

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,
KUMASI, GHANA**

Implementation and Adoption of E-Procurement in Ghana Public Sector: The way

Forward

By

Desmond Addison

**A Dessertation Submitted to the Department of Building Technology, College of
Art and Built Environment, in partial fulfillment of the requirements for the degree
of**

MASTER OF SCIENCE

NOVEMBER, 2016

DECLARATION

I hereby declare that this submission is my personal work toward the attainment of Master of Science in Procurement Management, and that no part of it has been presented for another degree in this institution and elsewhere. I can also confirm that with exception of quotes and analysis attributed to referenced sources, this research is the analysis of thesis dutifully conducted under the supervision and guidance of my supervisor.

Desmond Addison – PG3583215

.....

Signature

.....

Date

Certified by

Prof. Edward Badu

.....

Signature

.....

Date

Certified by

Dr. Theophilus Adjei-Kumi

.....

Signature

.....

Date

ABSTRACT

E-Procurement implementation in other parts of the world has brought benefits such as efficiency, cost reduction, reduced procurement process, minimize corruption, enhance compliance and standardization of procurement. Though the Public Procurement Authority has made many strides in the adoption of initiation of e-procurement in the Ghana, the pace for the implementation and adoption is still very slow. It was on this background that the study was conducted to investigate the adoption and implementation of e-procurement in the public sector in Ghana. Hence, the specific objectives were: to identify the status of e-procurement implementation and adoption in the public sector, to identify challenges facing effective implementation and adoption of e-Procurement as well as the factors contributing to successful implementation of e-Procurement. The study adopted a cross-sectional survey design, using purposive sampling for selecting respondents and administering questionnaire. A total of forty-eight (48) procurement practitioners were received for the study. The collected data were examined using frequencies, percentages, standard deviation and mean score ranking which was aided by Statistical Package for Social Sciences (SPSS). Results indicated that the Ghanaian public sector was well informed of the e-procurement process, though it was poorly patronized. It was also found that various challenges such as lack of human resource capacity and poor supplier relationship are more capable of hindering the e-Procurement process. Also, factors such as evolutionary approach to implementation and availability of IT infrastructure were found to positively influence the adoption and implementation of the process. It is therefore recommended that public sector institutions in Ghana need to incorporate the e-Procurement activities into their systems of operations so as to help address the challenges associated with the traditional method of procurement.

TABLE OF CONTENTS

DECLARATION.....	ii
ABSTRACT	iii
TABLE OF CONTENTS.....	iv
LIST OF TABLES	vi
LIST OF FIGURES	viii
LIST OF ACRONYMS.....	viii
ACKNOWLEDGEMENT	ix
DEDICATION.....	x
CHAPTER ONE	1
INTRODUCTION	1
1.1 BACKGROUND OF THE STUDY	1
1.2 STATEMENT OF THE PROBLEM	3
1.3 RESEARCH QUESTIONS.....	4
1.4 AIM	4
1.5 OBJECTIVES	4
1.6 SIGNIFICANCE OF THE STUDY	4
1.7 BRIEF METHODOLOGY	5
1.8 SCOPE AND LIMITATION OF STUDY.....	5
1.9 ORGANIZATION OF THE STUDY	6
CHAPTER TWO	7
LITERATURE REVIEW	7
2.1 INTRODUCTION	7
2.2 OVERVIEW OF PROCUREMENT	7
2.1.1 Traditional Method of Procurement	8
2.1.2 Challenges with the Traditional (Manual) Procurement Method	10
2.3 OVERVIEW OF E-PROCUREMENT	12
2.3.1 What is E-Procurement	13
2.3.2 E-Procurement Process	14

2.4 OBJECTIVES OF E-PROCUREMENTS	15
2.4.1 Economy	15
2.4.2 Efficiency	15
2.4.3 Effectiveness	15
2.4.4 Increased Accessibility	16
2.4.5 Improved Transparency and Accountability	16
2.4.6 Economic Development	17
2.4.7 Equitable and Inclusive	17
2.5 STAGE OF E-PROCUREMENT	18
2.6 STATUS OF E-PROCUREMENT IN GHANA	20
2.7 BENEFITS OF E-PROCUREMENT TO THE PUBLIC SECTOR	21
2.7.1 Improved Efficiency and Transparency	21
2.7.2 Reduced Administrative Procedures	21
2.7.3 Shortened Procurement cycle times	22
2.7.4 Reduced Transaction Cost	22
2.7.5 Increased Supplier Based	22
2.7.6 Sharing of Information	23
2.8 THE CHALLENGES OF E-PROCUREMENT IN GHANA	24
2.8.1 Availability of Financial Resources	24
2.8.2 Human Resource Capacity	24
2.8.3 Support from all Stakeholders.....	25
2.8.4 Availability of supporting infrastructure and facilities	25
2.8.5 Technology Adoption	25
2.8.6 Resistance to Adoption	25
2.8.7 Security and Authentication issues	26
2.9 FACTORS CONTRIBUTING TO SUCCESSFUL IMPLEMENTATION OF E- PROCUREMENT	27
CHAPTER THREE	
31	METHODOLOGY
..... 31	
3.1 INTRODUCTION	31
3.2 RESEARCH DESIGN	31
3.3 SOURCES OF DATA	31
3.4 POPULATION OF THE STUDY	32

3.5 SAMPLE SIZE	32
3.6 SAMPLING TECHNIQUES	33
3.7 RESEARCH INSTRUMENT	34
3.8 STATISTICAL ANALYSIS.....	34
CHAPTER FOUR	35
DATA ANALYSIS AND FINDINGS.....	35
4.1 INTRODUCTION	35
4.2 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS.....	35
4.3 ANALYSIS OF OBJECTIVES	36
CHAPTER FIVE	42
SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION	42
5.1 INTRODUCTION	42
5.2 REVIEW OF OBJECTIVES	42
5.2.1 Objective One	43
5.2.2 Objective Two	44
5.2.3 Objective Three	45
5.3 CONCLUSION	46
5.4 RECOMMENDATION	47
5.5 RECOMMENDATION FOR FURTHER STUDIES	47
REFERENCES	48
APPENDICES	56
LIST OF TABLES	
Table 2.1: E-Procurement and Traditional Method	14
Table 2.2: Summarization of challenges of e-procurement	27
Table 2.3: Critical Successful Implementation Factors	28
Table 3.1: Summary of Sample frame	33
Table 4.1: Demographic Characteristics of Respondents	35
Table 4.2: Summary of e-Procurement status	36

Table 4.3: Means and Standard Deviations of e-procurement challenges	38
Table 4.4 : Further analysis of individual challenges of e-Procurement	39
Table 4.5: Means and Standard Deviations of e-Procurement success factors	39
Table 4.6: Further analysis of individual successful implementation factors of e- procurement.	40

LIST OF FIGURES

Figure 2.1: Procurement Process	10
Figure 2.2: History of E-Procurement	13
Figure 2.3: E-Procurement Process	14

LIST OF ACRONYMS

B2B	Business to Business
CIPS	Chartered Institutes of Purchasing and Supplying
CPB	Central Procurement Bodies
EDI	Electronic Data Interchange
e-GP	Electronic Government Procurement
e-Procurement	Electronic Procurement
ICT	Information Communication Technology
NECCC	National Electronic Commerce Coordinating Council
OGC	Office of Government Commerce
PPA	Public Procurement Authority
PCA	Public Contracting Authorities
RFQ	Request For Quotation
SME	Small Medium Enterprise
SPSS	Statistic Package for Social Science
TED	Tenders Electronic Daily
UNDP-IAPSO	United Nation Development Programme Agency Procurement Services Office
UNHCR	United Nations High Commissioner for Refugees

ACKNOWLEDGEMENT

I thank God for His grace, wisdom and knowledge for making it possible for me to successfully complete this programme.

I want to thank my supervisor Prof. Edward Badu for his assistance and guidance throughout the entire work and not forgetting Mr. Ernest Kissi.

I am also greatly appreciative to the Director of Cost Plan Consult Ltd Sur. Kwadwo Osei-Asante and the entire staff of Cost Plan Consult Ltd for their contribution and help throughout the period of my studies.

Lastly, I would like to specially thank wife, Mrs Joyce Addison for her support and encouragement throughout the period of my studies. I say may the good Lord bless all and keep you.

DEDICATION

I dedicate this research work to my wife, Mrs. Joyce Addison and three children, Derren,
Dilys, Dietrich and love ones.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

According to Mawenya (2008), there exist considerable inefficiencies in the procurement processes in the public sector which to a greater extent affect the achievement of value for money in the procurement of public infrastructure as a result of corruption. Vee and Skitmore (2003) outlined some areas prevalent with corruption to be proprietary information infringements, collusive bidding during, cash inducements (bribery) for overvaluing work performed, negligence in the form of poor quality documents and fraudulent conduct by the parties involved procurement process. These challenges have led to the introduction of the new e-Procurement process which ensures that all processes are carried out electronically and thus, devoid of all any manual process.

Many public sector institutions have now identified electronic Procurement as a cardinal for cutting waste in government procurement and have put measures in place to implement and adopt e-Procurement in their various procurement stages. This new process according to Birks, *et al.* (2001) is blessed with some success factors that could serve as a driving force in championing the process if appropriately utilized in the adoption and implementation process. Procurement practices in Ghana have gone through several of development, with the main purpose of reducing or at paramount minimising corruption in public procurement, realizing value for money, potency in the procurement process, among others. A major change was the enactment of the Public Procurement Act (Act 663) in 2003. As much as the usage of Act 663 has restructured procurement processes in the country, as well as establishing a high level of sanity in the procurement environment, its entirely manual base has compelled some procurement

practitioners calling for the formulation of e-Procurement in the country (PPA EBulletin, 2010).

The traditional or manual processes are faced with certain challenges such as high cost and delay in the procurement process. Procurement and supply chain has the tendency of involving large quantities of paperwork in its operations, necessary for information communication with suppliers. The introduction of information technology and more integrated software systems has drastically the way business is contracted between parties. The advent of internet has facilitated the commencement and adoption of the new e-Procurement process in the area of procurement and supply chain management (Baily *et al.*, 2008). The internet has brought tremendous change in the way we do business in the world. It has increased the market shares, for example a wider customer reach and also reduces cost of its users. Another area where the introduction of internet and ICT tools has made significant impact is speed and efficiency which is the cardinal principle of any procurement organisations. The internet can be used for both purchasing and delivery of goods. The manifestations of e-procurement can be seen in the online auctions where contracts are won and assets bought. It also makes use of online catalogue where documents such as purchase orders, bills of lading, invoices and delivery confirmations are carried out electronically (Baddeley & Kopelman, 2015). Additionally, e-Procurement also improves the transparency and accessibility of tender opportunities in public procurement procedures, as well as challenging greater competition across the world which add to economic growth (Bausà *et al.*, 2013). The significance of procurement in the business community cannot be overemphasized, as it contributes to almost one third of companies' overall budget for the purchase of goods and services (Zenz & Thompson, 1994).

According to Asian Development Bank Report (2013), government and other public institutions which have adopted the e-Procurement process have enjoyed numerous

targeted benefits such as improved transparency, contract award notices, online bid submission and better tenderers participation due to improved information and access to opportunities. Other benefits include, faster processing of procurement activities as a result of online system, enhanced tools to deal with corruption and fraud, as well as decrease in printing of hard copies for the purpose of documenting business transactions.

