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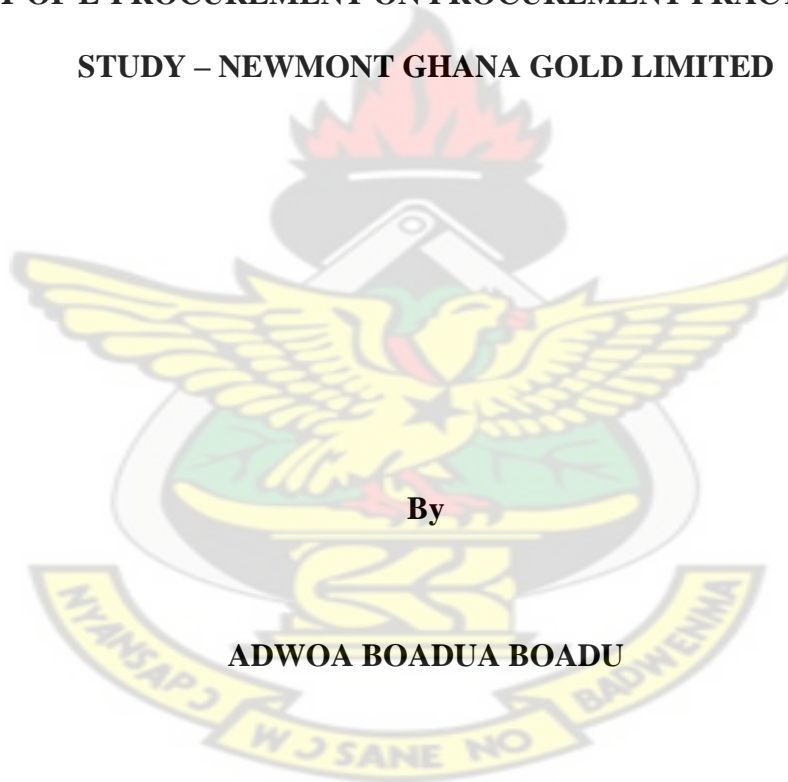
**COLLEGE OF ARCHITECTURE AND PLANNING**

**DEPARTMENT OF BUILDING TECHNOLOGY**

**KNUST**

**IMPACT OF E-PROCUREMENT ON PROCUREMENT PRACTICE; CASE**

**STUDY – NEWMONT GHANA GOLD LIMITED**



**By**

**ADWOA BOADUA BOADU**

**NOVEMBER, 2014**

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**IMPACT OF E-PROCUREMENT ON PROCUREMENT PRACTICE; CASE  
STUDY – NEWMONT GHANA GOLD LIMITED**

**A thesis submitted to the Department of Building Technology, Kwame Nkrumah  
University of Science And Technology in partial fulfillment of the requirements for  
the degree Of Master of Science (MSc) in Procurement Management**

**By**

**ADWOA BOADUA BOADU**

**NOVEMBER, 2014**

## DECLARATION

I hereby declare that this submission is my own work towards the MSc and that , to the best of my knowledge, it contains no material previously published by another person, nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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## DEDICATION

This project is dedicated first and foremost to the LORD God Almighty who has preserved my life and taken care of me through the challenging years of university education.

This project is also dedicated to my lovely parents, Mr. and Mrs. Richard Boadu who have tirelessly, affectionately and unwearingly done everything possible to make sure that I get this far in education.

This also goes to my sister, Amma and brothers, Yaw, Anim and Kwabena.



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I am grateful to my supervisor Dr. T. Adjei Kumi for his time, patience and supervision during the period the study was being undertaken.

Special thanks goes to my Managers; Ian White, Justice Okoe-Martey and Eric Ofori all of Newmont Ghana Gold Limited, Ahafo for their support in completing this study.

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Final thanks to my friends who have encouraged me during the period I was undertaking this project especially to Michael Ahinkan Bosompem, Philemon Yankson and Lawrence Edmundson.

To course mates, God bless you.

## ABSTRACT

The use of e-procurement in recent times has gained a lot of popularity in Europe and Asia. In Ghana, e-procurement is commonly known to the mining and Oil and Gas industries. Whilst some industries do not see the value in investing in this technology in procurement, others do appreciate its value from literature but require practical evidence from practicing organizations in our very country.

It is therefore the aim of this study to establish the impact of e-procurement on procurement practice, using Newmont Ghana Gold Limited - Ahafo as a case study. The impact of e-procurement on efficiency, communication, compliance, transparency, record keeping and retrieval of documents, and planning and forecasting were considered.

The research design is a case study using both qualitative and quantitative approaches. A two stage approach was adopted to collect data. Sampling techniques employed included a census for the first stage and purposive sampling for the second stage. Whilst the primary and secondary sources of data were used, questionnaires and interviews were used as data collection instruments. Relative importance index and descriptive statistics were used as data analytical tools.

The study reveals that the popularity of e-procurement and its deployment in many organizations in recent times hinges on it being a tactical tool used purposely to support strategic goals of a function and not merely because it is a new trend in procurement. Some strategic goals are to ensure compliance in processes and reduce the level of effort of employees.

The study reveals that e-procurement improves communication by making information flow quicker and easier, improves compliance to procurement processes whilst reducing maverick spending. It also improves transparency into processes and work load, improves

record keeping, planning and forecasting. E-procurement also positively impacts efficiency with regards to a reduction in; lead times, volume of paperwork, repetition of administrative procedures, efforts required to complete similar task as manual paper-based system.

The study however reveals that whilst e-procurement has the potential to save cost through reduction in prices as a result of electronic sourcing, an Organization could be denied of this valuable impact if e-procurement is not exploited and used to its full potential.

It is therefore recommended that whilst Newmont Ghana Gold Limited should continue to use e-procurement as it will continue to positively impact transparency, communication, efficiency, compliance and record keeping, Buyers should be encouraged to use the reverse auction application tools available to realize the impact of cost saving through reduction in price as was anticipated by the Company.



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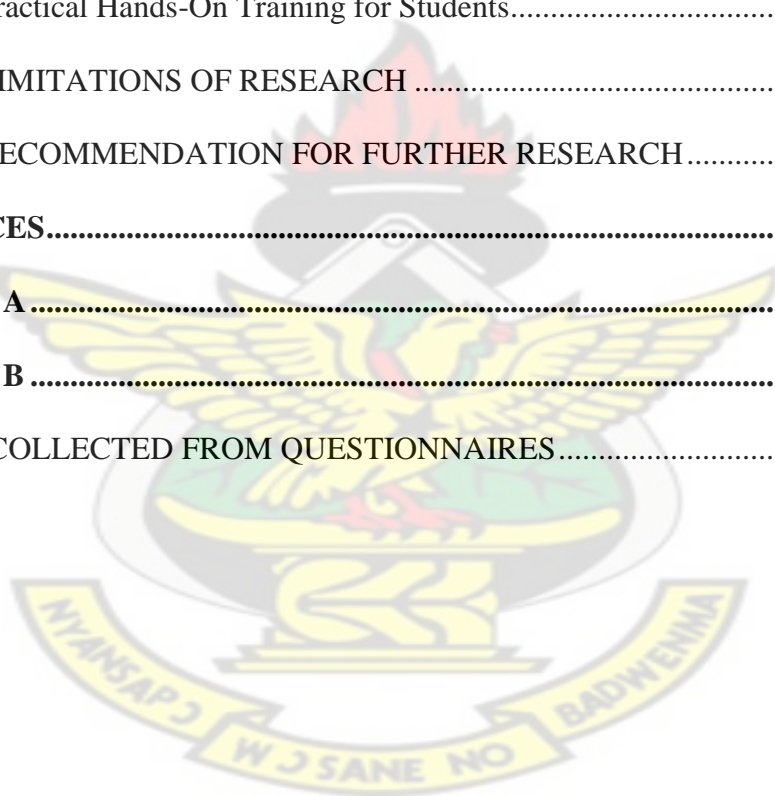
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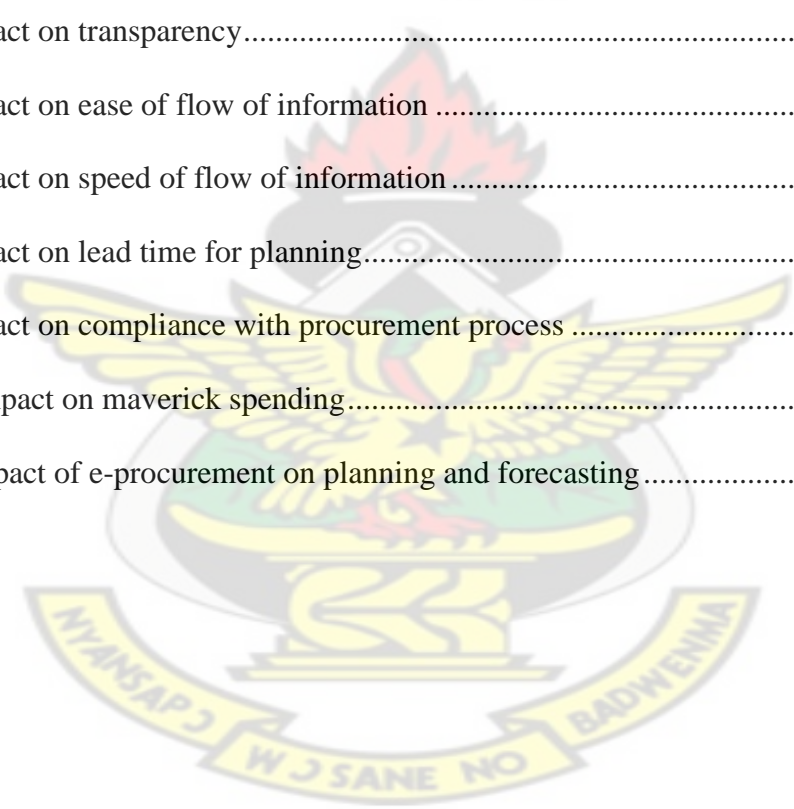
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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 BACKGROUND INFORMATION**

Procurement is a formal process by which organizations obtain goods and services (Mulcahy, 2009). Procurement is also the acquisition of goods and services at the best available total cost of ownership, in the right or appropriate quantity and quality, at the right time, in the right place and from the right source for the benefit or use of individuals and corporations usually through a contract (Osei-Owusu, 2013).

In value chain management, procurement is seen as one of the value activities required to support a Company's primary activity and is therefore classified as a support activity. It encompasses the purchasing function, stores, traffic and transportation, incoming inspections and quality control and assurance, hence requiring companies to make supplier selection decisions based on total cost of ownership rather than price (van Weele, 2010). This implies that procurement relates to buying based on total cost of ownership.

Two primary roles are defined in procurement; the buyer and seller. The organization or party purchasing (procuring) the goods or a service is known as the buyer whilst the organization or party providing or delivering the goods or services to the buyer is known as the seller (Crowe, 2005).

Depending on the application area, the seller can be called contractor, subcontractor, vendor, service provider. Depending on the buyer's position in the acquisition cycle, the buyer can be called a client, customer, prime contractor, contractor, acquiring organization, governmental agency, service requestor or purchaser (Project Management Institute, 2008).

The importance of procurement such as providing inputs to ensure the continuity of a Company's primary activities and providing employment makes the subject of procurement very important to every nation building. In Ghana alone, it is noted that about 50-70% of our national budget (after personal emoluments) is procurement related (Ameyaw *et al.*, 2012). With this, it is not surprising that a lot of appraisals, surveys and research have been done world-wide to determine the problems and challenges of procurement in order to provide solutions to ensure continuous improvement in this very important area of development. A review of a few of these problems in various countries is considered adequate as literature has shown that African and Asian Countries are faced with common procurement problems (Ameyaw *et al.*, 2012).

Hui *et al* (2011) identified the following six procurement challenges in Malaysia;

- i. Failure to buy products in the right quantities, and at the right specifications and prices, resulting in higher total cost of ownership.
- ii. Inefficient and ineffective procurement processes, resulting in long cycle times.
- iii. Lack of transparency and ambiguity in the procurement process, resulting in leakages and corruption.
- iv. Inadequate infrastructure to support procurement, including flaws in organization and governance.
- v. Interference from outside parties and cronyism, which affects the awarding of contracts. This includes malpractice and non-compliance of procurement officers to the policies and procedures of the procurement system.



Ameyaw *et al* (2012) also identify the following problems of procurement;

- i. Corruption
- ii. Low detection of misprocurements, weak enforcement rules, laxity in administrative systems to ensure compliance to procurement laws and lack of political will and moral courage by politicians to punish offenders
- iii. Non-proficiency of procurement personnel even though they are trained
- iv. Delay in payment of Contractors
- v. Poor record keeping.

To ensure “good procurement” which has been defined by van Weele (2010,pp.106) as ‘getting value for money- that is ,buying a product that is fit for purpose, taking into account the whole-life cost’, the problems faced during procurement need to be addressed. Some few notable solutions widely known include;

- i. Political commitment to procurement laws and reforms to curb corruption
- ii. Broad procurement training and refresher programs for procurement officials to ensure proper procurement management
- iii. Change in client’s procurement models
- iv. Institution of better procurement reforms.

Though the above proposed solutions attempt to address the problems of procurement, one would note that the canker of corruption cannot be eliminated or minimized without making the procurement process more transparent. It is to this effect that Transparency International (2011) advises the use of e-procurement as it has significant positive effects



in reducing opportunities for corruption and increasing the possibility of transparency. Reducing corruption invariable leads to cost savings.

e-Procurement is the “generic term applied to the use of integrated database systems and wide area (commonly web-based) network communication systems in part or all of the purchasing process” (Croom and Brandon-Jones, 2005,pp.369). E-Procurement is a value-added application of internet and e-commerce solutions to facilitate integrate and streamline the entire procurement process, from buyer to supplier and back. Until recently, before the advancement of technology, procurement was conducted by buyers and sellers manually. The entire process was paper-based. This posed a lot of challenges. Bikshapathi *et al* (2006) identified the following deficiencies of the manual system of procurement in India which can also be said to be common in other countries;

- i. *Cartel formation to suppress competition:* Through dubious means, participating bidders gather the list of prospective bidders for a procurement request, and use this information to lobby for formation of syndicates or cartels in order to bid at higher quotations.
- ii. *Physical threats to bidders:* In regions plagued by factions and/or Mafia groups, genuine bidders are physically threatened and prevented from submitting their bids. Bidders have to risk their physical safety to submit bids in the designated tender boxes.
- iii. *Tampering of tender files:* For the purposes of evaluation, the bid documents are transported across the administrative hierarchy, which introduces the risk of tampering or loss along the way.

- iv. *Human interface at every stage:* The manual system exposes the departmental personnel to the bidders at every stage of the process. This could lead to subjectivity, favoritism and other undesirable practices.
- v. *Lack of Transparency:* The tight control of all procurement related information by government departments results in a severe lack of transparency in the entire process. This leads to misinformation and a lack of trust in the system by the bidders, media and the citizens.

There are numerous benefits of e-procurement. Transparency International (2011) and Handfield (2011) identify the following benefits of e-procurement;

- i. It makes it easy to log data on public contracting and make it available to the public thus ensuring that whatever is legally allowed to be made available for public viewing is released in an open and usable format and in a timely fashion
- ii. Increases integrity in procurement systems
- iii. Reduces the time between need recognition, release and receipt of an order
- iv. Improves communication both within the buyer company and with suppliers
- v. Lowers overhead costs in the purchasing area

From the above summarized benefits of e-procurement, it is not surprising that a number of corporate organizations have opted for the use e-procurement even though the public sector is not. Newmont Ghana Gold Limited is one of such corporate organizations currently using e-procurement in Ghana. However, not much work and research has been done to look at the impact of the deployment of e-procurement. It is in this light that this research would be undertaken to establish the impact of e-procurement on procurement practice using Newmont Ghana Gold Limited as a case study.

## 1.2 STATEMENT OF PROBLEM

Procurement like any specialty function is confronted with challenges. Corruption, low detection of misprocurement and weak enforcement of procurement rules are common problems usually cited (Ameyaw *et al.*, 2012). The benefits of e-procurement such as improving transparency (Osei-Owusu, 2013; Trkman and McCormark, 2010) and ensuring compliance to procurement processes (Aberdeen Group, 2005) are suggested to provide solutions to most of the problems of procurement. Osei-Owusu (2013) recommends the use of e-procurement in Ghanaian mining companies because of its benefits of reducing delivery and ordering times, improving efficiency and ability to achieve low prices. Shalle *et al* (2013) recommends good e-procurement software systems as it helps to greatly reduce the time and effort required to complete purchasing transactions through the elimination of traditional paper chain requisitions, approvals and payment.

