

**POTENTIAL OF E-PROCUREMENT AS A TOOL FOR IMPROVING EFFICIENCY  
IN PUBLIC PROCUREMENT IN GHANA**

**By**

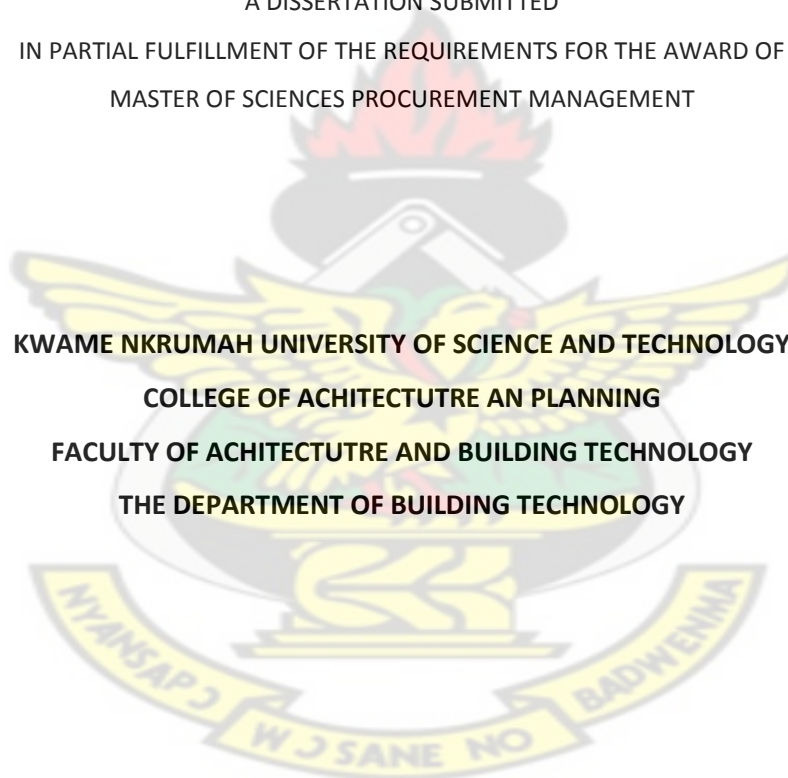
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**KNUST**

A DISSERTATION SUBMITTED

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF  
MASTER OF SCIENCES PROCUREMENT MANAGEMENT

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY  
COLLEGE OF ARCHITECTURE AND PLANNING  
FACULTY OF ARCHITECTURE AND BUILDING TECHNOLOGY  
THE DEPARTMENT OF BUILDING TECHNOLOGY**



**AUGUST, 2014**

## DECLARATION

I hereby declare that this submission is my own work towards the award of MSc Procurement management and to the best of my knowledge; it contains no work earlier on published by another person or organization which has been accepted for the award of any degree of the University, except where references have been made in the work.

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Professor Joshua Ayarkwa

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(Head of Department)

Signature

Date

## **DEDICATION**

I dedicate this piece of work to my Mother (Agnes Boamah) and Prince Fordjour and my entire family for their support throughout my life.

# KNUST

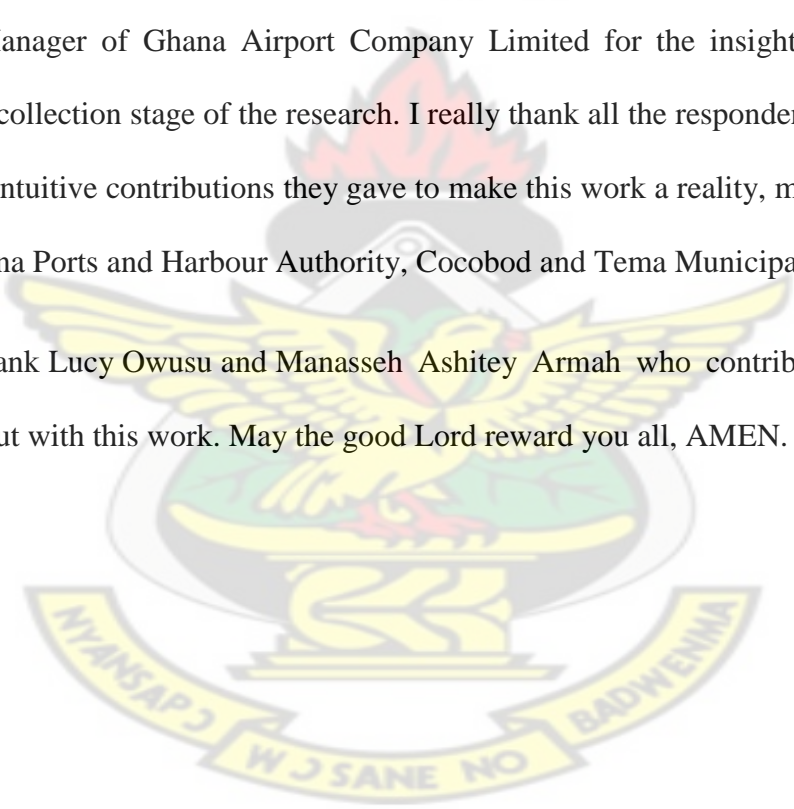


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I specifically thank Lucy Owusu and Manasseh Ashitey Armah who contributed in diverse ways to come out with this work. May the good Lord reward you all, AMEN.



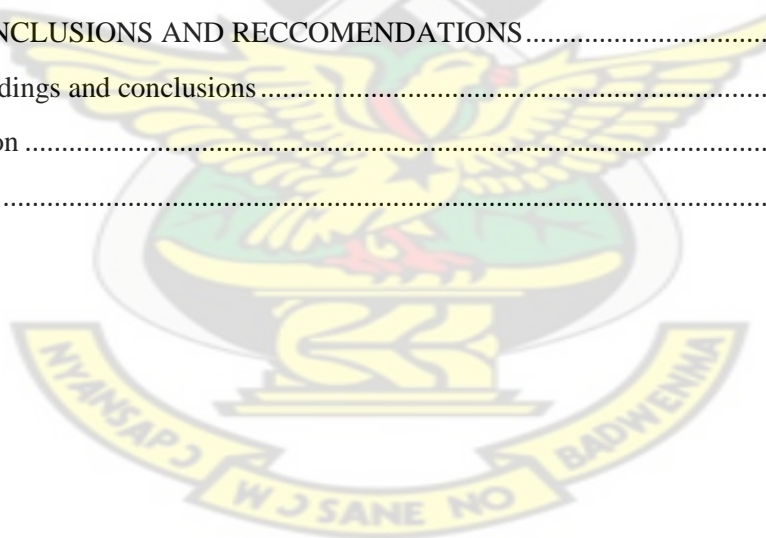
## ABSTRACT

*Public procurement is at the heart of many public sector institutions. However various studies show that the traditional procurement system is characterized by inefficiencies and a lack of transparency. This study was conducted to explore the views of public sector workers regarding the potential of e-procurement as a tool for improving efficiency in public procurement. Qualitative and quantitative methods were used in collecting and analyzing the data collected. The key findings of the study indicate that e-procurement has the potential of improving the public procurement system. The study revealed that factors such as inadequate understanding of procurement, political influence, poor and improper documentation, bureaucracy and inadequate information to tenderers contributes to the inefficiencies in the procurement process. The use of electronic information and communication technology better ensures time management, reduced transactional and administrative cost; enhanced decision making and productivity as well as safe record keeping and proper documentation. The study recommends that government support is necessary for implementation. Resources are also needed both in technology and software of procurement and human resource as well as frequent training and workshop for officials involved in procurement to upgrade their skills.*

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# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of Study

The advent of Information and Communications Technology (ICT) has assisted mankind in many ways. Over the last two or three decades the ICT industry has facilitated enormous changes in the area of business transactions and led to progress in economic and social development. It has also opened up greater opportunities for even faster growth and efficiency by increasing productivity (Oye, 2013). ICT in many ways has improved efficiency and increased the volume and quality of outputs in almost all sectors, from industry to manufacturing, construction to banking, finance, health, education, development assistance and government services. With the technological advances, the internet and cryptography, the risk associated with leaking documents conveying important information and inefficiency in government transactions can all be lowered substantially (Oye, 2013). However one aspect of governance that seems to have benefitted little from the emergence of ICT is the procurement process as a result of little application of ICT in the procurement sector especially in Sub-Saharan African countries.

The lack of rapid adoption of ICT in the procurement sector has opened opportunities for private organizations and their officials' in influencing public officials to make decisions that are more favourable to them than to the good of citizens in many developing countries especially during the procurement process. Such influences may be either monetary or non-monetary and can take the form of political campaign

contributions, trips abroad, paying school fees for wards of public officials, or physical cash paid directly to the officials (Osei-Tutu et. al., 2009).

Some scholars have also argued that low salaries of civil servants together with delays in the delivery of public services and bad governance represent major fundamental problems that can affect transparency and efficiency in procurement (Morisset and Lumenga, 2002; Wilson, 2004; Mensah et al., 2003).

Additionally it has also been argued that greed and the desire for wealth motivate those in authority to take advantage of their powerful positions. The passion to win contracts at all cost stimulates suppliers, contractors and consultants to indulge in abusive activities by giving incentives to Procurement Managers to get their favour (Osei-Tutu et. al., 2009). One aspect of public sector dealings that has been a burden to Governments in third world countries is how to ensure efficiency in the delivery of procurement. The traditional procurement process has been identified to be problematic, as it offers opportunity for officials to indulge in certain acts which promote their own interests rather than that of the public due to lack of transparency in the procurement process.

Efficiency in public procurement has been defined as a situation where persons acting on behalf of the public achieve judicious use of public resources, better coordination with Suppliers, quicker transaction times, higher flexibility, better supplier integration, lower costs, fairness as well as high level of transparency in the transaction process devoid of any rent seeking behaviour and the promotion of the interest of public officials (Fang et al., 2007).

This situation has been a source of worry for many Governments across the globe and there has been increasing calls for effective reforms that will help ensure efficiency in

the procurement process. In this regard, the procurement processes and procedures in many developing countries including Ghana have undergone a number of changes, with the aim of realizing value for money and efficiency in public procurement process among others. In Ghana, a major change has been the passing of the public Procurement Act, Act 663, in 2003. While the passage and implementation of Act 663 has streamlined procurement processes in the country as well as establishing a high level of sanity in the procurement environment, the lack of transparency and the complex nature of procurement have led to some Governance practitioners calling for the implementation of e-procurement in the public sector (Public Procurement Bulletin, 2010).

Indeed, public procurement has come to reduce the thorn in the flesh of most countries in ensuring transparency, efficiency and fairness in the use of public funds to procure goods, works and services leading to the establishment of anti-corruption authorities to tackle the menace with little success. The basic principle of public procurement is ensuring fairness; transparency and accountability, to get value for money which will be attained by acquiring the right item at the right time for the right price. Many developed countries in Europe, North America and Asia have successfully implemented e-procurement system for procuring goods and services in their public sector with great success.