1.2 STATEMENT OF THE PROBLEM

The traditional systems of procurement in government sectors suffered from various problems such as undue delays in tender processing, heavy paper work, physical threats to bidders, human interface at every stage, poor transparency, discretionary treatment in the entire tender process and corruptions (Bikshapathi & Raghuvver, 2003). Bokpe (2013) further explained that the establishment of e-procurement operation is expected to help address most of the undue challenges that both contractors and suppliers face in their effort to win bids for contracts. The system is also designed to address all fraudulent or corrupt practices which emanate in the procurement processes as a result of human interface (Bokpe, 2013).

Most of the procurement specialists in Ghana from the donor agencies, have lamented immense corruption that exists in the country's procurement processes – a plague that only electronic procurement to a large extent can serve as an appropriately antidote to help remedy or cure to the bearest minimum (Frimpong, 2014).

1.3 RESEARCH QUESTIONS

1. What are the Challenges which hinder the smooth implementation of eprocurement in the public sector?

2. What are the benefits that may be derived by the Public Sector in adopting eprocurement?
3. What critical success factors exist in an effort to adopting of e-procurement in the Public Sector?

1.4 AIM

The study was aimed at investigating the implementation and adoption of e-procurement in the Ghana public sector.

1.5 OBJECTIVES

In achieving the stated aim, the following objectives were advanced:

1. To identify the status of e-procurement in terms of its implementation and adoption in the public sector;
2. To identify the challenges faced with effectively implementation and adopting e-Procurement in the Public Sector; and
3. To identify factors contributing to successful implementation of e-Procurement.

1.6 SIGNIFICANCE OF THE STUDY

Although many governments encourage their public sectors to adopt e-Procurement, it is still faced with a number of challenges in their quest to implement this new system (Office Government Commences, 2002).The procurement Act of Ghana, Act 663 (2003), was implemented by the parliament to serve as the appropriate tool that could help bring sanity and conformity to public procurement by introducing principles that harmonizes the public procurement processes in the country. The Act, according to Dagaba (2013) has introduced several relevant modern procurement principles that are expected to correct the irregularities or fraudulent acts associated with public procurement. Though the act is in

force, there still some weakness which has become a major source of worry and has led to the calling for the adoption of e-Procurement in the Ghana Public Sector which would seek to remedy of these inefficiencies. Despite the many potential benefits, many teething problems will need to be addressed before e-procurement can become widely adopted in the Ghana Public Sector. The research will also be used as a reference material for policy makers in making decisions concerning procurement in the public sector.

1.7 BRIEF METHODOLOGY

The study focused on Government Ministries, Department, Agencies and as well public officials who carry out procurement activities for their organizations. The methodology adopted a more quantitative approach where a well structured closed ended questionnaire was administered to respondents in the procurement sector for the data collection. The questionnaires were self-administered to the Procurement Practitioners where the purpose of the study was well explained to respondents prior to the its administration. The collected data was then coded into Microsoft Excel 2016 and imported into the Statistical Package for Social Science (version 18) for the data analysis.

1.8 SCOPE AND LIMITATION OF STUDY

As indicated above, this study described the status of e-procurement adoption in Ghana in relation to its challenges, benefits as well as critical success factors that emanates as a result of its adoption. However, due to time constraint, the study was limited to Procurement Practitioners in the Ghana Public Sector in Accra.. It is important to state here that this study does not hope to generalize on the subject at hand for the whole country but seeks to yield valuable insight so as to expedite the process of implementing the process in the country. The findings from this study may not necessarily be a true reflection of the whole public sector in Ghana. The sample size adopted may also be another limitation in the

study. Due to time constraint, the study only sampled a total of forty eight respondents which may not be a true representation of the total population of practitioners in the procurement sector, and thus, difficult to generalize findings.

1.9 ORGANIZATION OF THE STUDY

The study was organized into five chapters. For purposes of result data and easy understanding of issues, This study was divided into five chapters. Chapter one of the study consisted mainly of an introduction to this study. The introduction took into consideration the background to this study, the problem statement, the objectives and research questions of this study and the organization of this study. Chapter two reviews the existing literature on e-Procurement in the Ghana Public Sector. It also presents theoretical framework that underlines e-Procurement and its associated challenges as well as success factors. The third chapter considered the methodology that was adopted to execute this study. The chapter covered among others the research design, sample and sampling procedure and data collection procedures. Chapter four was made of the results from collected data. It also covered the presentation of tables, figures and charts from the results. Chapter five broadly discussed the results from this study in relative to the literature, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter probes into the important literature on the area of this research study. In this chapter, concepts and theories underpinning the research topic and other findings of the research are reviewed to expedite the development of a theoretical framework for the research work. This chapter gives more insight into the overview of procurement and procurement process, traditional method of procurement and its challenges.

Also, an overview into electronic procurement is presented highlighting on the benefits, challenges of implementation and requirement for a successful implementation. The chapter seeks to review requirement that may support e-Procurement implementation in public procurement entities. Also, relevant literatures on the drivers and risks to eprocurement in public procurement entities in Ghana are presented in order to help provide possible responses to the research questions.

2.2 OVERVIEW OF PROCUREMENT

Procurement is well defined as the purchase of works, services and goods (Baily *et al.*, 2008). Kidds (2013) defined Procurement as “the business supervision function that ensures the noticing, requisition, payment and administration of the external resources that an organization requirements or may need to meet its planned objectives”.

Procurement includes activities that precede as well as follows the signing of a contract between parties involved. Weele (2010) also defined Procurement as “the process of managing external resources in order to make sure that the supply of all goods, works services, functionality and knowledge which are essential for operating and sustaining the company”’s principal and support activities are safeguarded in all possible regards.

Public procurement is the practice whereby public sector institutions purchase (procure) goods, services and works from contractors. (Office Government Commerce, 2007).Chartered Institutes of Purchasing and Supplying Australia (CIPSA) (2005) has outlined seven core benefit that any company is likely to gain in the procurement process. These, according to CIPSA (2005) include the security of supply, greater added value, improved quality, lower costs, reduced risk, increased efficiency and innovation.

2.1.1 Traditional Method of Procurement

Mathonsi and Thwala (2012) state that this method is called “traditional procurement” because it has been in existence for a long time and has been the only choice available for most institutions since time long-standing. The existing procurement process is for procurement entities necessitates procurement entities to put an advertisement or notice in a daily newspaper or site a announcement on a notice board, or send a request to selected list of contractors registered with the firm. The contractors will then interact with the entity to obtain a tender document, attend a pre-tender meeting and then submit their tender proposal directly to the entity. Normally the government procedure is carried out in more regulated and organize procedure. It is also defined by laws and financial administrative processes (Asian Development Bank, 2013).

It is the procurement entity that is in charge of all activities leading to the award of contract. This involves the creation of tender document for multiple interested tenderers, and also sending notices to tenderers of any changes to the tender document with answers to questions. The newspaper announcements and the administration of the whole tender processes and resources can be very expensive and not always productive. In some develop countries, the procurement operation is consolidated in designated entity administrative outfits to present enhance control and supervision of the process (Marco, 2010).

The Chartered Institute of Building (CIOB) report, (2010) demonstrated that traditional method, has its flaws. Weaknesses with traditional are, however, apparent. This practice has inadequate entry to the opportunity and the use of a registered suppliers or outside suppliers impact the procurement operation. A long chain of internal authorization and scrutiny is required to complete the procurement process (Chomchaiya, 2014). According to Okuadjo (2010), entities that carry out procurement operations must make sure that they are governed by the following processes:

- **Planning** - This enables procurement requirements to be determined and

indicated by the user client which are collated according to their similarities. It also embraces the procurement methods and rules to be followed;

- **Sourcing** - This is the pre-qualification stage where potential suppliers request for quotation (proposal), examination of responses and the selection of the successful tenderer. Negotiations take place at this stage;
- **Contract & Contract Management** - This is a stage allows the parties involved to draw up contract document using the agreed terms and conditions, and signing where applicable. The awarded contract is administered, to guarantee that both parties execute their obligations under the contract;
- **Storing** - This stage allows for unused supplies to be kept safely in order to prevent any damages in the course of the contract execution;
- **Distribution** – Stored goods are delivered to their ultimate destinations in accordance to what is stated in the condition of contract;
- **Disposal** – This stage involves the disposing of obsolete or surplus stocks either by selling to a public tender or auction, or by transferring the unused goods to another public organisation if need arises;and
- **Evaluation** - It is important to appraise the progress of the procurement operation at every stage so as to identify any weaknesses or shortfall and for appropriate remedies to be taken where necessary.

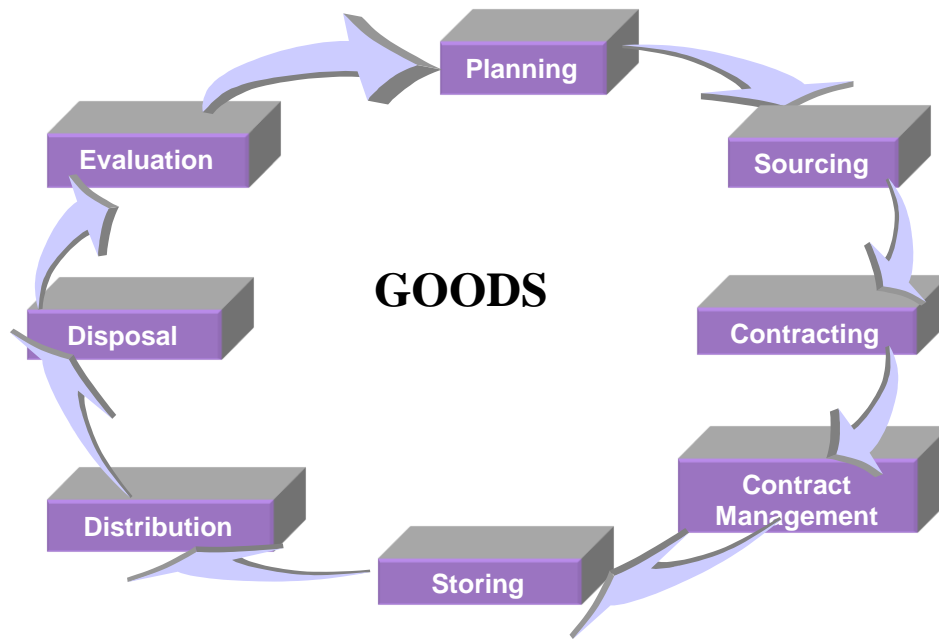


Figure 2.1: Procurement Process

Source, PPA, 2010

2.1.2 Challenges with the Traditional (Manual) Procurement Method

Procurement of contracts has been subjected to extensive of “criticisms” over the years, where the negative experiences significantly supersede the good practices. Some of these criticisms include:

□ Too cumbersome, expensive and bureaucratic processes involved

Public procurement processes usually pursue a very complex and strict guide imposing high levels of bureaucracy, and its cumbersome nature, such as the submission of various statutory certificates and additional overhead charges.