In Ghana, most mining companies such as AngloGold Ashanti Iduapriem Limited and Newmont Ghana Gold Limited are known to use e-procurement. However, not much research has been done on these few companies in which e-procurement is used to determine its impact and to encourage other industries in Ghana to adopt its usage. There is therefore the need to look at e-procurement in these practicing companies in Ghana to establish its impact on procurement practice. It is in this light that this study is being undertaken using Newmont Ghana Gold Limited as a case-study.

In February 2013, Newmont Ghana Gold Limited rolled out its complete e-procurement through an Enterprise Resource Planning (ERP) software known as the Systems Applications and Products (SAP). This was through a project undertaken in the organization. The success of the project was not without cost which could have been

avoided if the resources were invested in other ventures. Like any typical project, it required time from the employees who were going to use it to study the system, employment of consultants to ensure successful implementation, series of meetings and trainings sessions organized for the organization's suppliers, printing of training materials.

### **1.3 AIM**

The study aims at establishing the impact of e-procurement on the procurement practice of Newmont Ghana Gold Limited

### **1.4 OBJECTIVES**

The objectives of the research are to;

1. Identify the procurement practice of Newmont prior to the introduction of e-procurement and its challenges
2. Identify the e-procurement system of Newmont and its perceived impact.
3. Identify the effects of e-procurement on Newmont's procurement practice
4. Identify the problems encountered by end users and buyers in the use of e-procurement in Newmont

### **1.5 RESEARCH QUESTIONS**

In order to establish the impact of e-procurement on the procurement practice of Newmont Ghana Gold Limited, the study answered the following questions;

1. What was the procurement practice of Newmont prior to the introduction of e-procurement and what were its challenges?
2. How is e-procurement deployed in Newmont and what was its perceived impact?
3. What are the effects of e-procurement on Newmont's procurement practice?

4. What problems do End-Users and Buyers face in using e-procurement in Newmont?

## **1.6 SIGNIFICANCE OF THE STUDY**

First and foremost, identifying the old procurement practice and the associated challenges or problems would reveal if the introduction of e-procurement has resolved these problems or challenges

Secondly, the study would establish how e-procurement has impacted on Newmont's procurement practice. A comparison between Newmont's perceived benefits for implementing e-procurement and the established impact would determine if Newmont is achieving its perceived impact for implementing e-procurement. Areas of negative impact if any could be identified for possible corrective actions.

Also, challenges encountered by end-users and buyers would be of great importance for continuous improvement in Newmont's procurement practice.

Furthermore, the results of this study would be great source of information for institutions intending to employ this emerging technology of e-procurement into their procurement practice. With the Government of Ghana's intention to deploy e-procurement this case study would provide relevant information on some positive impacts and negative impact to be expected on Ghana's public procurement practice.

## **1.7 SCOPE**

This study extends only to the procurement practice of Newmont Ghana Gold Limited which is located in the Brong Ahafo Region, specifically the Ahafo Plant Site.

This study would also determine the impact of e-procurement on Newmont's procurement practice in relation to procurement of works and services only and would not



include procurement of goods. This is because procurement of goods in the new ERP system is still unsettled and any study to determine its impact at this stage would be premature as Buyers for goods are now being trained on how to use the system.

Consequently, problems encountered by end users and buyers and sellers in the use of e-procurement would relate to only problems encountered in the procurement of services and works.

## **1.8 RESEARCH METHOD**

To establish the impact of e-procurement on Newmont's procurement practice, literature and documentation review would be used to identify the possible areas e-procurement impacts. Interviews would also be granted to other stakeholders in Newmont to identify other possible areas of e-procurement impact. These would be summarized and classified as the e-procurement impact themes which would be operationalized into questions for the questionnaires and interview with end users and buyers.

Through unstructured interview with Newmont's Supply Chain Subject Matter Expert, data on Newmont procurement practice prior to e-procurement implementation and its challenges would be collected. Data on how e-procurement is deployed in the Organization and Newmont's perceived impact of e-procurement would also be collected through the unstructured interview.

Survey questionnaires would be administered to buyers and end-users to rank the identified impact themes in descending order from 6 to 1 to indicate which impact theme has been more impacted than the other.

A second round of questionnaires would be sent to identify key end-users and buyers and interview granted to enable them discuss at length their experiences to complete the

questionnaires. This will be to collect data on the problems they experienced with the old procurement practice, problems they are currently facing using the e-procurement system, the effects e-procurement is having on Newmont's procurement practice in relation to the identified impact themes and to identify other impact themes not already identified.

The raw data collected from the Supply Chain Subject Matter Expert, end-users and buyers would be discussed according to the identified thematic areas of impact and new themes identified. Relative Importance Index would be used to establish most impacted theme. Problems would also be analyzed to determine the most commonly occurring problems.

## **1.9 OUTLINE OF THE STUDY**

Chapter One of the study contains the introduction which summarizes the background to the study, statement of problem, aim, objectives, research questions, significance of the study, scope and limitations .

Chapter two reviews existing literature related to the study. This covers what e-procurement is, components of an e-procurement system, the main impact themes of e-procurement, the models of e-procurement, barriers to the implementation of e-procurement, risks associated with e-procurement and procurement in Newmont Ghana Gold Limited.

Chapter three is the research methodology which includes; the research design, approach, population of the study, sample size, sampling techniques, mode of data collection, data analysis and research ethics.

Chapter four presents' data collected, discussion and analyses. Discussion and analyses are according to the research objectives.

Chapter five summarizes the findings of the research and concludes with recommendations.

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## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 INTRODUCTION

The pace of quantum innovation in information and communication technologies over the decades has resulted in industries re-organizing and replacing their existing traditional manual approaches of transacting business with more advanced technology-based approaches. The effects of this revolution is however not limited to simple replacement of traditional processes but extends to changes in management as well. Cavinato *et al* (2006) emphasizes that it is the development of new information and decision support technologies combined with new thinking about supply chain designs, new paradigms of trading company relationships and the globalization of businesses that has resulted in the remarkable changes in the management of supply chains.

It is rather unfortunate that businesses cannot turn a blind eye to the proliferation of technology. To survive in the current competitive and globalized business environment, Corporate Organizations and businesses need not only meet their organizational goals and objectives whilst managing reduction in operational cost but also need to be dynamic and abreast with the technological advancement (Shalle *et al.*, 2013). This is most important especially when sustaining competitiveness and profitability in the increasing competitive world depends less on raising prices but rather on the ability of firms to compete on the basis of product innovation, higher quality and faster response times which must be delivered simultaneously and always at the lowest possible cost (Alor-Hernandez *et al.*, 2011 cited in Renko, 2011).

Today, a lot of electronic terminologies have emerged. In the area of Supply Chain Management, terminologies such as electronic-commerce (e-commerce), electronic-

business (e-business), electronic-marketplace (e-market place) and electronic-procurement (e-procurement) are a few amongst the many commonly used terminologies used and given different meanings depending on who is using it. Jonsson (2008) uses e-business synonymous to e-commerce and categorizes it into two namely; business-to-consumer (B2C) which refers to the type of e-commerce which facilitates interactions between a company and individuals and business-to-business (B2B) to refer to the type of e-commerce which facilitates interactions between companies and companies. Generally, e-business is seen to promote sustainable use of energy (Eadie *et al.*, 2011). Tanner *et al* (2008) describes e-procurement as that electronic support of the professional buying process which addresses the relationships of a business with its suppliers.

It is important to note that automating traditional processes whether individually or in any combination increases the process' efficiencies and effectiveness which in effect results in a reduced total supply chain cost and enormous responsiveness. It is therefore not surprising the competitive priority to reduce cost, increase service, increase quality and speed new products to market are the drivers behind the automation of supply chain processes and any other business processes (Cavinato *et al.*, 2006).

E-procurement is the most essential area of development in the B2B e-commerce arena (Neef, 2001) even though there is some perceived difficulty of its use. However, Pasiopoulos *et al* (2013) in their study found out perception of ease of use of e-procurement was significantly associated with respondents who reported ease of use of the internet, reiterating the fact that an individual's computer efficacy and systems' experience has an appreciable positive effect on perceived ease of use of a specific system.

The use of E-procurement cuts across industries. It is used in the construction industry (Eadie *et al.*, 2011), Health sector (Pasiopoulos *et al.*, 2013) and the mining industry (Osei-Owusu, 2013) just to mention a few. This chapter seeks to review works undertaken and existing literature on the subject of e-procurement to understand what really e-procurement is, components of an e-procurement system, models or types, impact themes, challenges and risk of implementing e-procurement and the keys to e-procurement success.

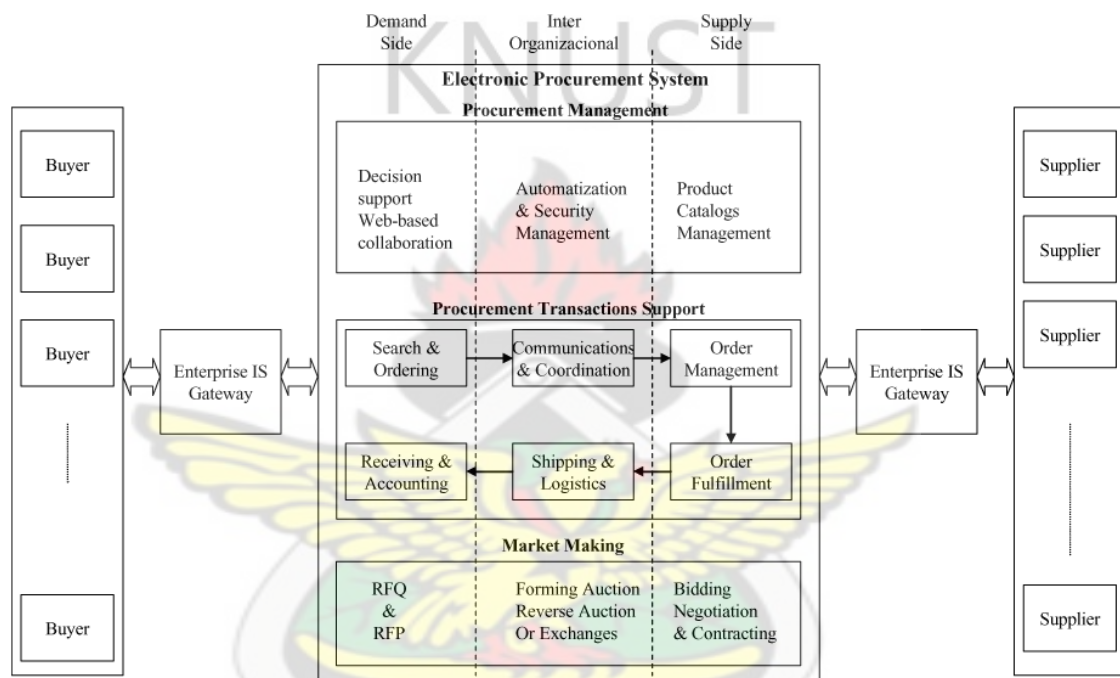
## **2.2 WHAT IS E-PROCUREMENT?**

Various authors have defined and explained e-procurement differently; some in the broad sense, others narrowly. E-Procurement is commonly defined as the use of ICT to automate and make the purchasing process more responsive and dynamic (McCue and Roman, 2012). In the public sector, e-procurement is defined as a “comprehensive process in which governments use IT systems to establish agreements for the acquisition of products or services (contracting) or to purchase products or services in exchange for payment (purchasing)” (Moon, 2005, pp.54). Podlogar (2007) explains e-procurement as linking and integrating inter-organization business process and systems with the automation of the requisitioning, the approval purchase order management and accounting processes through internet-based protocol. Trkman and McCormark (2010) also describe e-procurement as using ‘electronic means (internet, web, email) to enable purchases of products and services over the internet’. Whilst Croom and Johnston (2003) defines e-procurement as mirroring procurement activities in the internet, the Common Procurement Certification Scheme for the UN (2006, pp.4-11) mentions the existence of e-procurement long before the term itself which first came into usage after the establishment of the internet in the 1990s and defines e-procurement in its broadest sense

to ‘involve electronic data transfer to support operational, tactical and strategic procurement.

E-Procurement employs various elements including electronic ordering, internet bidding, purchasing cards, reverse auctions and integrated procurement systems (Moon, 2005).

### 2.3 E-PROCUREMENT SYSTEM COMPONENTS



**Fig.2.1 Functionalities of an e-Procurement System (Soares-Aguiar and Palma-dos-Reis, 2008)**

An e-procurement system is a web-based client/server application that is used to replace a manual procurement process and is said to function horizontally and vertically (Soares-Aguiar and Palma-dos-Reis, 2008). Vertically, e-procurement systems support the demand side, supply side and inter-organizational modules. Horizontally, e-procurement systems support three important areas namely;

- Procurement transactions support – This is the most visible part of the system to the end-user where he/she searches using a browser and possible search engines and finds all required information for processing a requisition according to the firm's established processes. Here approved requisitions are converted into purchase orders and sent electronically to the responsible supplier for execution. The buyer's warehouse, inventory and account payable departments are notified as soon as the order arrives for the necessary actions to be taken.
- Procurement management – This also contains three areas as shown in Figure1. The first is the electronic catalog, at the heart of the procurement management unit contains the specifications and prices of all the products being obtained from contracted suppliers. The catalog management component depending on its functionality may allow all the suppliers to directly access the enterprise server and update information about their products and services. The procurement management also contains the analytical tools which provide procurement decision support to the users and managers. Last but not the least is the authentication and security module which implements users' data access and ensures that the desired quality messages are transmitted between the parties involved in transactions.
- Market making – this is more advanced functionality used after the above mentioned functionalities have been explored to undertake some human-manual-intensive tasks through the web such as managing quotes, bidding and negotiations. A highly matured e-procurement enabled organization can use the e-procurement system to electronically conduct auctions or run B2B exchanges in which users and suppliers can bid and trade goods.



An e-Procurement system should also communicate with both the suppliers' and buyers' information systems through the enterprise information systems gateway as shown in Figure1.

## **2.4. IMPACT OF E-PROCUREMENT**

There are numerous effects of e-procurement in form of benefits or disadvantages. The benefits generated by e-procurement however vary depending on the implementation context and carrying out 100% of procurement activities online may not necessarily result in maximizing e-procurement performance benefits (Gardenal, 2013). In many instances where e-procurement is used, the real benefits are not identified resulting in the companies not recognizing its true value (Trkman and McCormarck, 2010), but e-procurement's value impact when applied intelligently is indisputable (Aberdeen Group, 2005). Several studies have explored the impact of e-procurement as;

### **2.4.1 Compliance**

Compliance is one benefit or effect of e-procurement commonly identified by many authors. Effective deployment of e-procurement results in greater control over procurement spending (less maverick buying) and better employee compliance (Moon, 2005). One key factor about "maverick" spending in an organization is that, it always results in an element of insecurity and uncertainty when goods or services are purchased from suppliers with whom the organization does not have any formal relationship (Parida and Sophonthummapharn, 2008). Maverick spending refers to purchasing goods or services in non-compliance with the buying organization's policies (Salkute and Manager, 2013).

Compliance issues has been cited as one of the key factors behind the resurgence of e-procurement after e-procurement developed a well-deserved bad reputation some years

ago when the dot.com bubble burst which resulted in backlash response from solution providers and end-users to the hype about e-procurement's value ( Aberdeen Group, 2005). Here, it is noted that e-procurement drives compliance with negotiated contracts, reduces or prevents "leakage" of negotiated prices and results in better spend visibility allowing firms to easily comply with new legislations such as the Sarbanes-Oxley Act (Aberdeen Group, 2005).

All four Swedish and Indian (two each) Companies in Parida and Sophonthummapharn (2008) exploratory study on how the benefits and risks associated with e-procurement affect e-procurement implementation confirmed reduced maverick spending as a benefit of e-procurement implementation and acknowledged contract compliance- that is purchase only from suppliers with whom they already have some relationship.

In Salkute and Manager (2013) study on the impact of e-procurement adoption and how the tangible benefits and risks associated to e-procurement affects e-procurement adoption in India and China, there was a consensus between the twenty companies studied that e-procurement reduces maverick spending. All the companies confirmed using a recognized supplier for purchasing products and this resulted in better control and regulation of spending as well as easy and less expensive transactions for their companies.

The Aberdeen Group (2005) which noted increase in contract compliance and reduction in "maverick spending" as effects of e-procurement deployment in their research on ten enterprises recognized for demonstrating best practices in e-procurement revealed;

- GlaxoSmithKline (GSK), a research-based pharmaceutical company recorded an increase and sustained compliance by 20% overall by managing 50% of its direct spend with an e-procurement system.