E-procurement has been defined as the use of information and communications technology such as internet / web based system by governments in conducting their procurement relationship with bidders for the acquisition of goods, works, services and other Consulting Services required by the public sector (Davila, Gupta and Palmer, 2003; Leipold et al., 2004). E-Procurement has been noted to enable

procurement activities such as sourcing, ordering, commissioning, receipting and making payment. Vaidya, (2007) sees e-procurement as an inter-organizational information system, which automatizes any part of the procurement process in order to improve efficiency, quality, and transparency in Government Procurement. Public e-procurement technology has been used to enhance transparency and accountability in Government Procurement processes. The basic principle of government procurement is: to acquire the right item at the right time with the right price (Neupane et al, 2012). Currently there are different types of e-procurement systems available in the market such as e-market, e-MRO, e-sourcing, e-tendering, e-ordering and e-exchange (De Boer et al., 2002).

E-procurement has been identified as one tool that can help governments in purchasing and transactions in ensuring value for money. Information and Communications Technology enabled know-how in public e-procurement plays an important role in improving public procurement processes by limiting face-to-face contacts between tenderers and procurement personnel, allowing the efficient distribution of information to a large number of potential bidders at low cost, increase transparency of forthcoming and current tender opportunities and collect evidence throughout the process that can help trace any inefficiencies. However, the use of e-procurement technology cannot be the only practical way of improving efficiency in the procurement process especially if there is no institutional support (OECD, 2008). This study sets out to examine the potentials of e-procurement as a tool for improving efficiency in the delivery of procurement in the public sector of Ghana.



## 1.2 Problem statement

The importance of public procurement has long been established. Burton (2005) opines that that public procurement is the central instrument to assist the efficient management of public resources. It supports the works and services of the government and can cover all acquisitions, including stationery, furniture, temporary office staff as complex and high cost areas such as construction project, aircraft carriers, and other private financial initiative projects (Neupane et al., 2012).

However the lack of transparency and other difficulties such as rent seeking behaviour seem to have gained a center stage in recent decade in relation to the public procurement process. Indeed public procurement has several aspects and if right structures are not put in place, each of the stages could be characterized by inefficiencies. Matechak (2002) identified three main phases of the procurement process: procurement planning and budgeting, procurement solicitation, and contract award and performance. Each of these aspects may be characterized by a lack of transparency especially in a situation where the transaction is carried out by personal contact. Szymanski (2007) has also noted procurement *planning and needs assessment, product design and documentation, tender process*, contract award and implementation, and accounting and audit as the main elements involved in public procurement. However it has been noted that there still exists lack of transparency, limited access to information, and lack of accountability and control at each stage of the procurement process (Szymanski, 2007).

The lack of efficiency in public procurement has negative effects on the wide range of public organization at local, regional, and national levels (Ampratwum, 2008). This has the potential to influence the public competence and wealth in a country, increase

government operation cost, corrode the social structure and trust in government, and distort the composition of the government expenditure on different services including education, health, operations and maintenance (Neupane et al., 2012).

In order to help ensure efficiency in the procurement process, researchers have been exploring ways by which this can be achieved. One important tool which has been identified is the use of ICT (i.e. e-procurement). Indeed the adoption of Information and Communications Technology for faster communications, exchange of information, and improved recording and monitoring of information can greatly improve the operational efficiency of Government agencies. Some of the benefits of using ICT in Government dealings include easy financial transactions and accounts, personnel information, land ownership records and tax payments. The increased automation of Government transaction and procedures reduces the need for person-to-person contact in the delivery of Government services to the people. Arguably the less contact there is, the less opportunity there is for rent-seeking behaviour while at the same time could facilitate improvement in procurement delivery (Oye, 2013).

Without any doubt about overcoming any foreseeable challenge and lack of transparency in the procurement process, e-procurement can play a potential role for minimizing the risk of rent seeking behavior and inefficiencies in public procurement process (OECD, 2008). Arguably e-procurement ensures transparency and integrity in public service such as tendering, sourcing, ordering, and auctioning. E-procurement has also been recognized internationally as an important instrument for checking corruption and in misuse of power by public officials (Sohail and Cavill, 2008).

The objectives of the procurement reform in Ghana (e.g. Adopting and implementing e-procurement) is to harmonize the processes of procurement in public entities to

secure a judicious, economic and efficient use of state resources in public procurement and ensure that it is carried out in a fair, transparent and non-discriminatory manner while delivering public services efficiently. Indeed, e-procurement serves as a mechanism which automatizes any part of the procurement process in order to help improve efficiency, quality, and transparency in government procurement and dealings (Vaidya, 2007). It is essential to maintain that although e-procurement holds enormous potential in improving efficiency in procurement process, it may also open up new challenges to the benefit of those who understand the new system through manipulation especially if there are no mechanisms put in place for its success (Oye, 2013).

While the benefits of e-procurement have been recognized in both the private and public sector, the level of use of e-procurement services in Ghanaian public sector is very low and this has attracted considerable research attention. Many Government Agencies, despite the inefficiencies that have characterized the traditional procurement process have still not adopted the electronic system which can help enhance procurement. This study therefore seeks to investigate the perceptions of public officials regarding the potentials of e-procurement as a means of helping to minimize the element of corruption that characterizes procurement in the public sector.

### **1.3 Aim and Objectives of the study**

The main aim of the study is to identify the potential of e-procurement in improving efficiency in the delivery of procurement services in the Public Sector. The study will be guided by the following specific objectives.



1. To identify the factors that contribute to inefficiencies in the procurement process
2. To identify the potential of e-procurement in improving efficiency in the delivery of procurement services in the public sector
3. To uncover the conditions needed to ensure successful implementation of e-procurement

#### **1.4 Research questions**

1. What are the contributing factors to inefficiency within the procurement process?
2. To what extent is e-procurement supposed to help enhance transparency, fairness and accountability in delivering procurement services in Ghana?
3. What conditions are needed to ensure smooth implementation of e-procurement in the public sector of Ghana?

#### **1.5 Proposition**

1. The traditional method of procurement process is characterized by inefficiency
2. E-procurement is an effective tool for reducing corruption in public procurement

#### **1.6 Significance of study**

With mounting evidence suggesting that the traditional procurement process has sometimes been characterized by a lack of transparency and inefficiency, the need to improve the procurement process has attracted the attention of Governments, civil society groups and International organizations. As part of the good governance agenda, many developing countries have begun implementing e-procurement with the aim of maximizing benefits, quality, financial and technical risks, punctuality,

reducing cost of business while maintaining high levels of integrity (Thai, 2001). Ghana is in the process of implementing e-procurement especially in its public sector. The need for this study is therefore apt, as it will offer an immense opportunity to listen to the views of officials in the public sector regarding factors leading to inefficiency in the procurement service and in particular, how the adoption and implementation of e-procurement will help improve the delivery of procurement service. The study will indeed provide a platform in identifying what conditions will facilitate the implementation of the e-procurement. In this way, this study will serve as a useful material that can inform the Government of Ghana in its quest to implement e-procurement as it will bring useful insight of public officials regarding the potentials of e-procurement. This can help shape the policy within which e-procurement could be successfully implemented in the country. The study will also provide a useful insight into the procurement process and will further serve as a valuable material upon which future research could be carried out.

### **1.7 Research Methodology**

The research design for this study is basically a cross sectional survey with a combined qualitative and quantitative approach. Both qualitative and quantitative methods and data will be employed and collected for this study. The research was concentrated in one geographical setting in Ghana: the Accra Metropolitan Area. The study will focus its attention largely on public workers involved in procurement. The research will involve the use of primary data for the purpose of empirical analysis. The primary data will be obtained with the use of structured questionnaires. The questions will be structured in such a way as to provide pertinent information on contributing factors to inefficiencies in the procurement process and the potential of e-

procurement. The questionnaire will cover both open-ended and close-ended questions. These will be made simple and straight forward in order to ensure maximum responses from the respondents. The questionnaires will be administered to officials involved in procurement within the public sector.

Secondary sources of information such as international journals and Government Policy documents as well as reports on public procurement and e-procurement will also serve as important sources of data. Such documents will be subjected to critical documentary analysis in order to elicit their meaning. This will be incorporated into the final analysis. The primary data to be collected shall cover the demographics characteristics of respondents, factors contributing to inefficiencies in the procurement process, officials' perception on the potential of e-procurement in enhancing the delivery of procurement as well as the conditions needed to facilitate the adoption and implementation of e-procurement in the public sector. The primary data collected will be analyzed with descriptive statistics such as frequencies, percentages and with pictorial charts such as bar and pie chart for clarity of interpretation.

### **1.8 Scope of the study**

Ghana is on the verge of implementing e-procurement as a means of ensuring efficacy, accountability and transparency in procurement. In this regard, this study will focus on the perceptions of public officials about the potentials of e-procurement improving the delivery of procurement service in the public sector. The study will identify the necessary conditions that will ensure smooth implementation of e-procurement within the public sector.

## **1.9 Limitations**

The issue of inefficiency in the delivery of public procurement remains very sensitive to governance and national development in many developing countries. Indeed the procurement process has been recognized to be characterized with lots of problems. Given the sensitivity regarding the issue at hand, a major limitation that the researcher anticipates is the fact that officials selected in this study may not be willing to provide the necessary information needed to help complete this research. Nonetheless an attempt will be made to explain to the participants that this piece of research is purely an academic exercise and thus any information given will be treated with strict confidentiality.

Another limitation of the study is that the public sector of Ghana is large, but this study will be limited only to the Accra Metropolitan Area. 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 in order to facilitate the process of implementing e-procurement in the country. The findings from this study may not necessarily be a true reflection of the whole public sector in Ghana; however it could serve as a useful material in the implementation of e-procurement in the public sector.

## **1.10 Organization of the study**

The study will be organized into five chapters. Chapter one which is on the introduction will deal with the background of the study, problem statement, objectives of the study, research questions, significance of the study, and scope of the study, limitation and brief methodology. Chapter two will focus on the review of relevant literature on the notion of public procurement, its basic elements and the concept of e-procurement, its underlying principles, and the potentials of e-procurement in

improving efficiency in public sector procurement. Chapter three will focus on the methodology and will cover the target population, sample, instrument for data collection, pretesting, reliability of data collection instrument, procedures for data collection and data analysis and the organizational profile. Chapter four will cover the data presentation on the main research themes and discussions of the findings emerging from the study. Chapter five will be on the findings of the study, summary, conclusion and recommendations.

<b>BUDGET PROPOSAL FOR PROJECT WORK</b>		
<b>ACTIVITY</b>	<b>ESTIMATED COST (GHC)</b>	<b>REMARK</b>
Travelling cost ( four trips @ 200 each for fuel and lodging)	800.00	
Printing (Drafts & Final copies) and other stationeries	320.00	
Miscellaneous	300.00	
Researcher's Time	500.00	
<b>TOTAL ESTIMATED COST</b>	<b>1,920.00</b>	

(Author's own estimate)

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter specifically presents a review and discussion of relevant literature on the topic under study. The chapter reviews the various works that has been done on public procurement, its relevance, weaknesses, e-procurement and the benefits associated with the adoption and implementation of e-procurement. The literature review is particularly important as it provides the theoretical basis and framework for the study. Recognizing the relevance of literature review, Gill and Johnson (2002:24) state that any research project will necessitate reading what has been written on the subject and gathering it together in a critical review bringing to the fore awareness of the current state of knowledge on the subject, its limitations and how the proposed research aims to add to what is known.

