explains e-sourcing variable.

2.2.4 Technology Diffusion Theory

This theory came from Rogers (1962) whereby the diffusion definition entails five elements that are made of early adopters, innovators, late majority laggards and early majority. He gives an explanation that over time information of a product or an idea acquires momentum therefore spreading by a social system which is specific. This theory is the usual lens by which theorist carry out study on development and adoption of new ideas. Diffusion is basically defined as innovations acceptable and process to be adopted by the community members or individual.

Technology Diffusion Theory contributes to the current study since its relevant in the revolution of new technology that has effected the processes of procurement that are the change drivers in the function of purchasing that entails paperless transactions making goal to a system which is secure and promotes procure to pay as a procurement of world top class objective in the public sector procurement function performance (Lysons&Farrington, 2016). The theory of Technology Diffusion is vital

in firm guidance for change initiation and technologies in procurement adoption therefore moving to a process of world class procurement. The theory explains e-informing variable.

2.3 Empirical Review

2.3.1 E-tendering and Financial Performance

Waka (2016) studied E-tendering adoption as well as procurement performance of oil marketing firms in Kenya. Explanatory study was employed in the research study. The population of the study was 20 (twenty) of the leading firms in Kenya. A questionnaire was used in the collection of primary data. The collected data was then analyzed through quantitative analysis. A multivariate regression analysis was established if there existed association amid e-tendering adoption and procurement performance. The findings show that most oil marketing firms in Kenya still apply the traditional tendering method to a large degree.

Kisurkat (2017) studied the impact of tendering on the performance of the public institutions in Kajiado County. In the study, descriptive research design was adopted. Collection of data was done from three procurement professionals per entity in Kajiado County using questionnaires. Simple random sampling was employed in selection of the study sample. The study concludes that entities that conduct tendering procedures as per the act improves the performance of their department.

Barngetuny and Kimutai (2015) examined the impact of e-tendering on performance of supply chain performance of Medical Supplies Agency. The study used descriptive

approach research design where 85 respondents were drawn from the Kenya Medical Supply Agency and it targeted executive staff, managerial staff, supervisory staff, operation and other staff. Primary data was gathered with an aim of evaluating effectiveness of e-tendering in Kenya Medical Supply Agency. The study concluded that Kenya Medical Supply Agency has recorded favorable performance in supply chain operations by improving supplier relationships and management practices as well as enhancing productivity. The effect of e-tendering in the public institution is seen in the improvement of productivity in supply chain activities.

Eunice (2015) carried out a study on the function of the process of e-tendering on public institution performance: A Case Study of County Government of Nakuru. A case study design was employed for this particular study. This study targeted 43 officers of procurement from 10 Nakuru County Headquarters Ministries. The census technique was used where questionnaires were used to collect the data. Analysis of data was carried out through inferential and descriptive statistics. The findings showed that the transparency degree was good in the County Government, corruption in the process of tendering was reduced through openness leading to good performance and improved accountability in the public institutions.

2.3.2 E-ordering and Financial Performance

Evans, Gregory, Maurice and John (2018) study investigated the electronic order processing influence on performance of supply chain of Kenya sugar processing firms. Mixed research design was applied and the population targeted 12 sugar processing firms in Kenya with a target population of 7,584. Stratified random sampling was employed to produce a 367-sample size. Data was gathered by a self-

administered drop and pick questionnaire, interviews and observation. The results revealed the relationship that significantly existed amid processing practice of electronic order and performance of the supply chain. The study concludes that electronic order processing practice enhances supply chain performance.

Georgiou and Westbrook (2010) study investigated the e-ordering consequences for the environment of communication of the Services of hospital laboratory. Adoption of theoretical techniques of sampling was done to test and develop hypothesis and ideas that are emerging. The research took place during new system implementation amid November 2005 and October 2007. The study concluded that the information processing and communication are major facets of the functioning of the organization.

Turner, Deans, Kite and Croal (2013) carried out a study on the impact of ordering of electronic on pre-analytical errors in primary care. Data error were revised in the two periods of six months, post and pre-implementation of Primary Care electronic requisition. The study established that there was a reduction in the pre-analytical errors that followed the electronic requisition introduction (2764 pre-implementation vs 498 post-implementation <0.001). The study concluded that primary care electronic requisition introduction may lower the pre-analytical errors number and may upgrade the information quality that is received with every request.

Nancy (2017) study investigated e-ordering and e-informing on performance of supply chain in Kenyan state corporations in Nairobi County. Explanatory research design was used in the undertaking of this research. Using 262 officers of procurement from 112 state corporations of Kenya, the findings of the model of multiple regression findings indicated that e-ordering has a significant and positive

impact on performance of supply chain. The study makes a conclusion that e-ordering that is the element of the dimensions of procurement raises the performance of supply chain.

Georgiou, Greenfield, Callen and Westbrook (2009) study examined considerations of safety and efficiency for electronic ordering introduction in a blood bank. The study was done in the blood bank of a teaching hospital in Sydney, Australia with a 600 bed capacity. Qualitative data was obtained through interviews, observation of participants and telephone conversation. The study concluded that effective channel of communication enhancement and maintenance between the clinical staff who are ward-based and the staff of blood bank together with good controls of monitoring are vital for the effective and safe implementation of the systems of electronic ordering.

2.3.3 E-sourcing and Financial Performance

Kimutai and Ismael (2016) study investigated the work of strategic practices of e-sourcing on performance of supply chain in Kenya Electricity Generating Company. The study was a cross-sectional survey. The target population in this study included staff in top level management, supply chain, ICT, finance and customer service at Kenya Generating Co. Ltd drawn from 187 state corporations. Stratified random sampling was adopted for respondents in the study. Questionnaires, unstructured interviews and observation were used in data collection. The study concludes that supply chain risk management is another aspect of strategic e-sourcing practices that affects the supply chain performance of organizations.

Maureen and Josphat (2016) studied the effects of electronic sourcing on procurement function performance in the County Government of Nakuru. The design of Descriptive Research was adopted. The population target of the study comprised of all the 168 procurement staff of the County Government of Nakuru from which a sample of 118 was chosen by use of the simple technique of random sampling. The study used questionnaires in the collection of primary data. The study found that adoption of e-sourcing in the County Government of Nakuru has not been fully implemented thus the full benefits of e-sourcing have not been realized.

Isaac and Robert (2015) study investigated the function of strategic sourcing on performance of Kenya public procurement. The paper conducted a systematic literature papers review in the procurement and strategic sourcing field using the analysis of content. The study established strategic sourcing as a tool of supply management which delivers effective reductions of cost as well as other benefits. This study entails that sourcing through supplier's location and identification is quite simple but becomes more complicated while the amount of parts, components, ingredients, products, apparatus, connectors, services, supplies and equipment goes up and the buyers number engaged in decisions becomes more complex.

Geoffrey, Muma and Elyjoy (2016) study examined e-maintenance, performance of public procurement and e-sourcing in Kenya, Kericho County. The target respondents target were Kericho County employees in procurement, accounts and finance as well as the department of IT were chosen purposively so as to form the frame of the sample. The study findings showed positive connection between procurement performance and e-sourcing and procurement performance and e-maintenance.

2.3.4 E-informing and Financial Performance

Nancy (2017) study investigated e-informing and e-ordering on performance of supply chain of State Corporations in County Government of Nairobi. Explanatory research design was used in the undertaking of this research. Using 262 officers of procurement from 112 State Corporation of Kenya, findings of the model of multiple regression indicated that e-informing has a significant and positive impact on performance of supply chain. The study makes a conclusion that e-informing that is the element of the dimensions of e-procurement raises the performance of supply chain. Thus, it is necessary for firms to utilize e-informing in the process of e-procurement.

A study carried out by Kennedy (2015) investigated the connection between systems of e-procurement and procurement function performance in Kenya Commercial Banks. The target population constituted 486 members of staff of Kenya Commercial Bank. From this target population, total 97 participants who were chosen by simple random sampling. Questionnaires were employed to collect data. The study discovered that e-informing helps companies in decentralizing processes of operational procurement and also centralize processes of strategic procurement. The study made a conclusion that e-informing plays a major role in ensuring an organizations' effective communication.