- Hewlett-Packard (HP), a global manufacturer of technology products in addressing a business challenge of non-compliance spend, local sourcing and strategic procurement activity recorded a quantitative benefit of 80% contract compliance as a result of e-procurement deployment
- Novo Nordisk, a Danish pharmaceutical manufacturer recorded a drop in maverick buying from 52% in Q42001 to 19% in Q42004 as a result of e-procurement deployment.
- The Scottish Executive (SE) recorded an improved contract and pricing compliance as a result of e-procurement deployment
- Service master, a service provider to U.S residential and commercial customers recorded an improved compliance of 98% contributing to a remarkable cost savings as a result of e-procurement solution
- The Purchasing Department at the University of Pennsylvania recorded a 484% improvement in contract compliance as a result of an e-procurement solution.

Despite the confirmation of increased contract compliance and reduced maverick spending as benefits of e-procurement from various studies, McCue and Roman (2012) asserts that the implementation of e-procurement will not automatically lead to higher levels of efficiency or contract and system compliance.

#### **2.4.2 Efficiency**

Efficiency measures the usage of resources during a process (Gardenal, 2013). E-procurement impacts efficiency in the following ways;



## Lead or Cycle Times

Effective deployment of e-procurement results in reduced cycle times (Aberdeen Group, 2005). Osei-Owusu (2013) in his study on assessing the role of e-procurement on supply chain management in a mining area discovered reduced delivery and ordering times and efficiency in the procurement process as some of the benefits of e-procurement to AngloGold Ashanti Iduapriem Limited in Ghana. Study findings of Shalle *et al* (2013) on the role of e-procurement strategy in enhancing procurement performance in state corporations in Kenya included amongst others a reduction in time and effort required to complete purchasing transactions as a result of using an e-procurement software system.

Trkman and McCormark (2010) in estimating the benefits and risks of implementing e-procurement noted a reduction in lead time in their findings of six companies studied.

Gardenal (2013) in proposing a practical and customizable model to measure e-procurement impacts on organizational performance included efficiency as one of the impact dimension in his framework. Here the indicator for efficiency was a reduced procedure lead time. He noted that e-procurement impacts efficiency by allowing employees to achieve at least the same results of a traditional “paper-based” procedure but with less time as a result of the automation of certain activities.

MacManus (2002) reiterates time and money savings (efficiency) as the biggest reasons for the rush for e-procurement implementation. She notes that forty-three percent of respondents of a Forrester Research Inc. survey of thirty-five state and local government purchasing directors experienced quicker response or turnaround time as a result of e-procurement deployment.

## **Volume of Paper Work and Repetitious Procedures**

Deployment of e-procurement has an impact on paperwork. Neef (2001) suggested less paperwork and fewer repetitious administrative procedures as one of the potential benefits of e-procurement.

The model to measure e-procurement impacts on organizational performance developed by Gardenal (2013) includes dematerialization as an impact dimension using reduced paper consumption as the metric for this impact dimension. He notes that though the volume of consumed paper is usually not considered relevant when evaluating a procurement procedure, an enormous volume of documents and bundles pile up in most contracting authority offices resulting in an increase in archiving cost. He continued that e-procurement could completely cut down paper usage as a result of the substitutive document retention in e-procurement platforms, use of digital signatures, certified mails amongst others. He further asserts the environmental and financial values of dematerialization to reduced paper usage and reduced archiving cost respectively.

Study findings of Shalle *et al* (2013) on the role of e-Procurement strategy in enhancing procurement performance in state corporations in Kenya also indicated that e-procurement service level significantly reduces paperwork and increases productivity of clerical staff.

Parida and Sophonthummapharn (2008) also note increase in process efficiency as a result of e-procurement deployment through reduced paperwork, fewer mistakes and reduction of suppliers used for procurement.

## **Cost Savings**

Studies exploring the effects of e-procurement often cite the impact on cost reduction. E-procurement allows firms to source for supplies online enabling them to choose suppliers who provide the best value. As a result unit cost, materials procurement costs and transaction cost decrease. The advantage of the internet streamlining and automating the procurement process results in a reduction in manpower costs, administrative and paperwork costs and operating and inventory cost (Teo and Lai, 2009).

Operational and cost efficiency are perceived as the primary advantage of e-procurement. Scholars assert the employment of tools such as e-notice, e-auction, e-catalogue, e-dossier, e-submission and e-signatures reduces costs and improves buyer-vendor relationships whilst web-based purchasing offers a capability to reduce transaction costs (McCue and Roman, 2012).

E-Procurement is noted to promote competitiveness and ensure higher level of supplier participation in tendering procedures, allow increased discounts because it makes it possible to access larger markets and make use of advanced instruments for negotiations such as e-auctions (Gardenal, 2013). Trkman and McCormark (2010) mentions increase in a firm's competitiveness as a benefit of e-procurement implementation through reduction in; purchasing transaction cost, order fulfillment and cycle times, number of suppliers, bid prices and administrative staff to support the transactions. Compliance is also closely linked to prices as it enforces negotiated pricing levels. Price reductions from suppliers are one of the principal targets in the adoption of e-procurement systems. In a study of Australian organizations, Williams and Hardy (2007) identified that the most important factor for buyers in e-procurement adoption was reduction of prices. The study by Tanner *et al* (2008) found that reduction in purchasing price was the highest priority among twelve cited goals for e-procurement adoption. Smart (2010) in his propositions

from his industrial case study findings on the impact of e-procurement on supply management noted that whilst successful e-procurement projects focus on creating spend leverage with a smaller supply base, reverse auctions are used principally as mechanisms to specifically drive price reduction.

McIntosh and Sloan (2001) also notes a reduced transaction cost as an efficiency benefit of e-procurement deployment which provides immediate cost savings that are relatively easy to document.

Whilst the body of literature suggests cost reduction as prime benefit of e-procurement, respondents of Croom and Brandon-Jones (2005) in their study into the key lessons learned from e-procurement implementation across a range of UK public sector organizations reported significant difficulties in clearly identifying process savings. However, the only one respondent who had validated its process cost savings at the time of the study reported a cost savings of approximately two-thirds on the process cost (that is a reduction of cost per order from £60 prior to e-procurement implementation to £17 after e-procurement implementation).

Salkute and Manager (2013) argued that tangible cost benefits are the drivers for companies to implement e-procurement solution and justified this assertion by the identification of tangible cost savings by all their research respondents as the main motivator for them to implement e-procurement.

Osei-Owusu (2013) also reported less labour or clerical cost and lower transaction cost as some of the benefits of e-procurement to AngloGold Ashanti Iduapriem Limited in Ghana in his study on role of e-procurement on supply chain management in a mining area.

## **Personnel Efforts and Time to Concentrate on Core Roles**

Gardenal (2013) notes that whilst e-procurement is expected to free up more time for contracting personnel to study more precise documentations and strategies, a driver of personnel effectiveness is being able to achieve the same goals while minimizing the effort required by the human resource. Shalle *et al* (2013) notes an increase in productivity of clerical staff as a result of e-procurement implementation. E-Procurement improves procurement personnel efficiency (Smart, 2010).

### **2.4.3 Communication**

Developing e-commerce technologies have a considerable impact on patterns of communication between supply chain members (McIvor *et al.*, 2003). According to Ageshin (2001), e-procurement leads to extensive information sharing and quicker information flows across the supply chain. Similarly, McIvor and Humphreys (2004) reiterates that web technology can improve the communication flow in the supply chain as it facilitates information exchange between trading partners. Carr and Smelter (2002) found that interaction frequency increased as IT improved ease of communication. In a study of e-procurement in public sector organizations in the UK, Croom and Brandon-Jones (2007) found that increases in communication between customers and suppliers assisted knowledge sharing.

### **2.4.4 Transparency**

Internet based purchasing creates absolutely different economics characterized by price transparency (Ageshin, 2001). Croom and Brandon-Jones (2007) concluded in their study on the impact of e-procurement in UK public sector by attributing price reductions accrued as a result of e-procurement implementation to increased compliance, management information, demand aggregation, increased leverage as well as increased



visibility. Osei-Owusu (2013) further reported transparency and efficiency as benefits of e-procurement to AngloGold Ashanti Iduapriem Limited in Ghana. The benefits of e-procurement cited by Trkman and McCormark (2010) include collaborative and transparency in reducing inventory levels and lead times. Salkute and Manager (2013) assert that e-procurement increases transparency in processes.

## **2.5 E-PROCUREMENT MODELS**

E-procurement models are differentiated based on the application and functions of the amalgamated sales and purchasing business models making up the e-procurement. Parida and Sophonthummapharn, (2008) identify three model applications of e-procurement as;

- The buy-side procurement – This refers to an organization using electronic means to purchase goods and services from contracted suppliers who also use e-procurement systems for managing all processes relating to the purchase. This model is generally driven by the specific requirements of the buying organizations and it is used extensively in business to employees (B2E) applications.
- Sell Side Procurement – This model is used to describe one supplier selling to a number of buying organizations using electronic systems such as e-procurement systems and e-commerce technology. This model is used extensively in business to consumers (B2C). This model attracts big supplier firms that have a stronger position in relationship with their buyers.
- E-Marketplace and Trading Hubs – This is a combination of industry consortium and trading exchanges. According to Jonsson (2008, pp.417) , an electronic marketplace or exchange is ‘an internet based solution which enables purchasing and selling activities between companies and other companies’ and which

‘operates as a hub, around which one or more purchasers and one or more vendors collect to exchange information and do business’.

An electronic marketplace must take into consideration the needs and conditions of the buyers and sellers and may mean sellers uploading product catalogue information to an exchange and buyers searching the site to identify products to buy and complete the purchase. Exchanges also enable identification of possible suppliers, execution of tendering and closing of business deals. There are two classifications of electronic market place namely; the vertical and horizontal marketplaces. A vertical marketplace co-ordinates and permits the exchange of information and transactions between numerous sellers and buyers from the same industry. A horizontal marketplace on the other hand focuses on co-ordination of buyers and sellers from different industries aiming primarily at decreasing total costs for purchasing commodities, indirect materials and services (Jonsson, 2008). The most popular e-marketplace function is auctions (Parida and Sophonthummapharn, 2008).

Chandrashekar *et al* (2007) defines an auction as a mechanism used to allocate a set of goods to a set of bidders and identifies four types of auctions namely;

- i. Open cry or English auction
- ii. Dutch auction
- iii. First price sealed bid auction
- iv. Second price sealed bid auction also known as Vickrey auction.

The English auction is an iterative auction where the bidders submit continuous increasing bids until a price is reached and the item is awarded to the single buyer who is willing to buy the item at that final price. The Dutch auction is the

reverse of the English auction where the price is continuously decreased by the auctioneer until a buyer is ready to buy the item at the currently announced price. The common feature of the English and Dutch auction is that both are iterative in nature and price signals are consistently sent back to the bidders. The first and second price sealed bid auctions are single-round auctions where bidders submit sealed bids. Here the highest bidder wins the contract. In the first-price sealed bid auction, the winner pays the bid price itself whilst in the second-price sealed bid auction; the payment the bidder makes is the second highest bid.

Another type of auction is the reverse auction which involves one buyer and several potential sellers who make decreasing offers until the one with the lowest offer sell his goods (Jonsson, 2008).

Jonsson (2008) further distinguishes between four types of business situations of electronic marketplaces as;

- Integrated solutions – This is the business situation in which purchasing activities takes place between individual buyers and sellers. Here integrated solutions such as Electronic Data Interchange (EDI) and Electronic Data Access (EDA) are preferable. EDI means data are transferred from one computer system to another in a predefined and standardized format that the receiving system can interpret and process the information. EDI is mainly used between companies and organizations that have a regular and recurring exchange of structured information. EDA means that a company makes parts of the information contents of its Enterprise Resource Planning system accessible to its customers or sellers or suppliers. It allows customers and suppliers to store and maintain data about their own companies and products in their suppliers' and customers' systems. It also enables customers to



enter orders in the suppliers' systems and the suppliers can execute their customers' stocks.

- E-market solutions – This business situation is characterized by many buyers and sellers and it is appropriate where catalogue buying through vertical and horizontal marketplace is required.
- Sell-centric – This is the business situation in which there are numerous buyers but few sellers or vendors. Here the Normal and Dutch auctions are the most suitable as they have the aim of getting the highest possible selling price for the vendor
- Buy-centric - This is the business situation in which there are numerous sellers and few buyers. Here the reverse auction is appropriate as it pressures sellers into selling at low prices.

## **2.6 BARRIERS/CHALLENGES TO THE IMPLEMENTATION OF E-PROCUREMENT**

Resistance to change is one barrier and users' acceptance of a new system has been identified as an inevitable variable which puts at risk the success of implementing e-procurement. This is because it involves abolition hand-written procedures and replacing with computer and information technology which constitute a major change in an organization especially the procurement unit. It is worth noting that a User's perceived usefulness and ease of use of e-procurement has been found to be two specific variables which determine users' attitude towards using information technology and the use of the system itself (Pasiopoulos *et al.*, 2013).

It is also noted that procurement specialists who are dissatisfied with the technical capabilities of e-procurement systems develop strategies to “go around” the framework

resulting in what is commonly referred to as “maverick purchasing” (McCue and Roman, 2012)

In a survey of state and local government procurement professionals from the National Institute of Governmental Procurement (NIGP) to gauge the level of satisfaction with current e-procurement systems and identify the potential for increasing e-procurement benefits, McCue and Roman (2012) reported only an average of 32% of the respondents indicating they were satisfied with their e-procurement function. General dissatisfaction levels were approximately 11% while the majority of the respondents averaging about 57% indicated they were not using the e-procurement system features thus resulting in their inability to qualify their satisfaction levels across the e-procurement platforms.

## **2.7 RISKS ASSOCIATED WITH E-PROCUREMENT**

Like any typical project, implementing e-procurement comes with risks and it is prudent for firms to note this before replacing a traditional procurement system with an e-procurement system.

The Common Procurement Certification Scheme for the UN (2006) and Parida and Sophonthummapharn (2008) identify the following risks associated with implementing e-procurement;

- The risk of losing opportunities to implement strategies which improve procurement management without the need for investing in e-procurement. This is because most of the benefits known to be achieved from e-procurement could equally be attained by simple improvements in existing procurement practices. One example is the known benefit of reduction in “maverick buying” which could equally be achieved if corporate buying strategies which provide value for money are implemented

- The risk of over-investing in e-procurement tools that do not deliver the expected results and benefits. This particularly happens when enough evaluation is not done on the implications of adopting or enhancing e-procurement shield
- The risk of suppliers not co-operating with the use of e-procurement tools. E-procurement solutions need not interact only with the implementing firm's internal information system, but also need to collaborate with external constituencies which are mainly the customers and suppliers. External constituencies need to develop internal systems that facilitate the communication through electronic means which requires technology investment. For e-procurement technologies to be successful, suppliers must be accessible via the internet and must provide sufficient catalogue choices to satisfy the requirements of their customers. This risk is particularly great when 'powerful' suppliers such as 'original equipment manufacturers' insist on the traditional paper based procurement. Whilst other suppliers may genuinely not have access to affordable internet based technology which would give them the access to the e-procurement tools of the buyer, some suppliers may be hesitant to invest in this internet-based technology if there are no guarantees of future revenue streams
- Risk inherent in the uncertainty of a company having the appropriate resources to successfully implement an e-procurement solution which integrates with the company's existing information infrastructure while performing the purchasing processes. E-procurement systems and B2B electronic market solutions need to be compatible to the greatest possible extent with the existing technologies.
- Risk associated with determining which e-procurement technology best suits the needs of the Company and the possible lack of a widely accepted standard which can facilitate inter-organization e-procurement technologies. Without widely

accepted standards for coding, technical and process specifications, an e-procurement technology adoption would be slow and would result in a failure to deliver the desired benefits

- Risks associated with the security and control of the e-procurement process itself. Here, Organizations must be confident, for example, that unauthorized actions will not disrupt production or other supply chain activities when committing to e-procurement technologies. This risk is usually not a bother to large companies as they often are not concerned with security issues related with e-procurement.

## **2.8 KEYS TO E-PROCUREMENT SUCCESS**

With the influx of innovative technology-based applications to the various areas of businesses, firms must note that the simple introduction of information and communication technologies to procurement will not on its own result in cost savings (PriceWaterHouseCoopers, 2001) which has been identified as a benefit of e-procurement. This implies that certain conditions must be met or firms who desire to reap the full benefits and impact of e-procurement must be ready to undertake and invest in certain activities.