The literature review is in five parts. The literature opens with what actually constitutes public procurement. This is followed by looking at the context of public procurement in Ghana. We then turn attention to providing a brief definition and historical development of e-procurement. The literature review then tries to delve into the benefits associated with the adoption and implementation of e-procurement while the last section looks at the critical success factors which will be needed to facilitate and ensure smooth adoption and implementation of e-procurement

#### **2.1 Defining Public Procurement**

The term procurement means the acquisition of items of goods and services. Arkansas Procurement Law and Rules (20) (A) (2007, p. 14) define Procurement to



mean the buying, purchasing, renting, leasing, or otherwise obtaining of any commodities or services. However in a broader perspective it defies a single action or process. Procurement encapsulates a comprehensive range of events from identification of a need for a good or service through to its disposal or termination (Kidd, 2005). It also involves the activities before and after the signing of a contract. Technically the term procurement is also defined by Kidd as a ‘business management function that ensures identification, sourcing, access and management of the external resources that an organization needs or may need to fulfil its strategic objectives’. Again, from the United State perspective the term procurement is conceptualized to include the following in both private and public sector acquisition of things;

- (i) the process of acquiring property or services that are already in existence, or that must be created, developed, demonstrated, and evaluated;
- (ii) the description of requirements to satisfy agency needs;
- (iii) solicitation and selection of sources;
- (iv) award of contracts;
- (v) contract performance;
- (vi) contract financing;
- (vii) management and measurement of contract performance through final delivery and payment;
- (viii) Technical and management functions directly related to the process of fulfilling agency requirements by contract (Lloyd and McCue, 2004). This suggests an integrated supply chain management that delivers the best possible supply outcome to the organization, its stakeholders and customers.

Within the public sector in which the government ensures the delivery of goods and services to satisfy the welfare of people, the concept of public procurement is well defined and legalized to ensure a transparent acquisition of goods that see to the efficient use of tax payer's money.

According to Ameyaw, C., Mensah, S. and Osei-Tutu, E. (2012) public procurement is the process whereby the public sector organizations acquire goods, services and works from third parties. It includes items that supports the work of government and ranges from routine items (e.g. stationery, temporary office staff, furniture or printed forms), to complex spend areas (e.g. construction, Private Finance Initiative projects, aircraft carriers or support to major change initiatives).

## **2.2 The Context of Public Procurement in Ghana**

In Ghana the Public Procurement Act 2003 (ACT 663) defines and describes public procurement functions and responsibilities within which the public sector organizations and departments operate. The Act provides for public procurement, establishes the Public Procurement Board; makes administrative and institutional arrangements for procurement as well as stipulates tendering procedures. The Public Procurement Act rests on 4 pillars: Transparency, Fairness, Economy and Sanctions which aim to provide guidelines for best practices in procurement, eliminate fraudulent practices, secure value for money in Public Procurement, maintain the integrity and sanctity of the Procurement Process and prescribe appropriate sanctions for Acts of mis-procurement (Affotey-Walters, 2007). Section 92 of the Act prescribes sanctions for offences committed under the Act. Thus, the guiding principles of Act 663 enforce the public sector to remove the bottle necks of what characterized procurement in the Public sector in the past. Some years ago public



procurement was entangled with lack of transparency in the award of contracts, unfair practices resulting in manipulation of the contract process, lack of competition, over and under –invoicing. These, Affotey-Walters, (2007) describes had compromised the integrity and sanctity of the then existing procurement system hence the need for a more comprehensive system of procurement which would bring sanity to the system.

### **2.3 E-procurement: Definitions and Historical Development**

The term e-procurement has become synonymous with electronic market places (market sites). However there is no universally agreed and concise definition given to the term. Different academics, researchers and organizations have attempted to define the term. A common element which runs through almost all the definitions is that e-procurement involves electronic communication. Corsi (2006) for instance argue that E-procurement is the term used to describe the use of electronic methods, typically over the Internet to conduct transactions between awarding Authorities and Suppliers. The process of e-procurement therefore covers every stage of purchasing, from the initial identification of a requirement, through the tendering process, to the payment and potentially the contract management (Corsi, 2006). The term has also been used to espouse the idea of a specific set of instruments, technologies and organizational solutions supporting public procurement processes, particularly considering the possibility to manage tendering procedures and auctions online including e-tendering and e-auctioning (Gardenal, 2008). In defining e-procurement some researchers have argued that there is a need not to confuse the term with e-sourcing. It has been noted that e-procurement is the electronic implementation of the procurement cycle, while e-sourcing, involves the electronic implementation of the sourcing cycle. It is the technology-enabled acquisition of goods and services required by an organization at the best value obtainable. In this regard, the goal of e-procurement is getting the right

product or service, at the right place, at the right time, at the right price and in the most efficient manner possible.

Knudsen (2002) defines e-procurement based on content and function. The author's definition states that E-procurement is simply the aspect of the procurement function supported by various forms of electronic communication, and its use in both the public and private sectors which can take many forms including;

- Electronic data interchange - inter-organizational information system using structured data exchange protocols often through value added networks
- e-Maintenance, Repairs and Operation(MRO) – mechanism for ordering indirect items from an on-line catalogue
- Enterprise resource planning – automation of procurement related workflows including auto faxing, auto-emailing or other forms of messaging directly with suppliers.
- web-based enterprise resource planning – automated procurement workflows which are web based
- e-sourcing – a way of identifying new sources of supply using Internet technologies
- e-tendering – the process of inviting offers from suppliers and receiving their responses electronically
- e-reverse auctioning – bidders use Internet technologies to bid down the price of their offer against those of other bidders until no further down-ward bids are received
- e-auction for disposals – using internet technologies for on-line auction of items for disposal

- e-informing – use of internet technologies for gathering and distributing procurement related information
- E-collaboration – collaborative procurement related planning and design ((Knudsen 2002; Gardenal, 2008).

CIPS (2013) defines e-procurement as 'the combined use of electronic information and communications technology (ICT) in order to enhance the links between customer and supplier, and with other value chain partners, and thereby to improve external and internal Purchase and Supplier Management processes. The Chartered Institute of Purchasing and Supply (CIPS) further point out that e-Procurement is a key component of e-business and e-commerce (CIPS, 2013).

It has been argued that the beginning of e-Procurement were in the early 1980s with the development of electronic data interchange (EDI). This process provided space for customers and suppliers, most often in the fast moving consumer goods business (FMCG), to send and receive orders and invoices via secure store and call forward networks. These EDI systems allowed businesses to exchange and synchronize master data files on products, prices, specifications and information about each other's locations and trading practices (CIP, 2013). Most discussions about electronic inter-organizational systems in the academic literature up until the mid-1990s involved electronic data interchange. It is only from the mid-1990s onward that there was a shift towards the discussion of the use of the internet for electronic commerce. In fact electronic data interchange continues to be the primary medium of electronic commerce. For example the OECD found that electronic commerce transactions via the internet are about a third of those through established electronic data interchange. Internet and electronic data interchange transactions represent between 0.4% and

1.8% of total transactions in those countries where usage is measured (Millman, 1998; Anonymous, 2002). Thus the beginning of the 1990s is said to have witnessed increasing proliferation of internet software making and software companies begin to develop buyer managed electronic catalogues for use by vendors. Sometimes these proved to be too unwieldy due to failures in communication between customers and suppliers (salesmen and buyers), and software companies started to customize, maintain and host some catalogues, effectively becoming “the intermediaries between the buyer hub and the vendor spokes” and vice-versa. As the catalogues became outsourced, software companies started to offer the same catalogues to a number of buyers. Another development in e-Procurement that arose at a similar time was the proliferation of e-marketplaces which covered some of the electronic trading needs of certain industries, such as automotive and aircraft. These act as a virtual market place for suppliers, distributors and agents (Gardenal, 2008).

#### **2.4 Ensuring Efficiency in Public Procurement: The relevance of E-procurement**

The relevance of e-procurement has long been established. It has been suggested that the public sector is likely to benefit more from the use of electronic commerce for the purpose of sourcing than for transaction management (Baker, 1999), and that electronic commerce promotes economic efficiency in public sector procurement (Arnold and Essig, 2002). In the last few years, a growing body of knowledge and specific research contributions has advanced at an astonishing pace on the relevance of e-procurement. Gardenal (2008) for instance makes the point that literature on the contributions of e-procurement and the implementation thereof begun to be produced especially during the last two decades in relation to public service, although electronic commerce and its application to procurement is not a recent phenomenon.

It has been around for over thirty years and widely used in certain sectors but not commonly in the public sector until very recently (Tonkin, 2003).

Indeed there is a growing consensus that e-Procurement is the single most important area of development in the Business-to-Business (B2B) e-commerce arena (Neef, 2001). Within a public sector context e-Procurement has been widely embraced by governments seeking the administrative and cost reductions experienced in the private sector. As a result a number of 'proven' private sector e-Procurement solutions such as e-marketplaces, desktop purchasing systems, and tendering platforms have been employed by various public sector organizations (Leukel and Maniatopoulos, 2005)

It has been highlighted that e-Procurement has to be evaluated in its complexity, which encompasses numerous goals: to rationalize expenditure, to reduce "administrative confusion" and costs, to foster operational efficiency, to strengthen organizations' network vision and technological collaboration with business partners, even to completely automate certain procurement activities (Croom, 2000;Gamble, 1999; Greenemeier, 2000 and Murray, 2001). In his seminar papers on e-procurement, Corsi (2006) provided a range of benefits associated with the adoption and use of e-procurement. The author divided the benefits of e-procurement into intermediary and final outcomes. The intermediate outcomes of e-procurement included the fact that e-procurement helps to achieve better services, costs savings and time savings especially when compared with the traditional procurement system. On the other hand the final outcomes as argued by Corsi(2006) included improvement of the labour productivity of the public sector; economic rationality (organizational efficiency),simplification, transparency and accountability ;GDP growth, Openness, increased participation in the information society, increased democratic participation and enhanced policy effectiveness(Corsi, 2006).



The use of e-procurement is thought to have implications for information asymmetries or impactedness in inter-organizational relationships and in particular for search and monitoring costs. Alternative explanations for the relevance of e-procurement arises from the resource based perspective through which the resources of the firm may be leveraged to achieve competitive advantage with electronic commerce presenting opportunities to enhance the firm's resources, (Dhillon and Caldeira, 2000; Rasheed and Geiger, 2001). While there is some evidence suggesting that electronic commerce in procurement may not result in reduced costs in acquisitions in particular markets (Lee, 1998), other literatures have established that the various cost reductions and benefits can be realised (De Boer et al., 2002). These include the implications of e-procurement for the following:

- The cost of expenditure on goods/services related directly to the production/service delivery;
- The cost of non-production goods and services
- The cost of operational purchasing activities – e.g., requisitioning, ordering, expediting and administrative support;
- The cost of tactical procurement activities – e.g., formulating specifications, selecting suppliers, negotiating with suppliers, contracting, disposals etc;
- The costs of strategic procurement activities – e.g., spend analysis, transaction analysis, market analysis, planning, developing purchasing policies etc;
- Internal benefits arising from investments in particular inter-organisational relationships; and
- The contribution of investments in particular inter-organizational relationships to revenues (Tonkin, 2003: 7-8).