Rashed, Azeem and Halim (2010) study examined sharing of knowledge and information on performance of supply chain. Formulation of a conceptual model was done on the basis of the previous literature. Performance of a questionnaire-based survey was done. 30 Bangladeshi of Garments Readymade Industry data was

collected by mail survey and interview. The study findings indicated that sharing of information is a prerequisite and the close buyer-supplier connection is an important factor for escalation of the operational performance.

Van den Abbeele, Roodhooft and Warlop (2009) studied the impact of cost information on negotiations of supplier-buyer in different settings of power. The study used experimental design and recruitment of participants was done from a Master's Program in Business Administration course of accounting management at a large university of West-European. The experiments results showed that less powerful buyers' disadvantage of performance is pronounced less if the buyer is well informed on cost of information and that this finding may be well explained by the negotiation behavior of the buyer.

2.4 Literature Summary Reviewed and Research Gaps

Table 2.1: Reviewed Literature Summary and Research Gaps

Author/s	Study Focus	Findings of the Research	Research Gaps	Current Study focus
Waka (2016)	E-tendering adoption and performance of oil marketing firms in Kenya.	there existed association between e-tendering adoption and procurement performance	Made use of explanatory study which does not provide conclusive results because of lack of its statistical strength	Made use of descriptive study
Barngetuny and Kimutai (2015)	E-Tendering on Supply Chain Performance of Medical Supplies Agency	The effect of e-tendering in the public institution is seen in the improvement of productivity in supply chain activities	Medical Supply Agency formed the context of the study	MOEST forms the context of the study.
Evans <i>et al.</i> (2018)	Electronic order	There is significant relationship between	Sugar processing industry Context	MOEST Context

	processing on supply chain performance of sugar processing firms in Kenya.	electronic order processing practice and supply chain performance.		
Georgiou and Westbrook (2010)	E-ordering for the communication environment of hospital laboratory Services	Communication and processing of information are key facets of how organization function.	Qualitative in nature thus not conclusive results due to smaller sample involved.	Quantitative in nature and was guided by descriptive research design.
Nancy (2017)	E-ordering and E-informing on supply chain performance in state corporations of Kenya in Nairobi County.	E-informing which is the element of e-procurement dimensions' increases supply chain performance?	Exploratory research design which disallow making inferences	Descriptive research design that supports making inferences
Kimutai and Ismael (2016)	Role of strategic e-sourcing practices on supply chain performance in state corporations in Kenya. A case of Kenya Electricity Generating Company Ltd.	Supply chain risk management is another aspect of strategic practices of e-sourcing that affects the supply chain performance of organizations	Purposive sampling design that yields a sample which is not representative.	Stratified proportionate sampling which draws a representative sample
Isaac and Robert (2015)	Role of strategic sourcing on public procurement performance in Kenya.	Strategic sourcing is a tool of management of supply which delivers significant reductions of cost as well as other benefits	Qualitative study which does not support making of conclusions.	Quantitative study which supports making of inferences.

Rashed, Azeem and Halim (2010)	Effects of information and knowledge sharing on supply chain performance.	Information sharing is a pre-requisite for knowledge sharing and the close supplier-buyer relationship is a vital factor for escalating the supplier's operational performance.	Qualitative study that does not allow making generalizations.	Quantitative study which will help the researcher in making generalizations.
--------------------------------	---	---	---	--

Source: Researcher and Literature Reviewed (2018)

2.5 Conceptual Framework

Figure 2.1 indicates the connection between the dependent and independent variables. The independent variables are the, e-tendering, e-sourcing, e-ordering and e-informing and the dependent variable is the financial performance. E-tendering reduces errors since all may undergo checking before ordering is done and in a well-formatted manner they are received making them easy for processing. E-sourcing reduces costs by minimizing the expenses for both buyers and sellers particularly in print and paper costs. Through e-ordering, customers are able to place orders and integrate directly into the organization's website and point of sale system. E-informing helps streamline the purchasing, centralizes the whole process, and reduces the possibility of exceptions. Financial performance refers to how well MOEST may utilize budgetary allocations in terms of level of unsupported expenditure, value for money and public debt (pending bills).

Independent Variables

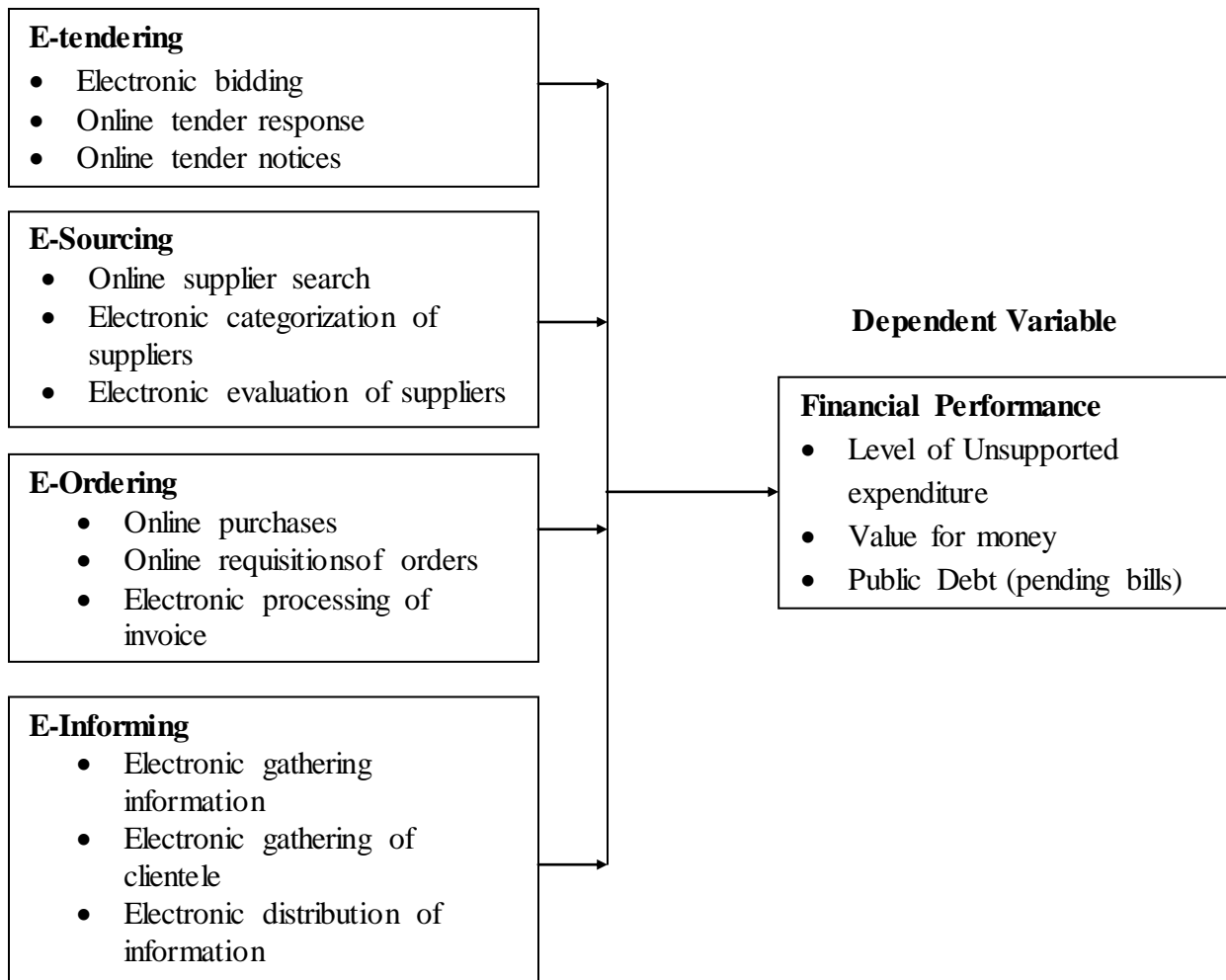


Figure 2.1: Conceptual Framework

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter entails the research design, target population, sampling design and sample size, data collecting instruments, pilot study, validity of the instruments, reliability of the instruments and data collection procedures, analysis of data and presentation as well as ethical considerations.