One key to e-procurement success is training. Pasiopoulos *et al* (2013) identifies employee training as a critical factor to ensure a perception of ease of use and acceptance of e-procurement as lack of knowledge creates anxiety, negative attitude and resistance to use e-procurement technology.

According to Trkman and McCormark (2010), properly improving existing traditional methods of working or business process before automating or supporting with e-procurement solution and further continuously measuring and analyzing the processes by

defining and implementing performance measures and key performance indicators is one sure way to realize the benefits of e-procurement.

The Aberdeen Group (2001) found out in their research on e-procurement solution vendors that the most successful e-procurement deployments had the following ten characteristics;

- E-procurement was not viewed as a strategy itself instead the technology of e-procurement was used to support a larger procurement strategy.
- Companies understand how much they spend on which products and with which suppliers prior to launching any e-procurement initiative. This preliminary spending analysis is capable of identifying opportunities for improving contract compliance, aggregating spending, rationalizing the supply base and determining the most effective method of rolling out e-procurement.
- A company must have a comprehensive plan for deployment as well as clearly defining goals and milestones for continued improvement and success before installing the first bite of e-procurement
- Companies began by mapping their internal process flows to identify non-value added processes that need to be reconfigured or eliminated prior to deploying e-procurement.
- E-procurement is driven from the top – “c-level” executives. As e-procurement affects every aspect of the business and requires change management, top level management would need to be chief advocates.
- Programs for training to ensure user adoption
- Designating a champion either from the IT or purchasing department whose responsibilities included driving system deployment and adoption, measuring



results, communicating successes and repairing glitches. This champion receives incentives based on the systems success or adoption.

- Supplier participation requires a “carrot and stick approach”- using a mix of supplier incentives and demands. Here since supplier buy-in can be very challenging, specific strategies such as educating suppliers on the value of e-procurement, providing tools and services for easing participation as well as creating penalties for non-participating suppliers. The penalties could range from charging suppliers a fee for continuing to exchange documents via fax to limiting the volume of business awarded to noncompliant suppliers.
- The areas of spending that could return the biggest benefits and savings in the shortest amount of time is first identified and started with to demonstrate the value of e-procurement to frontline employees and top-level executives and external supplier partners.
- User adoption, contract compliance, process improvements, cost savings and supplier performance are monitored, measured and used as to identify areas for improvement or process realignment.

Then again, the Aberdeen Group (2005) identified the following key strategies used by companies that have achieved best practice status in e-procurement;

- Top management support is solicited to help drive the e-procurement system compliance. These companies also ensure sufficient funding and resources are made available for supporting the system
- focus of ease of use to improve end users’ acceptance of the system
- Change management is not underestimated. They noted that insufficient focus on change management has held back acceptance of many e-procurement systems



- Making sure processes are efficient before applying automated changes
- Metrics for measuring costs, process efficiency and performance of e-procurement technologies and processes are clearly defined and reinforced. Where possible incentives for both procurement and business units are linked to these metrics.

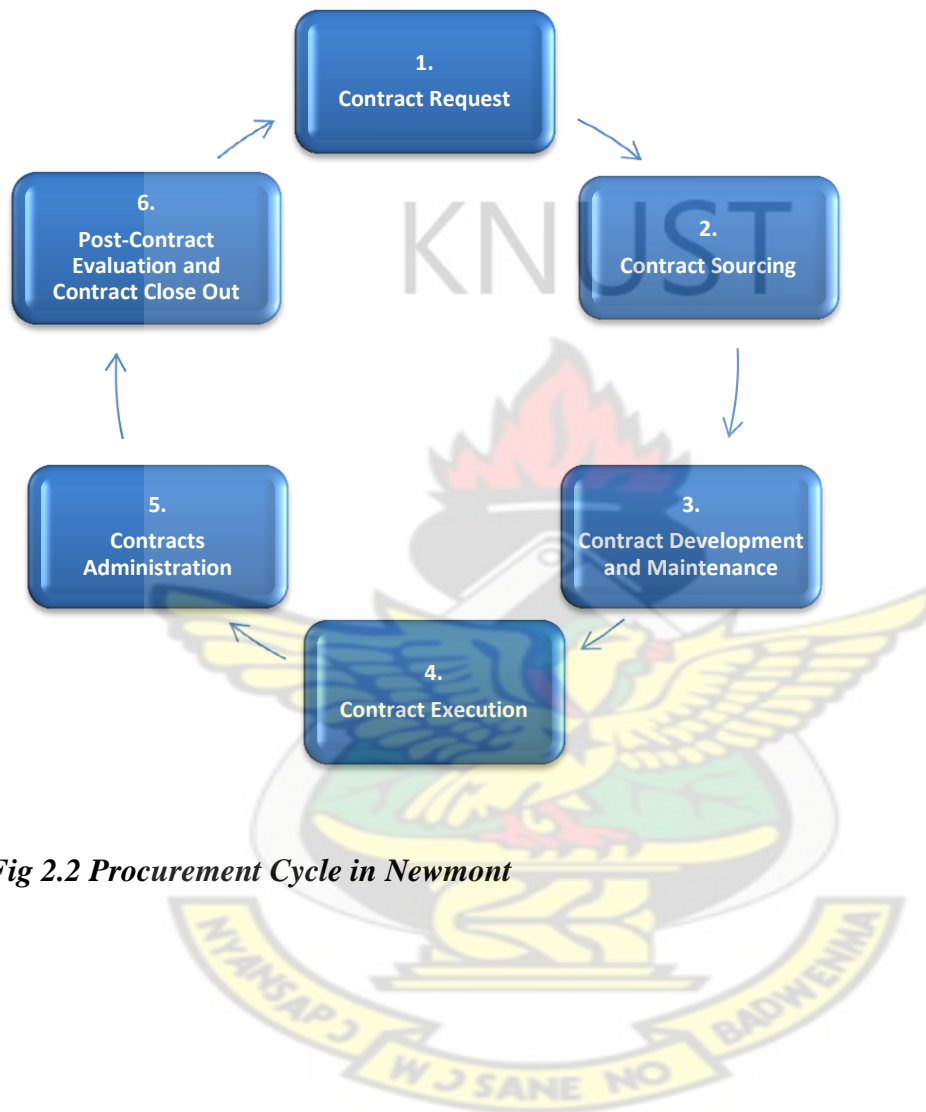
## **2.9 PROCUREMENT IN NEWMONT GHANA GOLD LIMITED**

### **2.9.1 Meaning of Common Terminologies**

- A “contract” includes any agreement made by or on behalf of Newmont Ghana Gold Limited in which legally binding or non-binding commitment are made by and/or to Newmont Ghana Gold Limited.
- “Services” mean all work and services that a Contractor is obligated to perform or provide under the terms of an Agreement or contract. Types of Services include but not limited to; design and engineering services, technical services, management, professional and consulting services, construction services and freight services.
- Sole Source Justification - An explanation for award of a contract to one vendor, waiving competitive tendering processes for some justified reasons such as being the best option or only available vendor capable of providing the goods or services. All goods and services must be competitively bid through Contracts unless a sole source can be justified and is approved by the Contracts Manager and site leadership
- A Risk Assessment is the initial step where the safety implications of a proposed contracted job are identified and categorized. Risk assessment includes the description of the work, identifying the associated risks, ranking the risks based on

the consequence and likelihood, developing intended control measures and response plans. Risk assessments are done prior to completion of contract request.

### 2.9.2 Newmont Procurement Cycle and Process Scope



***Fig 2.2 Procurement Cycle in Newmont***

The detail of the procurement cycle in Figure 2.2 is summarized in the procurement process scope in below;

***Table 2.1 Summary of Newmont Procurement Cycle Details***

Procurement Cycle		
Item	Process Name	Detailed Description of Process Stage
01	Contract Requests	The Contract Request process includes the preparation of scope, initiation, risk assessment of the proposed service, justification of sole source where sole source is requested, review and approval of the request. Services worth US\$25,000.00 and more require contract request. Services worth less than US\$25,000.00 but with high risk require contract request.
02	Contract Sourcing	Sourcing for Services includes the following process requirements; Establishing and maintaining a prospective contractor Register; Determining the sourcing approach (RFP or RFQ) for Services; Preparing a qualified bidders list for Services; Preparing services RFP or RFQ Bid Package; Soliciting proposals via competitive bid or sole source for Services; Evaluating proposals, negotiation and recommending award (bid and sole source)
03	Contract Development and Maintenance	This includes accelerating the agreement writing process to meet the varying services requirements.
04	Contract Execution	This includes ensuring that all agreements are executed in accordance with Newmont procedure requirements.
05	Contracts Administration	This includes maintaining good written records of contractual activities, events, and work progress needed to be formally administered per agreement terms and conditions.
06	Post Contract Evaluation and Contracts Close-Out	This includes undertaking a post-contract evaluation and completing a formal contract close-out process upon suitable completion, expiration, or termination of the services under an agreement or contract in consultation with the User, which finalizes all technical, administrative, and financial matters in relation to the agreement.

### 2.9.3 Roles and Responsibilities

The following are the roles and responsibilities in relation to the procurement of Services in Newmont;

**Contracts Department** - The Contracts Department acts as a service group providing support and control in relation to proper contract bidding, negotiating, preparation, management and administration for the procurement of Services and certain major purchases to all areas of Newmont Ghana operations by considering risks including maximizing the use of local Ghanaian resources, complying with Ghana Government regulations and Contract of Work provisions.

**Contract Administrator or Buyer** is a person in the contracting department who is responsible for ensuring that all obligations under the contract are being fulfilled, including milestones, timelines and service levels. Other responsibilities of the Contract Administrator include; ensuring all approvals have been obtained prior to contract execution, communicating with the contractors throughout the life of the contract, monitoring progress towards end result and ensuring financial obligations are met.

**End-User or Owner Department** is the group requiring and therefore requesting for the service.

**End User or Contract Owner** - An employee who has a requirement for and initiates a Contract Request Form (CRF) or Service Order for the appointment of a Contractor. A Contract Owner develops the scope of work and is responsible for the contract.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

This chapter focuses on the methodology used to establish the impact of e-procurement on the procurement practice. Here, emphasis is on the research design, sources of data chosen and the means of gathering the data. It also talks about the population, the sample and sampling techniques and the justification of the sample for the study. This chapter basically covers the methodology and methods used in the study.

#### **3.2 RESEARCH DESIGN**

The research design for the study refers to the overall strategy chosen to integrate the different components of the study in a coherent and logical manner, thus ensuring that the study effectively addresses the research problem; it basically constitutes the scheme for the collection, measurement, and analysis of data.

The case study design was selected for this research to address the practical issues at stake concerning the use of e-procurement in Newmont Ghana Gold Limited in order to establish its impact. This design was chosen because case studies allows in depth exploration of a program, an event, an activity, process or one or more individual (Creswell,2003). A case study is a valuable method when investigating contemporary phenomena in their real, industrial and commercial context (Smart, 2008).

Case studies also allow investigations preserve complete and meaningful characteristics or real life events and are particularly suitable for new or developing areas of practice where knowledge of the phenomenon is limited or not well documented (Yin, 1994). According to Smart (2009) , case histories can illustrate the real impact of technologies



such as e-procurement and define in depth and context the nature of decisions made and achievements experienced by the firms examined.

With the purpose of this research which is to establish the impact of e-procurement on Newmont's procurement practice, this research is also an exploratory study of the newly-implemented and much talked e-procurement technology in Newmont.

### **3.3 RESEARCH APPROACH**

Creswell (2003) identifies three research approaches namely; Quantitative, Qualitative and Mixed Methods and differentiates them as per the below;

- Quantitative Approach - this approach involves primarily using post positive assertions for developing knowledge; that is cause and effect thinking, narrowing to specific variables, hypotheses and questions, using measurement and observation etc. Common strategies of enquiry used in quantitative approach are experiments and surveys and collecting data on preset instruments that produces statistics data.
- Qualitative Approach – this approach involves making knowledge assertions primarily on constructivist perspectives; that is the various meanings of individual experiences (either socially or historically constructed) with the intention of developing a theory or pattern or advocacy/participatory perspectives; that is political, issue-oriented, collaborative or change oriented or both perspectives. Common strategies of enquiry used in qualitative approach include narratives, ethnographies, phenomenology, grounded theory studies or case studies. Here the idea is to develop themes from data collected.
- Mixed Methods - this approach involves basing knowledge assertions on realistic grounds; example consequence oriented or problem centered. Here, strategies of



inquiry that involves collecting data simultaneously or sequentially are used to ensure a better understanding of the research problem. Numeric and text information data is collected to ensure a representation of both qualitative and quantitative in the final database.

From the above explanation, using either the qualitative or quantitative research approaches exclusively would not be appropriate in achieving the objectives of this study. Both quantitative and qualitative approaches would be used to as this would be the appropriate to achieve the research objectives and consequently the aim of the study.

### **3.4 POPULATION**

Defining the population of a study is a vital part of every research. The particular group (s) of interest in a study is referred to as the study population. The study population refers to all the members of a defined class of people, objects, places or events selected because they are relevant to your research question. A study population may also consist of villages, institutions, or records among others.

The population for determining the impact of e-procurement on Newmont's procurement practice included; End Users from End-User Departments and Contract Administrators (Buyers) in Newmont who had used both Newmont's old and new procurement system. Population for identifying Newmont's old procurement practice and new e-procurement system was the organization's Supply Chain Subject Matter Expert.

Population for End Users was determined through a review of all contract requests that had been raised in the web-based system for Newmont Ghana Gold Limited (e-sourcing portal) to determine the person who raised it and the approvers. This resulted in a total number of eighty-one (81) end users who were still in the Organization. This number was then reviewed to determine end users and approvers in Ahafo as the study was

geographically limited to the Ahafo Site. This resulted in a reduction to total number of seventy – two (72). Two approaches were used to determine end users who had raised contract request in the previous procurement practice; Calls were made to end-users who the researcher was not sure had raised contract requests during the old procurement practice and asking their colleague end users in the same department with these end-users. This resulted in a further reduction to a total population of sixty-three (63).

Buyers for services currently in Newmont are four including the researcher. All buyers had used the Newmont's old procurement system prior to the implementation of e-procurement. The population for Buyers was therefore three (3) as the researcher could not be part of the population.

### **3.5 SAMPLE**

For the first stage of the research, the entire population of sixty-six (66) was taken as the sample. All sixty-three (63) End-Users and three (3) Buyers who had used both the old procurement system and the new e-procurement system were considered the sample. This was because the researcher found the population size too small to be further reduced.

For the second stage of the research, twenty-nine (29) key end-users out of the forty-four (44) respondents for the first stage of the research data collection were selected. These key end-users were end users who had raised contract request more than three times, often raised contract request and were ready to grant the researcher an interview to complete the questionnaire at the second stage. Majority of these key end-users were from the mining (surface, underground and mine maintenance), operations and support services, processing departments and the sustainability and external relations departments. Here at the second stage all three (3) buyers were considered.

### **3.6 SAMPLING TECHNIQUE**

The census method was used for the first stage of data collection from the end-users and buyers. This method was also used to collect data on how the end-users and buyers assessed the impact of the identified impact themes by ranking from 6 to 1 in descending order to indicate which impact theme in their opinion had been more impacted than the order

The purposive sampling method was used to select the key end-users at the second stage of the data collection. This was because the researcher sought to get end –users who had experience using the system and not novices.

With a buyer population of three (3), the census method was used to select all buyers for the second stage of the data collection.

### **3.7 DATA COLLECTION**

#### **3.7.1 Sources of Data**

The study made use of both primary and secondary data. The explanation below gives details;

#### **3.7.2 Primary Data**

Primary source of data involved information gathered from the Newmont's End-Users and Buyers on their experiences using Newmont's old procurement practice and system and the new e-procurement system in relation to the following six defined impact themes ; compliance, transparency, efficiency, communication, record keeping and, planning and forecasting. Information on challenges they faced in Newmont's old procurement system as well as challenges they are confronted with in using the e-procurement system was also gathered.

Newmont's Supply Chain Subject Matter Expert was also contacted to provide information on Newmont's old procurement practice and its challenges, the e-procurement system used in Newmont and its perceived impact.

### **3.7.3 Secondary Data**

Documentation review or desk study was used to gather information on the various templates used for procurement in Newmont both previously and currently used.