Indeed one aspect of public sector dealings that have been a burden to Governments in third world countries is how to ensure efficiency in the delivery of the procurement process. The traditional procurement process has been identified to be problematic, as it offers opportunity for officials to indulge in certain acts which promote their own interest rather than the public due to the lack of transparency in the procurement process. Several studies have exposed considerable inefficiencies in the procurement process and have established that value for money is not achieved in the procurement of public infrastructure as a result of corruption (Lengwiler and Wolfstetter, 2006; Mawenya, 2008, Shakantu, 2003). According to Vee and Skitmore (2003), there is evidence of corruption at all levels, including: proprietary information infringements and “stealing of drawings during the design stage; collusive bidding during the tendering stage, cash inducements (bribery) for over-valuing work performed during the site operations stage; negligence in the form of poor quality documents during production documentation stage and fraudulent conduct, such as covering up poor workmanship during site operations”

However e-procurement has been noted to have an effect on improving efficiency in the procurement system. Indeed the pros of e-procurement in relation to efficiency and other benefits have encouraged a plethora of studies that have turned attention to investigating these impacts under a variety of points of view. The contributions of Davenport and Andersen (1994) have been considered to provide a starting point in developing the procurement performance measurement model. Davenport (1994) defines 9 principal groups of specific effects of IT(e-procurement) on organizational processes: automating (eliminating or reducing drastically the effort of human resources), informative (generating more information and allow a better understanding of it), sequential (modifying the sequence of the process and the

activities that are part of them), of control (improving monitoring), analytical (improving the understanding of the phenomena), geographical (improving the ability to coordinate remote processes), integrative (assuring coordination among tasks and processes), intellectual (getting and spreading knowledge), disintermediation (reducing redundancy and intermediate activities). In e-Government in action, Andersen analyzes the subject in a broader perspective: Information Technology produces direct effects on organizational skills, as far as effectiveness and efficiency of the processes are concerned.

On the other hand, IT indirectly affects organizational interactions, coordination and cooperation, interaction models, internal control and organizational power (Davenport, 1994; Anderson 2010.). Again, Davenport and Anderson's typology of the benefits of e-procurement focuses on six dimensions of the impact which enables one to catch the complex phenomena likely to be affected and changed by e-procurement: efficiency, effectiveness, transparency, dematerialization, competitiveness and governance. However the only dimension relevant to this study is the efficiency element while the remaining five are outside the scope of this study. Nonetheless, there still remains some level of interconnectedness between the variables of efficiency, transparency and effectiveness.

Efficiency measures the usage of resources during a process. E-procurement impacts this dimension by allowing employees to achieve (at least) the same results of a traditional "paper-based" procedure, but using less time, thanks to the automation of certain phases (Gardenal, 2008). Thus, the reduction of the full time equivalents (FTE) employed for the activities composing the process is the driver to measure efficiency. Moreover, a reduction of the elapsed time to complete a tendering



procedure is expected, as e-procurement should affect the “wasted” time (Gardenal, 2008).

Notably, E-Procurement has been noted to enable procurement activities such as sourcing, ordering, commissioning, receipting and making payment and has the potential to reduce inefficiencies or improve efficiency. Vaidya (2007), sees e-procurement as an inter-organizational information system, which automatizes any part of the procurement process in order to improve efficiency, quality, and transparency in government procurement. Overall the evidence presented from the above review together with other research suggests that the benefit of e-procurement in improving efficiency in procurement delivery is well established. Particularly, the relevance of this review lies in the fact that Ghana is on the verge of implementing e-procurement especially with respect to the public sector. This study attempts to explore the perceptions of public officials regarding the new technology in public procurement and in particular what conditions will facilitate the adoption and implementation of e-procurement in the country.

## **2.5 Critical Success Factors for adopting and implementing e-Procurement**

As already noted the relevance of e-procurement has long been established. The use of e-procurement has tended to achieve efficiency in the procurement system. Indeed e-procurement provides a means through which corrupt, self-seeking interest of public officials and suppliers to be reduced. However it is important to note that e-procurement is a technology based foreign tool and thus applying it in our context may not be without difficulties. Oye (2013) for instance has questioned the sweeping generalizations being made about e-procurement in the public domain, arguing that although e-procurement holds enormous potentials in improving efficiency in procurement process, it may also open up new challenges to the benefit of those who

understand the new system through manipulation especially if there are no mechanisms put in place for its success. This suggests that there is the need to have in place certain critical factors in order to ensure that the potentials of the benefits associated with e-procurement are maximized while mitigating the unintended challenges that may arise from the use of e-procurement. The use of e-procurement technology cannot be the only practical way of improving efficiency in the procurement process especially in the situation where there are no institutional supports (OECD, 2008).

Relevant literature dedicated to exploring the factors needed to facilitate a smooth adoption and implementation of e-procurement is quite limited. However Nasi's (2005) paradigm or model of the people-process-technology (PPT) provides an idea as to what will be essential in ensuring that the implementation of e-procurement is successful. Focusing on the healthcare sector in Italy, Nasi (2005) employs the people-process-technology to define how the procurement system could be effective in achieving an organizational improvement through Information Technology. He stated that Technology: such as websites, ERP, system security, digital signatures are important while the Process: which involves a thorough business process re-engineering is needed along with the adoption of standards and coding acknowledged internationally. He also stated that it is necessary to raise awareness and train the employees (people) on themes such as sharing knowledge through IT, networking and change management. On the basis of this contribution, the critical success factors needed to successfully employ e-procurement (and get the positive effects) are shown in Table 2.1.

Table 2.1 Critical Success Factors to successfully employ e-Procurement and get the positive effects

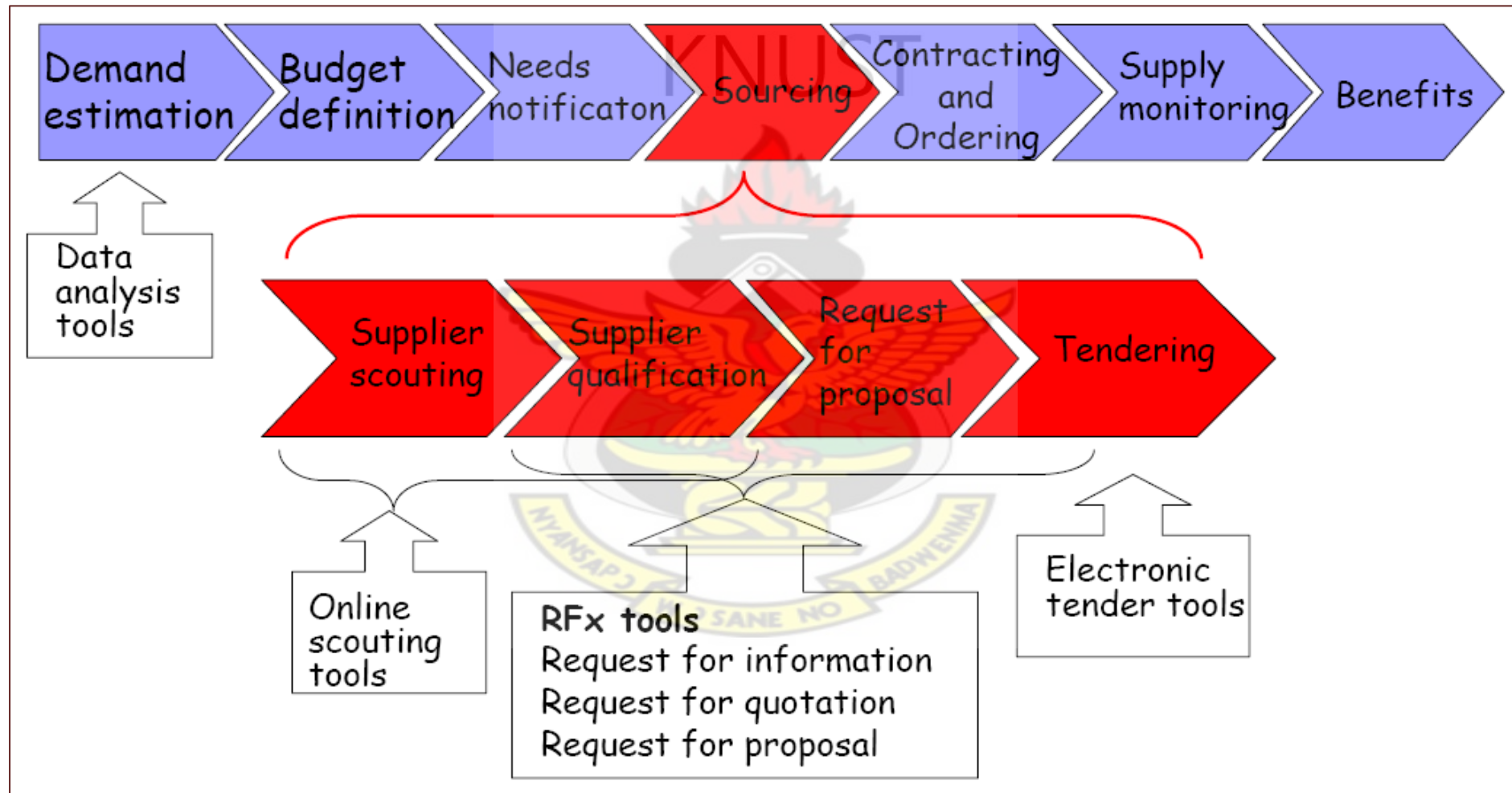
Technology	<p>This refers to the availability of a suitable and capillary IT infrastructure and</p> <p>Integration among the applications (i.e. e-procurement web platform and Enterprise Resource Planning) An e-procurement web platform, which has to be complete, user-friendly and free</p>
Process	<p>Business process re-engineering on the basis of shared organizational models</p> <p>Adoption of standard commodity categorizations (i.e. CPV coding)</p> <p>Adjustment of internal rules. Shared logics and methodology for measuring, reporting and publicize the results</p>
People	<p>This involves raising awareness towards the use of new technologies, training, and networking and management techniques.</p> <p>Training on e-procurement tools</p> <p>Technical, legal and strategic consultancy for the first tendering procedures online.</p>
Environment	<p>Political definition of goals related to the effective use of e-procurement</p> <p>A comprehensive and unique normative discipline</p> <p>Creation and development of public "centers of excellence" whose goal has to be the diffusion of knowledge and innovative tools.</p> <p>Facilitations to involve suppliers, often tied to the "traditional" <i>modus operandi</i></p>

Source: Gardenal (2008:5)

Extra-organizational relevant factors (environment) have been added to the classic people-process-technology (PPT) paradigm developed by Nasi (2005). In this regard, Langat (2013) asserts that the quandaries of public procurement performance require more than just a mere policy formulation in every nation. There is the need to have direct interventions that would undo the complexities that bedevil the efforts of the government as well as international organizations in supporting the public procurement performance initiatives.

## DIAGRAM 1

### E-procurement process and ICT Supporting Tools



From the diagram 1, the activities highlighted in blue constitute the Traditional Procurement processes while the activities highlighted in red are the stages e-procurement is conducted. Sourcing activities is electronic and represented by the 4 activities (Red) shown in the diagram. The diagram depicts how sourcing under e-procurement is conducted.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

This chapter focuses on methods that were employed in the study. It provides a description of the research design, the target population, sample size and sampling techniques. It also discusses the instruments used in data collection, the procedure for data collection and the method for data analysis.

#### **3.1 Research design**

The research design refers to the disposition, structure and strategy of research that enabled the researcher to obtain answers to the study's objectives. The research design for this study is basically a cross sectional survey with a combined qualitative and quantitative approach. It specifically focuses on the public sector perceptions of the potential of e-procurement in improving efficiency in procurement system within the Accra Metropolitan Area. A questionnaire was used as the research instrument to gather data.