3.2 Research Design

Descriptive research is used to clearly show the happening of a specific situation (Pastore, 2017). It can be applied in justification of current practice and judgment making and theories development as well. For this study's purpose, descriptive research design was applied in obtaining the e-procurement adoption picture in the Kenya public service. The approach is suitable since it permits the investigator to avail data generalization obtained from methods that are qualitative and it also helps the researcher in generation of data which is rich and thick derived from methods that are qualitative (questionnaires) (Teddlie & Tashakkori, 2009). According to Kombo and Tromp (2012), descriptive survey is an information collection way through interviews or questionnaires administration to a group of individuals who are chosen.

3.3 Target Population

The study population was employees in the Education, Science and Technology Ministry and these were the targeted departments: Accounts, Information Technology, Finance and Procurement as shown in Table 3.1. The study targeted a total of 120

employees in the MOEST who were engaged in e-procurement adoption and financial performance in the Ministry of Education, Science and Technology.

Table 3.1: Target Population

Categories	Target	Percentage
Procurement Department	15	37
Accounts Department	8	20
Finance Department	7	18
Information Technology Dept.	10	25
Totals	40	100

Source: Ministry of Education, Science and Technology, 2017

3.4 Sampling Design and Sample Size

In a statistical population, a sample is a finite part where a study is carried out on specific properties of individuals so as to get the studies' information (Mugenda&Mugenda, 2003). This study applied census method where in the study the entire population was involved. The sample size of the study was 40 respondents from the department of Information Technology, Procurement, Finance and Accounts in the Kenya Education, Science and Technology Ministry because they were knowledgeable in the study area in the Kenyan public sector on financial performance and e-procurement.

3.5 Data Collection Instruments

This is the information gathering and measuring process on the variable of interest in a systematic fashion established which helps an individual in answering hypotheses of stated questions of research and outcomes evaluation. Primary data in this study is

important since it enables the researcher to handle issues that are study specific. Primary data making it possible for the researcher to control better the collected information and provide freedom of deciding on the size of the sample, time and research location (Mugenda&Mugenda, 2003).

Through questionnaires primary data was gathered from the respondents. Administration of questionnaires was done to choose the respondents from the Ministry randomly. The questionnaire entailed intended in answering formulated questions with reference to the questions of research and the study objectives. The questionnaire also had questions which were open and closed ended for uniformity enhancement and maximum data collection.

3.6 Pilot Study

To make data collection possible that is both reliable and valid, it was important to conduct a pilot study. A pilot study ought to be conducted always in establishing the instruments of data collection reliability and validity (Saunders, Lewis & Thornhill (2007)). Pre-testing of questionnaires was done on 10 respondents. The participating subjects were never made part of the eventual study to prevent fatigue and bias. All questionnaire aspects underwent pre-testing which entailed content of the question, sequence, wording, layout and form, instructions as well as difficulty of the question. The derived feedback was applied in the questionnaire revision before it was administered to the respondents of the study.

3.6.1 Validity of the Instrument

Mugenda and Mugenda (2003) argue that inferences meaningfulness and accuracy that are based on the results of the research is what is its validity. It is the extent to which derived results from data analysis represent the study variables. The instrument of research was made valid in terms of face and content validity. The technique that is content related measured the extent of reflection of particular areas to be covered of the question items. Content validity was done to ascertain clarity and simplicity of the research instrument through engaging the research experts and the university supervisor.

3.6.2 Reliability of the Instrument

Test reliability measures the instrument of research internal consistency and thus assesses the extent of measuring similar attribute by different questionnaire items (Shanghverzy, 2003). Moreover, Treiman (2009) affirms that reliability is shown if varied measures of similar concept or similar measurements repeated over time give similar results. Questionnaire reliability was assessed by use of Cronbach's Alpha index that measures the internal consistency and items establishment within a measure of scale and similar construct of research. Cronbach's Alpha Index of at least 0.7 as a reliable questionnaire good indicator (Rousson, Gasser & Seifer, 2002). Cronbach's Alpha Index was established by use of SPSS and availed the measurable items average and its correlation as well. The research variables reliability test results employed in this study are summarized in Table 3.2.

Table 3.2: Results of Reliability Test

Research Variable	Cronbach's Alpha Index	Number of Items	Comment
--------------------------	-------------------------------	------------------------	----------------

E-tendering	0.812	7	Reliable
E-sourcing	0.784	6	Reliable
E-ordering	0.733	6	Reliable
E-informing	0.678	3	Reliable
Financial Performance	0.881	3	Reliable
Aggregate	0.778	25	Reliable

Source: Pilot Data (2018)

Table 3.2 results indicate that financial performance indicator had the largest reliability ($\alpha= 0.881$), followed by e-tendering ($\alpha=0.812$), e-sourcing ($\alpha=0.784$), e-ordering ($\alpha=0.733$) and e-informing ($\alpha=0.678$). This reveals all the five variables of research showed reliability as their values of Cronbach’s alpha was above the threshold of 0.7 recommended by (Rousson et al., 2002). Furthermore, the results showed indication that all the five variables of research had an aggregate alpha index of 0.778 for all the 25 items and as such is within the range recommended range for an instrument of research that is reliable.

3.7 Data Collection Procedure

Questionnaires were used to carry out collection of data. The respondents were equipped with a letter of introduction that the university issued to impart respondents with confidence. It was not necessary for the respondents to indicate their personal details like names so as to make sure that they provide information that is detailed, accurate, and reliable with no prejudice. Administration of questionnaires was done by the method of drop and pick. If in any case a respondent failed after two weeks to fill the questionnaire, then through a phone call a follow up will be done and collection will be done at a conveniently arranged time between the respondents and

the researcher. The study considered the industry studies information on account and the previous studies results.

3.8 Data Analysis and Presentation

Before the analysis of data, the consistency of the responses was examined. The coding of data was then done to enable grouping of responses into different categories. Descriptive statistics entailed frequencies, percentages, standard deviation and mean. Descriptive assisted in generating the measures of summary of the sample observed and preparing the qualitative data for more statistical analysis. Presentation of the findings of the descriptive analysis was done using tables as well as figures.

Statistics of inferential employed analysis of multiple regression since several variable of explanatory applied in this study were there. Statistical analysis was directed by the model of multiple regression presented below.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where: Y = Financial Performance for the last 5 years (2012 – 2016)

X_1 = E-tendering

X_2 = E-sourcing

X_3 = E-ordering

X_4 = E-informing

$\beta_0, \beta_1, \beta_2, \beta_3$ = Beta coefficients

ε = error term

3.9 Ethical Consideration

University consent form was availed that show the study purpose and university permission. Assurance of confidentiality was given to the respondents for the research participation.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The chapter entails response rate results, respondent's demographic information, descriptive findings as per the variables and inferential statistics including correlation analysis and regression analysis. The chapter outlines as well data presentation and analysis on e-procurement adoption in the Ministry of Education, Science and Technology financial performance.

4.2 Response Rate

Response rate outlines the percentage of the questionnaires completed and returned to the researcher, according to the presentation in Table 4.1.

Table 4.1: Rate of Response

	Frequency	Percentage
Respondent	37	97.4
Not Respondent	1	2.6
Total	38	100.0

Source: Researcher (2017)

Table 4.1 results indicate that among 38 of those respondents, 37 of them completed the filling in and gave the questionnaires back, creating a response rate of 97.4 percent. Berg (2004) affirms that response rate of 70 and above percent is good. Thus, at 97.4 percent response rate was commendable. The high response rate was achieved because the researcher could establish direct connection with the respondents and explain the study's purpose to them.

4.3 Demographic Information

4.3.1 Gender of the Respondents

The study was seeking to find out the respondents' gender. The findings were as presented in Figure 4.1.