Existing information on possible areas of e-procurement impact was also collected from literature review. This identified four main e-procurement impact themes namely compliance, communication, transparency and efficiency. Variables were identified to form the framework for each impact theme. Framework for compliance included two variables namely effect on maverick spending and compliance with procurement processes. Framework for efficiency included four variables namely effect on; paperwork and repetitious administrative procedures; lead or cycle times; cost savings; and user efforts to achieve same results and time to concentrate on core activities. Framework for communication included speed in information flow and ease in information flow.

### **3.7.4 Method of Data Collection and Tools**

The Supply Chain Subject Matter Expert of Newmont was granted an interview to identify; the procurement practice and system of Newmont prior to the implementation of e-procurement and its challenges and reasons for change, the e-procurement system used in Newmont and Newmont's perceived impact of using e-procurement.

In addition to the literature review which led to the identification of the following four impact themes of e-procurement namely; transparency, communication, efficiency and compliance, Interviews were granted to other stakeholders which led to the identification

of two additional impact themes namely; planning and forecasting as well as record keeping and ease in retrieval of documents. These two additional impact themes were added to the four main impact themes identified by the researcher in her literature review thus summing up to six impact themes for the study.

Questionnaires were mailed to End-Users and Buyers during the first stage of the data collection from them. The essence of this first set of questionnaires was for the End-Users and Buyers to express their views on which impact theme identified by the researcher which had been most impacted and least impacted by simply ranking in descending order from 6 to 1. 6 being the most impacted and 1 being the least impacted (copy of questionnaire attached in Appendix D).

Personal face-to-face as well as telephone interviews were granted with the key end-users identified by the researcher and the buyers to complete questionnaires at the second stage of the data collection even though interviews is known to be time consuming and requires specialized skill, it is known to be very effective for obtaining relevant information (Merriam, 2009).

The essence of the interview and questionnaires was to determine if there had been an impact on the impact theme identified by the researcher, and if there had been an impact to determine if it was a negative or positive impact and to understand the respondents' reasons for selecting a particular answer in order to understand how the implementation of e-procurement had impacted Newmont's procurement practice in relation to the identified impact themes. This was also done to identify other impact themes not identified by the researcher, challenges faced by end-users and buyers in using e-procurement in Newmont including suggested solutions, challenges they faced during



Newmont's old procurement system and to identify which challenges remain unsolved after the implementation of e-procurement.

The six impact themes were operationalized into questions depending on the respondent as follows including other general questions to explore other impact themes not identified;

***Table 3.1 Distribution of questions for second stage questionnaires***

<b>Impact Theme</b>	<b>End-User</b>	<b>Buyer</b>
Compliance	2	3
Transparency	1	1
Efficiency	9	18
Communication	2	2
Planning and Forecasting	1	1
Record Keeping	2	2

### **3.8 DATA ANALYSIS**

For the study, both quantitative and qualitative methods were employed in the data analysis. Subjective discussions according to the impact themes and excel were used for data entry and analysis. Relative Importance Index was used for the quantitative analysis as well as simple percentages. Other quantitative statistical models such as bar chart, pie chart, frequency distributions, tables and figures were used where necessary to illustrate the results of the study.

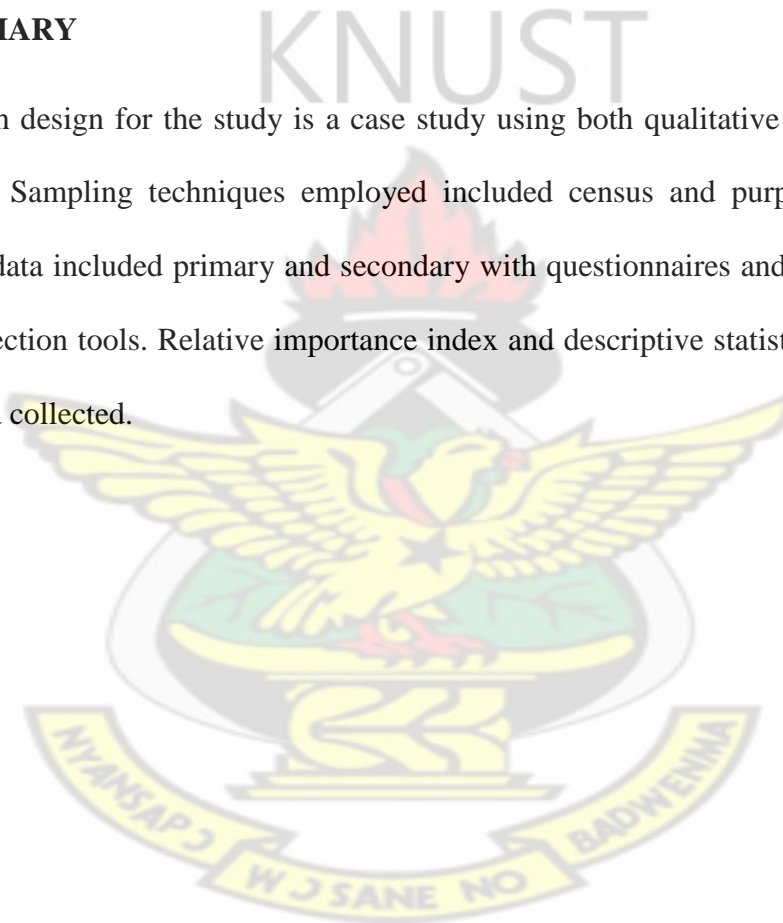


### **3.9 RESEARCH ETHICS**

Ethical issues relating to confidentiality, informed consent and respect for respondents were adhered to in this study. Respondents' consent was sought before interviews were conducted. Secondly, respondents were assured of the confidentiality of their responses as responses will not be used for any other purpose other than report the findings in this academic work.

### **3.10 SUMMARY**

The research design for the study is a case study using both qualitative and quantitative approaches. Sampling techniques employed included census and purposive sampling. Sources of data included primary and secondary with questionnaires and interviews used as data collection tools. Relative importance index and descriptive statistics were used to analyze data collected.



## **CHAPTER FOUR**

### **DATA PRESENTATION, DISCUSSION AND ANALYSIS**

#### **4.1 INTRODUCTION**

This chapter is a presentation of the results of the data, discussion and analysis of the results and the major findings that were discovered from the analysis.

##### **4.1.1 Sample Data Characteristics**

An interview with organization's supply chain subject matter expert was granted to identify the organization's procurement practice prior to e-procurement, the identified challenges with the old procurement practice, how e-procurement is deployed in the organization and its perceived impacts.

For the first stage of data collection from the end-users and buyers where the identified impact themes were ranked from most impacted to least impacted, a total of forty-seven (47) responses were obtained out of 66 questionnaires that were sent out representing a high response rate of 71.21%. This high response rate authenticates the study and makes its findings reliable as such high response rate was out of the entire population (census). Out the forty-seven (47) responses, forty-four (44) were from end-users and three (3) were from buyers (contract administrators).

For the second stage of the data collection where interviews were conducted to complete questionnaires, out of thirty-two (32) (29 end users and 3 buyers) targeted interviews, twenty-five (25) were granted and questionnaires completed representing a high rate of 78.13%. This is also impressive and further validates the findings of the study. Out of the twenty-five (25) granted interviews and completed questionnaires, twenty-two (22) were end-users and three (3) were buyers.

## **4.2 RESULT AND DISCUSSION ACCORDING TO RESEARCH**

### **OBJECTIVES**

The results and discussions on the various research objectives and questions of the study are presented under this section. The section is further divided into four sections with each section presenting the result and discussing a single research objective.

#### **4.2.1 Section A - Procurement Practice of Newmont prior to E-Procurement**

##### **Implementation and its Challenges**

Newmont's old procurement practice has been discussed below according to Newmont's procurement cycle. Prior to e-procurement implementation, procurement was basically manual paper-based with some procurement functions executed electronically through buyers' use of emails as per below;

**Contract Request Phase** - Contract request were raised by end-users or owners by printing and completing the following mandatory document controlled forms for all contract request; Request for Contract Form and Risk Assessment Forms. Another document controlled form known as the Sole-Source Justification Form was mandatory to be completed by End-Users who suggested the required service to be sole sourced to a particular contractor instead of bidding competitively. Buyers who did not conduct a competitive bid process for such services were also required to complete such forms. Templates of these forms were saved on the Company's shared drive with access granted to all senior staff. For a contract request to be considered duly completed by the End-User or Owner, a detailed scope had to be developed by the End-User or Owner, the Request for Contract Form had to be stamped and signed as a way of approval by someone in the User Department whose financial authority was not less than the value of the service

required, the Risk Assessment Form also had to be completed as well as the Sole Source Justification Form where necessary.

End-Users or Owners walked to deliver these hard copy completed forms to the Contracts department specifically to Contract Administrators or scanned these documents and sent by mail to Contract Administrators.

**Contract Sourcing** – Contract Sourcing was undertaken manually and sometimes electronically through emails. Newmont's procurement sourcing templates were saved on the Company's shared drive with access only to personnel of the Contracts Department. One email address existed for all bid responses to be sent to.

Contract Administrators identified prospective bidders for contract request from the Company's Contractor Register or general public market. On competitive bidding, two options were available to Contract Administrators; either Request for Quotation (RFQ) or Request for Proposals (RFP). Once Contract Administrators finished preparing the RFQ or RFP packages, the package was sent by mail from the contract administrators to the bidders. Follow up calls were made to bidders to confirm receipt of bid packages and bidders who reported not having received bid documents were invited to receive printed hard copy bid documents. In responses, bidders' response proposals or quotes were sent by mail to the Newmont's email address created for bidding purposes as well as identical hard copy proposals sent by bidders to Newmont's Office.

On bid closing, the email address was accessed and bids received downloaded and evaluated by an evaluation panel made up of the responsible Contract Administrator and sometimes other contractor administrators, End-User or Owner and on some occasions representatives from the Finance, Health, Safety and Loss Prevention and Sustainability and External Relations Departments for big value contracts. Contract award letters and

notices of unsuccessful bidding were sent by mail to successful bidders and unsuccessful bidders respectfully. Hard copy letters were sent on rare occasions.

**Contract Development and Maintenance** – Standard contract templates were saved on the company's shared drive. Contracts drafted by Contract Administrators were then saved in folders created for each contract on the shared drive. Completed drafted contracts were sent to the respective contractors by Contract Administrators through emails. Contractors who found it difficult accessing emails had their contracts printed for them by the responsible Contract Administrator.

**Contract Execution** – Contractors signed agreements and either sent scanned copies of the signed agreement by mail or delivered hard copy signed agreement to the Contract Administrator in the Newmont Office. Such signed agreement was forwarded to Newmont's Contracts Manager for completion of execution. The duly executed signed agreement was scanned and saved in the appropriate contract folder on the Company's shared drive by the Contract Administrator and a hard copy of the executed agreement sent to the contractor or scanned soft copy forwarded to the Contractor by mail.

**Contract Administration** – All records including claims and disputes as well as correspondences pertaining to a particular agreement were stored in the respective contract folder saved on the Company's shared drive. Contract Change Orders and variations were initiated with the same contract request procedure explained above. These Change Orders and Variations were also saved in the same folders as the main agreement on the shared drive. Contractor invoices were submitted to end-users for approval by way of stamping and signing by someone with adequate financial authority in the end-user department. Such approved invoices were sent to the Contracts Department for receipt in



an application tool in an Enterprise Asset Management (EAM) suite known as Mincom Ellipse used at the time for invoices receipt.

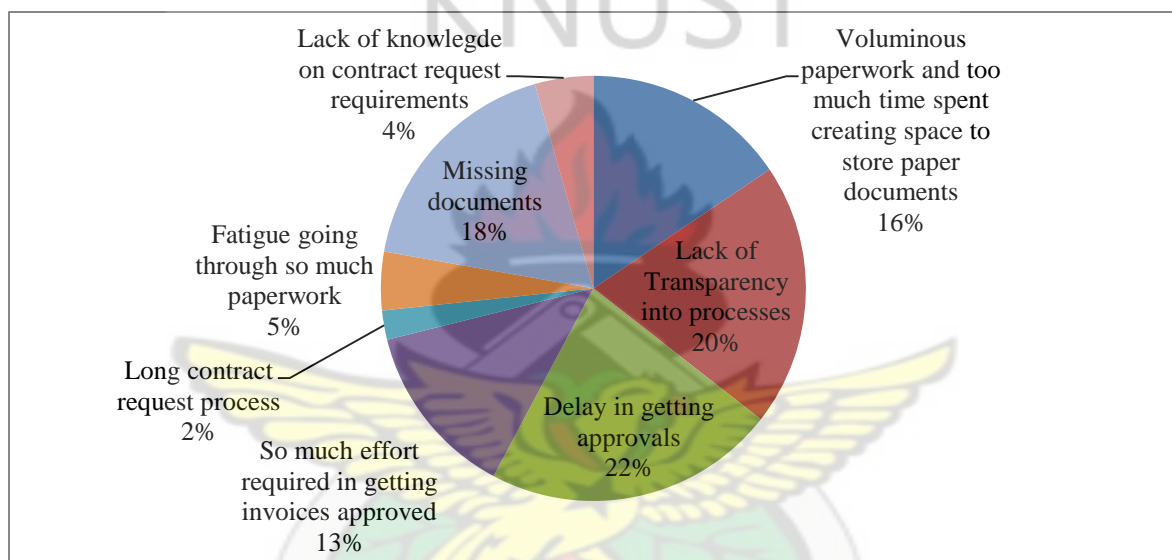
**Contract Close Out** – On expiration or termination of the Agreement, all outstanding payments due the Contractor was paid to the Contractor and a Contractor Release Form was sent to the contractor either through email or printed hard copy for signing to close out the Agreement.

The challenges of this procurement practice were identified by the Organization as;

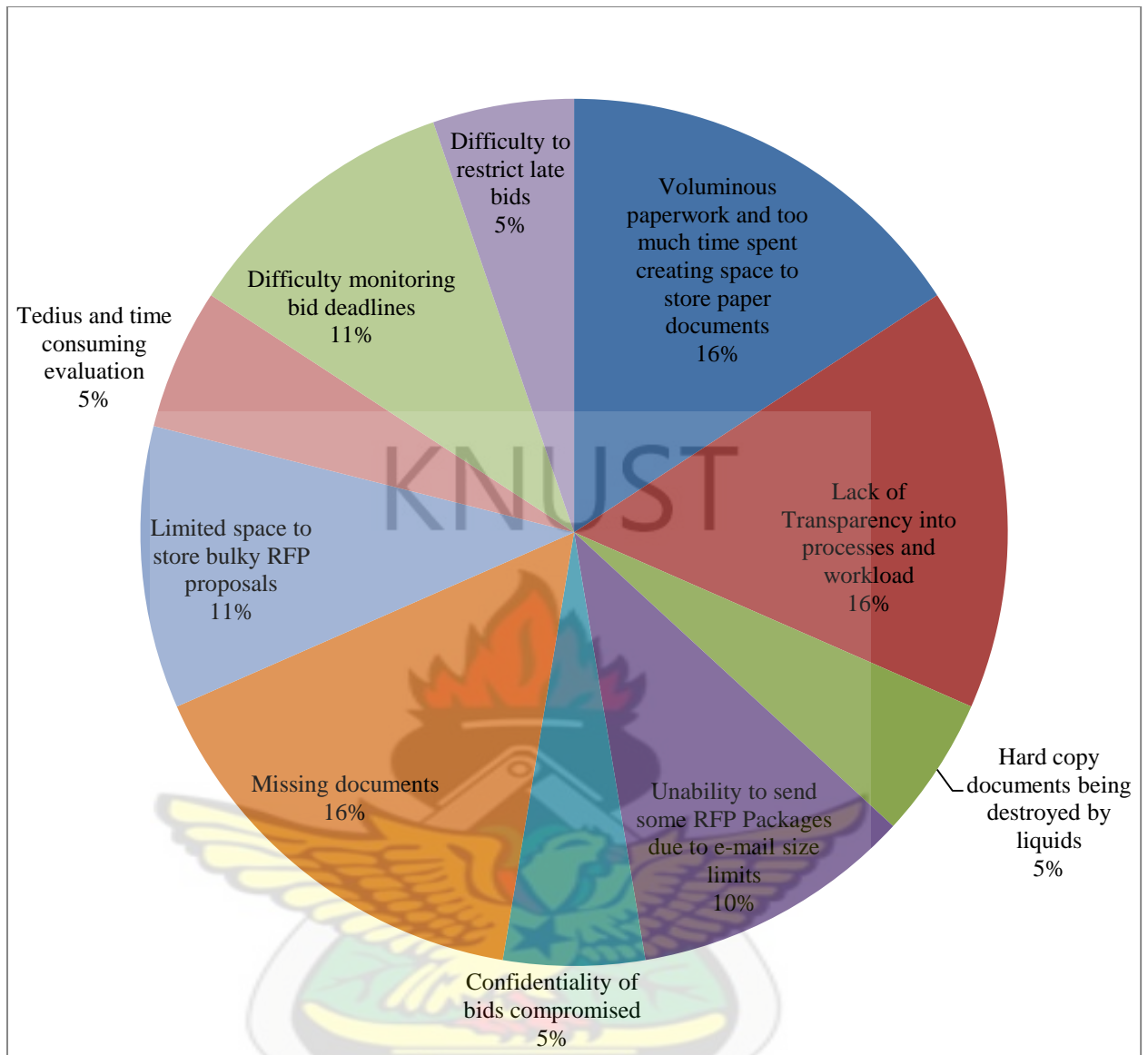
- 1. Lack of Transparency and Poor Compliance** – The manual process and the absence of an Enterprise Resource Planning (ERP) process for requesting for services posed a challenge. It resulted in no transparency into processes and work load as well as issues with end-user compliance in raising request as standards for data input were not enforced.
- 2. Lost Opportunities for Cost Savings due to Manual Contract Sourcing** – The challenge identified with contract sourcing was the inability to electronically bid, evaluate and award service contracts. This challenge was noted to inhibit opportunities for cost savings.
- 3. Lack of Standardization in Contract Administration Processes** – The challenge here was the existence of different processes for administration activities across the various Newmont sites and regions. This was noted limited Newmont's ability to control contract activities across the various Newmont sites and regions.
- 4. Contract Spend Visibility** – It was noted that the old procurement practice described above did not provide visibility into how much was spent on services globally by all the Newmont Sites and Regions.