#### **3.2 Types and sources of data**

Data that was used included both primary data and secondary source information. The primary data was gathered from a cross section of the public sector workers involved in procurement. The primary data covered demographic characteristics of respondents, factors contributing to inefficiencies in the procurement process, the conditions needed to ensure successful implementation of e-procurement and the potential of e-procurement in improving efficiency in the delivery of procurement service in the public sector. The secondary source of information was also sourced



from articles and books on public procurement and e-procurement to review detailed literature on the themes of the study.

### **3.3 Population of the study**

As already indicated above, the target population of the study included public workers specifically Procurement Officers in the selected public sector institution (Table 4.1) to bring out their perceptions of the potential of e-procurement to improve efficiency in the public procurement.

### **3.4 Sample size and sampling technique**

The study adopted both probability sampling and simple random sampling. The non-probability sampling was used to select the various public sector institutions within the metropolis, while the simple random sampling was used to select target population within the institutions selected. Thus equal chance will be given to the workers to share their view on the theme of enquiry. In all the total sample size for the study was 48.

### **3.5 Method of data collection**

As already indicated, both primary data and secondary source of information were used in the study. The methods of collecting secondary published data included systematic review of articles, books and journals which were directly and indirectly related to the study.

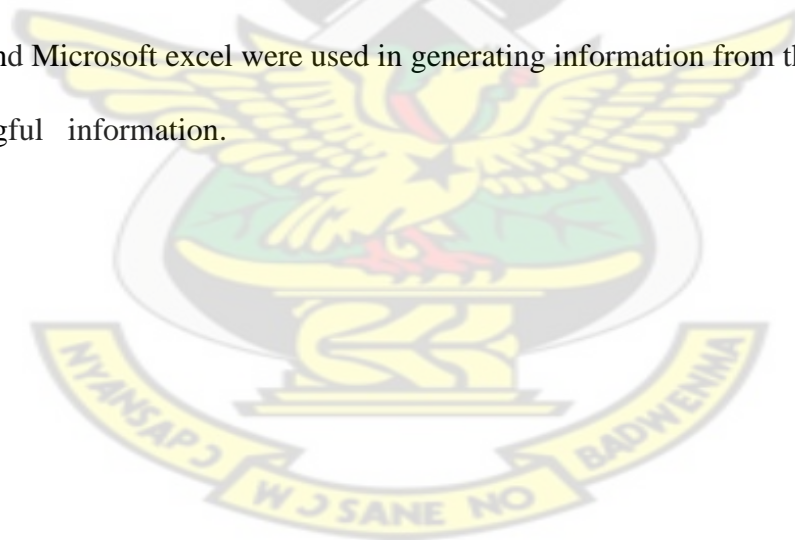
Structured questionnaires containing both closed-and open-ended questions were also employed for collecting the primary data to gather definite answers to specific questions related to the scope of study. Closed ended questions enabled respondents to choose one or more alternatives while an open ended question sought the opinions

of the respondents on issues of the study. Questionnaires were distributed to all the workers in the selected departments either based on an arrangement or consultation on when to collect after they had answered. It is worth noting that reliability of respondents was the major challenge to administer the questionnaires so additional assistance was used to gather the information needed for the analysis.

### **3.6 Method of data analysis**

Descriptive statistical tools such as frequencies and percentages combined with charts and graphs were used to analyze the data. Secondary source of information obtained was scrutinized to determine their suitability, reliability, adequacy and accuracy. Tables and statistical diagrams like bar charts and pie charts were used in data representation.

SPSS and Microsoft excel were used in generating information from the raw data into meaningful information.





## **CHAPTER FOUR**

### **ANALYSIS AND DISCUSSION OF RESULTS**

#### **4.1 Introduction**

This chapter of the study presents the results and discussions of the data gathered from the field. The results are discussed in relation to existing findings in literature with their implications on future decision making on the implementation of e-procurement in Ghana. The chapter is in four main sections. The first section's focus is on the background characteristics of the respondents sampled for the study. It covers the sector and organizations they were sampled from. It further discusses the sex, educational background and the position held in various organizations they are working at. The second section addresses the factors that contribute to inefficiencies in the procurement process. It also briefly presents how the public sectors understand what procurement mean and how it is being practiced in their organizations. The third section dwells on potential of e-procurement in improving the efficiency in the delivery of procurement. Finally the last section suggests conditions needed to ensure successful implementation of e-procurement.

#### **4.2 Background characteristics of study participants**

The target population sampled for the study focused on public workers who are directly or indirectly involved in procurement. In all 48 public sector workers were sampled. The data gathering covered a wide range of various public institutions in the Accra Metropolitan Area with the aim of discovering how the intended future of implementation of e-procurement in the public sector will be effective and compatible with current institutional setup in Ghana. Also a wide range of various positions held in the institutions was captured in order to enlighten how capable the human resource

**Table 4.1 Participant's Organization and Positions Held**

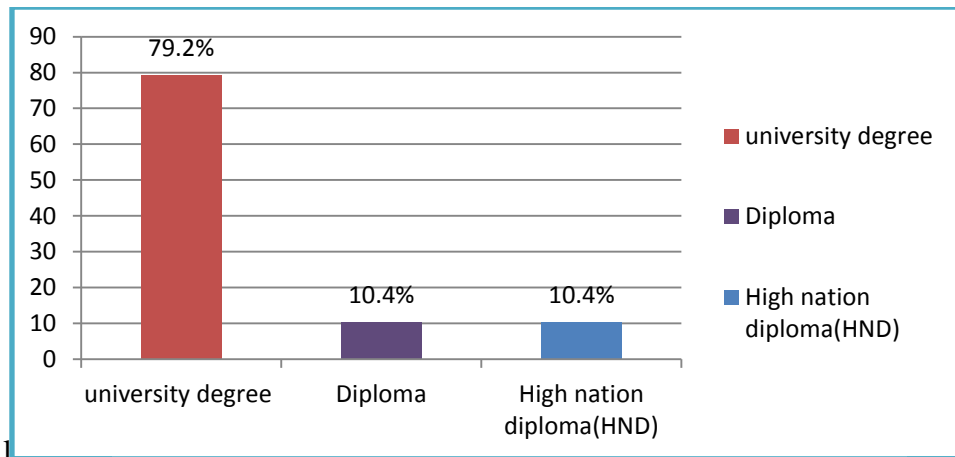
<b>Organization</b>	<b>Frequency</b>	<b>Positions</b>	<b>Frequency</b>
<b>CACL</b>	1	Account officer	1
<b>CPC</b>	1	Administrator	1
<b>DFR</b>	1	Assistant administrator	1
<b>DRH</b>	1	Assistant supervisor	1
<b>ECG</b>	1	Chief clerk	1
<b>EPA</b>	1	CIVIL ENGINEER	1
<b>GACL</b>	6	Customer service advisor	1
<b>GAPOHA</b>	3	deputy assistant	1
<b>GCAA</b>	4	Employer	1
<b>GCB</b>	1	Estate Surveyor	1
<b>GETFUND</b>	1	field engineer	1
<b>GHA</b>	2	General manager	1
<b>Ghana Irrigation Authority</b>	1	Head of procurement unit	1
<b>GIA</b>	1	IT Manager	2
<b>GIS</b>	2	IT Support Technician	1
<b>GMA</b>	1	IT Technician	1
<b>GNPC</b>	1	Logistics manager	1
<b>GPS</b>	2	Maintenance Supervisor	1
<b>GRA</b>	1	marketing officer	1
<b>GRC</b>	1	Material manager	1
<b>GWC</b>	1	Officer	1
<b>LM</b>	1	Operation manager	1
<b>Mamprobi Polyclinic</b>	1	operations assistant	1
<b>MFA</b>	1	PLANT ENGINEER	1
<b>MGL</b>	1	Procurement assistant	1
<b>MOE</b>	1	Procurement Assistant	1
<b>MOF</b>	1	Procurement manager	2
<b>MOH</b>	1	Procurement Manager	1
<b>SSNIT</b>	2	procurement officer	11
<b>TMA</b>	1	Procurement supervisor	1
<b>TOR</b>	1	Purchasing officer	2
<b>VALCO</b>	1	quantity surveyor	2
<b>VRA</b>	2	Stores officer	2
		water Engineer	1
<b>Total</b>	48	Total	48

**Source: Field Survey 2014**

base in the public sector is ready to adopt e-procurement in the future. Table 4.1 chat out the various public sector organizations and the position captured for the study.

As shown in table 4.1 the organizations covered included Volta River Authority, SSNIT, Ghana Airport Company Limited, Ghana Immigration Service, Department of Roads and Highways and others. Likewise the positions held by most of the participants included procurement officers, purchasing officers, stores officers, quantity surveyors etc. procurement officers formed the majority (22.9 %) of the respondents because of their direct involvement with procurement process to better gain insight in the themes understudy.

The practice of procurement within the public sector is an important area that affects the economic development of a nation and hence requires that the people involved in procurement attain a high level of educational background and expertise. The study revealed that the public sector human resource for procurement activities are people with tertiary education with various awarding certificates and degree. Figure 4.1 depicts that 79.2 percent of the respondents have attained university degree of various field such as BSc and MSc in computer science, marketing and accounting, civil engineering, building technology, quantity surveying, procurement management as well as business administration and so on. This is followed by people with HND and Diploma forming a similar percent of 10.4. The results suggest that all the employees involved in the public procurement have attained a tertiary level of education.



**Figure 4.1 Level of Education of respondents** Source: field survey 2014

One demographic variable that has a worldwide debate in literature in term of equity in roles and employment in the public sector is sex and gender. Various studies have shown that females are sidelined when it comes to public sector employments and the sharing of assets as well as decision on national development (AWID, 2014). This study confirmed these findings in which males dominated (81.2%) of the various positions that were involved in public procurement while the females engaged in the procurement process formed 18.8 %. This could be interpreted that females cannot stand the pressure associated with the public procurement. As indicated by a male procurement officer *“.....honestly speaking when it comes to procuring national assets in a form of awarding contracts, and setting out terms and conditions the female are very soft in negotiating which most cases leads to delays in the processes.....” (In-depth interview, 2014).* Another, officer put it this way *“.....within the public sector procurement it involves a lot of pressure for the women not because they are not capable but quite stressful for them”.* (In-depth interview 2014). This implies that playing a role in spending national income to purchase goods and services as well as awarding a contract on behalf of government need not only academic knowledge but also the ego to stand all kind of challenges associated with it. Table 4.2 shows sex distribution of respondents.

**Table 4.2 Sex of Respondents**

Sex	Frequency	Percent
Male	39	81.2
Female	9	18.8
Total	48	100.0

**Source: Field Survey 2014**

#### **4.3 Factors that contributes to inefficiencies in the procurement process**

This section of the study focus on the factors that generally affect the smooth implementation of procurement in the public sector which results in cost overrun and legal disputes over some government contracts in Ghana. Knowledge about the procurement process is very important to inform practitioners the role to play in the process. The study revealed that sometimes people's knowledge on procurement is based on how is being practiced in their organization. In finding out what procurement means to the people involved in the procurement activities, diverse views were shared. About 58.3% explained that procurement is all about purchasing of goods and services however, 35.4% understood procurement to include purchasing of goods and services, awarding of contracts, termination of contract, the acquisition of assets for an organization or state. A critical analysis of the process and nature of procurement described by the respondents show that the organizations do not go through the whole cycle of the procurement process which Lloyd and McCue, (2004) described. It was realized that the procurement process practiced by some of the organization does not follow a systematic procedure and is also not integrated. Table 4.3 presents the process and nature of procurement process described by the organization.