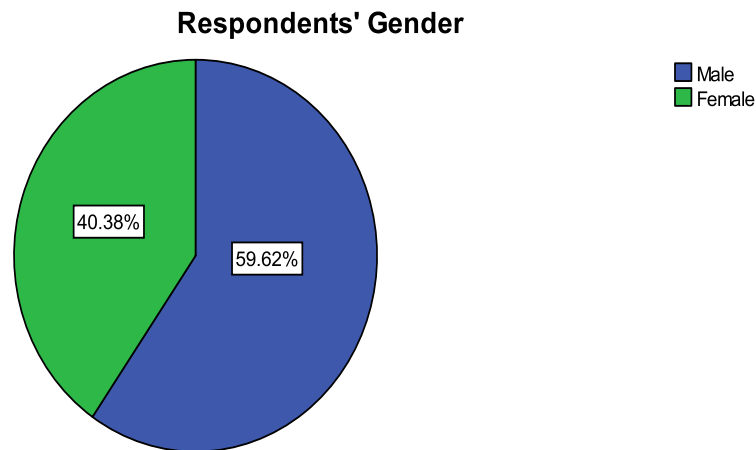


Figure 4.1: Respondents' Gender
Source: Researcher (2018)

Figure 4.1 shows that most respondents in the study (59.62 percent) were male and the female 40.38 percent of the respondents. This means that in both genders there was better participants' representation.

4.3.2 Age of the Respondents

The study enquired on the age bracket of the respondent in four categories. Table 4.2 shows the results.

Table 4.2: Age of the Respondents

Age Bracket	Frequency	Percentages
Less than 25 years	7	18.9
25 – 34 years	9	27.0
35 -44 years	15	32.4
45 years and above	11	21.6

Total	37	100.0
--------------	-----------	--------------

Source: Researcher (2018)

Table 4.2 shows that most of the respondents were aged between 35 and 44 years as the representation is by 32.4 percent, 27.0 percent of the respondents were aged between 25 and 34 years. In addition, 21.6 percent were those aged 45 and above and 18.9 percent were below 25 years. The results indicate that this study used respondents of varied age gaps.

4.3.3 Education Level of the Respondents

The participants in the study were required to indicate their level of education. The presentation was done as shown in Figure

4.2.

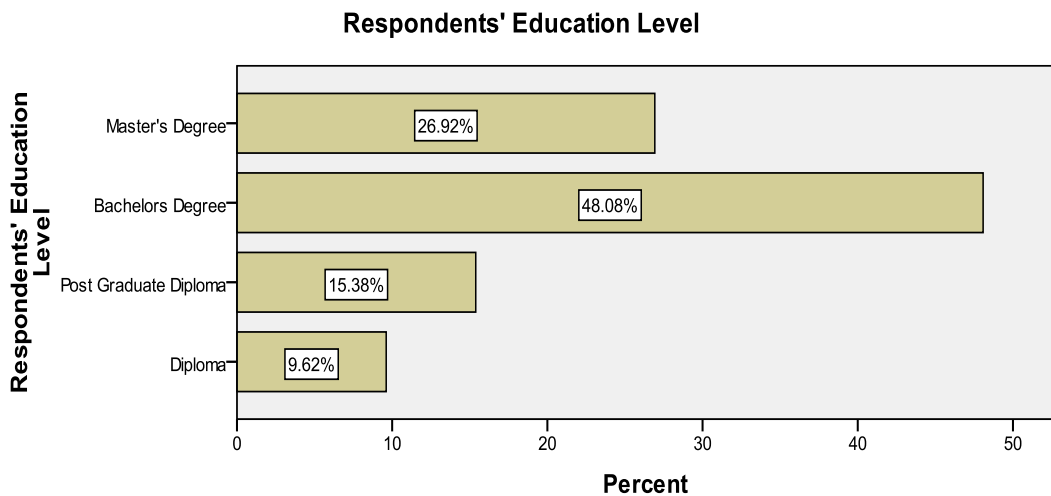


Figure 4.2: Level of Education

Source: Researcher (2018)

Figure 4.2 shows that 48.08 percent of the participants had Bachelor's Degree education. These were followed by those with Master's Degree as represented by 26.92 percent, Post Graduate Diploma holders as represented by 15.38 percent and

certificate of Diploma holders as represented by 9.62 percent. The respondent in this case had the requisite literacy level for study participation as well as providing the researcher with the information of interest in regard to the objectives of the study.

4.3.4 Work Experience of the Respondents

The study enquired about the respondents' number of years worked in their organization. Presentation of findings was as shown in Table 4.3.

Table 4.3: Work Experience of the Respondents

Work Duration	Frequency	Percentage
Less than 5 years	8	21.6
5- 9 years	9	24.3
10 – 15 years	14	37.8
Above 15 years	6	16.2
Total	37	100.0

Source: Researcher (2018)

Table 4.3 shows that 37.8 percent of the participants have worked in the organization for between 10 to 15 years. These were followed by 5 to 9 years with 24.3 percent, less than five years with 21.6 percent and above 15 years with 16.2 percent. Results confirmation indicate that this study's employees had experience required to give the researcher information of interest.

4.4 Descriptive Statistics

Standard deviations and means as descriptive statistics were adopted to indicate that quantitative results in regard to the study variables. It covers e-tendering, e-sourcing, e-ordering and e-informing.

4.4.1E-tendering and Financial Performance

E-tendering is one of the practices believed to influence financial performance. The objective for this study was to find out the effect of e-tendering on financial performance of MOEST. E-tendering was analyzed on the basis of mean and standard deviation as shown on table 4.4.

Table 4.4: E-tendering and Financial Performance

Statement	Mean (M)	Standard Deviation (SD)
Online tender notices	4.06	1.178
Online tender response	3.98	1.075
Electronic bidding	4.23	0.854
Help identify tender shortlist	4.17	0.785
Control prequalification process	4.13	1.138
Creates evaluation matrices	4.21	0.776
Administering the return and opening of electronic sealed bids submission	4.07	1.074
Aggregate Score	4.12	0.983

Source: Researcher (2018)

Based on the analysis, the mean(M) was 4.12 while the standard deviation(SD) was 0.983. The study findings indicated that e-tendering had effect on financial performance of MOEST to a great extent. The findings concur with Waka (2016) findings who carried out an adoption of e-tendering and performance of procurement of oil marketing firms' study in Kenya and found that most oil marketing firms in Kenya still apply the traditional tendering method to a large degree. Kisurkat (2017) study found out that entities that conduct tendering procedures as per the act improved the performance of their department.

Eunice (2015) researched on the process of tendering role on institutions on public performance. Nakuru County Government was a case study and discovered that openness level was good in the government of the county, corruption was reduced by transparency in the process of tendering thereby leading to public institutions enhanced performance and that process of tendering public administration results to accountability in the process of tendering and therefore good performance in public institutions.

4.4.2E-Sourcing and Financial Performance

E-sourcing is also one of the practices believed to influence financial performance.

The objective for this study was to examine the effect of e-sourcing on financial performance of MOEST. E-sourcing was analyzed on the basis of mean and standard deviation as shown on table 4.5.

Table 4.5: E-sourcing and Financial Performance

Statement	Mean (M)	Standard Deviation (SD)
Online supplier search	4.17	0.785
Electronic supplier evaluation	4.06	1.250
Electronic supplier categorization	3.96	1.204
Supplier performance reporting	3.65	1.385
Supplier recruitment and approval	3.56	1.335
Tender preparation and execution tender administration	3.77	1.516
Aggregate Score	3.86	1.246

Source: Researcher (2018)

From the above analysis, the mean(M) was 3.86 whereas the standard deviation(SD) was 1.246. The findings of the study indicated that e-sourcing had effect on financial

performance of MOEST to a great extent. The findings of Kimutai and Ismael (2016) study which investigated on the strategic role and practices of e-sourcing on supply chain performance in Kenyan state corporations: A Kenya Electricity Generating Company Ltd and established that supply chain risk management is another aspect of strategic practices of e-sourcing that affects performance of supply chain of organizations, Maureen and Josphat (2016) conducted effects of electronic sourcing on procurement function performance at the County Government of Nakuru and found that adoption of e-sourcing in the County has not been fully implemented thus the full benefits of e-sourcing have not been realized.

4.4.3E-Ordering and Financial Performance

E-ordering is believed to be one of the practices influencing financial performance. The objective for this study was to assess the effect of e-ordering on financial performance of MOEST. E-ordering was analyzed on the basis of mean and standard deviation as shown on table 4.6.