Whereas the above were the challenges of the old procurement practice identified by the organization, the challenges of the old procurement practice identified by the End-Users and Buyers were different though some were identical to that of the organization. The challenges of the old procurement practice as identified by End-Users and Buyers are graphically shown in the pie charts below; (Refer to Appendix B, Table 6.1 - End-User challenges of old procurement system and Table 6.3- Buyer challenges of old procurement system for data collected)



***Fig. 4.1 Problems confronting End-Users in Newmont's old procurement practice***



**Fig 4.2 Problems confronting Buyers in Newmont's old procurement practice**

## Discussion

**Lack of Transparency** - From the above, lack of transparency into processes and workload was the only problem of the old procurement practice identified by all parties; the organization, end-users and buyers. For the end-user, this was second commonest problem of the manual procurement practice and it resulted in double payment to contractors as there was no visibility into invoices already approved by the same End-User Department. One invoice could be approved by anybody in the End-User

Department once he had the financial authority to approve the invoice amount. For Buyers, lack of transparency was the most prevalent problem of the manual procurement practice. The lack of transparency resulted in the work load of one contract administrators remaining a mystery to other contract administrator and difficulties in tracking all contract requests.

**Delay in getting Approvals** - Whilst for the end user, the most prevalent problem prior to e-procurement implementation was delay in getting approvals for contract request and invoices, this was not a problem to the organization and the buyers.

**Missing Documents** - To the End-Users, the third commonest problem was a document getting missing. This was the most predominant problem to buyers but was not a problem identified by the organization. Contract requests forms and invoices were getting missing as they changed hands for approval from one end-user to another as well as being stored with other documents. Contract request also sent to buyers got lost. This resulted in difficulty keeping trails of records.

**Paperwork** – Whilst with End-Users the fourth commonest problem was the huge volume of paperwork and man-hours needed to store such hard copy documents and later search them up through the pile of documents anytime they were needed, this problem was also identified by all buyers contrary to it not being identified by the Company.

**Huge Efforts** - Next, was the huge efforts required by end-users to get invoices stamped and approved by approvers with sufficient financial authority. This required a lot of walking, follow up mails and calls to the responsible approvers.

**Fatigue** – whilst fatigue placed last to the least by end-users as completing work in the manual practice required a lot of printing, walking back and forth it was amongst the least

prevalent problem identified by Buyers. This was expressed in the tedious and time consuming sourcing events. This problem was not identified by the Organization

**Lack of Knowledge on Requirements** – This was an issue to end-users only. They had difficulties knowing on what requirements had to be met to complete contract requirements in the manual procurement practice.

**Lack of Compliance in Contract Request** - This was identified by the Company only. This is not surprising as end-user identified lack of knowledge in contract request requirements as a problem.

**Long Process** – to the end-user, the least predominant problem was the manual process for completing contract request being long. This was identified by end-users only.

**Inability to send some RFP Packages due to e-mail size limits** – This was the fourth commonest problem identified by the buyers. Bid packages had to be split into manageable sizes to be sent to bidders.

**Limited space to store bulky RFP proposals** - This was also the fourth prevalent problem identified by the buyers. There was the constant search for archiving space to safely store bulky bid packages.

**Difficulty monitoring bid deadlines** - This was also the fourth predominate problem identified by the buyers. Monitoring different closing dates for different sourcing events was stressful.

**Hard copy documents being destroyed by liquids** – This was amongst the least prevalent problem identified by the buyers.

**Difficulty to restrict late bids** - This was amongst the least prevalent problem identified by the buyers. Bidders were able to submit their bids even after the bid closing time. Late bids submitted by email as was required were opened before rejected. In most cases because they were opened, they were usually accepted.

#### **4.2.2 Section B - E-Procurement System of Newmont and Its Perceived Impact**

E-Procurement is deployed in Newmont through the procurement applications in Enterprise Resource Planning (ERP) software known as the Systems and Applications Products (SAP). Procurement application tools within the SAP suite used include; The E-Sourcing, ECC and the Supplier and Relationship Management (SRM).

Newmont's e-procurement practice has been discussed below according to Newmont's procurement cycle.

**Contract Request** – Contract request is raised by End-Users or Owners for their required service in the SAP e-sourcing portal using the Contract Request Form (CRF) application. As required by the business process, CRF is raised for new services or modifications to an existing agreement. The End-User is required to indicate if the request is for a new contract or a change to an existing agreement, perform a risk assessment of the service, attach the scope of the service in the CRF and provide justification for sole source on the sole source tab within the CRF, if a sole source is desired.

End-User then advances the CRF to 'Draft' phase, and advances it again to 'S&ER/HSLP Approval' phase to initiate workflow. At the 'S&ER/HSLP Approval', designated personnel from the Sustainability and External Relations and the Health, Safety and Loss Prevention Departments responsible for reviewing the risk either approve or reject the CRF based on the risk assessment done by the End User. A rejected CRF generates a system-based notification to the End-User. On approval at the S&ER/HSLP Approval'



phase, the CRF is advanced to the 'CA Evaluation Phase' where contract administrators perform quality checks to ensure the CRF has been properly prepared. The CRF is then advanced to the 'Internal Approval' phase by the Contract Administrator. At the 'Internal Approval Phase' the Budget Owner(s) approves the CRF based on his financial authority. The CRF is routed to the next approval level until it is approved by a Budget Owner with the appropriate financial authority.

Once fully approved, the CRF automatically advances to the 'Approved for Sourcing' phase. On execution of the contract, the Contract Administrator advances the CRF to the 'Completed' phase.

End users can complete and save their CRF without sending for review and approval by their manager in the 'No Phase' phase and 'Draft' phase. This allows end-users to create and come back to it later before requiring approval.

In S&ER/HSLP Approval and Internal Approval phases, the CRF is locked for editing by all parties.

**Contract Sourcing** - Contract Sourcing is undertaken electronically on the E-sourcing portal in the SAP Suite. Once a CRF is approved for sourcing, the Contract Administer determines the sourcing approach. Prospective bidders are selected from 'supplier' application tool. Here a supplier who has not been set up in the E-Sourcing portal cannot participate in a sourcing event until he has been set up in the SAP suite.

Flexible tools collectively referred to as RFx available in the e-sourcing portal for sourcing include but not limited to Request for Information (RFI), Request for Quotation (RFQ), Request for Proposals (RFP) and Auctions. These tools contain the following tabs; Header – Summary level information; Exchange Rates – Alternative currency;



Schedule – Key dates, tasks, and milestones; Suppliers – Suppliers and prospective bidders participating in the event; Information – Supporting data for the RFx; Questions – Quantitative and qualitative analysis criteria; Line Items – Services for which End-User is requesting a quote; Integration – Purchasing Organization, Purchasing Group, Company Code, etc.

Once the RFx has been created, the Contract Administrator advances the phase to “Open for Response,” which releases the event. Bidders can then view the bid event and put in their bid prices as well as upload their soft copy RFP response proposal. Bidders are also sometimes required to send identical hard copy RFP response proposal to the Newmont Office within a stipulated time after the bid closing. On bid closing, the RFx advances to “Closed for Response” restricting any bidder from further participating in the sourcing event. The event is then opened for scoring or evaluation. Two approaches are available for evaluation; based on the scoring criteria input in the system, the web-based system could score and determine the successful bidder. Evaluation could also be done outside the system as agreed by the stakeholders whilst using the ‘Discussions’ functionality available in the e-sourcing portal to conduct and record bid evaluation results for each individual sourcing event. A notification of award is generated from the system and routed to the successful bidder. Formal award letters or notification of unsuccessful bidding is prepared by the Contract Administrator and sent outside the system and saved to the bid event for record keeping.

**Contract Development and Maintenance** – Standard contract templates are saved in the e-sourcing portal. Contracts drafted by Contract Administrators are saved on the e-sourcing portal. Completed drafted contracts are advanced to the respective contractors on the same portal by Contract Administrators.

**Contract Execution** – The Contractor downloads the agreement, signs the agreement and uploads the signed Agreement in system. The signed Agreement is then downloaded and printed by the Contract Administrator and signed in ink by Newmont's Contracts Manager for completion of execution. The duly executed signed agreement is scanned and saved in the e-sourcing portal by the Contract Administrator.

**Contract Administration** – All records including claims and disputes as well as correspondences pertaining to a particular agreement are saved in the respective contract folder within the e-sourcing portal. Contract change orders and variations are initiated with the same contract request procedure explained above. These change orders and variations are saved in the respective contract folder within the e-sourcing portal. On invoice processing, contractors create a confirmation of the service in the SRM Portal of the SAP suite for acceptance or rejection by the End-User. Once the End-User accepts it, the contractor creates an invoice in the SRM Portal, uploads a copy of the invoice and forwards the original invoice to Newmont's Accounts Payable Department for payment of the invoice

**Contract Close Out** – On expiration or termination of the Agreement, all outstanding payments due the Contractor is paid to the Contractor and a Contractor Release Form is sent to the contractor to sign through email or on the e-sourcing portal to close out the Agreement. This form is saved in the respective contract folder within the e-sourcing portal.

### **Newmont's Perceived e-Procurement Impact**

The focus of Newmont's perceived e-procurement impact rested on the procurement business process as summarized below;

**Table 4.1 E-procurement Perceived Impact**

<b>Process</b>	<b>Change</b>	<b>Perceived Impact</b>
Contract Request	SAP solution tools to replace manual process. Adobe Forms and workflow functionality to implement contract request requirements	Transparency and Compliance - Standard functionality to be completed by all end-users in contract request
Sourcing	Sourcing processes completed in SAP rather than manually. Functionality to conduct electronic competitive bid events and e-auctions directly within SAP	Cost Savings from reduced prices
Contract Execution	Conducted through SAP workflow, removing manual routing process	
Contract Administration	All administration processes managed within SAP, removing manual routing process	Central repository for all contract documentation through its life cycle
Supplier Self-Service	Functionality and tools to allow prospective and active suppliers to provide and update information directly to Newmont and create invoice through SAP. Therefore removing requirement for contract administrators to receipt invoices within SAP and end users to manually approve paper-based invoices	Reduce level of effort required by staff in manually obtaining information

#### 4.2.3 Section C - Effects of E-Procurement on Newmont's Procurement Practice

The effects of e-procurement was determined in relation to the six identified impact themes identified as; transparency, compliance, communication, planning and forecasting, efficiency and record keeping and retrieval of documents.

A two stage approach was used to identify the effects thus a two-stage analysis. The first stage contained information on how the various end users assessed the relative importance of the various impact themes identified by the researcher by simply ranking in order of priority the impact themes from 6 to 1. 6 being the most impacted and 1 being the least impacted.

Relative importance index was used to analyze this. The relative importance index sums up all the weightings attached to the impact themes by the respondent End-Users and Buyers and divides the resultant total score by the maximum total score achievable. It was used to rank factors in order of importance to decision makers. Mathematically, it is expressed as (Othman *et al*, 2005);

$$RII = \frac{\sum w}{AN}$$

RII= Relative Importance Index

w = Respondents rating of impact theme multiplied by Number of respondents placing identical weighting on impact theme

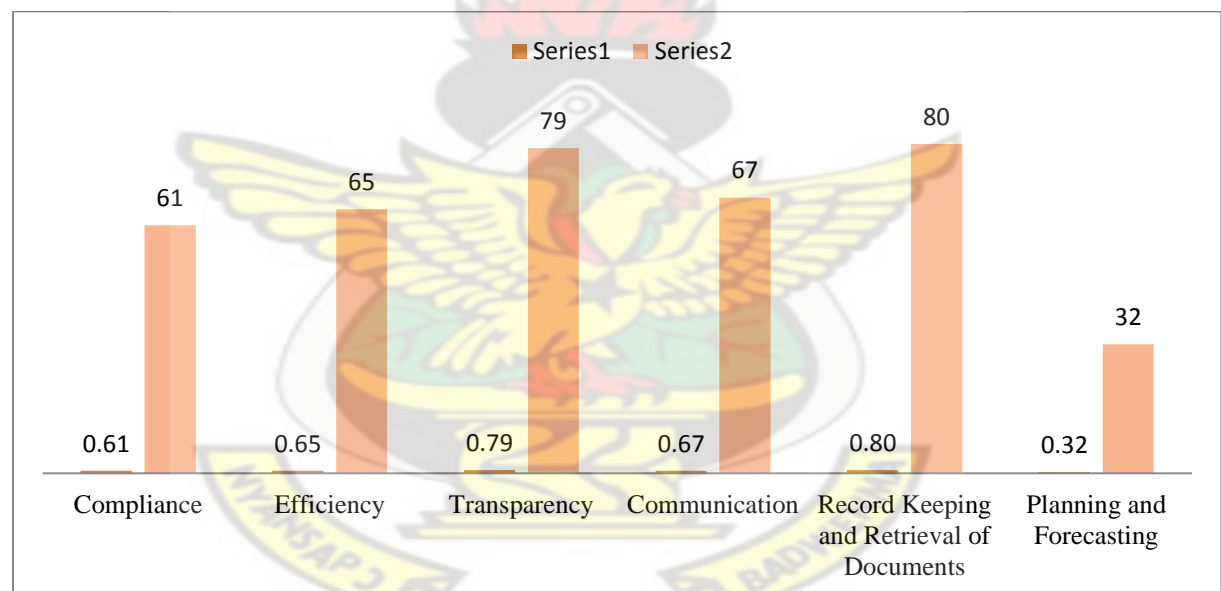
N = Sample Size

A = highest attainable score on impact theme

The table 4.2 shows the relative importance index as calculated using the formulae above and expressed as a percentage;

**Table 4.2 Relative Importance Index**

Impact Theme	Relative Importance Index Calculated	Relative Importance Index Expressed as Percentage	Rank
Compliance	0.61	61	5
Efficiency	0.65	65	4
Transparency	0.79	79	2
Communication	0.67	67	3
Record Keeping and Retrieval of Documents	0.80	80	1
Planning and Forecasting	0.32	32	6



**Fig. 4.3 Relative Importance Index**

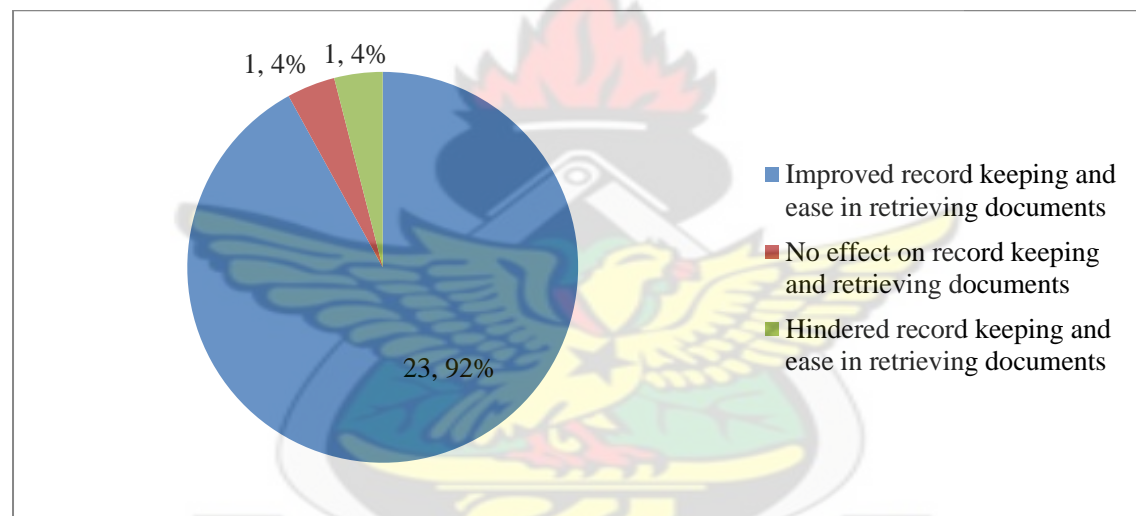
The second stage was to establish if there is an impact and to determine if the impact was a negative or positive according to the impact themes identified earlier. This was done by key end users and buyers. Face to face interviews were also conducted with buyers to complete prepared questionnaires. While the questionnaires required respondents to

indicate whether or not there was an impact and the extent of impact, the interview sought to find out why these options were chosen by the respondents.