Tavares (2012) explained these effects to be particularly harmful to Small and Medium Enterprises:

□ Discrimination and delay in issue of tender schedules to suppliers:

Government sectors are responsible for regulating the issuance of tender documents to the prospective tenderers, after necessary verifications have been completed. There exists an element of discrimination and unfairness in this

process, in addition to delays in the preparation of tender road map in the Government institutions. As a result tender documents were not usually issued to tenderers on the announced dates (Tavares, 2012; Bikshapathi, 2006);

□ **Tender Boxes at Multiple locations**

In an attempt to counter the threat of contractors' alliances and physical threats to tenderers, some Government sectors keep the tender boxes at multiple locations for easy access. Instead of yielding the desired results, this practice rather exposed departmental officials who attend to these boxes to various forms of risks in the course of their duties. Physical transportation of tender boxes with sealed tender documents from multiple locations to a central point also tends to be risky tasks to officials (Bikshapathi, 2006);

□ **Tampering of tender files**

Due to the transportation of tender documents across various hierarchies, documents are exposed to the risk of manipulating or loss in the course of their transportation. The manual transportation of tender documents is also a cumbersome and time consuming process (Chomchaiya 2014);

□ **Delays in finalization of tenders**

Lack of transparency, and manual movement of files across the administrative hierarchy leads to undue delays in the conclusion procedure. These delays contribute to cost and time overruns for the work (Chomchaiya 2014; Bikshapathi, 2006);

□ **Human interface at every stage**

The manual system leads to the continuous face to face interaction of the parties involved at every stage of the process. Such repeated contact between bidders and

departmental staff could result in partiality, favouritism and other detrimental practices (Costa, 2013); and

□ Lack of Transparency

Government departments closely monitor and control the procurement process due to its sensitive nature to both the companies and the parties involved leading to a severe lack of transparency in the entire process. This lack of openness gives birth to misinformation and a lack of confidence in the entire system (Subramariam & Shaw, 2002; Bikshapathi, 2006).

2.3 OVERVIEW OF E-PROCUREMENT

E-procurement involves an electronic data transfer in the process so as to support operations, planned procurement. Electronic procurement has been in operation years before the term itself, which came into operation in the 1990s. In the inception of 1960 to the 1990, electronic procurement principally was in the form of Electronic Data Interchange (EDI). Currently, electronic procurement is largely assisted by the introduction of which is taking the whole procurement process to a new level. Below is an illustration of the evolution of e-Procurement.

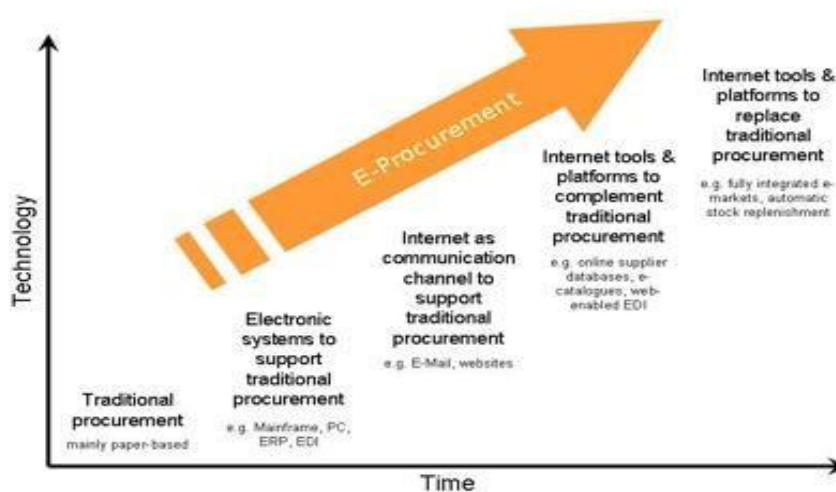


Figure 2.2: History of E-Procurement

Source: UN Procurement Handbook 2012

2.3.1 What is E-Procurement

According to the World Bank (2003), Electronic Procurement is “the use of ICT in conducting procurement and supply chain relationships with contractors for the contract of works, goods and services. Baily *et al.* (2008) further define electronic procurement as “the deployment of electronic methods in every stage of the buying phase from identification of requirement through to payment, and potentially to contract management. It is also understood as the use of electronic communications and transaction processing by government institutions when buying goods and services or tendering public works (Bausa *et al.*, 2013).

Public e-procurement has been defined as the use of information and communication technology such as internet by governments in the procurement relationship with bidders for the acquisition of goods, works, services required by the public sector (Davila *et al.*, 2003).

2.3.2 E-Procurement Process

The figure below is an illustration of the six phases of e-procurement involved in the electronic procurement function;

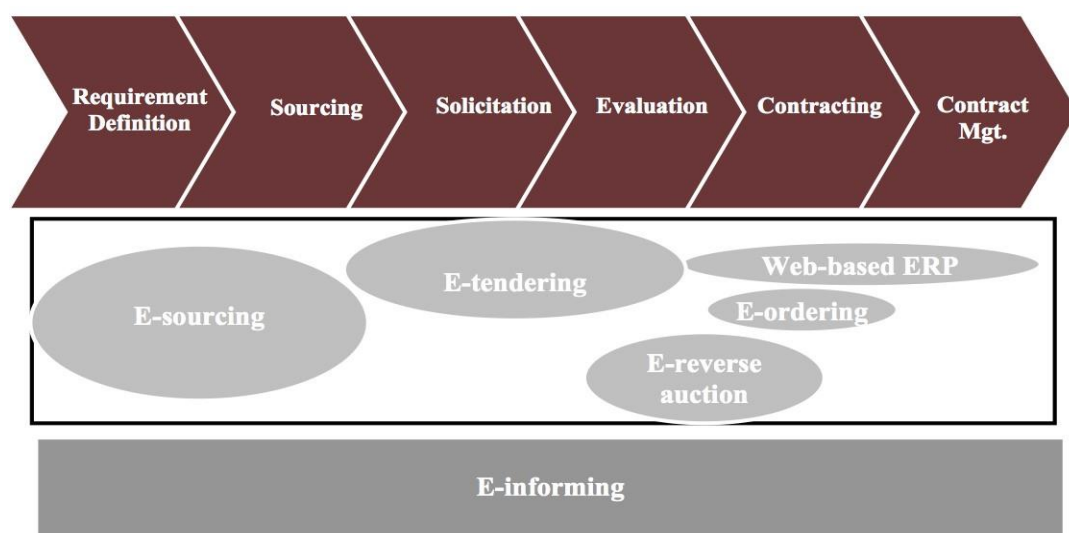


Figure 2.3: E-Procurement Process

Source: CIPS, 2013

Table 2.1: E-Procurement and Traditional Method

TRADITIONAL (MANUAL) METHOD	E-PROCUREMENT
<i>Longer Procurement Cycle</i>	<i>Short Procurement cycle</i>
<i>Expensive</i>	<i>Economical-Fixed Cost</i>
<i>Paper based Procurement</i>	<i>ICT Based Procurement</i>
<i>Restricted Mobility</i>	<i>Anytime, where</i>
<i>No work on Holidays</i>	<i>Anytime</i>
<i>Prone to Human Errors</i>	<i>Very less chance of error</i>
<i>Physical Security</i>	<i>Foolproof Security</i>
<i>Wastage of space to store bids</i>	<i>Lifelong storage on cd</i>
<i>Not retrievable</i>	<i>Retrievable, one click access</i>

Source: Nimbadia (2013)

2.4 OBJECTIVES OF E-PROCUREMENTS

The key objectives of e-procurement are as follows:

2.4.1 Economy

There is a lot of savings in the price of goods and services purchased. This is largely due to the escalation in competition of tenders for government projects procured by means of an Electronic Government Procurement platform. The display of notification of award information in an Electronic Government Procurement platform has helped prevent the overpricing of projects and also modifying cost for goods, works, or services in accordance with prevailing market cost (World Bank, 2006);

2.4.2 Efficiency

Electronic workflows have helped to reduce operational or transactional costs related to transaction processing as a result of e-Procurement, and thereby serving as a significant way of cost savings for public contracts. Aberdeen Group (2008) reported that the performance of the government corporations has greatly enhanced, because of eprocurement method with less transaction costs, and also few transaction cycle times. Automating of the requisition to payment cycle has led to decrease in manual processing (man handing) of procedural error-prone tasks, allowing procurement practitioners to focus on more productive operations (ADB, 2013);

2.4.3 Effectiveness

Through e-Procurement, data from electronic businesses are stored automatically and also thr generation of reports in the procurement process. Enhancing the quality of the data management will give better opportunities in driving supplier performance and managing their acceptance levels and benefit. (ADB, 2013). One important function of this publication strength is the central purchasing bodies (CPBs) can now negotiate additional competitive pricing. With e-Procurement, CPBs gain easy access to data leading to a more effective negotiation with the parties consented;

2.4.4 Increased Accessibility

Effort put in by suppliers in identifying tender opportunities is minimal as a result of online publication which is lacking in the traditional procurement process. Tender documents are now made available over the internet and can be downloaded anytime and anywhere by interested parties without any necessary human interface. Government institutions are pathing the initial role to make informations on procurement opportunities accessible in a centralized internet platform where suppliers can electronically lodge their bids over the

web site by means of the e-tender software. The implementation of this program has eliminated some form of coercion in some countries where competitors are physically prevented from bidding or dropping a tender into the tender box (Biskhapathi *et al.*, 2006);

2.4.5 Improved Transparency and Accountability

Public officers, Contractors and the citizenry each have the opportunity to follow and check all procurement operations at every phase of the procurement procedure. This is the ability to receive up-to-date policies, information on Tendering programs, status of tender evaluation, and notification of the results. An e-Procurement method turns as a vehicle for standardization of files documentation and improves suppliers and allow the supervision of procurement procedure. For expensive operation, accountability and transparency are primarily reinforced through public disclosure at every steps of procurement operation. For small procurement, accountability and transparency is achieved through improved audit competences. Overall, achievement of openness and accountability coming from implementation and adoption of the e-GP greatly enhances the situations of corruption in public procurement;

2.4.6 Economic Development

The implementation of e-commerce in the government sector will enhance the cost of business for both the public sector and the contractors and even communities alike. The principles and the guideline set out for such contracts have a lot to gain. For examples, contractors are required to prepare catalogue of their items to meet the existing catalogue standard. Contractors will then make effort to leverage their money in catalogue developed by the e-catalogue in their B2B contract as well. Public procurement can consequently be used to catalyse the high value principles of e-catalogue as well as the implementation of e-commerce; and.

2.4.7 Equitable and Inclusive

The online display of tender announcement, electronic-bidding, and electronic-payment brings about some of equity for some micro business and SMEs when contending with big firms for government jobs. Dutra *et al.* (2006) in their study concluded that the usage of electronic procurement has reduced the “bureaucratic and also costs of doing business with government agencies”, which tends to bring SMEs into the. According to chomchaiya (2014) the objectives of e-procurement of are as follows:

- Reduce Procurement cycle;
- Increase supplier Access;
- Reduces the cost of procurement competitive bidding;
- Remove Cartelisation and centralization of reverse Auctioning;
- Increase visibility and transparency; and
- Complete elimination of paperwork;

2.5 STAGE OF E-PROCUREMENT

Tavares (2011) outlined some major stages that describe the e-public procurement process. Below are the various stages:

□ E-noticing

Government procurement implies the broadcasting of opportunities offered by procurement entities and contracting authorities to open competitive procedures. The electronic notices is an electronic document comprising key essentials in the procurement process and disseminated through the web and other electronic channels;

□ E-Invitation

E-invitation implies sending an invitation through an electronic platform. It is the method of congregating and dissemination procurement news both from agencies to both inside and outside contractors using technology. Several forms of procedures

such as those concerning low value contracts and restricted procedures include an electronic platform that invites selected economic operators to a tender;

□ **E-tendering**

Electronic tendering assist in the selection phase and acts as a communication stage between the procurement entities and contractors. It deal with the complete tendering process from Request for Expressions of Interest through an Request for Proposal to award of contract. This form of tendering usually comprises the assistance of examination and evaluation of the various stages of interest involved in the tendering process. It results in equitable treatment to all suppliers as it creates transparency in the selection process, and enhances time management of tendering procedures. Some UN organizations such as UNDP-IAPSO and UNHCR have used E-tendering to formulate long-term agreements for vehicles, motorcycles and pharmaceuticals through an in-house established tendering website (UN Procurement, 2012);

□ **E-Evaluation**

Electronic data of shortlisted applicants are extracted from tenders and evaluated using by a committee using appropriate software to obtain the details of each contractor in terms of the statutory and commercial requirement and award criteria (Maia & Tavares, 2013). E-Platform thus, supports all these tasks completely getting rid of the frequent paperwork which is prevalent in the traditional process;

□ **E-award and e-contract**

The Public Contracting Authorities then awards the contract through the electronic platform and the e-contract will be easily recorded and store into a central procurement platform , this help in rescuing agencies from limitless and disordered heaps of paperwork in the contract process;

□ E-executing of the Contract

The execution of the contract should follow the contract award complete with the eplatform, conducting the key tasks of all the electronic processes involved in the successful execution of the project (Ferreira & Spinola, 2013); and

□ E-evaluation and auditing

The ex-post evaluation and auditing is an important task, particularly in public procurement because the outcomes achieved through the allocation of public resources have to be explicitly determined.