Table 4.6: E-ordering and Financial Performance

Statement	Mean (M)	Standard Deviation (SD)
Online purchases	3.22	1.217
Electronic invoice processing	3.11	1.385
Online order requisitions	3.47	1.437
Ability to track orders	3.78	1.525
Reduced ordering error	4.11	0.994
Reduced cost of ordering	3.02	1.539
Aggregate Score	3.45	1.349

Source: Researcher (2018)

From the above analysis, the results were 3.45 for mean(M) and 1.349 for standard deviation(SD). The study thus derived that generally, e-ordering impacts on financial performance of MOEST to a great extent. The findings concur with Evans *et al.* (2018) study which investigated the processing of electronic order influence on performance of supply chain of Kenyan firms that process sugar and revealed that a significant connection between the processing of the practice of the electronic order and performance of supply chain. Georgiou and Westbrook (2010) study investigated the consequences of the environment of e-ordering of laboratory services in a hospital and established that information processing and communication are major facets of the functioning of the organizations.

4.4.4E-Informing and Financial Performance

E-informing is also believed to be one of the practices influencing financial performance. The objective for this study was to investigate the effect of e-informing on financial performance of MOEST. E-informing was analyzed on the basis of mean and standard deviation as shown on table 4.7.

Table 4.7: E-informing and Financial Performance

Statement	Mean (M)	Standard Deviation (SD)
Electronic information gathering	3.84	1.468
Electronic clientele gathering	3.38	1.647
Electronic information distribution	3.57	0.820
Aggregate Score	3.59	1.312

Source: Researcher (2018)

From the above analysis, the results were 3.59 and 1.312 for mean(M) and standard deviation(SD) respectively. From the findings above, e-informing impacts on the financial performance of MOEST greatly. The findings concur with Nancy

(2017)study which investigated e-ordering and e-informing on performance of supply chain in state corporations in Kenya in the County of Nairobi and revealed that e-informing which is the element of the dimensions of e-procurement enhances supply chain performance. Thus, it is necessary for firms to utilize e-informing in the process of procurement. A study carried out by Kennedy (2015) investigated the connection between Kenyan Commercial Banks procurement performance function and systems of e-procurement and found out that e-informing helps companies in decentralization of the processes of operational procurement as well as the centralization of the processes of strategic procurement. The study concludes that effective organization communication is facilitated by e-informing.

4.4.5 Measures of Financial Performance

The measures of financial performance in the Education, Science and Technology Ministry included level of unsupported expenditure, value for money (excess expenditure and public debt (pending bills)). Presentation of the results was as in shown Table 4.8

Table 4.8: Measures of Financial Performance

	Level of unsupported expenditure	Value for money (excess expenditure)	Public Debt (pending bills)
2011-2012	17,848,293	5,913,621,073	2,272,720
2012-2013	6,795,174,819	2,312,322,098	117,153,118
2013-2014	12,826,647,906	1,233,122,981	7,891,546,180
2014-2015	3,886,029	1,375,281,547	803,210,326

2015-2016	43,840,320	212,322,134	112,742,143
-----------	------------	-------------	-------------

Source: Researcher (2018)

The results indicated that the level of unsupported expenditure has been fluctuating over the years. In the financial year 2011-2012 unsupported expenditure was Ksh. 17,848,293, which increased to Ksh. 6,795,174,819 in the financial year 2012-2013 and Ksh. 12,826,647,906 in the financial year 2013-2014. However, this figure decreased to Ksh. 3,886,029 in the financial year 2014-2015, but increased to Ksh. 43,840,320 in the financial year 2015-2016.

The findings also indicated that the value for money in the Education, Science and Technology Ministry has been fluctuating for the last five years. In the financial year 2011-2012 the results indicated that the excess expenditure was Ksh. 5,913,621,073. This figure decreased to Ksh. 2,312,322,098 in the financial year 2012-2013, Ksh. 1,233,122,981 in the financial year 2013-2014. However, this figure increased Ksh. 1,375,281,547 in the financial year 2014-2015. Nonetheless, the figure decreased to Ksh. 212,322,134 in the year 2015-2016.

According to the results, the public debt (pending bills) in the Education, Science and Technology Ministry have been fluctuating for the last five years. In the financial year 2011-2012 the pending bills in ministry amounted to Ksh. 2,272,720. The figure increased to Ksh. 117,153,118 in the financial year 2012-2013 and Ksh. 7,891,546,180 in the financial year 2013-2014. However, this figure decreased to 803,210,326 in the financial year 2014-2015 and 112,742,143 in the financial year 2015-2016.

4.5 Inferential Statistics

The study used correlation analysis and multiple regression analysis in the assessment of the effect of e-procurement (e-tendering, e-sourcing, e-ordering and e-informing) on financial performance of the Ministry of Education, Science and Technology, Kenya.

4.5.1 Correlation Analysis

Correlation analysis is a statistical method that outlines the association between two variables. Correlation coefficients whose values range from zero to one and the associations can be positive or negative. A correlation coefficient of zero implies that there is no relationship, positive (+) shows that there is direct association and negative (-1) shows that there is an inverse association. The study used Pearson correlation to assess the association between independent variables (e-tendering, e-sourcing, e-ordering and e-informing) and the dependent variable (financial performance). The results are presented in Table 4.9.

Table 4.9: Correlation Analysis

		Financial performance	E-tendering	E-sourcing	E-ordering	E-informing
Financial performance	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	37				
E-tendering	Pearson Correlation	.788**	1			
	Sig. (2-tailed)	.006				
	N	37	37			
E-sourcing	Pearson Correlation	.611**	.852**	1		
	Sig. (2-tailed)	.016	.000			
	N	37	37	37		

E-ordering	Pearson Correlation	.578**	.102	.788**	1	
	Sig. (2-tailed)	.021	.137	.006		
	N	37	37	37	37	
E-informing	Pearson Correlation	.852**	.073	-.161*	.823	1
	Sig. (2-tailed)	.000	.288	.019	.001	
	N	37	37	37	37	37

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

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

Source: Research Data (2018)

The results indicated that e-tendering has a significant relationship with performance of finances in the Education, Science and Technology Ministry ($r=0.788$, p -value=0.006). In addition, e-sourcing had an effective connection with financial performance in the Ministry of Education, Science and Technology ($r=0.611$, p -value=0.016). Further, e-ordering has a significant relationship with financial performance in the Ministry of Education, Science and Technology ($r=0.578$, p -value=0.021). Further, e-informing has a significant relationship with financial performance in the Ministry of Education, Science and Technology ($r=0.852$, p -value=0.000). Nonetheless, while correlation analysis shows the associations between independent variables and the dependent variable, it cannot show the weight of the relationship.

The R-squared generally explains the proportion of the dependent variable that can be attributed to an independent variable. R-squared normally ranges from 0 to 1, with 0 implying the independent variable does not in any way influence the dependent variable. The proportion of the dependent variable that can be explained by independent variables increases with increase in the value of R-squared. To determine the strength of the relation as given by correlation analysis, regression analysis was carried out. First, the model fit was tested. The result is given by table 4.10.

Table 4.10: Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.781 ^a	.609	.589	1.423

a. Predictors: (Constant), E-tendering, E-sourcing, E-ordering, E-informing

Source: Survey Data (2018)

Table 4.10 indicates a summary model which gives ability of regression line information on total variation accounting in the variable that is dependent. R squared referred also as the determination coefficient, is the statistical measure of the closeness of data to the fitted line of regression that is 0.609 (60.9 percent). The R squared adjusted referred also as the multiple coefficient determinations is the dependent variance percent explained jointly or specifically by the independent variables. 0.589 (58.9 percent) of the financial performance changes of MOEST variables may be seen as a result of the predictor variables combined effect. This means that other variables not studied contribute to 41.1 percent.

The analysis of variance (ANOVA) is normally used to examine whether a regression model to be used is a good fit for the data. The most important components of an ANOVA include the F-test statistics and the p-value. For a regression model to be a good fit for the data, the F-calculated must be greater than the F-critical, which is normally obtained from the F-distribution table. In addition, for a regression model to be a good fit for the data, the p-value must be less than the significance level (0.05).

Table 4.11: ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.771	4	7.44275	55.0696749	0.002
	Residual	4.46	33	0.13515152		
	Total	34.231	37			

- a. Predictors: (Constant), E-tendering, E-sourcing, E-ordering, E-informing
- b. Dependent Variable: Financial Performance

Source: Researcher (2018)

The value of probability of 0.002 shows that the model of regression of 0.002 was highly significant in prediction of how E-tendering, E-sourcing, E-ordering and E-informing affected financial performance of MOEST. The F calculated at 5 percent significance level was 55.0696749 is greater than the F critical (2.69), this indicates significance of the entire model.