The following were found to be the impact of e-procurement on Newmont's procurement practice;

### **Record Keeping and Ease in Retrieval of Documents**

Below is a graphical representation of the data collected at the second stage (Refer to Appendix B, Table 6.4 – 'Impact on Record Keeping and Retrieval of Documents' for data collected)



***Fig 4.4 Impact on record keeping and retrieval of documents***

Record keeping and retrieving documents was ranked 1<sup>st</sup> with a relative importance index of 80%. For both record keeping and ease in retrieval of documents, Out of the key end-user respondents, a majority of twenty (20) out of twenty-two (22) confirmed an improvement in record keeping and ease in retrieving documents whilst only 1 confirmed record keeping had been hindered as well as ease in retrieval of documents. Another 1 confirmed the implementation of e-procurement has not had any effect at all on record



keeping and retrieval of documents. All three (3) buyers confirmed an improvement in record keeping and ease in retrieval of documents.

The above data presented is not surprising as contract administration is grounded on good record keeping and every professional no matter the field of specialty would want to have up-to-date records of every transaction he or she has been involved in. Affirmed by difficulties in keeping trails of records and missing documents being the third most common problems of the historic manual procurement practice as identified by the key end-users, the deployment of e-procurement has greatly improved record keeping and made retrieving of documents very easy. The deployment of e-procurement has eliminated the difficulties and boredom associated with searching a pile up of hard copy documents for a particular required document. Soft copy documents are simply saved in the web-based system and they always accessible until deleted from the system.

With respect to contract requests, end-users noted with the deployment of e-procurement, the days of missing completed and nearly-completed contract request forms are over, resulting in saving valuable man-hours which hitherto was spent searching for missing documents and resulting rework (doing the very work which has already been done). To complement the issue of missing contract request associated the previous manual practice was the issue of missing contractors' invoices submitted to End-Users. Contractors' invoices often got lost as they changed hands from one approver to another in complying with getting all invoices approved by end-users with the appropriate financial authority.

Contract Administrators (Buyers) confirmed the valuable impact of e-procurement on record keeping and retrieval of documents in their ability to keep track of all contract request assigned to them without losing them. Hitherto, contract requests got missing either before any work was started on them or in the course of working on them. This

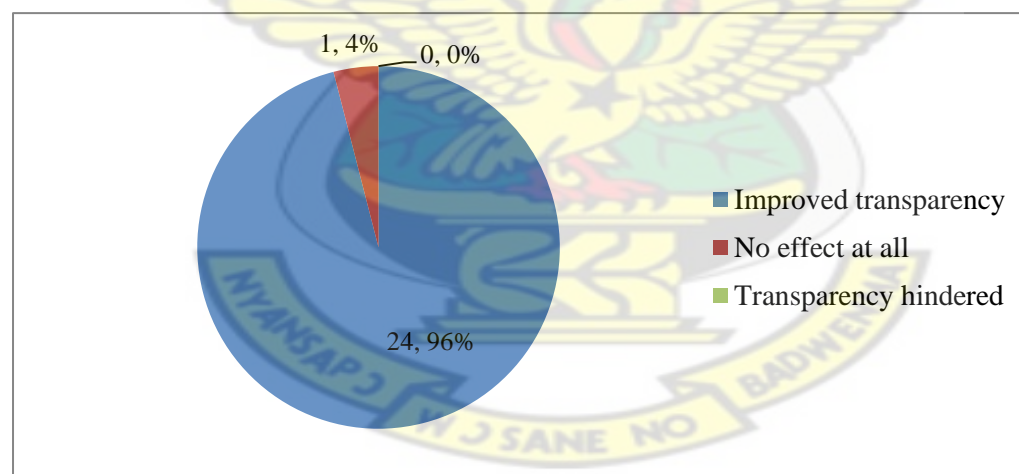
resulted in a lot of audit issues as some contracts were signed without proof of formal requests from an End-User or Owner.

It could be said that the deployment of e-procurement in impacting record keeping has resulted in good house-keeping in a lot of offices.

The confirmation by a laudable majority of 92% of the respondents (key End-User and Buyers) that the deployment of e-procurement has improved record keeping and ease in retrieval of documents goes to confirm that e-procurement really improves record keeping and ease in retrieval of documents even though the body of literature does not capture this

### Transparency

Below is a graphical representation of the data collected (Refer to Appendix B, Table 6.5 – ‘Impact on Transparency’ for data collected)



**Fig 4.5 Impact on transparency**

Transparency was ranked as 2<sup>nd</sup> with a relative importance index of 79%. This was confirmed by twenty-one (21) of the key end-user respondents and all three (3) buyers confirming an improvement in transparency into processes and activities as a result of e-procurement deployment and one (1) key end-user representing 4% confirming no

improvement in transparency. It is interesting to note that lack of visibility into processes and transactions which was cited to sometimes result in double payment of invoices was the second commonest problem of the old manual practice identified by the key end-users. To buttress this point, Newmont as an organization identified lack of transparency into processes, activities and work load as a challenge of the old manual procurement practice. The ranking of transparency as 2<sup>nd</sup> is therefore not surprising as problems identified by the key end users and buyers in using e-procurement did not include lack of transparency - meaning it had been resolved. The closeness of the relative importance index of transparency to that of record keeping and ease in retrieval of documents is also not surprising as these forms the basis of accountability.

The ability of all stakeholders to simply log into the e-procurement web-based system to easily review and have visibility into processes, activities and transactions makes transparency an important impact theme.

For end-users, the ability to review who is responsible for a required action as well as access to what actions have been executed by who, ability to access bid proposals and quotations from bidders after bid closing in the 'original' state as quoted and entered by the bidder in the system and ability to determine which invoice has already been processed to avoid double payments were cited as the three most exciting opportunities transparency in e-procurement brings. This is because with the old manual procurement practice, there were occurrences of contract request forms which end-users had taken the pain to complete getting missing because end-users forgot the specific buyer or Contract Administrator this had been handed over to. On bid events in the manual paper-based systems, the control of the bid event rested absolutely with the contract department where bids were submitted to an email address to which only the contract department had access to. Questions of whether the Contract Department was accepting late bids from their

“cronies” or disclosing details of bid proposals received earlier to their “cronies” only remained unsolved puzzles. With the situation different with the current e-procurement practice, the web-based e-procurement system restricts all stakeholder from seeing the bid packages of bidders until after the bid closing and further restricts all bidders from having access to the sourcing event after the bid closing date and time. On the issue of double payment to contractors, the requirements of e-procurement for contractors to create their invoice indicating the invoice number in the system and requirement of End-User to accept the created invoice on one specific service order in the system has become the ‘preventive tool’ for double payment. Hitherto, the requirement in the manual system for the End-User to receive hard copy invoice from contractor, approve and send to the Contract and Account Payable Department for processing resulted in end-users losing track of what has already been forwarded for payment and what has not. Inferring from the three exciting opportunities transparency in e-procurement brings as stated above, it means e-procurement in positively impacting transparency improves monitoring and accountability in an organization, ensures trust and confidence in the procurement personnel in an organization and prevents fraud.

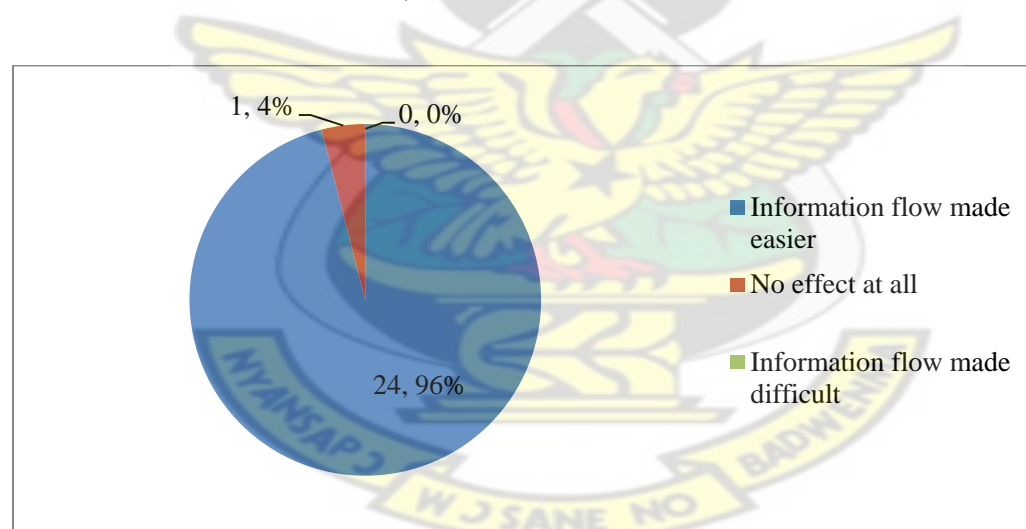
For the buyers (contract administrators), they are able to access other contracts being worked on by their colleagues to draw key knowledge points, distribute work evenly to their colleague contract administrators when proceeding on leave by reviewing current work load of other contract administrators in the system. Hitherto in the manual procurement practice, the work load of one contract administrators remained a mystery to other contract administrator. Also Contract Administrators are able to track all contract requests right from when they are raised until they are fully approve. Inferring from this also means that e-procurement in improving transparency also improves knowledge sharing in an organization and the saves the man-hours that would have been spent in

teaching others. It also assist in ensuring fairness in teams as no one person in a team would be overworked and assists in making procurement personnel proactive and responsible.

From the presentation and discussion above, this study therefore confirms the research findings of Osei–Owusu (2013) that e-procurement results in transparency. It also confirms the assertion by Ageshin (2001) and Croom and Brandon-Jones (2007) that e-procurement increases visibility and improves transparency.

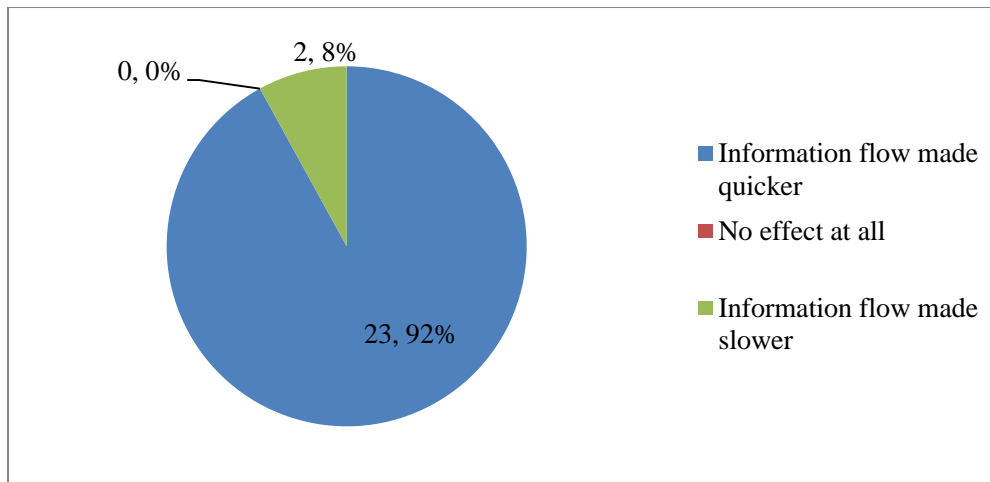
### Communication

Below are graphical representations of data collected (Refer to Appendix B, Table 6.6 – ‘Impact on ease of flow of information’ and Table 6.7 - ‘Impact on speed of flow of information’ for data collected);



***Fig 4.6 Impact on ease of flow of information***





**Fig 4.7 Impact on speed of flow of information**

Communication was ranked 3<sup>rd</sup> with a relative importance index of 67%. This was not surprising as was confirmed by twenty-one (21) end-users representing 95.45% of the key end-users on information flow becoming easier as a result of the deployment of e-procurement. It was noted that the manual practice was characterized with several phone calls and idle time spent walking around to people to request for actions from them. The implementation of e-procurement requires a simple click and work activities are routed to the work flow and profile of the responsible person confirming Carr and Smelter's (2002) assertion of improved ease of communication as a result of technology. This also supports the knowledge shared by McIvor *et al* (2003) that e-commerce has an impact on patterns of communication between supply chain members.

To confirm the impact of e-procurement on ease of flow of information, all three (3) contract administrators (representing 100% of contract administrators) lauded the invaluable contribution of e-procurement taking the burden of splitting Request For Proposal (RFP) packages into smaller sized packages just to be able to send to bidders in the old practice because of restrictions on Newmont's mail size. This resulted in issues of injustice and unfairness such as forgetting to send a particular package to a particular



bidder. Contract administrators do not have to remember which bidder has received what information any longer.

Main reason given by the 1 end user who noted a no impact on ease of flow of information noted the routing of work through personnel workflow did not seem to be solving any problem as some stakeholders sometimes simply ignore such notifications and require constant reminders and explanations on what the purpose of the work item is. What this means is that, despite the opportunities offered by e-procurement, employee personal attitude to work and how proactive they are, has an influence on the extent of value to be derived from e-procurement in an organization.

On speed of flow of information, the confirmation by twenty (20) end-users representing 90.91% of the key end users on e-procurement making information flow quicker was attributed to the fact that information was disseminated to all stakeholders concurrently. This confirms Ageshin's (2001) statement that e-procurement leads to quicker information sharing across the supply chain. Whilst there existed no reason by the two (2) key end-users who did not see the impact of e-procurement on speed of flow of information, contribution of e-procurement making information flow quicker was confirmed by all the three (3) contract administrators who confirmed the valuable time spent in splitting Request For Proposal (RFP) packages into smaller sizes to be e-mailed during the old practice has been saved in the e-procurement era.

### **Efficiency**

Efficiency was ranked 4<sup>th</sup> with a relative importance index of 65%. That is not to say there has not been any impact on efficiency by the implementation of e-procurement but rather other themes are perceived to have been more impacted than efficiency.

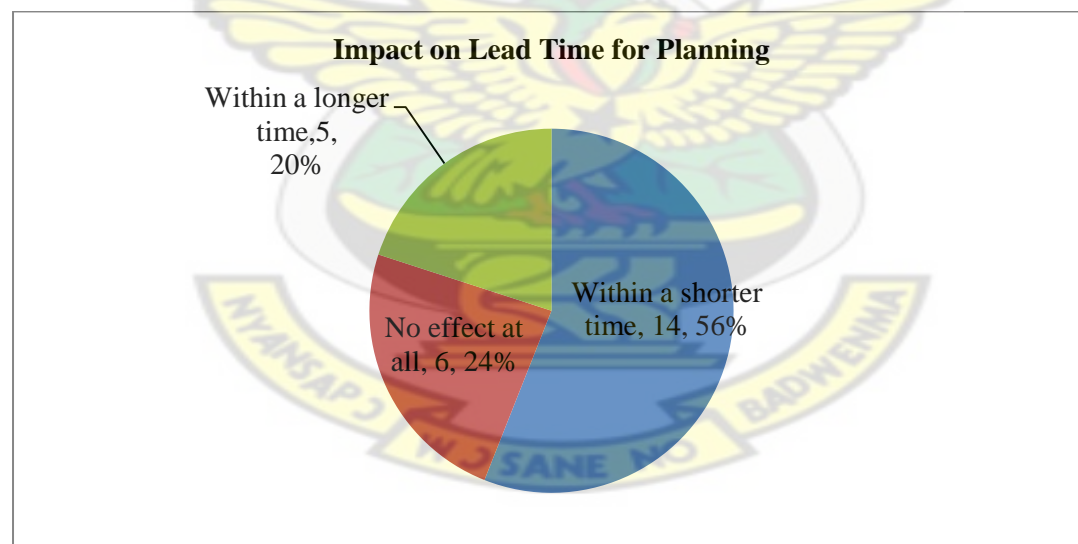
Variables in the efficiency framework include; cycle or lead time, paperwork and repetition of administrative procedures, cost savings, personnel effort and time to concentrate on core activities. In the efficiency framework, reduction in volume of paperwork is the most impacted.