2.6 STATUS OF E-PROCUREMENT IN GHANA

According to PPA Procurement E-Bulletin 2010, the public sector in Ghana is currently putting measures in place to enhance the use of technology in government's dealings with the public through the e-Ghana project. Therefore, to ensure the successful implementation of this project, e-Procurement process is one of the necessary tools that have to be incorporated into the project, so as to increase transparency, nondiscrimination, open competition, accountability and security of process in the procurement process. Nonetheless, incorporating e-Procurement would mean the alteration in a number of areas that affect the procuring landscape, such as Legislation Infrastructure and the Current Procurement Act (Act 663) which does not take electronic transactions in the procurement process into consideration. It therefore calls for the amendment of Act 663 to make provision for electronic transactions. Such effort will create the opportunity for various bodies to advertise their tenders online, suppliers submitting their bids online, and the conducting of the contract award process online. (Bondzi, 2010).

It is observed that any successful e-procurement process requires strategic planning to carefully address all the processes involved. Government leadership also plays an important role in at the bureaucratic and policy levels at every stage of the implementation process. Though the country happens not to be ready and well equipped for implementing

this system, evidence indicates that efforts are being exerted by government in preparing the country towards this new revolution in the procurement process. Some of these efforts include the e-Ghana project to establish internet infrastructure for all government offices in the country; establishment of Community Information Centers by the Ministry of Communications to enable the public easy access to the internet; as well as budgetary support of two million US Dollars voted by the World Bank for the establishment of e-Procurement under the e-Ghana project (PPA, Procurement E-Bulletin, 2010).

2.7 BENEFITS OF E-PROCUREMENT TO THE PUBLIC SECTOR

E-Procurement offers specific benefits to the Public Sector after its adoption and implementation. Among these are:

2.7.1 Improved Efficiency and Transparency

E-procurement provides an effective and efficient way of improving procurement and helping the government reduce overhead costs of assigning contracts by the public sectors. Use of online procurement, according to Bondzi (2010) provides the avenue for increased participation of service providers and thus, increased in healthy competition. It also speeds delivery time in a more continual practice operating business for government.

Transparency is ensured as both examination and award process is conducted online (Baily *et al*, 2008). Easy access to information through e-procurement enables interested parties to directly acquire information associated with each tender and award process (PPA E-Bulletin, 2010);

2.7.2 Reduced Administrative Procedures

Invitation to tenders or proposals can be published on the internet or send by email to service providers, reducing the need for a traditional post delivery system which is time consuming and consequently delays the whole process. E-Procurement will also rationalize the purchase order ensuing in less repetition of effort and enhanced precision.

Tenderers are then given immediate notification by email (Bakos, 2009 & Baily, 2008);

2.7.3 Shortened Procurement cycle times

According to National Electronic Commerce Coordinating Council (NECCC), 2002, eprocurement helps to reduce resources involved in the traditional procurement processes through improved payment processes and decreased cycle time. Workflow - from producing a purchase request through to payment - can be managed electronically by eprocurement processes, reducing errors and processing time. These efficiencies enable a reduced cycle time from requisition to payment. These time saving allow reduced inventory levels, resulting in additional cost savings through better cash flow and lessened inventory carrying costs;

2.7.4 Reduced Transaction Cost

There are a number of expenses that connected to the traditional procurement method such as; placing of advert in newspapers, Cost of Printing of tender documents, Cost in Printing and copying of Contract Award documents, Costs connected with evaluation committee meetings and other costs. These expenses will be eradicated at the establishment of e-procurement since the whole processes will be carried out online (Bakos, 2008; Subramarian & Shaw, 2002). E-procurement can also drastically shrink the cost of materials and goods;

2.7.5 Increased Supplier Based

Through the implementation of e-Procurement, the government is able to reach a larger market rather than a small local market and thus, unbiased in the process where interested parties get equal opportunities of applying. Internet usage also provides multiple opportunities for companies in the business of supplying government needs to participate, thus leading to a broadening of the supplier database and lower prices as a result of the increased competition (Pasrija, 2004). Government institutions can easily discover the best value when they have access to more contractors. Using online reverse auctions, buyers and sellers can quickly exchange information and bids, which often results in significant savings (PPA E-Bulletin, 2010); and

2.7.6 Sharing of Information

E-Procurement allows the use of single portal where government registered agencies can share common information among them related to the procurement process. Additionally, e-Procurement allows greater visibility into nationwide procurement information, providing the nation with the opportunity to negotiate better terms of contract. Purchase orders are also processed and sent to vendors in a fraction of the time facilitating the sharing and dissemination of information between parties. Computerized transactions present an inclusive, and far more precise assessment and audit that allows supervisor to follow the status of orders, and remedy circumstances as and when they occur (Bakos, 2009; Baily *et al.*, 2008).

Benefits of e-Procurement

Benefits	References
<i>Improved Efficiency and Transparency</i>	<i>Baily, et el 2008, Chomchaiya, 2014, PPA E-Bulletin , 2011</i>
<i>Reduced administrative procedures</i>	<i>Baily, et el 2008, Bakos, 2009</i>

<i>Shortened Procurement cycle times</i>	<i>Bikshapathi, 2006, NECCC, 2002</i>
<i>Reduced Transaction Cost</i>	<i>Bakos, 2008, Baily, et el 2008, Subramarian & Shaw, 2002</i>
<i>Increased Supplier Based</i>	<i>Pasrija, 2004, PPA E-Bulletin, 2010</i>
<i>Sharing of Information</i>	<i>Bakos, 2009, Baily, et el 2008, Bikshapathi, 2006</i>

2.8 THE CHALLENGES OF E-PROCUREMENT IN GHANA

Although e-procurement is growing in terms of supplier adaptation, research has shown that there still challenges to its acceptance (Baily et al., 2008). According to Kannan (2014), although e-Procurement carries a lot of targeted benefits, it has very low patronage among European firms. Though a number of public sector institutions are vigorously adopting e-Procurement in their operations, data still reveal that most efforts are below original expectations, and for that matter becomes a challenge in its successful implementation. The implementation rate of e-procurement are actually reported to be slow though many government agencies do not provide a true reflection of the e-Procurement activities in their sectors (MacManus, 2002).

2.8.1 Availability of Financial Resources

According to Price Water House Coopers (2007), the high cost of technology is indeed a barrier to adoption of e-procurement. Effectiveness of the e-procurement system is dependent on availability of financial resources in order to meet such technological costs as software and hardware. Other costs include the payments for the various services offered by suppliers and maintenance of the same;

2.8.2 Human Resource Capacity

The Lack of e-procurement knowledge as reported by the Aberdeen Group (2002), serves as a major obstacle to successful adoption and implementation of e-procurement. There is thus need to build capacity of the staff in the e-procurement area;

2.8.3 Support from all Stakeholders

In order for e-procurement adoption to be effective, the support of all stakeholders is a prerequisite. These include the top executives of the organization, the rest of the employees and the suppliers. According to Price Water HouseCoppers (2007), lack of business relationship with suppliers is a barrier to adoption of e-procurement. Wyld (2006) further argued that upper management support was required if an e-procurement system is to succeed;

2.8.4 Availability of supporting infrastructure and facilities

The Effectiveness of an e-procurement system is dependent on availability of infrastructure to support the process. These include computers and servers. According to David Wyld, (2006) adoption of e-procurement is hampered by inadequate technical infrastructure of partners;

2.8.5 Technology Adoption

Lack of technical expertise, according to Price WaterHouse Coopers 2007, is a barrier to adoption of e-procurement. Indeed, the technology keeps on changing and those implementing e-procurement have to continually undergo relevant training in order to keep up with the pace. In addition, there is a need for conformity between the technologies of the user and supplier organizations;

2.8.6 Resistance to Adoption

Resistance to adoption is one of the conventional attitude usually seen among the senior procurement officers who are resolute in their old traditional ways, and thus, unwilling to accept the new ways of doing things. The e-Procurement process has therefore served as a major stumbling block to their manual processing which they have grown so accustomed to. Such people are more likely to fight the new system in an attempt to prevent its successful implementation;and

2.8.7 Security and Authentication issues

In order for the new e-Procurement process to be successful, stakeholders have to be convinced beyond reasonable doubt that all information provided on the platform is secured. They must be assured of great confidentiality in relation to all information provided so as to stimulate activities on the platform, otherwise they are less likely to patronize the service for fear that information may leak. Information such as the identity of the interested tenderers, and the quotations that the tenderers make, are very susceptible tendering process and must thus, be treated with much care. The eprocurement solution is created with protected security features to help ensure that all sensitive data is encrypted to prevent unauthorized persons from accessing such information. When all these systems are in place, stakeholders are assured of the authenticity of the platform which can help in successful adoption and implementation of the process (Bikshapathi, 2006).

Table 2.2: Summarization of challenges of e-procurement

Challenges	References
<i>High cost of initial setup</i>	<i>Baily, et el 2008, Chomchaiya, 2014,</i>
<i>Poor supplier relationship</i>	<i>Baily, et el 2008,</i>
<i>Security/ safety trust</i>	<i>Baily, et el 2008, Bikshapathi, et al 2006</i>

<i>No legal frame work</i>	<i>Baily, et el 2008, MacManus, 2002</i>
<i>Lack of standard data formats</i>	<i>Baily, et el 2008, Tonkin, 2003</i>
<i>Lack of technical expertise</i>	<i>Baily, et el 2008, Bikshapathi, 2006 Chomchaiya, 2014,</i>
<i>Perceived lack of real benefit</i>	<i>Baily, et el 2008, Tavares, 2012</i>
<i>Low priority</i>	<i>Baily, et el 2008, Tavares, 2012</i>
<i>Supplier lack of expertise /interest</i>	<i>Baily, et el 2008, Simon Korir, 2015</i>
<i>Lack of e-procurement competency.</i>	<i>Baily, et el 2008, Simon Korir, 2015</i>

2.9 FACTORS CONTRIBUTING TO SUCCESSFUL IMPLEMENTATION OF E-PROCUREMENT

According to Asian Development Bank (2013) the factors such as Government direction, Policy & legal framework, agencies change, Awareness & capacity building, Technology, added to the successful progress and implantation of an e-procurement operation. Panda and Sahu (2012) in their research found that plethora of studies have been conducted since 1982 in the area of Critical Successful Implementation Factors for various types of e-procurement. Some of the important Critical Successful implementation factors are tabulated below.