The results of determination of the coefficients for the predictor variables are as given in table 4.12.

Table 4.12: Determination of Coefficients

Model		Unstandardized		Standardized	t	Sig.
		Coefficients				
		B	Std. Error	Beta		
1	(Constant)	0.781	0.494		1.581	0.002
	E-tendering	0.720	0.159	0.683	4.528	0.001
	E-sourcing	0.613	0.171	0.598	3.585	0.004
	E-ordering	0.594	0.188	0.578	3.160	0.003
	E-informing	0.860	0.155	0.812	5.548	0.001

a. Dependent Variable: Financial Performance

Source: Survey Data (2018)

As shown in Table 4.11, the established regression equation by the study was:

$$Y = 0.781 + 0.720X_1 + 0.613X_2 + 0.594X_3 + 0.860X_4.$$

Where: Y = Financial Performance; X_1 = E-tendering; X_2 = E-sourcing; X_3 = E-ordering; and X_4 = E-informing. From the Table 4.11 results, the variables e-tendering, e-sourcing, e-ordering, e-informing and financial performance of MOEST would be 0.781.

The first research objective was to find out the effect of e-tendering on financial performance of MOEST in Kenya. The respondents were called to indicate the effect of e-tendering on financial performance. The result is provided by table 4.11 with a p-value of 0.001. E-tendering was found to have a positive and significant relationship with financial performance as the p-value of 0.001 was less than the alpha value of 0.005 at 95 percent significance and confidence level. The result confirms the findings by Vaidya, Sajeez and Callender (2016) observe that the primary benefit government agencies pursue to obtain adopting e-tendering is to lower the price of business doing and services delivery which are a bit community efficient and Kisurkat (2017) found that entities that conduct tendering procedures as per the act improved the performance of their department.

The second research objective was to examine the effect of e-sourcing on financial performance of MOEST in Kenya. The respondents were also called to indicate the effect of e-sourcing on financial performance. The result is provided by table 4.11 with a p-value of 0.004. E-sourcing was found to have a positive and significant relationship with financial performance as the p-value of 0.004 was less than the alpha value of 0.005 at 95 percent significance and confidence level. The result confirms the findings by Isaac and Robert (2015) study which established strategic sourcing as a tool of supply management which delivers effective reductions of cost as well as other

benefits. This is also in concurrence with Geoffrey, Muma and Elyjoy (2016) where indicated positive connection between procurement performance and e-sourcing.

The third objective of the research was to assess the effect of e-ordering on MOEST financial performance in Kenya. The respondents were also called to indicate the effect of e-ordering on financial performance. The result is provided by table 4.11 with a p-value of 0.003. E-ordering was found to have a positive and significant relationship with financial performance as the p-value of 0.003 was less than the alpha value of 0.005 at 95 percent significance and confidence level. The result confirms the findings by Kim (2017) who posits that e-ordering improves the performance of supply chain greatly because purchasing orders placement and reception of services and goods ordered is enabled by internet technology use. It is also in agreement with the findings of Evanset *al.* (2018) on electronic order processing which has influence on supply procurement performance on supply chain.

The fourth objective of the research was to investigate the effect of e-informing on financial performance of MOEST. The respondents were called to indicate the effect of e-informing on financial performance. The result is provided by table 4.11 with a p-value of 0.001. E-informing was found to have a positive and significant relationship with financial performance as the p-value of 0.001 was less than the alpha value of 0.005 at 95 percent significance and confidence level. The result confirms the findings by Croom and Johnston (2013) affirming that e-informing guarantees timeliness, criticality, credibility, adequacy and quality with accuracy therefore performance of supply chain that is more noticeable more noticeable supply chain performance. This concurs with the study carried out by Kennedy (2015) that e-informing plays a major role in ensuring an organizations' effective communication.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter deals with summary of study of the researcher findings as per the objectives of the study. This is followed by conclusions, practice and policy recommendation and recommendations for further studies.

5.2 Summary of Study

The study's overall objective was to investigate the effect of e-procurement function on financial performance of Education, Science and Technology Ministry (MOEST). The summary of the findings was as presented below;

The first research objective was to find out the effect of e-tendering on financial performance of MOEST in Kenya. E-tendering was measured using indicators comprising of online tender notice, online tender response and electronic bidding. The descriptive statistics analysis result showed that practice of e-tendering measuring activities was done in MOEST. Gathered data statistical analysis showed that e-tendering has a significant effect on financial performance, statistically.

The second objective of research was to examine the effect of e-sourcing on financial performance of MOEST in Kenya. E-sourcing was measured using indicators

comprising of online supplier search, electronic supplier evaluation and electronic supplier categorization. The descriptive statistics analysis results indicated that e-sourcing measuring activities were done in MOEST. The data gathered statistical analysis showed e-sourcing has a significant impact statistically on financial performance.

The third objective of the research was to assess the effect of e-ordering on MOEST financial performance in Kenya. E-ordering was measured using indicators comprising of online purchases, electronic invoice processing and online order requisitions. The descriptive statistics analysis results indicated the e-ordering practices were done in MOEST. Gathered data statistical analysis showed that e-ordering has a significant effect on financial performance, statistically.

The fourth objective of the research was investigating the effect of e-informing of financial performance of MOEST. E-informing was measured using indicators comprising of gathering of electronic information, gathering of electronic clientele and gathering of electronic information distribution. The analysis of descriptive statistics results indicated that practice of the e-informing measuring activities was done in MOEST. Gathered data statistical analysis showed that e-informing has a significant effect on financial performance, statistically.

5.3 Conclusions

The study concludes that e-tendering has a significant effect on MOEST financial performance. This shows that e-tendering improvement would result to financial

performance improvement. E-tendering allows electronic bidding, creates evaluation matrices, help identify tender shortlist and control prequalification process.

The study concludes that e-sourcing had a significant effect on MOEST financial performance. This implies that an improvement in e-sourcing would lead to an improvement in the financial performance. E-sourcing allows for online supplier search and electronic supplier evaluation.

The study concludes that e-ordering has a significant effect on MOEST financial performance. This shows that an improvement in e-ordering would lead to an improvement in financial performance. E-ordering leads to reduced ordering error and increases ability to track orders.

The study concludes that e-informing has a significant impact on MOEST performance. This implies that an improvement in e-informing would lead to an improvement in financial performance. In addition, Electronic information gathering, Electronic clientele gathering and Electronic information distribution have an influence on financial performance.

5.4 Recommendations for Policy and Practice

Financial performance is useful in showing the information about the capability of an organization in terms of position, performance of finances and changes in the organization financial position which is useful to many users in economic decisions making. Therefore, this study recommends the following:

MOEST should ensure that procurement policies and regulations are adhered to so as to be ethical in the tendering process. They should increase their funding towards investing in computer technology so as to use automated tendering in their activities including storage of tender documents for future reference.

MOEST should enhance their e-sourcing activities so as to gain control over their tender processes and an audit path for compliance purpose and to support collaboration and allow various stakeholders to easily work together. Succeeding in e-sourcing initiatives requires, well defined category strategies which includes business needs analysis, supply market analysis, sourcing strategy, supplier selection and finally implementation.

MOEST should practice e-ordering in order to improve employee productivity, receive accurate orders, create a better experience for customers. Necessity is there for MOEST implementation of e-ordering use in the chain of supply for paper work reduction and cost save as well. E-ordering as well forms improved customer service avenue and high productivity thus creating the necessity for its organization implementation.

As e-informing has an influence on financial performance that is positive, the study recommends that it's important for MOEST to gather experiences of supplier's information, previous clientele and information distribution to suppliers who are relevant. It is also necessary to consult quality of service/product references electronically to improve the financial position of MOEST.

5.5 Recommendations for Further Study

The study context was delimited to the ministry of education, science and technology. Therefore, similar studies in Kenya ought to be conducted in other ministries and parastatals in Kenya. Furthermore, more research ought to be conducted to determine other factors effects have not conceptualized specifically in this study.