**Table 4.3 The Process and Nature of Procurement Practiced in the Organization**

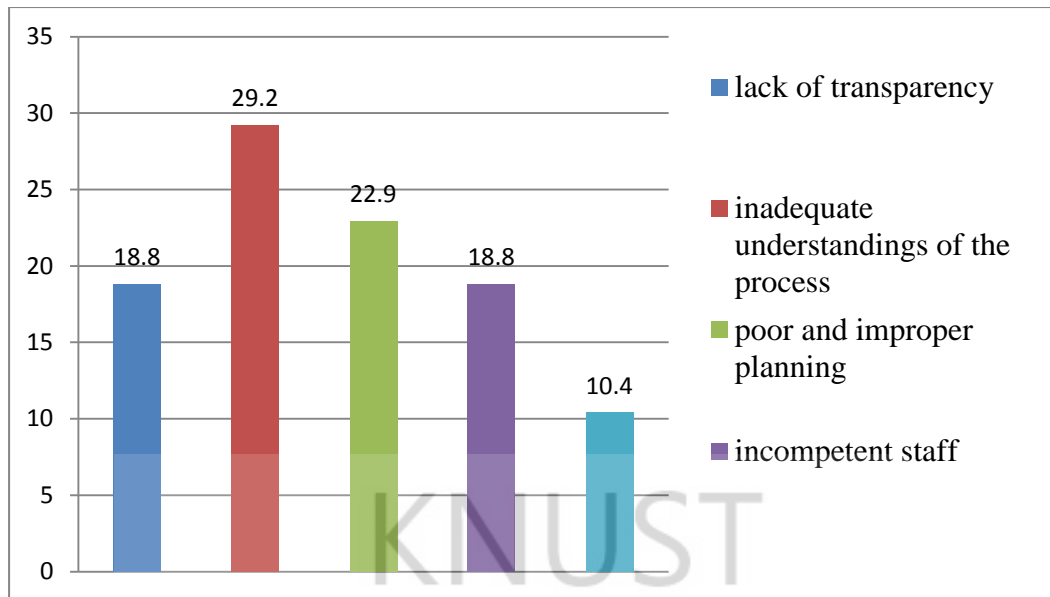
No.	The Process and Nature of Procurement Practiced in the Organization
1.	<i>'All procurement goes through tendering, evaluation, contract award, supervision and closing'</i>
2.	<i>'Tendering opening and price quotation'</i>
3.	<i>'We have a software data base which has request form and inventory products that are purchased via network subject for approval by manager'</i>
4.	<i>'Request is made across networks and wait for response'</i>
5.	<i>'In my organization the department designated to undertake the procurement process handles goods and services brought in and also manages them'.</i>
6.	<i>'Within my organization the department of procurement makes flow of goods and services with the organization. Takes inventory and stock of the company's assets'</i>

**Source: field survey 2014**

#### **4.4 Factors that impede the procurement process**

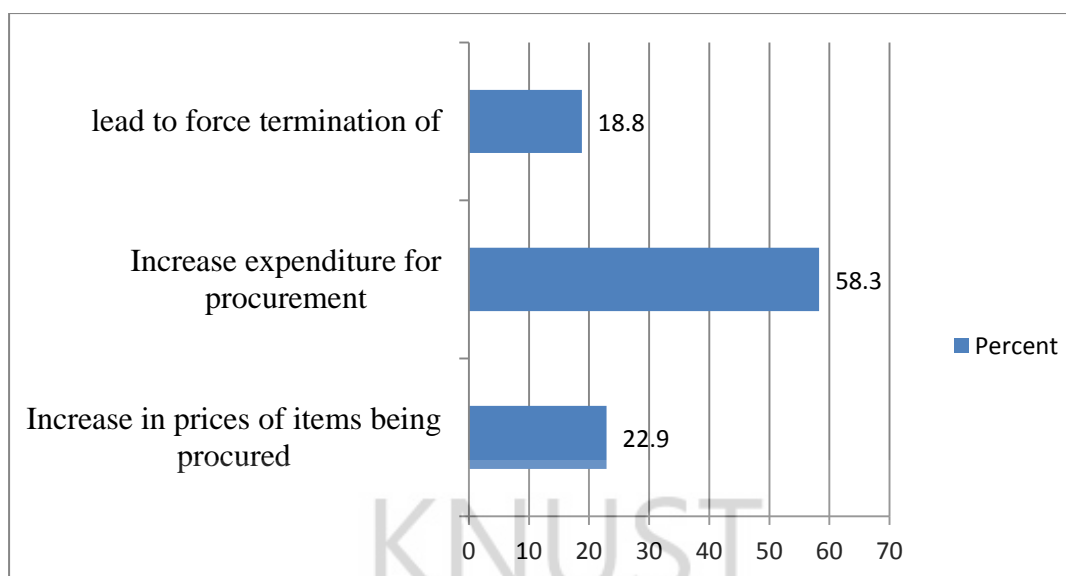
Several studies have exposed considerable inefficiencies in the procurement process and have established that value for money is not achieved in the procurement of public infrastructure as a result of corruption (Lengwiler and Wolfstetter, 2006; Mawenya, 2008, Shakantu, 2003). Information gathered suggests that the factors contributing to inefficiencies in the procurement process is more complex than simple. The study discovered that inadequate understanding of the procurement process (29.2%) most affect the process followed by poor and improper planning (22.9%), lack of transparency and incompetent staff (18.8%) as well as inadequate information for tenderers forming 10.4% of the response which results in high bids from tenderers. These inefficiencies bring extra cost and delays to in government expenditure and projects respectively. Figure 4.2 displays the factors.





**Figure 4.2 Factors that Negatively Affect the Procurement Process Source: Field Survey 2014**

The actual effects of these bottlenecks identified are delays in the start of contracts, termination of contracts, increased expenditure of government, increase in prices of items procured, re-awarding of contract and time wasting. In view of these Vaidya, (2007) sees e-procurement as an inter-organizational information system, which automatizes any part of the procurement process in order to improve efficiency, quality, and transparency in government procurement. For instance delay in commencement of contract bears a huge cost burden on the government due to price increase.



**Figure 4.3 Effects of Delays on Procurements** Source Field Survey 2014

In the same way when contracts are re-awarded they bring increase in expenditure, time consuming, rise in legal disputes and delays in work. Table 4.4 shows the effects of re-awarding contract in the procurement process.

**Table 4.4 Ways Re-warding of Contract affect the Procurement Process**

	Frequency	Percent
increase expenditure	19	39.6
time consuming	11	22.9
rise to legal disputes	7	14.6
delay of work	11	22.9
<b>Total</b>	<b>48</b>	<b>100.0</b>

**Source: Field Survey 2014**

Two other major factors that affect efficiency in the procurement process are political influence and poor documentation. These two factors affect the integrity of the process of procurement and distort and disorganize the entire procurement process. Table 4.5 shows the results and effects of political influence on the procurement process. Political decisions on procurement underplay the fundamental principles of procurement (32.4%) thus (PPA 663), contracts being awarded to undeserving people

(48.6%) and delay in delivery (18.9%). This confirms the assertion of Vee and Skitmore (2003), that there is evidence of corruption at all levels in the procurement, including: proprietary information infringements and “stealing of drawings during the design stage; collusive tendering during the tendering stage by government officials and staffs due to political affiliations. Thus, it is believed that e-procurement can remove all these malpractice and bring sanity and transparency into the process.

**Table 4.5 Effects of Political Influence and Poor Documentation in the Procurement Process**

<b>Effect of political influence on the procurement process</b>		
<b>Effects</b>	<b>Frequency</b>	<b>Percent</b>
contract awarded to undeserving	18	48.6
delay in delivery	7	18.9
breaches fundamental principles of procurement	12	32.4
Total	37	100.0
<b>Effects of poor documentation on procurement process</b>		
rise to contractual claims and cost overrun	19	39.6
legal disputes	9	18.8
low turnout of tenderer bid	12	25.0
breach of fundamental principles of procurement	6	12.5
increase in expenditure	2	4.2
Total	48	100.0

**Source: field survey 2014**

Again high rise of contractual claims and cost overrun, legal disputes, low turnout of tenderers to tender, increase expenditure displayed in table 4.5 are associated with cash inducements (bribery) for over-valuing work performed during the site operations stage; negligence in the form of poor quality documents during production of documentation stage and fraudulent conduct, such as covering up poor workmanship during site operations (Vee and Skitmore, 2003).

Finally table 4.6 shows the factors contributing to inefficiencies and transparency in the public procurement process.

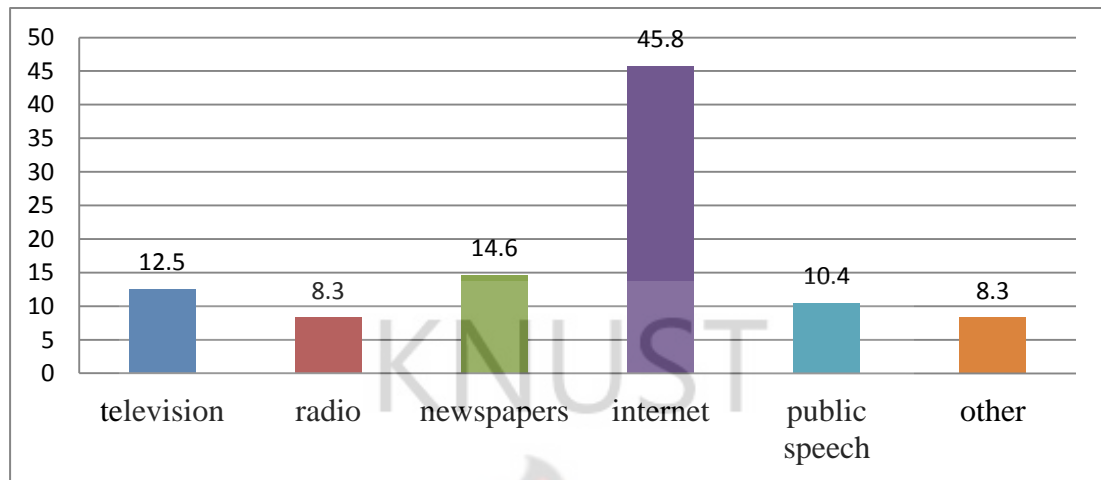
**Table 4.6 Factors Affecting Transparency and Efficiency in the Procurement Process**

<b>Factors affecting transparency in the procurement process</b>		
Lack of fair competition for all qualified tenderers	23	47.9
Influence on staff in making decisions in their favour in the procurement process	17	35.4
Low salary of officials handling the procurement process	8	16.7
Total	48	100.0
<b>Factors affecting efficiency in the procurement process</b>		
Lack of fair competition for all qualified bidders	8	16.7
Influence on staff in making decisions in their favour in the procurement process	21	43.8
Low salary of officials handling the procurement process	19	39.6
Total	48	100.0

**Source: field survey 2014**

People's awareness and knowledge about e-procurement is very paramount to this study especially when government of Ghana intends to adopt it in the near future to improve public procurement. Before enquiring people's perception on the potential of e-procurement in the delivery of goods and services, their level of awareness and knowledge about e-procurement was sought. The study revealed that public workers involved in procurement are aware of what e-procurement is about. Almost all the respondents (97.9%) are knowledgeable and aware of e-procurement systems and how it functions in acquisition of goods and services. It was realized that much of the awareness was obtained from diverse sources including the internet (45.8%), newspapers (14.6%), public speech (10.4%), radio (8.3%) and television (12.5%) as

wells workshops and seminars (8.3%). Figure 4.4 charts out results of the sources through which respondents had obtained the awareness of e-procurement.