Table 2.3: Critical Successful Implementation Factors

No	Context	Reference	Identified Critical Success factor
1	Marketplace Adoption of eprocurement on firm performance	Bof and revitali (2007)	<ul style="list-style-type: none"> • Availability of Managerial / Technical Competencies • Process re-engineering • Change Management • Adequacy of supplier and IT solutions • Availability of IT infrastructure

2	Adoption of eprocurement and impact of emarketplace on firm performance	Chang &Wong (2010)	<input type="checkbox"/> The relationship between eprocurement marketplace and eprocurement adoption participation
3	Cross-Border Eprocurement in Europe	Cimander, et al (2009)	<ul style="list-style-type: none"> • Technical interoperability • Legal harmonization • Employment of digital Signatures
4	E-procurement Implementation in UK public sector Organisations	Kaliannan et al, (2009)	<p>Organisation Factors</p> <ul style="list-style-type: none"> • Organisational Leadership • Organisational perceived usefulness • Organisation perceived ease of use • Organisation facilitators <p>Technological Factors</p> <ul style="list-style-type: none"> • IT infrastructure • IT skills • E-procurement Capability <p>Environmental Factors</p> <ul style="list-style-type: none"> • Government policy & regulations • Government advocacy • Industries Acceptance
5	Success Factors and Technology Acceptance	Klaft (2009)	Trust-building measures for partners
6	Procurement Reform through eprocurement	Lee, et al (2008)	<ul style="list-style-type: none"> • Inter-Agency Coordination • Mandatory Use of e-procurement • Evolutionary approach to implementation • End user training • Attention to User complaints and Requests. • Continuous monitoring of system performance
7	Factors that can provide impetus to eprocurement implementation in india	Khanapuri, et al (2011).	<input type="checkbox"/> Cost Savings <input type="checkbox"/> Centralization of Procurement <input type="checkbox"/> Re-engineering of Process <input type="checkbox"/> Budgetary Control <input type="checkbox"/> Supplier Management <input type="checkbox"/> Knowledge Pool <input type="checkbox"/> Maturity of Market Place,

			<input type="checkbox"/> Legal Framework
8	Transmission of eprocurement practices on practitioners and its determinants	Moon (2005)	<input type="checkbox"/> Capacity enhancement of procurement officers <input type="checkbox"/> Technical quality of the system <input type="checkbox"/> Cooperative relationships between government agencies, vendors and application service providers. <input type="checkbox"/> Addressing security and fraud related issues
9	Comparative evaluation of eprocurement implementation in India and Sweden	Parida and Parida (2005)	<input type="checkbox"/> Managerial commitment <input type="checkbox"/> User friendliness of the eprocurement solution <input type="checkbox"/> Change management <input type="checkbox"/> User uptake <input type="checkbox"/> Addressing technological and security related risks in the beginning of the project.
10	Business issues affecting eprocurement implementation in SME	Quayle (2005)	<input type="checkbox"/> Leadership <input type="checkbox"/> Strategy <input type="checkbox"/> Marketing <input type="checkbox"/> Waste reduction <input type="checkbox"/> Financial management <input type="checkbox"/> Research and development <input type="checkbox"/> Supplier development <input type="checkbox"/> Staff development
11	E-procurement initiative in public sector	Vaidya et al (2006)	<input type="checkbox"/> End-users development and training <input type="checkbox"/> Supplier Acceptance <input type="checkbox"/> System integration <input type="checkbox"/> Security and Authentication <input type="checkbox"/> Performance Measurement <input type="checkbox"/> Top Management Support <input type="checkbox"/> Change management <input type="checkbox"/> E-procurement implementation strategy <input type="checkbox"/> Technology Standards.

According to Panda and Sahu (2012), many studies have underlined that for ensuring faster adoption of e-procurement requires considering and addressing politico-legal structural

factors that are specific to a particular political and administrative context. It requires political will power to ensure administrative and legal interventions (Henriksen and Mahnke, 2005; Kierkegaard, 2006; Carayannis & Popescu, 2005; Panda & Sahu, 2011).

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

The section provides information on the research methodology and techniques used to conduct the study. It defines the population from which the sample is selected and describes the sampling procedures for selecting the samples. It also discusses the data collection procedure and strategies for data analysis.

3.2 RESEARCH DESIGN

The research design selected in this study was quantitative based on descriptive survey design. The study focuses on Implementation and Adoption of E-procurement in Ghana Public Sector: the way forward. Questionnaire was used as the research tool to gather data.

The questionnaire was designed to collect views of procurement practitioners concerning implementation and Adoption of e-procurement in the Ghana Public Sector.

The research design was also designed to address the specific objectives of the study.

3.3 SOURCES OF DATA

Data collection is one of the most important stages in conducting a research. For the purposes of this study both primary and secondary sources of data were employed. With primary data, questionnaires were administered to participants of the study in order to collect valuable information that could enable the researcher accomplish the goals of the present study. The latter, however, focused on acquiring information from the internet and empirical literature.

3.4 POPULATION OF THE STUDY

According to Cooper and Emory (1995), the population can be determined from the objectives and the problem to be addressed by the research. Therefore, based on the study and objectives to be considered, the target population for the research consisted of procurement practitioners and managers in the selected public sector institutions registered with Ghana Institutes of Procurement and Supply (GIPS). That is, from list obtained from GIPS, a total number of fifty (50) institutions were registered. However, due to convenience and limited time for the study, 18 institutions were selected as a sample frame.

3.5 SAMPLE SIZE

The sample size was deduced from the selected eighteen institutions. Some institutions have two or more procurement practitioners. In such instance, all the officers related to procurement were considered. Some institutions also have more than one Project Unit with Procurement Unit. For instance Ministry of Food and Agriculture (MoFA), apart from it's

main procurement directorate also have separate project units like West Africa Agriculture Productivity Programme (WAAPP), Ghana Commercial Agricultural Project (GCAP), Ghana Agricultural Sector Investment Project (GASIP) etc. in the case described all the units were also considered. In total sixty (60) Procurement Practitioners and managers were considered based on the selected institutions (see Table 3.1).

Table 3.1: Summary of Sample frame

No	Institutions	Procurement Practitioners and Managers
1	<i>Ministry of Food and Agriculture</i>	10
2.	<i>Volta River Authority</i>	3
3.	<i>Ministry of Education</i>	2
4.	<i>Ministry of Health</i>	3
5.	<i>COCOABOD</i>	6
6.	<i>Ghana Civil Aviation Authority</i>	5
7.	<i>Tema Metropolitan Authority</i>	3
8.	<i>Ministry of Finance</i>	2
9.	<i>Cocoa Processing Corporation</i>	2
10.	<i>Electricity Company of Ghana</i>	2
11.	<i>Ghana Library Authority</i>	2
12.	<i>Judicial Service of Ghana</i>	6
13.	<i>SSNIT</i>	2
14.	<i>Ghana Immigration Service</i>	2
15.	<i>Ghana Armed Forces</i>	4
16	<i>Ghana Police Service</i>	2
17.	<i>Ghana Standard Authority</i>	2
18	<i>National Communication Authority</i>	2
		60

Source: Field data (2016)

3.6 SAMPLING TECHNIQUES

The study adopted the purposive sampling technique in the selection of the respondents. According to Barreiro and Albandoz (2001), purposive sampling is a type of sampling technique in which the selection of the respondents is based on the judgment of the researcher, thus, respondents who best fit the purpose of the study. It aided in selecting respondents who can give the required information needed to meet the objectives of the research. It was through purposive sampling that procurement practitioners and managers were selected from various institutions under consideration.

3.7 RESEARCH INSTRUMENT

A self-developed questionnaire was designed as an instrument for study. The structured questionnaire is closed-ended questions, the researcher provides a choice of possible answers. Closed ended questions enabled respondents to choose one or more alternative while an open ended question sought the opinions of the respondents on issues of the study. The major challenge of the gathering the data is the availability of the respondents, additional assistance was used to gather the data for the study.

3.8 STATISTICAL ANALYSIS

As indicated earlier, questionnaires were used to collect data from procurement practitioners, Data collected were transformed into a more suitable format for analysis. The collected data were analysed using frequencies, percentages, standard deviation and mean score ranking, which was aided by Statistical Package for Social Sciences (SPSS).

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 INTRODUCTION

This chapter analyses and discusses the results obtained from the data collected from participants for the purpose of the study.

4.2 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Table 4.1: Demographic Characteristics of Respondents

<i>Characteristics</i>	<i>Frequency (n)</i>	<i>Percent (%)</i>
Professional Background		
<i>Quantity Surveyor</i>	7	14.6
<i>Contract Management</i>	4	8.3
<i>Procurement Officer</i>	37	77.1
Educational Qualification		
<i>Diploma</i>	2	4.2
<i>HND</i>	4	8.3
<i>Bsc</i>	22	45.8
<i>Msc</i>	18	37.5
<i>MBA</i>	2	4.2
Professional membership		
<i>None</i>	10	20.83
<i>GhIS</i>	4	8.3
<i>GIPS</i>	8	16.7
<i>CIPS</i>	22	45.8
<i>Other</i>	4	8.3
<i>Characteristics</i>	<i>Frequency (n)</i>	<i>Percent (%)</i>
Years of experience		
<i>6-10 years</i>	14	29.2
<i>11-15 years</i>	26	54.2
<i>16 and above</i>	8	16.7

Source: Field data (2015)

4.3 ANALYSIS OF OBJECTIVES

Table 4.2: Summary of e-Procurement status

<i>Characteristics</i>	<i>Frequency (n)</i>	<i>Percent (%)</i>
<i>Number of Procurement activities in the past one year</i>		
<i>16-20 years</i>	<i>10</i>	<i>20.8</i>
<i>Above 20 years</i>	<i>38</i>	<i>79.2</i>
<i>Awareness of e-procurement methods</i>		
<i>Yes</i>	<i>42</i>	<i>87.5</i>
<i>No</i>	<i>6</i>	<i>12.5</i>
<i>E-procurement medium of information</i>		
<i>Media</i>	<i>2</i>	<i>4.2</i>
<i>Internet</i>	<i>4</i>	<i>8.3</i>
<i>School</i>	<i>22</i>	<i>45.8</i>
<i>Conference</i>	<i>20</i>	<i>41.7</i>
<i>Have you ever published tender using Online Tender Advertisements?</i>		
<i>Yes</i>	<i>6</i>	<i>12.5</i>
<i>No</i>	<i>42</i>	<i>87.5</i>
<i>Have you ever tendered using an e-tendering?</i>		
<i>Yes - - No</i>	<i>48</i>	<i>100</i>
<i>Have you ever evaluated tender using e-evaluation?</i>		
<i>Yes</i>	<i>-</i>	<i>-</i>
<i>No</i>	<i>48</i>	<i>100</i>
<i>Ever sent award notified your supplier/contractors using e-award notification?</i>		
<i>Yes</i>	<i>-</i>	<i>-</i>
<i>No</i>	<i>48</i>	<i>100</i>
<i>Have you ever used e-contract management method to monitor your contract?</i>		
<i>Yes</i>	<i>2</i>	<i>4.2</i>
<i>No</i>	<i>46</i>	<i>95.8</i>
<i>Have you ever paid your suppliers using the e-payment method?</i>		
<i>Yes</i>	<i>2</i>	<i>4.2</i>
<i>No</i>	<i>46</i>	<i>95.8</i>
<i>Ever evaluated and audited your procurement processes using the e-auditing system?</i>		
<i>Yes</i>	<i>-</i>	<i>-</i>
<i>No</i>	<i>48</i>	<i>100</i>

Source: field data (2016)

Table 4.1 above gives the summary of the findings on the demographic information on the respondents.

With regards to professional background 7 of the respondents (representing 14.6%) were quantity surveyers, 4 (representing 8.3%) were contract managers and majority of the respondents, 37 (representing 77.1%) were procurement officers. This is an indication that most of the respondents have been undertaking some sort of procurement one way or another.