REFERENCES

- Aboelmaged, M. G. (2010). Predicting E-Procurement Adoption in A Developing Country: An Empirical Integration of Technology Acceptance Model and Theory of Planned Behavior. *Industrial Management & Data Systems*, 110(3), 392 - 414
- Accounting Board (2013). *Annual Report*. Retrieved from <http://www.frascanada.ca/accounting-standards-board/news-and-publications/annual-reports/item76020.pdf>
- Al-Saffar, A., & Kim, E. (2017). Sustainable Theory of a Logistic Model - Fisher Information Approach. *Mathematical Biosciences*, 285, 81-91.
- Altun, E., Khan, M. N., Alizadeh, M., Ozel, G., & Butt, N. S. (2018). Extended Half-Logistic Distribution with Theory and Lifetime Data Application. *Pakistan Journal of Statistics & Operation Research*, 14(2), 319-331.
- Archer, N., & Yuan, Y. (2010). Managing Business-To-Business Relationships throughout The E-Commerce Procurement Life Cycle. *Internet Research: Electronic Networking Applications and Policy*, 10(5), 385-95.
- Auditor General Report (2017). *Annual Report 2015/2016*. Retrieved from <http://www.oagkenya.go.ke>
- Barbara, A. & Maxfield D. (2013). *Revolutionizing resourcing Adoption*. Retrieved from <http://www.qad.com/./livesource-revolutionizing-e-sourcing-adoption.pdf>.
- Barngetuny, D. C., & Kimutai, G. (2015). The Effect of E-Tendering on Supply Chain Performance of Medical Supplies Agency. *International Academic Journal of Procurement and Supply Chain Management*, 1(5), 99-120.
- Berg, B.L. (2004). *Qualitative Research Methods for the Social Sciences*. Boston: Allyn & Bacon.
- Croom, S., & Johnston, R. (2013). E-Service: Enhancing Internal Customer Service through E-Procurement. *International Journal of Service Industry Management*, 14(5), 539-555.
- Davis, F. D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology, *MIS Quarterly*, 13 (3), 319-340

- Dedrick, J., XinXu, 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.
- Dušan, M. (2014). The Basic Principle of Logistic Theory. *Applied Mechanics and Materials*, 708(1), 47-52.
- Eadie, R. Perera, S. Heaney, G. & Carlisle, J. (2017). Drivers and Barriers to Public Sector e-procurement within Northern Ireland's Construction Industry, *ITcon Journal*, 12(8), 103-120.
- Ethics and Anti-Corruption Commission (2018). *Report by The Ethics and Anti-Corruption Commission to The Departmental Committee On Justice and Legal Affairs of the National Assembly On Status Report of Completed Investigations from 2013 To 2018*. Retrieved from <http://www.eacc.go.ke/>
- Eunice, W. (2015). Role of Tendering Process on Performance of Public Institutions: A Case Study of Nakuru County Government. *International Journal of Economics, Finance and Management Sciences*, 3(4), 391 – 405.
- Evans, B. O. Gregory, S. N. Maurice, S., & John, N. (2018). Influence of Electronic Order Processing on Supply Chain Performance of Sugar Processing Firms in Kenya. *International Journal of Social Sciences and Information Technology*, 4(1), 2622 – 2634.
- Farrington, K. & Lysons, K. (2012). *Purchasing and Supply Chain Management*, (8thed), Harlow: Prentice Hall.
- Garver, M. S., & Williams, Z. (2018). Improving the validity of theory testing in logistics research using correlated components regression. *International Journal of Logistics: Research & Applications*, 21(4), 363-377.
- Geoffrey, R. Muma, B., & Elyjoy, M. (2016). E-Sourcing, E-Maintenance and Public Procurement Performance: A Case of Kericho County-Kenya. *Science Research*, 4(2), 37 - 42
- Georgiou, A., & Westbrook, J. I. (2010). The implications of E-ordering for the Communication Environment of Hospital Laboratory Services. *Asia Pacific Journal of Health Management*, 5(1), 47.
- Georgiou, A., Greenfield, T., Callen, J., & Westbrook, J. I. (2009). Safety and efficiency considerations for the introduction of electronic ordering in a blood bank. *Archives of pathology & laboratory medicine*, 133(6), 933-937.
- Ghoshal, S. (2008). *Transactional Cost Theory*. London: Prentice Hall.

- Harrington, R., & Wilson, D. (2012). *Corporate Financial Analysis*. (3rd ed.). Boston: Irwin Inc.
- Hart, O. (2006). *Analysis of the Transactional Cost Theory*. London: Routledge Inc
- Isaac, R. A. & Robert, O. (2015). Role of Strategic Sourcing on Public Procurement Performance in Kenya. *European Journal of Logistics, Purchasing and Supply Chain Management*, 3(4), 1- 8.
- Jahanshahi, A. A., Rezaei, M., Nawaser, K., & Pitamber, V. R. B. K. (2012). Analyzing the effects of electronic commerce on organizational performance: Evidence from small and medium enterprises. *African Journal of Business Management*, 6(22), 6486.
- Jain, M., Abidi, N., & Bandyopadhyay, A. (2018). E-procurement espousal and assessment framework: A case-based study of Indian automobile companies. *International Journal of Technology Management & Sustainable Development*, 17(1), 87-109
- Kennedy, O. O. (2015). The Relationship between E-Procurement systems and performance of procurement function in Commercial Banks in Kenya. *International Journal of Economics, Commerce and Management*, 3(12), 697 – 723.
- Kimutai, B., & Ismael, N. S. (2016). Role of strategic e-sourcing practices on supply chain performance in state corporations in Kenya: A case of Kenya Electricity Generating Company Ltd. *International Academic Journal of Procurement and Supply Chain Management*, 2(2), 113-133.
- Kisurkat, P. E. (2017). *Effect of Tendering on Organisational Performance; A Survey of Public Institutions in Kajiado County*. Retrieved from repository.mua.ac.ke/1592/1/manu percent20- percent20Copy.pdf
- Kombo, D. K., & Tromp, D. L. (2012). *Proposal and thesis writing: An introduction*. Nairobi: Paulines Publications Africa.
- Liebenberg, J., Benadé, T., & Ellis, S. (2018). Acceptance of ICT: Applicability of the Unified Theory of Acceptance and Use of Technology (UTAUT) model to South African Students. *African Journal of Information Systems*, 10(3), 160-173.
- Lou, E. C. W., & Alshawi, M. (2009). Critical success factors for e-tendering implementation in construction collaborative environments: people and process issues. *Journal of Information Technology in Construction*, 14, 98-109.

- Lysons, K., & Farrington, B. (2016). *Procurement and supply chain management*. London: Pearson Higher Ed.
- Marangunić, N. & Granić, A. (2014). Universal Access in the Information Society *International Journal Technology acceptance model: Society*. 14(1), 1-15.
- Maureen, K. O. & Josphat, K. (2016). Effects of electronic sourcing on performance of procurement function at the County Government of Nakuru. *IOSR Journal of Business and Management*, 18(4), 107 – 111.
- Mburu, D. K. (2011). *The Role of E-Procurement in Enhancing Efficiency in Telecommunication Industry (A Case Study of Safaricom Limited Company-Kenya)*. Retrieved from <https://www.onlinejournal.in/IJIRV2I11/282.pdf>
- Meso, B. (2010). *Public E-Procurement in Kenya: A Critical Analysis of the Legal Technological and Governance Challenges*. Retrieved from <http://erepository.uonbi.ac.ke>
- Metcalf, R. W. & Titard. P. L. (2011). *Principles of Accounting*. Philadelphia: J.B. Lippincott.
- Mihaiu, D. (2014). *Measuring Performance in the Public Sector: Between Necessity and Difficulty*. Retrieved from <https://ideas.repec.org/a/blg/journal/v9y2014i2p40-50.html>
- Mugenda, O.M. and Mugenda, A.G. (2003). *Research Methods, Quantitative and Qualitative Approaches*. Nairobi: ACTs.
- Mule, R. K., Mukras, M. S., & Nzioka, O. M. (2015). Corporate size, profitability and market value: An econometric panel analysis of listed firms in Kenya. *European Scientific Journal, ESJ*, 11(13), 123-156.
- Nairobi Security Exchange (2010). *Company Profile*. Retrieved from <http://nse.www.nse.co.ke>
- Nancy, C. C. (2017). E-Ordering and E-Informing on Supply Chain Performance in Kenyan State Corporations in Nairobi County. *International Journal of Economics, Commerce and Management*, 5(4), 510 – 520.
- Naser, K., & Mokhtar, M. (2014). Determinants of Corporate Performance of Malaysian Companies. *Fourth Asia Pacific Interdisciplinary Research in Accounting Conference, Singapore*, 1(1), 16-25.
- Njihia, J.M. (2013). The Critical Success Factors and Challenges in E-Procurement Adoption Among Large Scale Manufacturing Firms in Nairobi, Kenya. *European Scientific Journal*, 9(13), 375-401.