**Figure 4.4 Sources of Awareness of e-Procurement** Source: Field Survey 2014

The high level of awareness was the fact about 56.2% of the organization has adopted e-procurement internally for various procurement activities. While about 31.2% of the organization has future plans to adopt it. As indicated by Knudsen (2002) the kind of e-procurement software adopted is based on content and function. Hence, E-procurement is simply the aspects of procurement function supported by various forms of electronic communication which can take many forms. The study found four common e-procurement soft-wares being used internally by some organizations which were also identified by Knudsen (2002). These soft-wares include MRP, E-SOURCING, ERP and GEP.

#### **4.5 Benefits associated with the use of e-procurement**

It is important to note that in assessing the potential of e-procurement in the acquisition of goods and services, the public sector is likely to benefit more from the use of electronic commerce for the purpose of sourcing than for transaction

management (Baker, 1999), and that electronic commerce promotes economic efficiency in public sector procurement (Arnold and Essig, 2002). The benefits of e-procurement were much emphasized by the organizations on how it will improve the activities of public procurement. This study's findings on the benefits of e-procurement show similar results in previous studies. The key potential of e-procurement stressed in this study were transparency and efficiency, time management, enhanced decision making due the improved visibility of demand and supply in addition to enhancing productivity which confirms the findings of Corsi (2006) on the relevance of the use of electronic information and communication technology (ICT) in procurement within the public sector. Further, the organizations explained why they think the adoption of e-procurement is advantageous when compared to traditional method of procurement. It was explained that the use of electronic information and communication technology in procurement is faster, saves time, reduce cost, and safe records keeping. See results in Table 4.7.

**Table 4.7 Benefits e-Procurement has over the Traditional Method**

Benefit	Frequency	Percent
Faster	8	16.7
Saves time	17	35.4
Reduced cost	8	16.7
Safe record keeping	4	8.3
Other	11	22.9
Total	48	100.0

Source: field survey 2014

#### **4.6 Effectiveness of e-procurement: transparency, accountability and efficiency**

Major challenges associated with the traditional public procurement process are lack of: transparency, accountability and efficiency which result from diverse factors as discussed in section 4.2. Hence, it is necessary to find out how the use of electronic



information and communication technology has the potential of improving these factors. Table 4.8 depicts the level of trust respondents shared on the effectiveness of transparency, accountability and efficiency e-procurement can offer to improve the public procurement. A total percentage of rating e-procurement as very effective for the three indicators scored 162.4%, followed by 89.5% being a total percentage of those who think e-procurement is quite effective to ensure transparency, accountability and efficiency in the procurement process while 45.8% believe the use of electronic information and communications technology is effective to monitor government expenditure. Generally, the level of responses shows that e-procurement can bring probity and accountability to the procurement sector which confirms previous studies (Croom, 2000; Gamble, 1999; Greenemeier, 2000 and Murray, 2001) on the potential of e-procurement in the public procurement.

**Table 4.8 Effectiveness of e-Procurement**

Factors	Very effective	Quite effective	effective	ineffective
	Percentage (100%)			
Transparency	56.2	31.2	10.4	2.1
Accountability	47.9	39.6	12.5	-
Efficiency	58.3	18.8	22.9	-
<b>Total</b>	<b>162.4</b>	<b>89.6</b>	<b>45.8</b>	<b>2.1</b>

**Source: field survey 2014**

Table 4.8 further shows how e-procurement can ensure key activities of the procurement process. The organizations believed strongly that e-procurement can ensure efficiency and effectiveness with a score of 60.4% strong agreement. Improved Visibility of Customer Demand also scores 64.6 % agreement. Generally the results in the table give a clear indication that there is no doubt about the potential

of e-procurement to improve public procurement in Ghana and hence the government should make a conscious effort to pursue its implementation to remove the bottlenecks associated with the traditional procurement practiced.

**Table 4.9 How e-Procurement can Ensure Procurement Activities**

e-procurement drivers	Strongly agreed	Agreed	Disagreed	Strongly disagreed
Improve efficiency and effectiveness	<b>60.4</b>	39.6	-	-
Negotiated Unit Cost reduction	22.9	54.2	22.9	-
Improved Visibility Customer Demand	29.2	<b>64.6</b>	6.2	-
Reduced Administration Costs	<b>41.7</b>	52.1	6.2	-
Improved Market Intelligence	27.1	60.4	10.4	-
Reduced Operational & Inventory Costs	<b>37.5</b>	<b>56.2</b>	6.2	-
Enhanced Decision making	22.9	68.9	8.3	-
Improved Contract Compliance	22.9	62.5	14.6	-
Improve corporate governance	27.1	58.3	12.5	2.1
Improved Visibility of Supply	<b>33.3</b>	50.0	12.5	<b>4.2</b>

Source: field survey 2014

#### **4.7 conditions needed to ensure successful implementation of e-procurement.**

The results and discussions that have ensued so far indicate that e-procurement has the potential to improve efficiency and transparency in the public procurement. As seen in 4.6 below an overwhelming majority of the respondents (46, 95.8%) believes that e-procurement has the potential to improve efficiency in public procurement in Ghana.

**Table 4.10 The Potential of e-Procurement for Improving Procuring Efficiently in Ghana**

	<b>Frequency</b>	<b>Percent</b>
<b>yes</b>	46	95.8
<b>no</b>	2	4.2
<b>Total</b>	48	100.0

**Source: field survey 2014**

This finding is consistent with the view of numerous scholars who opined that e-procurement has the potential to improve efficiency in public procurement process (Croom, 2000; Gamble, 1999; Greenemeier, 2000 and Murray, 2001, Corsi, 2006). However, whether e-procurement will lead to outcomes such as effectiveness and transparency in public procurement among others will of course depend on the mechanisms or conditions that are put in place to ensure successful adoption and implementation of e-procurement. Oye (2013) for instance has questioned the sweeping generalizations being made about e-procurement in the public sphere of influence, arguing that although e-procurement holds enormous potential in improving efficiency in procurement, it may also open up new challenges to the benefit of those who understand the new system through manipulation especially if there are no mechanisms put in place for its success. Based on the argument put forward by Oye (2013), this section of the analysis therefore looks into the views of the selected participants regarding the factors needed to ensure successful adoption of the implementation of e-procurement in public procurement. This is essential especially where Ghana is on the verge of adopting and utilizing e-procurement. The results focus partly on the readiness of the selected institutions as to whether they have all the necessary mechanisms needed to facilitate the adoption and implementation of e-procurement. Table 4.7 provides the diverse set of resources

which are currently at the disposal of the selected organizations which can facilitate the adoption of e-procurement.

**Table 4.11 Ways in Which Organizations are adequately equipped to use e-Procurement**

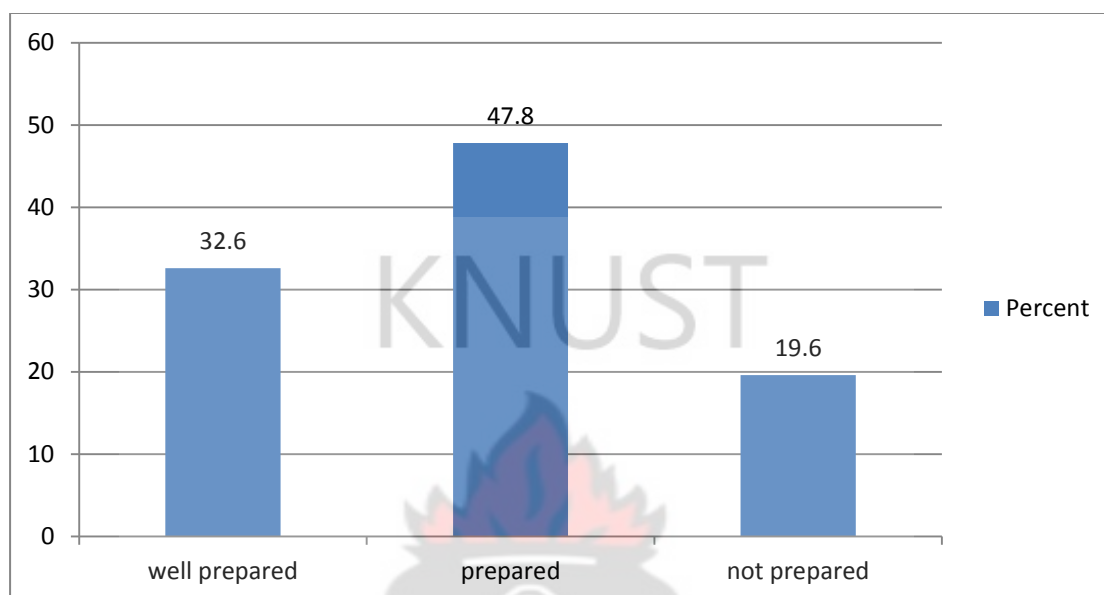
	Frequency	Percent	Valid Percent	Cumulative Percent
human resource	18	37.5	39.1	39.1
Technology	19	39.6	41.3	80.4
institutional set up	7	14.6	15.2	95.7
Other	2	4.2	4.3	100.0
Total	46	95.8	100.0	
Missing System	2	4.2		
Total	48	100.0		

**Source: field survey 2014**

The table shows that about 19 of the respondents representing 41.3% indicated that they were technologically equipped to adopt e-procurement. Technology such as web sites, ERP, system security, digital signatures are among some of the resources at the disposal of these organizations (Nasi, 2005). This is followed by close to 40% of the respondents who indicated that they have the needed human resource which could facilitate their adoption of e-procurement while 15.2% indicated to have institutional setup.

Nasi (2005) was quick to argue that in adoption of e-procurement, it is necessary to raise awareness and train the employees (*people*) on themes such as sharing knowledge through IT, networking and change management. Based on this view, respondents were asked how well they are prepared in terms of their human resource, as in the level of training they have meted out to their human resource in areas such as

sharing knowledge through IT, networking and change management as noted by Nasi (2005). The results is displayed in Figure 4.5.



**Figure 4.5 Preparedness of Organization in Terms of Human Resource Source: Field Survey 2014**

Figure 4.5 shows that about 47.8% of the organizations are prepared in terms of human resource, followed by 32.2% who argued to be well prepared and lastly about 19.6% who are not prepared at all. The results is encouraging as majority of the organizations are prepared in terms of their human resource based in areas such as sharing knowledge through IT, networking and change management (Nasi, 2005).

When asked about how well the organizations are equipped in terms of technology to implement e-procurement, the results shows similar trend as in the results obtained for the human resource.