Additionally, majority of the respondents (22, representing 45.8%) had Bsc certificate, followed by Msc having 18 of the respondents (representing 37.5) with an Msc certificate; 4 respondents (representing 8.3%) with HND certificate and 2 respondents (representing 4.2%) having a certificate in Diploma and MBA. Based on these results, it can be concluded that majority of the respondents had obtained Bachelors' degree certificate. That is, the majority of the respondents have a first degree or equivalent as their level of education. All the respondents are well informed about the Procurement and its implications in the Ghanaian Public Sector. This is an indication that the employments of workers were purely based on their level of qualification.

In relation to respondents' professional membership in table 4.2, 22 of the respondents (representing 45.8%) were members of CIPS, 8 of the respondents (representing 16.7%) were members of GIPS; 4 respondents were members GhIS, 10 respondents (representing 29.2%) were neither members of any professional body. For years of experience, 14 of the respondents (representing 29.2%) have had 6-10 years of experience in procurement, 26 (representing 54.2%) had 11-15 years of experience, while 8 respondents (representing 16.7%) had at least 16 years of experience in procurement. This is an indication that the respondents have worked in this field for quite a long time, and thus, were in the position to provide accurate and reliable information for this study, and capable of handling e-procurement procedures.

This is evident where 20.8% of the respondents agreed to have undertaking between 16 to 20 procurement activities in the past one year, while the remaining 79.2% agreed to have undertaken at least 20 procurement activities in the past one year. However, 6 out of these 48 respondents claimed not to be aware of e-procurement method in procurement, while the remaining 42 were well informed. Also, all respondents claimed they have never tendered using e-tendering or evaluated tender using e-evaluation; neither have they used e-award notification nor audited procurement processes using the e-auditing system. Moreover, only 2 out of the 48 respondents claimed to have ever used e-contract management method to monitor contracts, as well as paid suppliers using e-payment method.

Table 4.3: Means and Standard Deviations of e-procurement challenges

Variable	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Min</i>	<i>Max</i>
Challenges	48	63.54	7.29	46	75

Source: Field data (2016)

Results from table 4.3 above indicates a relatively high impact of e-procurement challenges on the adoption of e-procurement ($M = 63.54$, $SD = 7.29$). Finding of this analysis shows that the outlined challenges have significant impact on the effective implementation of e-Procurement in the Public Sector. It is therefore imperative on the part of managers and policy makers to critically address these challenges in their pursuit to champion the usage of e-procurement.

Table 4.4 : Further analysis of individual challenges of e-Procurement

<i>Challenges</i>	<i>Mean</i>	<i>Rank</i>
-------------------	-------------	-------------

<i>Availability of financial resources</i>	4.58	1st
<i>Unstable power</i>	4.42	2nd
<i>Availability of supporting infrastructure and facilities</i>	4.33	3rd
<i>Security and authentication issues</i>	4.29	4th
<i>Human resource capacity</i>	4.25	5th
<i>High cost of initial setup</i>	4.17	6th
<i>Lack of training regarding the implementation and use of ecommerce systems</i>	4.09	7th
<i>The fear of unauthorized access to critical project information</i>	4.08	8th
<i>The lack of trust between parties in the electronic commerce</i>	4.00	9th
<i>Technology adoption</i>	3.96	10th
<i>Problems in the management of servers</i>	3.91	11th
<i>Support from all stakeholders</i>	3.79	12th
<i>Resistance to adoption</i>	3.75	13th
<i>Lack of standard data formats</i>	3.63	14th
<i>Perceived lack of real benefit</i>	3.50	15th
<i>Poor supplier relationship</i>	3.26	16th

Source: Field data (2016).

Table 4.4 above is a further confirmation of the findings in table 4.2 which describes the extent to which the aforementioned e-procurement challenges hinder the adoption and implementation of the e-procurement process. The above table shows that all the responses of the enumerated challenges had a significantly higher mean values ranging from 4.58 to 3.26. This is a clear indication that respondents see these challenges as potential factors that could hinder the adoption and implementation of e-procurement if appropriate measures are not taken to address them.

Table 4.5: Means and Standard Deviations of e-Procurement success factors

Variable	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Min</i>	<i>Max</i>
<i>Success factors</i>	48	103.13	8.03	86	119

Source: Field data (2016)

Table 4.5 above shows a relatively high impact of the e-Procurement success factors on the adoption of e-procurement (M =103.13, SD = 8.03). This is an indication that the success factors outlined in the survey material such as the availability of

managerial/technical competences, process re-engineering, and adequate supplier and IT solutions, to mention but a few, have significant positive impact in ensuring the successful implementation of e-procurement adoption.

Table 4.6: Further analysis of individual successful implementation factors of e-procurement.

<i>Success Factors</i>	<i>Mean</i>	<i>Rank</i>
<i>Availability of internet</i>	4.83	<i>1st</i>
<i>Power stability</i>	4.63	<i>2nd</i>
<i>Availability of IT infrastructure</i>	4.58	<i>3rd</i>
<i>Availability of Managerial / Technical Competencies</i>	4.38	<i>3rd</i>
<i>Addressing security and fraud related issues</i>	4.25	<i>5th</i>
<i>Adequacy of supplier and IT solutions</i>	4.17	<i>6th</i>
<i>Capacity enhancement of procurement officers</i>	4.17	<i>6th</i>
<i>User friendliness of the e-procurement solution</i>	4.13	<i>8th</i>
<i>Technical quality of the system</i>	4.08	<i>9th</i>
<i>End user training</i>	4.04	<i>10th</i>
<i>Legal Framework</i>	4.00	<i>11th</i>
<i>Government policy & regulations</i>	4.00	<i>11th</i>
<i>Cooperative relationships between government agencies, vendors and application service providers</i>	4.00	<i>11th</i>
<i>Industries Acceptance</i>	3.96	<i>14th</i>
<i>Research and development</i>	3.96	<i>14th</i>
<i>Attention to User complaints and Requests</i>	3.92	<i>16th</i>
<i>Technology Standards.</i>	3.92	<i>16th</i>
<i>Evolutionary approach to implementation</i>	3.79	<i>18th</i>
<i>Employment of digital Signatures</i>	3.75	<i>19th</i>
<i>Top Management Support</i>	3.75	<i>19th</i>
<i>Organisational Leadership</i>	3.71	<i>21st</i>
<i>Inter-Agency Coordination</i>	3.63	<i>22nd</i>
<i>Process re-engineering</i>	3.62	<i>23rd</i>
<i>Mandatory Use of e-procurement</i>	3.58	<i>24th</i>
<i>Technical interoperability</i>	3.38	<i>24th</i>
<i>Budgetary Control</i>	3.22	<i>26th</i>

Source: Field data (2016)

Table 4.6 above is an indication that greater part of the respondents decided that the above factors have very high probability of contributing to the successful adoption and implementation of the e-procurement should they be taken into consideration in the process. The highest mean values ranges from availability of internet” (4.83) to “budgetary

control” (3.22). This indicates the greater extent to which these factors have a greater potential of influencing e-Procurement adoption. Thus, in order to ensure a successful implementation of e-procurement process, policy makers must incorporate and ensure that these factors are made available in the process.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION 5.1

INTRODUCTION

The aim of this research has been to investigate the implementation and adoption of eprocurement in the Ghana Public Sector and its way forward, three objectives were outlined directed by research questions. In this chapter, the objectives are reconsidered to explore the scope to which these have been obtained throughout the various chapters of the study. It also presents a summary of findings and recommendation based on the findings of the research.

5.2 REVIEW OF OBJECTIVES

The study was to evaluate the purchasing processes using e-Procurement process in the public sector in Ghana. That is, accessing the effectiveness of the implementation and adoption of e-Procurement in Ghana Public Sector. The issues studied included evaluating public sector e-Procurement processes in helping to achieve high performance, the challenges faced by public institutions in their attempt to adopt and implement this process, as well as the potential success factors that are likely to drive the process forward. An online survey was conducted using 48 respondents who fit into this criterion in question. Results indicated that the Ghanaian public sector was well informed of the e-procurement process through various mediums such as the media, through the internet, in schools as well as through conferences attended. Nonetheless, this sector has not adopted this process in its procurement process. It was also found that various challenges such as lack of human resource capacity and poor supplier relationship, to mention but a few, can hinder the e-Procurement process. Also, factors such as evolutionary approach to implementation and availability of IT infrastructure are more likely to positively influence the adoption and implementation of the process.

5.2.1 Objective One

The first objective of this study was to identify the status of e-Procurement in the Ghanaian public sector. The Results of the analysis from table 4.2 showed that majority of respondents (representing 87.5%) responded to have been well informed about the eProcurement methods that exist in the public sector, through various mediums such as the media, the internet, in schools as well as at various conferences attended. This finding is consistent with the World Bank (2003) survey which argued that since e-Procurement includes the introduction of new technologies and significant alteration in the traditional procurement methods, there is a need to educate all Public Sector workers in the use of the new e-Procurement tools which are critical to the success of this initiative. Irrespective of their awareness of the methods and usage of e-procurement, none of the respondents have ever tendered using e-tendering, neither have they ever used eevaluation nor e-award notification; although only a few (4.2%) ever paid suppliers using the e-payment method. This finding is also consistent with a study by Agboyi and Ackah (2005) in his study to ascertain the impact of e-Procurement on the improvement of an Organization, found that the adoption and implementation of e-procurement in developing countries such as Ghana, Nigeria and Uganda seems to be more of a dream than a reality. That is, though e-procurement facilitates the procurement process in every regard, its implementation in the Ghanaian public sector is far from being a reality. It is therefore imperative on the part of managers to note that employees being informed of eProcurement is not enough to initiate and apply the process, but a more conscious effort must be put in place to ensure the execution of this system. This to a large extent can help facilitate the procurement process and overcome all the challenges associated with the usage of the traditional method.

5.2.2 Objective Two

Secondly, the study was aimed at identifying whether the above listed factors really posed as great challenges or threats to the adoption and implementation of e-procurement in the public sector. According to the results of this analysis, it was found in table 4.3 that respondents were in agreement that the enumerated challenges have significant impact, and can thus be an antagonist to the successful implementation of the process if not controlled in the process. Henriksen and Mahnke (2005) argued that these challenges tend to be on the ascendancy within the public sector. Further assessment of the individual challenges in table 4.4 revealed that almost all the responses on the 5 – point Likert scale (ranging from “insignificant” to “extremely significant”) in relation to the challenges, were seen to have significant impact on e-Procurement process, as the individual factors generated very high mean values from 4.58 to 3.26. “Availability of financial resources” was ranked first with the highest mean value of 4.53, followed by “unstable power” and “availability of supporting infrastructure and facility” being the second and third, with mean values of 4.42 and 4.33 respectively. Responses to “inadequate human resource capacity” was also found to have a very high mean value of 4.25 as indicated in table 4.4. This is an indication that the role financial resources play in the e-procurement process cannot be underestimated, as lack of it can serve as a major impediment to its implementation. The same applies to infrastructure, power supply, as well as the human resources needed for the successful execution of eProcurement. This finding is in consonance with a study by Kheng and Al-Hawandeh (2002), who postulated that workers will always refuse to buy into any new ideas in the course of their work if they lack the capacity in effecting the new changes. This is an indication, that though this new process may be the best approach to solving the situations that exist in the traditional method in the public sector, there are still factors that hinder the successful adoption and implementation of the process. Thus, in order to enable the smooth

implementation and execution of this new process, it is incumbent on the part of the employers appropriately address these challenges as they may confound with the process and hinder its smooth implementation.