- Njoroge. K. K. (2010). *Factors Influencing E-Procurement Practices in Construction Industry in Kenya*. Retrieved from erepository.uonbi.ac.ke/
- Oduor, A. (2016). *EACC: How school heads steal education billions*. Retrieved from <https://www.standardmedia.co.ke>
- Office of the Auditor General (2017). *Summary of the Report of the Auditor-General on the Financial Statements for National Government for the Year 2015/2016*. Retrieved from <http://www.oagkenya.go.ke>
- Orina, D. O. R. O. T. H. Y. (2013). *E-procurement readiness factors in Kenya's Public sector*. Retrieved from erepository.uonbi.ac.ke/handle/11295/58623
- Orori, J. M. (2011). *Factors That Influence the Introduction of E-Procurement in Retail Industry: A Survey of Retail Chain Supermarkets in Kenya*. Retrieved from erepository.uonbi.ac.ke/
- Pastore, S. (2017). Research Designs and Methods in Self-Assessment Studies: A Content Analysis. *International Journal of Evaluation and Research in Education*, 6(4), 257-264.
- Public Procurement Oversight Authority (2015). *Ministry of Education Procurement Review*. Retrieved from <http://www.ppoa.go.ke/>
- Public Sector Accounting Board (2013). *Measuring Financial Performance in Public Sector Financial Statements*. Retrieved from <http://www.frascanada.ca/>
- Rashed, C. A. A., Azeem, A., & Halim, Z. (2010). Effect of information and knowledge sharing on supply chain performance: a survey based approach. *Journal of Operations and Supply Chain Management*, 3(2), 61-77.
- Rogers, E. M. (1962). *Diffusion of innovations*. New York: Simon and Schuster.
- Rousson, V., Gasser, T. & Seifer, B. (2002). Assessing Interrater, Interrater and Test-Retest Reliability of Continuous Measurements. *International Journal*, 21(22), 3431-3446
- Russo, F., Rindone, C., & Panuccio, P. (2016). European plans for the smart city: from theories and rules to logistics test case. *European Planning Studies*, 24(9), 1709-1726.
- Saunders, M., Lewis, P. and Thornhill, A. (2007) *Research Methods for Business Students*. 4th Edition. Harlow: Prentice Hall.
- Shanghverzy T. (2003). Market and community as strategies for change. *International handbook of educational change* 1(1), 576-595.

- Stonebraker, P. and J. Lia. 2006. Supply chain integration: Exploring product and environmental contingencies. *Supply Chain Management: An International Journal* 11: 34-43.
- Swanson, D., Goel, L., Francisco, K., & Stock, J. (2017). Applying Theories from Other Disciplines to Logistics and Supply Chain Management: A Systematic Literature Review. *Transportation Journal (Pennsylvania State University Press)*, 56(3), 299-356
- Teddlie, C. & Tashakkori, A. (2009). *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences*. London: Sage.
- Treiman, D. J. (2009). Quantitative Data Analysis: Doing Social Research to Test Ideas. *The Canadian Journal of Program Evaluation*, 25 (1), 131–133.
- Turner, H. E., Deans, K. A., Kite, A., & Croal, B. L. (2013). The effect of electronic ordering on pre-analytical errors in primary care. *Annals of clinical biochemistry*, 50(5), 485-488.
- Vaidya, K., Sajeev, A. S. M., & Callender, G. (2016). Critical factors that influence e-procurement implementation success in the public sector. *Journal of public procurement*, 6(1/2), 70-99.
- Van den Abbeele, A., Roodhooft, F., & Warlop, L. (2009). The effect of cost information on buyer–supplier negotiations in different power settings. *Accounting, Organizations and Society*, 34(2), 245-266.
- Waka, J. E. (2016). *E-tendering adoption and procurement performance of oil marketing firms in Kenya*. Retrieved from erepository.uonbi.ac.ke/
- Williamson, O. E. (1989). Transaction cost economics. *Handbook of industrial organization*, 21, 135-182.
- Wu, J. H. & Wang, S. C. (2005). What drives mobile commerce? An empirical evaluation of the revised technology acceptance model. *Information and Management*, 42 (5), 719–729

APPENDICES

Appendix I: Letter of Introduction

Abraham KipropSamoei

P.O Box 48344 - 00100

Kenyatta University

Nairobi

Dear Sir /Madam,

RE: AUTHORITY FOR DATA COLLECTION

I am a postgraduate student at Kenyatta University in the School of Business undertaking a management research project on **Adoption of E-Procurement and Financial Performance of Ministry of Education, Science and Technology, Kenya** as part of the requirement in MBA (Finance) Degree.

In order to accomplish this purpose, you have been selected to participate in this scholarly research. I therefore, kindly request you to assist me collect the data by filling in the attached research questionnaire. The information that you will provide will be exclusively used for academic purposes and will be treated with utmost confidence. A copy of the final report will be availed to you upon request.

Your assistance will be highly appreciated.

Thank you.

Yours faithfully,

Abraham KipropSamoei

Appendix II: Questionnaire

Section A: Demographic Information

1. Gender:

Male

Female

2. Age:

Below 25 years 25 – 34 Years

35 – 44 Years 45 years and above

3. Kindly specify your highest level of education

Diploma

Post Graduate Diploma

Bachelor's Degree

Master's Degree

4.

Indicate your work experience:

Less than 5 years

5-9 years

10- 15 years

Above 15 Years

Section B: E-Tendering

Using a scale of 1=Strongly Disagree to 5=Strongly Agree, give your assessment in terms of the following: *Instruction: please tick [✓] only one option on the scale of 1-5*

Tendering	Strongly Disagree [1]	Disagree [2]	Neutral [3]	Agree [4]	Strongly Agree [5]
Online tender notices					
Online tender response					
Electronic bidding					
Help identify tender shortlist					
Control prequalification process					
Creates evaluation matrices					
Administering the return and opening of electronic sealed bids					

submission					
------------	--	--	--	--	--

Section C: E- Sourcing

Using a scale of **1=Strongly Disagree to 5=Strongly Agree**, give your assessment in terms of the following: *Instruction: please tick [✓] only one option on the scale of 1-5*

Sourcing	Strongly Disagree [1]	Disagree [2]	Neutral [3]	Agree [4]	Strongly Agree [5]
Online supplier search					
Electronic supplier evaluation					
Electronic supplier categorization					
Supplier performance reporting					
Supplier recruitment and approval					
Tender preparation and execution tender administration					

Section D: E-Ordering

Using a scale of **1=Strongly Disagree to 5=Strongly Agree**, give your assessment in terms of the following: *Instruction: please tick [✓] only one option on the scale of 1-5*

Ordering	Strongly Disagree [1]	Disagree [2]	Neutral [3]	Agree [4]	Strongly Agree [5]
Online purchases					
Electronic invoice processing					
Online order requisitions					
Ability to track orders					
Reduced ordering error					
Reduced cost of ordering					

Section E: E- Informing

Using a scale of **1=Strongly Disagree to 5=Strongly Agree**, give your assessment in terms of the following: *Instruction: please tick [✓] only one option on the scale of 1-5*

Informing	Strongly Disagree [1]	Disagree [2]	Neutral [3]	Agree [4]	Strongly Agree [5]
Electronic information gathering					
Electronic clientele gathering					

Electronic information distribution					
-------------------------------------	--	--	--	--	--

Section F: Financial Performance

Kindly indicate the figures for the following measures of financial performance in your organization for the last five years

Year	2012	2013	2014	2015	2016
Level of Unsupported expenditure					
Value for money					
Public Debt (pending bills)					
Level of Unsupported expenditure					