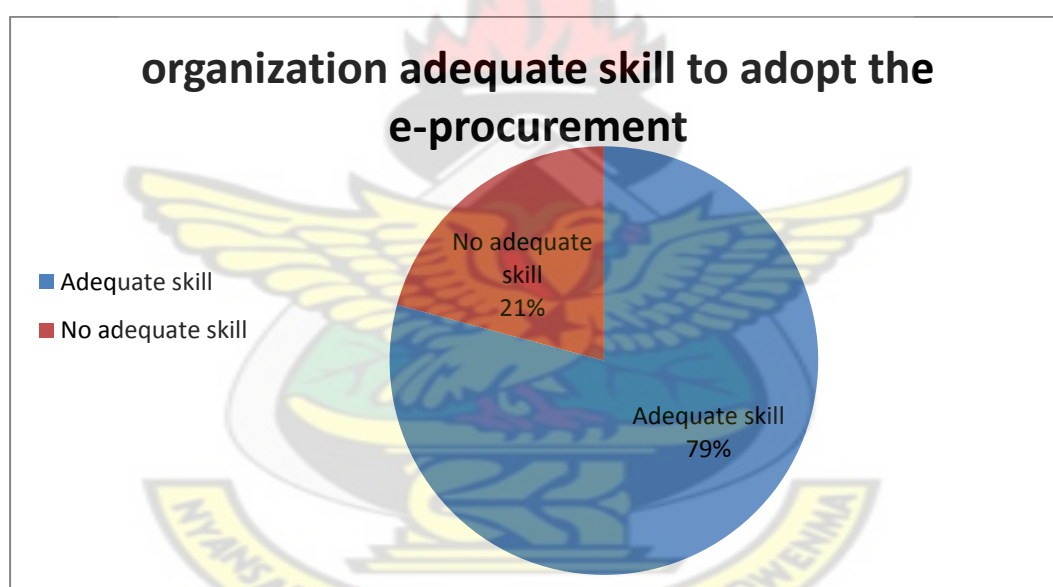
**Table 4.12 How equipped in terms of technology to implement e-procurement efficiently**

	Frequency	Percent
<b>very equipped</b>	12	25.0
<b>Equipped</b>	24	50.0

<b>not adequately equipped</b>	12	25.0
<b>Total</b>	48	100.0

**Source: field survey 2014**

Table 4.12 shows that about 24 and 12 of the respondents representing 50% and 25% respectively are equipped and well equipped respectively in terms of the technology needed to facilitate the adoption of e-procurement efficiently. About 25% however indicated not to be prepared technology wise in adopting e-procurement. Respondents were further asked whether they have adequate skills to better adopt e-procurement. The results are displayed in Figure 4.6 which indicate that greater proportion (79%) of the organizations have adequate skills in place needed to adopt e-procurement.



**Source: field survey 2014**

**Figure 4.6 Organization adequate skills to adopt the e-procurement**

Results on the flexibility of the organizations to adopt and implement e-procurement as seen in Table 4.12 are quite impressive. As seen about 17 (36.2%) and 19(40.4%) of the respondents indicated that their organizations are in a very flexible and flexible position to easily to adopt and implement e-procurement. The reason provided by these respondents suggests that they have the needed resources in terms of the



technology, human resource and equipment that can facilitate their adoption of the e-procurement software.

**Table 4.13 Flexibility of organizations to adopt e-procurement**

	Frequency	Percent	Cumulative Percent
very flexible	17	36.2	36.2
quite flexible	19	40.4	76.6
Difficult	6	12.8	89.4
not easy	5	10.6	100.0
Total	47	100.0	

**Source: field survey 2014**

Overall results on the factors needed to ensure e-procurement suggest that greater sections of respondents argued although with varied reasons that they are in a position to adopt the e-procurement software in their procurement dealings. These finding buttresses the view of Nasi (2005) who through his empirical study on the healthcare sector in Italy, vehemently called for the *people-process-technology* to define how the procurement system could be effective in achieving an organizational improvement through Information Technology. The author called for *Technology*: such as web sites, ERP, system security, digital signature and *Process*- which involves a thorough business process re-engineering needed along with the adoption of standards and coding acknowledged internationally and lastly the need to raise awareness and train the employees (*people*) on themes such as sharing knowledge through IT, networking and change management. Findings from this study on the factors needed to ensure successful implementation of e-procurement suggest that the public sector of Ghana is somehow prepared in the *people-process-technology* paradigm as the conditions needed to ensure effective implementation of E-procurement as majority of the respondents are of the view that they have all these resources at their disposal which

they could effectively utilize when it comes to the need for them to implement e-procurement. It also suggest that these organizations are mindful of the fact that in globalized world today, the adoption of e-procurement is not just about mere talk but mechanisms need to be put in place to ensure that there is effective adoption and implementation of e-procurement which has the potential to improve efficiency, accountability, transparency, reduce cost while ensuring value for money (Gardenal, 2008; Corsi, 2006). Moreover by putting in place these mechanisms there is the likelihood that new challenge such as manipulation of the e-procurement system to the benefit of those who understand the new system would be curtailed at least at the superficial level (Oye, 2013).



## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECCOMENDATIONS**

This Study focused on assessing the potential of e-procurement as a tool for improving the delivery of procurement in the public sector. The study was conducted in the Accra Metropolitan Area. To achieve the main aim of the study specific objectives were looked at. This chapter of the study dwells on the summary of findings, conclusions and recommendations.

#### **Summary of findings and conclusions**

This study clearly revealed that adoption of e-procurement in the public sector is a great tool to monitor government revenue and expenditure. Hence the government needs to take a conscious effort to ensure its implementation in Ghana.

Specifically, the study revealed that the major challenges with traditional procurement are inefficiency and lack of transparency. Inadequate understanding of the procurement process (29.2%) most affect the process followed by poor and improper planning (22.9%) and incompetent staff (18.8%) as well as inadequate information for tenderers forming 10.4% of the response which results in high bids from tenderers. Other factors included political influence which leads to contract being awarded to undeserved contractors and underplays the fundamental principles of procurement. Poor documentation also leads to rise in contractual claims and cost overrun, legal disputes, low turnout of tenderers tender and increase in expenditure.

Again, the key potential of e-procurement stressed in this study were transparency and efficiency, time management, enhanced decision making due the improved visibility of demand and supply in addition to enhancing productivity.

The study further shows that about 41.3% indicated were technologically equipped to adopt e-procurement. Technology such as web sites, ERP, system security, digital signatures are among some of the resources at the disposal of these organizations (Nasi, 2005). This is followed by close to 40% of the respondents who indicated that they have the needed human resource which could facilitate their adoption of e-procurement while 15.2% indicated to have institutional setup.

In conclusion, e-procurement has the potential for ensuring transparency and accountability in government expenditure which requires that adequate mechanisms are put in place to ensure its effectiveness.

### **Recommendation**

For efficient implementation of e-procurement in Ghana, the study recommends the following suggestions,

The study recommends that government support is necessary for effective implementation of e-procurement. Also, resources are needed both in technology and procurement software and human resource as well as frequent training and workshop for officials on procurement to upgrade their skills.

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## **APPENDIX**

### **POTENTIALS OF E-PROCUREMENT AS A TOOL FOR IMPROVING EFFICIENCY IN THE DELIVERY OF PROCUREMENT SERVICES IN THE PUBLIC SECTOR, GHANA**

This questionnaire assesses the potentials of e-procurement as a tool for improving efficiency in the delivery of procurement services in the public sector, Ghana. The researcher would be very grateful if you could provide answers to these questions. All information given shall be used solely for academic purpose and will be treated confidentially.

#### **DEMOGRAPHIC CHARACTERISTICS**

1. Sex 1. Male [ ] 2. Female [ ]

2 Organization .....

3 Position.....

4 level of education .....

#### **FACTORS THAT CONTRIBUTE TO INEFFICIENCIES IN THE PROCUREMENT PROCESS**

5. What is your understanding of procurement practiced in this organization?

1. Purchasing of goods and services
2. Awarding contracts
3. Acquisition of assets in the organization
4. Termination of contract
5. All the above
6. Other specify .....

6. Can you describe briefly the process and nature of the procurement system in this organization?



POTENTIAL OF E-PROCUREMENT IN IMPROVING EFFICIENCY IN THE DELIVERY OF PROCUREMENT SERVICES

7. Have you heard about e-procurement?

1. Yes [ ] 2. No

8. What is your source of awareness about e-procurement

1. Television 2. Radio 3. Newspapers 4. Internet 5. Public speech 6. Other specify  
.....

9. Is your organization currently using e-procurement?

1. Yes [ ] 2. No [ ]

9a. If yes what type of e-procurement software is the organization using?

.....

9b. If no are there plans to adopt in the future?

1. Yes [ ] 2. No [ ]

10. What do you think are some benefits associate with the use of e-procurement?

.....  
.....

11. What do think are the benefit e-procurement has over the traditional method?

.....  
.....  
.....

12. What is your perception regarding the effectiveness of e-procurement in improving the following

Factors	Very effective	Quite effective	effective	ineffective
Transparency				
Accountability				
Efficiency				

13. Do you think e-procurement has the potential for ensuring the following

e-procurement drivers	Strongly agreed	Agreed	Disagreed	Strongly disagreed
Price Reduction				
Improve efficiency				
Improve effectiveness				
Negotiated Unit Cost reduction				
Improved Visibility of Internal Customer Demand				
Reduced Administration Costs				
Improved Market Intelligence				
Reduced Operational & Inventory Costs				
Enhanced Decision making				
Improved Contract Compliance 5				
Shortened Procurement Cycle Times				
Improved Visibility of Supply				

## CONDITIONS NEEDED TO ENSURE SUCCESSFUL IMPLEMENTATION OF E-PROCUREMENT

15. Do you think your organization has adequate skill to adopt the e-procurement?

1. Yes [ ]      2. No [ ]

2.

16. In what way are you adequately equipped to use e-procurement in this organization?

1. Human resource  
2. Technology  
3. Institutional set up

17. How are you prepared in terms of human resource?

1. Well prepared      2. Prepared      3. Not prepared

Give reason for your response

.....  
.....  
.....  
.....

18. How is this organization equip in terms of technology to implement e-procurement effeciently?

1. Very equipped      2. Equipped      3. Not adequately equip

19. How flexible is this organization ready to easily adopt the implementation of e-procurement?

1. very flexible      2. Quite flexible      3. Difficult      4. Not easy

20. Can you please describe how your organizational rules will be compatible with the implementation of e-procurement?

.....  
.....  
.....  
.....  
.....

21. Do you think e-procurement has the potential for eliminating corruption in Ghana?

1. Yes [ ]      2. No [ ]

22. Can you recommend any best practice that can help solve corruption in Ghana?

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23. Can you please mention at most four factors that negatively affect the procurement process?

1.....

2.....

3.....

4.....

24. How does delay in delivery in particular affect the procurement process?

- a) Increase in prices of items being procured   b) Increase expenditure for procurement  
c) lead to false termination of contract   d) other specify.....

25. In what ways does re-awarding of contract affect the procurement process? Please brief

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26. Are there political influence in the procurement process in your organization?

- a) Yes                      b) No

26.b. If yes, How does that influence the procurement process? Please in brief

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27. How does poor documentation affect the procurement process in your organization?

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28. What factors that affect transparency in the procurement process in your organization?

- a) Lack of fair competition for all qualified bidders  
b) Influence on staff in making decisions in their favour in the procurement process  
c) Low salary of officials handling the procurement process  
d) other specify.....

29. What factors affect efficiency in the procurement process in your organization?

- a) Lack of fair competition for all qualified bidders  
b) Influence of organizations on staff in making decisions in their favour in the procurement process

- c) Low salary of officials handling the procurement process
- d) Other specify.....

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