5.2.3 Objective Three

Finally, in the quest to identify the factors contributing to successful implementation of e-Procurement. It was found that the outlined factors had a very strong impact on the successful execution of e-Procurement in the public sector ($M=103.13$, $SD=8.03$). Further analysis of the success factors in table 4.6 confirmed this finding, as the means of the individual factors were analysed, with participants responding on a 5 – point Likert scale (ranging from „strongly disagree“ to „strongly agree“). “Availability of internet”, “power stability” and “availability of IT infrastructure” recorded the highest mean values of 4.83, 4.63 and 4.58 respectively. This is a clear indication of the significant role that these three success factors (as well as those outlined in table 4.6 above) play to facilitate the implementation of the e-Procurement process. These factors for that matter serve as the major catalysts in championing the adoption and implementation of this system. However, success factors such as “mandatory use of e-procurement”. “Technical interoperability” and “budgetary control” recorded the lowest mean values of 3.58, 3.38 and 3.22 respectively, indicating that these three success factors, though significant, play very little role on the successful implementation of e-Procurement. Nonetheless, the differences in the means of the various success factors (ranging from 4.80 to 3.22) in table 4.6 were not very significant. This implies that though some differences in their impact exist, they are not very significant; indicating that all the factors to some extent play very essential role in the implementation process of this new system. This is an indication that in order to guarantee the success of this new process, it is imperative to ensure that all these factors are in place and effectively functioning prior to the adoption and implementation of the e-

Procurement process. These findings corroborate with the critical success factors outlined by Vaidya *et al.* (2006), who proposed that emphasis on the Critical Success Factors (CSF) would positively correlate to success on the project. It is important to note that without these factors in place, the adoption and implementation of e-procurement may be difficult if not impossible to accomplish (Vaidya *et al.* 2006).

5.3 CONCLUSION

Procurement is an important part of doing business in today's competitive environment, and that the role of procurement plays in institutions cannot be over emphasized. In spite of its importance, it is faced with many challenges which need to be tackled to make the procurement unit of institutions more vibrant as their activities go a long to impact on the performance of the whole organization or institution. For this reason, the e-Procurement method has been adopted to replace the traditional procurement method so as to address most of the challenges in this unit. Despite the benefits of this new process, public institutions in Ghana (though aware of such new development) do not patronize the new process.

It can be concluded that the lack of employee competency has hindered the smooth adoption of e-procurement in the public sector. It is evident that employees have a great role in adoption of e-procurement and their skills, competencies and training may influence to a large extent e-procurement adoption and implementation in the public institutions in Ghana. Also, inadequate technological infrastructure has been identified as a hindrance since it plays a significant role in the e-procurement adoption in terms of systems integration of the Public sector in Ghana. These and the other challenges outlined in the study must address in order to make the adoption process a success. It is also very important for institutions to capitalize on the success factors which could serve as a driving force

towards the successful adoption and implementation of e-Procurement in Ghanaian public sectors.

5.4 RECOMMENDATION

Based on the finding of the study and for smooth implementation of e-procurement in the Ghana Public Sector, the study recommends following;

There should be a strong commitment on the part of government in the key area of IT infrastructure development in the Country. Proper policies, legislations and regulations should also be put in place to safe guide the whole system of e-procurement, in that eprocurement comes with own security issues. To embrace the e-procurement, sufficient training, education and workshop should be organized for procurement practitioner for them to sharpen their skills and appreciate the real benefits of e-procurement.

5.5 RECOMMENDATION FOR FURTHER STUDIES

The results of this research, will add to the existing knowledge and also form the basis for further study. The study was only conducted from the Public Sector point of view, accordingly the same study should be conducted on the Suppliers to find out if the same findings will be obtained.

.

REFERENCES

- Aberdeen Group. (2002). *Best Practices in e-Procurement*. The Abridged Report, Aberdeen Group Inc, Boston, Massachusetts, pp 65.
- Aberdeen Group (2008) Global Supply Management (GSM): the 2008–2009 Aberdeen Agenda, [online] <http://www.aberdeen.com> [Accessed 7/04? 2016].

- Asian Development Bank, A.D.B. (2013). *e-Government Procurement Handbook*, Mandaluyong City, Philippines. Available from <http://www.adb.org/e-government-procurement-handbook>, [accessed 12/04/ 2016]
- Agboyi M. R. and Ackah D. (2005). The impact of E-procurement on the improvement of an Organization, *World Wide Journal of Multidisciplinary Research and Development*, Vol. 5 wwjmrd 2015; 1(5): 1-9 www.wwjmrd.com
- Baddeley, A. D., & Kopelman, M. D. (2015). *The Handbook of logistic and distribution management*, 4th ed, (1), pp.1–14
- Baily, P., Farmer, D., Crocker, B., Jessop, D., & Jones, D. (2008). *Procurement Principles and Management*, 10th ed. Harlow, England: Prentice Hall
- Bakos J. A (2008) A strategic Analysis of electronic Marketplace, *MIS Quarterly* 15 (3) pp 295-310.
- Bakos A. (2009) *The impact of user-perceived e-procurement quality on system and contract compliance*, *International Journal of Operations & Production Management*, Vol. 31, No. 3, pp.274–296
- Barreiro, P. L., Albandoz, J. P. (2001). Population and sample: Sampling Techniques, *Management Mathematics for European Schools*, pp. 3-18.
- Bikshapathi, K., & Raghuveer, P. (2001). Implementation of e-procurement in the Government Sector the India Way, *Technology Journal*, Vol. 7, No. 6, pp 24
- Bikshapathi, K., & Raghuveer, P. (2003) Factors affecting performance of e-procurement system in the energy sector in Kenya; a case study of Kengen, *International Journal of Management and Commerce Innovations*, Vol. 3, Issue 2, pp: 155-164
- Bikshapathi, K., & Raghuveer, P. ((2006). *e-Procurement in Government of Andhra Pradesh, India*. World Bank Case Study. <http://go.worldbank.org/W7W2AC3GS0> [accessed 12/ 04/ 2016]
- Bikshapathi, K., & Raghuveer, P. (2007). Implementation of e-procurement in the

- Government of Andhra Pradesh: A Case Study. In A. Agarwal (Ed.), *eGovernance: Case Studies* (pp. 270-285): University Press (India) Private Limited.
- Birks, C., Bond, S. & Radford, M. (2001). *Guide to e-Procurement in the Public Sector: Cutting through the Hype*. London, UK
- Bof, F. and Revitali, P. (2007) „Organisational pre-conditions for e-procurement in governments: the Italian experience in the public health care sector“, *The Electronic Journal of e-Government*, Vol. 5, No. 1, pp.1–10.
- Bokpe, S. J. (2013). *A project to promote transparency in public procurement unveiled*, Daily Graphic. Available from <http://www.graphic.com.gh/news/generalnews/16339-project-to-promote-transparency-in-public-procurementunveiled.html>. [accessed 4/04/ 2016]
- Bondzi, T. (2010). Benefit of E-procurement, *E-Procurement Bulletin*, Vo1. No 4, pp 6.
- Buasà Peris, Kourtidis S I and Saky L K (2013). *E-Procurement Golden Book of Good Practice* - Final Report. pp.48.
- Carayannis, E. G., & Popescu, D. (2005). “Profiling a Methodology for Economic Growth and Convergence: Learning from the EU e-procurement Experience for Central and Eastern European Countries.” *Technovation*, 25 (1): 1-14.
- Chang, H. H., and Wong, H. K. (2010) “Adoption of E-procurement and Participation of Emarketplace on Firm Performance: Trust as a Moderator.” *Journal of Information & Management*, (47), 262-270.
- Chartered Institutes of Purchasing and Supplying Australia (2005). *The Definitions of ‘Procurement’ and ‘Supply Chain Management*, [Online] Available from <http://www.cips.org>. [accessed 10/04/2016]
- Chartered Institutes of Purchasing and Supplying, (2013). *E-Procurement – CIPS Positions on practice*; [Online] Available from <http://www.cips.org/.../procurement/Pr>, [Accessed: 16/ 05/2016].
- Chartered Institute of Building (2010). *Procurement in the Construction Industry, A Report Exploring Procurement In The Construction Industry*, pp 6

- Chomchaiya, S. (2014) Consolidated Performance Measurement framework for government e-procurement focusing on internal stakeholders, [Online] Available from <https://www.deepdyve.com/lp/emerald-publishing>
- Cimander, R., Hansen, M. and Kubicek, H (2009) Electronic Signatures as Obstacle for Cross-Border E-Procurement in Europe: Lessons from the PROCURE-project, Institute for information Management, Bremen GmbH (ifib)
- Cooper, D.R. & Emory, C.W. 1995. Business research methods (5th Ed.). Chicago: Irwin.
- Costa, A. (2013) *Evidence of the impacts of public e-procurement: the Portuguese experience*, Journal of Purchasing and Supply Management, Vol. 19, No. 4, pp.238–246.
- Croom, S. (2000). The Impact of Web-Based Procurement on the Management of Operating Resources Supply. *The Journal of Supply Chain Management*. Winter, 36 (1), pp 4
- Croom, S., & Brandon-Jones, A. (2007). Impact of e-procurement: Experiences from implementation in the UK public sector, *Journal of Purchasing and Supply Management*, 13(4), 294-303
- Dagaba, J. (2013). *Weakness of the procurement Act of Ghana, Act 663*. Available from <http://thechronicle.com.gh/weaknesses-of-the-procurement-act-of-ghana-act-663-2003>. [accessed 15/03/ 2016]
- Davila, A., Gupta, M., & Palmer, R. (2003). *Moving procurement systems to the Internet: the adoption and use of e-procurement technology models*.
- Davis, P., Love, P., & Baccarimi, D. (2008). *Building Procurement Methods*. Report, Project Affiliates Curtin, University of Technology, Western Australia Department of Housing & Work, Royal Melbourne Institute of Technology
- Dutra, I., C., Findlay, M., McGregor, & McEwan, T. (2006). *e-Procurement & the SME – Challenges for Scotland*. IADIS International Conference e-Commerce. [http://www.academia.edu/875272/e-procurement and the SME challenges for Scotland](http://www.academia.edu/875272/e-procurement-and-the-SME-challenges-for-Scotland).

- Economic & Social Commission for and the Pacific Asian Development Bank Institute
Public Procurement Service of the Republic of Korea (2006). *E-procurement*.
United Nations Publication, Thailand.
- Ferreira J. & Spinola R. (2013) The Potential of e-Tendering Data to Improve Post – Award
Contract Management. *Journal of Suppliers*, Vol. 9, No. 5, pp.43–46.
- Frimpong, S. (2014), Ghana begins electronic procurement system, *Ghana Business
News, Daily Graphic*. [Online] Available from
<https://www.ghanabusinessnews.com> [accessed 10/04/2016]
- Henriksen, H.Z. and Mahnke, V. (2005) “E-Procurement adoption in the Danish public
sector: the influence of economic and political rationality”, *Scandinavian Journal
of Information Systems*, Vol. 17, No. 2, pp.85–106.
- Kannan, S. (2014). *Challenges in E-Procurement Adoption in Europe*, *Journal of Public
Procurement*, Vol. 1, No. 1, pp.9–50
- Kaliannan, M., Awang, H. and Raman, M. (2009) „Electronic procurement: a case study
of Malaysia“s e-procurement initiative“, *International Journal of Electronic
Governance*, Vol. 2, Nos. 2–3, pp.103–117.
- Khanapuri V.B, Nayak S and Soni P.(2011) Framework to Overcome Challenges of
Implementation of E-procurement in Indian Context: *International Conference on
Technology and Business Management*, Mumbai
- Kheng & Al-Hawandeh (2002), E-Procurement Adoption in the Danish Public Sector:
The Influence of Economic and Political Rationality, *Scandinavian Journal of
Information Systems*, 17(2).
- Kidd, A. (2013). *The Definition of Procurement*. *Chartered Institute of Purchasing Supply*:
Australia Pty Ltd. [Online] Available from www.cipsa.com.au; [Accessed:
12/04/2016]
- Kierkegaard, S. (2006) „Going, going, gone! E-procurement in the EU“, *International
Journal of Computing and Information Sciences*, Vol. 14, No. 4, pp.230–240.

- Klaft, M. (2009) . “Reverse procurement and auctions for consumers – A new trend on the horizon of e-commerce?”, *Wirtschaftsinformatik* Vol. 48 No. 1, pp. 36-45
- Larmour, (2011). *A study of procurement routes and their use in the commercial sector*, PhD thesis, Interdisciplinary Design for the Built Environment.
- Lee, S , Zaltman, G. and Deshpande, R. (2008). *Supplies and Materials Management*, third edition, Mc Donald and Evans Limited, Eastover, Plymouth International Journal of Managing Value and Supply Chains (IJMVSC) Vol. 6, No. 1,
- MacManus, S.A. (2002) Understanding the incremental nature of e-procurement implementation at the state and local levels, *Journal of Public Procurement*, Vol. 2, No. 1, pp.5–28.
- Maia S. & Tavares, L. V. (2013) Public procurement re-examined, *Journal of Public Procurement*, Vol. 1, No. 1, pp.9–50.
- Mathonsi, M. D., & Thwala, W. D. (2012). Factors influencing the selection of procurement systems in the South African construction industry. *African Journal of Business Management*, pp. 3583-3594.
- Mawenya, A. S. (2008). *Preventing corruption in Africa*, occasional paper, SAIIA, Johannesburg.
- Marco, S (2010), *E-business best practices: leveraging technology for business advantage*, New York, Wiley,
- Moon, M. (2005) E-Procurement management in state governments: diffusion of e-procurement practices and its determinants, *Journal of Public Procurement*, Vol. 12, No. 2, pp.212–238.
- NECCC E-Procurement Work Group (2002). *e-Procurement: Failure to Implement*, pp 49-87. <http://www.ec3.org> [accessed 12/05/2016]
- Nimbadia, P, S. (2013). *e-procurement in the Indian government*, [online] Available from <http://www.kailashianandnimbadia/eprocurement.org> [accessed 4/04/2016]
- Office of Government commerce, (2002). *A guide to e-procurement for the public sector*, office of Government Commerce, London

- Office of Government commerce, (2007). Introduction to Public Procurement, Office of Government Commerce, 1 Horse Guards Road, London SW1A 2HQ
- Okuadjo M (2010) Assessment of country's procurement system (Tanzania) Tanzania Procurement Journal, Vol. 2 No5, pp. 18
- Panda, P. and Sahu, G.P. (2011) 'E-procurement implementation: comparative study of Governments of Andhra Pradesh and Chhattisgarh', *IUP Journal of Supply Chain Management*, Vol. 8, No. 2, pp.34-67.
- Panda, P., & Sahu, G. P. (2012). *e-procurement Implementation: Critical Analysis of Success Factors' Impact on Project Outcome*, Motilal Nehru National Institute of Technology, Allahabad, India.
- Pasrija, R. (2004). "Benefits of e-procurement" IBM Indian, Available from [http:// www. Ibmeprocure.com](http://www.ibmeprocure.com) [accessed 10/05/2016]
- Parida, V. and Parida, U. (2005). Understanding E-procurement: Qualitative Case Studies. Global Conference on Emergent Business Phenomena in the Digital Economy, 28 Nov - 2 Dec, Tampere, Finland.
- Price Water House Coopers, (2007). *e-procurement the golden book for good practice procurement*. Available from <http://pwcglobal.com/eprocgoldenbook>. [accessed 12/05/2016]
- Prier, E., & McCue, C. P. (2007). *E-Procurement Adoption in Local Governments of the United States*. Retrieved from GovPro Magazine: http://govpro.com/resource_center/eprocurement/gov_imp_45371/
- Public Procurement Act, 2003, (Act 663).
- Public Procurement Authority, (2010). Electronic Procurement Bulletin, Vol. 2, pp 2
- Public Procurement Authority, (2011). Electronic Procurement Bulletin, Vol. 1, pp 11
- Quayle, M., (2005), The impact of strategic procurement in the UK government sector, *International Journal of Public Sector Management*, Vol. 11, No. 5, pp. 397 – 413.
- Simon K. (2015) Constraints to Effective Implementation of E-Procurement in the Public

- Sector: A Survey of Selected Government Ministries in Kenya, *Journal of Information Engineering and Applications*, Vol.5, No.4, pp 16
- Subramani, M. R. (1999). *Linking IT use to benefits interorganisational networks, the diating role of relationship-specific intangible investments*. In proceedings of the 20th international conference on information systems (ICIS-99), Charlotte, NC pp. 358-363).
- Subramaniam, C., & Shaw, M. J. (2002). A study of value and impact of B2B ecommence: The case of web-based procurement. *International Journal of electronic commerce*, 6 (4), pp 19-40.
- Suvil, C. (2014). *The 11th International Conference on Electronic Business, Performance Measurement Of Government E-Procurement With Internal Stakeholder Focus*, Bangkok
- Tavares, L.V. (2011) Public e-tendering in the European Union – Trust in e-Volution. European Vortal Academy, Lisbon,
- Tavares, L. V. (2012) *Management of public purchasing: guidelines for the application of the new Public Procurement Code - Decree-Law 18/2008*. Lisbon,
- Tonkin, C. (2007). *E-Procurement in the Public Sector: Story, Myth and Legend*, The Policy Institute. Trinity College. Dublin .
- UN Procurement Practitioner's Handbook 2012, The Glossary of Terms, Interagency Procurement Working Group, 5th edition. Pp 80
- Vaidya, Sajeew, & Callendar (2006). Critical Factors That Influence E-Procurement Implementation Success In The Public Sector, *Journal of Public Procurement*, volume 6, issues 1 & 3, pp70-99
- Valadares T. (2014). *E-Procurement in Europe, 2nd European conference on e-Public procurement, 4th Edition*, Lisbon.
- Vee, C., & Skitmore, M. (2003). Professional Ethics in the Construction Industry, *Journal of Engineering, Construction and Architectural Management*, 10 (2), pp 117-127

- Weele Van, J. A (2010). *Procurement and supply chain management, 5th Edition*, Thomson International, London, England, pp 147.
- World Bank (2003), Procurement for Projects and Programs , E-procurement, Journal of bank procurement, Vol 56. pp 38-45
- World Bank (2006), Procurement guideline, procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants, 1818 H Street, N.W. Washington, D.C. 20433, U.S.A
- Wyld. D (2006). *Constraints to Effective Implementation of E-Procurement in the Public*, Management Research News, Volume 5, November 2005, pp 45
- Zenz, G., & Thompson, G. H. (1994). *Purchasing and the management of materials (7th ed.)*. New York: John Wiley and Sons.

APPENDICES

QUESTIONNAIRE

AN INVITATION TO PARTICIPANT IN A SURVEY

My name is Desmond Addison, a graduate student of Kwame Nkumah University of Science and Technology, Kumasi. The study is being conducted as part of postgraduate study in Msc Procurement Management. The study that underpins this questionnaire is to collect data on **the implementation and Adoption of E-procurement in Ghana Public Sector: The Way Forward**. *E-Procurement is the term used to describe the use of electronic methods in every stage of the buying process from identification of requirement through to payment, and potentially to contract management.*

Please kindly respond to all the questions by ticking [☐] in the appropriate option in the box provided for each question and write briefly where required. Please note that all information provided **shall be used strictly for this study and shall not be disclosed to any third party**. Thank you in advance for your contribution to my research study.

DEMOGRAPHIC DATA

a) Professional Background of the respondent:

Quantity Surveying []

Contract Management []

Accounting []

Engineering

Procurement Officer / Procurement Specialist []

Other please state.....

b) Level of education of respondent:

Diploma [] HND [] Bsc [] Msc [] Other

c) Professional Membership?

None [] GhIS [] GIA [] CIPS [] GhIE []

Other please state.....

d) What is your position? Deputy Director[] Director [] Procurement

Officer/ Procurement Specialist []

Other please state.....

e) Years of working experience in Public Procurement: Below 1yr [] 1-5yrs []

6-10yrs [] 11-15yrs [] 16 and above []

1. STATUS OF E-PROCUREMENT IMPLEMENTATION AND ADOPTION

a) How many procurement activities have you carried out for the past one year?

1-5 [] 5-10 [] 11-15 [] 16-20 [] above 20 []

b) Are you aware of e-procurement method in procurement?

Yes [] No []

c) If Yes, How did you obtain the information of e-procurement?

Through media [] On the internet [] In School [] Conference []

Any other, specify.....

d) Have you ever published tender using Online Tender Advertisements? Yes [] No []

If yes, how many times.....

e) Have you ever tendered using e-tendering?

Yes [] No [] If yes, how many times.....

f) Have you ever evaluated tender using e-evaluation?

Yes [] No [] If yes, how many times.....

g) Have you ever sent award notify your supplier/contractors/consultant using e-award notification? Yes [] No [] If yes, how many times.....

h) Have you ever use e-contract management method to monitor your contract?

Yes [] No [] If yes, how many times.....

g) Have you ever paid your suppliers using the e-payment method?

Yes [] No [] If yes, how many times.....

f) Have you ever evaluated and audited your procurement processes using the e-auditing system?

Yes [] No[] If yes, how many times.....

2. CHALLENGES FACING EFFECTIVE IMPLEMENTATION AND ADOPTION OF E-PROCUREMENT IMPLEMENTATION.

From your experience how will rank the following challenges to the successful implementation of e-procurement in your institution. Use the scale: 1. Insignificant 2. Slightly Significant 3. Quite Significant 4. Very Significant 5. Extremely Significant

No	Challenges	1	2	3	4	5
A	Availability of financial resources					
B	Human resource capacity					
C	Support from all stakeholders					
D	Availability of supporting infrastructure and facilities					
E	Technology adoption					
F	Resistance to adoption					
G	Security and authentication issues					
H	Perceived lack of real benefit					
I	Unstable power					
J	Poor supplier relationship					
K	High cost of initial setup					
L	Lack of standard data formats					
M	The fear of unauthorized access to critical project information					
N	The lack of training regarding the implementation and use of e-commerce systems					
O	The lack of trust between parties in the electronic commerce					
P	Problems in the management of servers (database/auction/ad/mail/transaction processing)					

	If Others, Please state					

3. FACTORS CONTRIBUTING TO SUCCESSFUL IMPLEMENTATION OF E-PROCUREMENT

From your experience how will rank the following factors will promote successful implementation of e-procurement? Use the scale: 1. strongly disagree 2 .Disagree 3. Not sure 4. Agree 5. Strongly agree

No	Factors	1	2	3	4	5
A	Availability of Managerial / Technical Competencies					
B	Process re-engineering					
C	Adequacy of supplier and IT solutions					
D	Availability of IT infrastructure					
E	Technical interoperability					
F	Legal Framework					
G	Employment of digital Signatures					
H	Organisational Leadership					
I	Government policy & regulations					
J	Industries Acceptance					
K	Mandatory Use of e-procurement					
L	End user training					
M	Attention to User complaints and Requests					
N	Budgetary Control					
O	Addressing security and fraud related issues					
P	Cooperative relationships between government agencies, vendors and application service providers					
Q	User friendliness of the e-procurement solution					
R	Technology Standards.					
S	Top Management Support					
T	Research and development					
U	Technical quality of the system					

V	Capacity enhancement of procurement officers					
W	Inter-Agency Coordination					
X	Evolutionary approach to implementation					
Y	Power stability					
Z	Availability of internet					
	If Others, Please state					

Thank you.