### ***Cycle/Lead Time***

E-procurement results in a reduction in lead or cycle time. This confirms the Aberdeen Group's (2005) assertion of e-procurement impacting leading times by reducing it. This is further discussed below;

### ***Lead Time for Planning for Required Services***

Below is a graphical representation of data collected (Refer to Appendix B, Table 6.8 – 'Impact on lead time for planning' for data collected);



***Fig.4.8 Impact on lead time for planning***

A reduction in time required for planning projected services was mainly attributed to the fact that the web-based e-procurement system presents a planning tool where users access to plan their required services. Unlike the previous paper-based system whereby end users

had to plan on several papers which at times resulted in losing some very important plans, end-users have the opportunity to plan in the same hub where they raise their contract request.

Longer time required to complete planning was mainly attributed to the fact that in the old paper based system, not much planning was done by end-users and they usually simply raised contract request forms as and when the service contract is needed. It was noted that the deployment of e-procurement has given end-users an additional responsibility to plan for their services well ahead of time.

It was surprising to note that most of these who reported the deployment of e-procurement had no effect on planning did not know the web-based e-procurement system had a planning tool therefore requiring them to use it to plan for their required services well ahead of time. Whilst others acknowledged knowing there existed a planning tool, they indicated they had never used it before and were still planning their services in their small note books or were not planning for their services at all but rather raised their contract request as and when it became necessary.

All Contract administrators on the other hand confirmed there had been no impact on lead time for planning services. Though they knew the value of the planning tool, it was rarely used.

### ***Lead Time for Completing Contract Request***

Thirteen (13) out of the twenty-two (22) key end users representing 59.09% confirmed a reduction in lead time for completing contract request whilst the remaining 9 representing 40.91% confirmed the deployment of e-procurement has rather increased the lead time for completing contract request

A reduction in lead time is generally attributed to the fact that contract request for previous services could be duplicated and simply edited to suit the new service contract request. Unlike the paper based system whereby End-Users had to walk around to get the right approvers with sufficient financial authority to approve contract request to get them completed, the new e-procurement web-based system eliminates all the “walking time” by simply routing contract request to the right approver’s workflow profile. It is also noted that even the time to flip through papers to complete contract request forms has been eliminated as End-Users simply have to move in between tabs and applications in the same portal. The use of e-procurement further eliminates the time spent printing documents upon documents to be completed. Another reason given was that unlike the previous manual system whereby contract request which was half-completed could get missing requiring the end-user to print another template to start all over again, e-procurement allows End-Users to save uncompleted contract request and later return to continue from where they stopped.

On the other hand, the view of e-procurement elongating the time to complete contract request is attributed mainly to additional information required to be provided in completing the contract request and the inability of the system to auto-save contract request unless it is consciously saved by the requisitioner or End-User. Unlike the previous paper based system, the implementation of e-procurement requires the end-user or requisitioner to use a lot of search engines to complete mandatory fields such as the Newmont Organization to which end-user belongs, indicating the category to which the service belongs, and in the case of a request to modify an existing agreement, indicating the particular agreement to which the contract request is being made to modify amongst others. What aggravates this is the fact that the system does not allow codes to be keyed in even if the End-User knows the right code “off head” but rather requires searching the

codes from the available options and selecting the desired code. This was perceived by many as a real waste of time. But one would understand that allowing end-users to key in codes would result in a lot of problems as they may get complacent. Also, an End-User's forgetfulness to save a contract request was as good as not having done anything as the system does not auto-save activities.

### ***Lead Time for Getting Approvals***

Fourteen (14) out of the key end-users representing 36.64% confirmed a reduction in Lead times for getting approvals. This was mainly attributed to the replacement of the “stamp-and-sign” approach of approval in the manual practice to the “click-to-approve” offered by e-procurement. Delay in approvals was the commonest cited problem of the manual practice. Prior to the implementation of e-procurement, End-Users had to walk around to get their documents stamped and signed by approvers who had the right financial authority. End-User approvers' delay in approving documents did not affect the End-User only but the Contract Administrators as well. With lead time in the efficiency impact framework, it was not surprising that efficiency was ranked 4<sup>th</sup> because the only problem which has been cited to persist even after the implementation of e-procurement is delay in approval. Some approvers are still not getting “click-to-approve” approach and are still being chased around to simply click the button justifying why the two (2) end-users representing 9.09% of the respondents noted the implementation of e-procurement has not had any impact at all on getting approvals. Once again, it is seen that employee attitude to work influences the extent of impact of e-procurement.

On the other hand lead time for approvals is perceived to have increased as a result of the implementation of e-procurement by six (6) end-users representing 27.27% of the key end-user respondents. This is attributed to the reduction of the financial authority of some



End-User approvers. The resulting impact is that, requests which hitherto could be approved by one approver now required two or more.

### ***Lead Time for Contract Sourcing***

In Contract sourcing, lead times for specific activities were noted to have reduced as a result of the implementation of e-procurement. Lead time for determining the sourcing approach and bid evaluation criteria were confirmed by all three (3) buyers not to have been impacted at all as a result of the implementation of e-procurement.

The implementation of e-procurement makes it possible for Contract Administrators to determine potential bidders from other Newmont regions more quickly within a shorter time as this search can be conducted by any Contract Administrator. Prior to the implementation of e-procurement emails had to be sent to other Contract Administrators in other Newmont Site and Regions and wait to receive responses. This was confirmed by a majority of two (2) out of the three (3) buyers. 1 buyer however noted e-procurement did not have an impact on this.

Lead times for preparation of bids, creating sourcing event, evaluating proposals and notification of award were noted to have reduced as a result of e-procurement as confirmed by all three buyers representing 100%. The ability for proposals to be scored in the web-based system based on evaluation criteria input and competitiveness of the prices saved valuable time in evaluating RFQ which is usually used for routine services and familiar bidders. System generated email notification of award to successful bidders also saved valuable time in drafting award letters to successful bidders of RFQ.



### ***Lead Time for Contract Development and Maintenance***

All three (3) buyers representing 100% confirmed a reduction in lead time for contract development and maintenance as a result of the standard contract templates being downloaded from the web-based system to already contain information such as the agreement number, supplier name and address.

### ***Lead Time for Contract Execution***

On lead time for contract execution, there has not been any impact by the implementation of e-procurement as confirmed by two contract administrators representing 66.67%. There is a perception by the minority-one (1) buyer representing 33.33% however that lead time for contract execution has increase as a result of suppliers having issues to navigate through the web-based system to download agreements, scan and upload signed agreements.

### ***Paperwork and Repetition of Administrative Processes***

All twenty-two (22) key end users and three (3) buyers respondents representing 100% confirmed the deployment of e-procurement has reduced the volume of paperwork. This is as a result of the creation of contract request in the web-based system and creation of invoices in the web-based system by contractor. This goes to confirm suggestion by Neef (2001) that e-procurement results in less paperwork and fewer repetitious administrative procedures.

Eighteen (18) out of twenty-two (22) key end-users representing a majority of 81.82% of the key end-users confirmed a reduction in repetition of administrative procedures whereas the remaining three (3) representing 13.64% of the key end users noted e-procurement had no impact on repetition of administrative processes. Two (2) buyers out of three (3) representing 66.67% of the buyers confirmed a reduction in repetition of

administrative procedures as opposed to one (1) buyer who thought e-procurement had no effect on repetition of administrative procedures.

The reduction of repetition of administrative processes as a result of the implementation of e-procurement was attributed to end users being able to simply duplicate contract request and edit to suit new request unlike the manual practice where a new form had to be printed and filled out. Buyers are not required to enter suppliers' names and address in every contract template when drafting contracts.

E-procurement has reduced mistakes which could have occurred in the previous manual procurement practice. For End Users, mistakes such as wrong risks assessments of services has been reduced because contract request are reviewed and approved by risks experts before finally been approved to be worked on. This was confirmed by a majority of the key end-users of eighteen (18) representing 81.82%. The remaining 4 key-users representing 18.18% of the end-users confirmed e-procurement had no effect on mistakes.

Mistakes of Buyers wrongly typing in Contractor's address and agreement reference have reduced as these are automatically updated as the agreement template is being downloaded. A reduction in mistakes was confirmed by all three buyers representing 100%. This study therefore also confirms Parida and Sophonthumapharn's (2008) assertion on e-procurement resulting in fewer mistakes.

### ***Cost Savings***

All three (3) buyers representing 100% noted prices paid for services have clearly not been affected as a result of the implementation of e-procurement though it has resulted in organizing more competitive tendering other than sole sourcing. Whilst the e-procurement offers opportunities for auctions to be used to support reduction in existing

prices, two out of three Buyers confirmed never using the reverse auction application. The only Buyer who had tried it had used it twice since the implementation of e-procurement. Though the two occasions did yield a reduction in existing prices, he noted the services was abandoned by the successful bidder in the first occasion whilst there was a lot of complaints and grumbling from all the contractors who took part in the second reverse auction. This has certainly resulted in the reverse auction not being exploited for its benefits by the buyers. Other reasons given by these bidders for not exploiting the reverse auction were that for the nature of services which could be auctioned, the prospective bidders are often from the local communities whose technological skills is not enough to effectively participate in auctions as they would find it difficult to navigate their way through the e-procurement web-based system. Buyers also perceived organizing auctions was a waste of time considering how long a buyer would take to organize participants and coupled with the fact that the buyer had to find space in the office to bring these participants together to teach them.

This study disagrees with Williams and Hardy (2007) statement that the most important factor for buyers in e-procurement adoption is reduction of prices. It also contradicts assertion by Tanner *et al* (2008) that reduction in purchasing price is a priority benefit of e-procurement adoption.

What this means is that, supplier co-operation in e-procurement deployment as well as their knowledge in information technology influences the extent of value a buying organization would derive from its e-procurement system. This also means that a buying organization's provision of e-procurement without getting the buy-in and appreciation of the system by its procurement personnel also influences the extent of value to be derived from the e-procurement system.

On supplier participation, whilst two out of three buyers noted there had not been any impact, one buyer was of the view that e-procurement could discourage competition where the most competitive bidder is unable to upload or bid through the system. He cited occasions where a bidder was unable to bid in the system and forwarded his quotation by email to the buyer and was found to be the most competitive but had to be rejected because the bidder failed to bid in the system before the bid closing. This contradicts statement by Gardenal (2013) that e-procurement promotes competitiveness and ensures higher level of supplier participation in tendering procedures.

This also means whilst e-procurement has the tendency to result in reduced prices; it could at the same time reduce competition resulting in lost opportunities for cost savings.

Inferring from a confirmation of a reduction in paperwork and elimination of erroneous double payment in the old manual procurement practice, the implementation of e-procurement has saved cost associated with purchasing paper and making undeserved payments to contractors.

### ***Personnel Effort and Time to Concentrate on Core Activities***

End- User and Buyer efforts to achieve same result as the old paper-based system have reduced. All three (3) buyers representing 100% of buyers confirmed a reduction in efforts to complete same task as the paper-based system. This was attributed to the saving of efforts in splitting RFP Packages, sending mails and follow up calls.

This was also confirmed by a majority of sixteen (16) end-users representing 72.73% of the key end users. Effort in processing invoices has reduced through the transfer of some responsibility to the contractors as they are now required to create their own invoices in the system for End-Users to simply accept. This confirms the statement by Gardenal

(2013) that e-procurement allows personnel to achieve the same results with reduced efforts.

Three (3) each representing 13.64% each confirmed a no effect on efforts required to complete same task as paper based systems and an increase in effort to achieve the same result as old paper-based system.

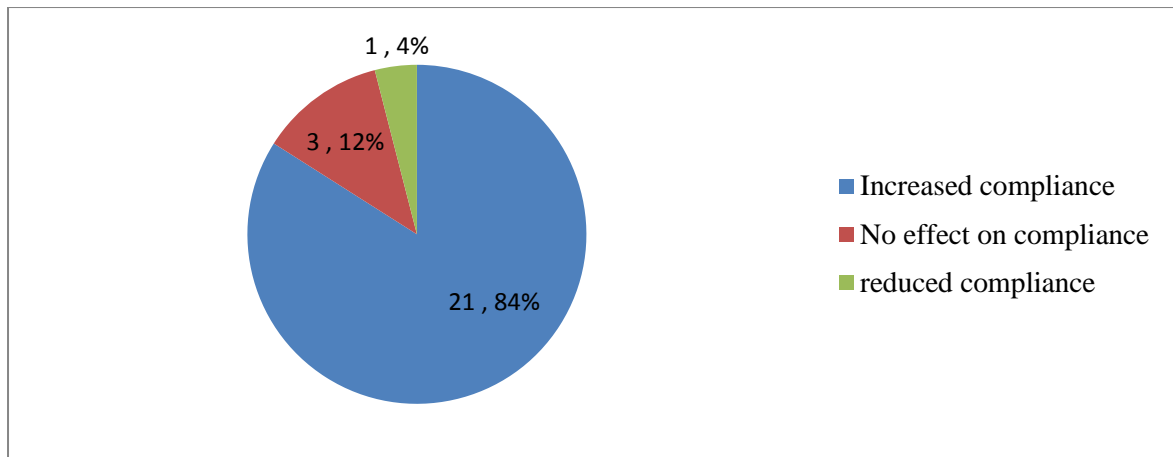
Whereas all three buyers representing 100% of buyers confirmed the implementation of e-procurement had not had any effect on their time to concentrate on their activities, eight (8) key end users representing 31.55% confirmed a reduction in time to concentrate on their core activities. This was attributed to the need to keep trying to be able to complete a task in the system. They noted forgetting one simple action in the system required trying several times which was impacting on their time to concentrate on their core work.

Two (2) out of the twenty-two (22) key end-users representing 9.09% confirmed there had not been any impact on their time to concentrate on their core roles. A majority of twelve (12) out of the twenty (22) key end-users representing 54.55% confirmed an increase in time to concentrate on their core roles as valuable time which was otherwise spent walking from office to office to get documents approved have been saved.

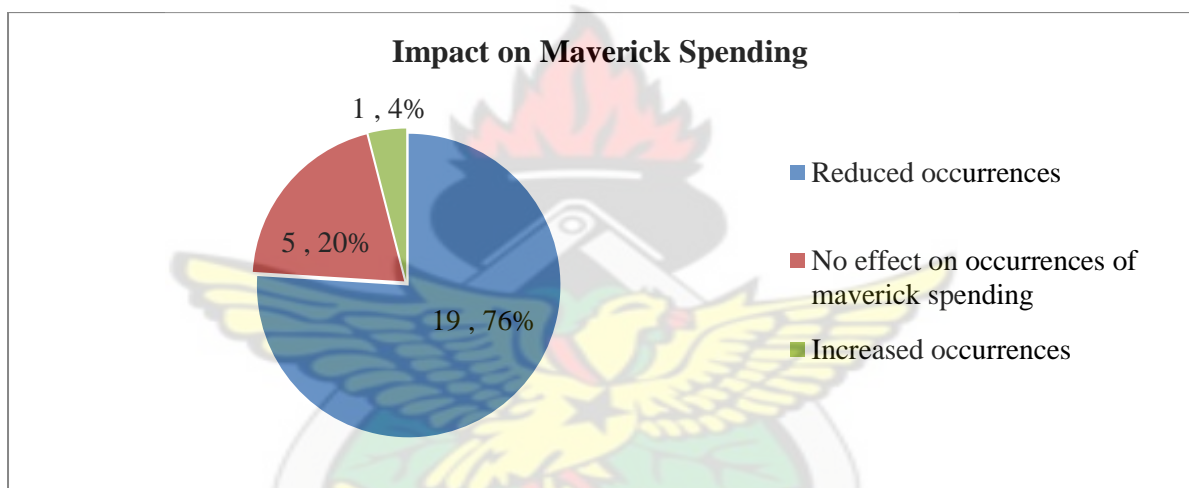
### **Compliance**

Below is a presentation of the data collected on impact on compliance with procurement processes and maverick spending. (Refer to Appendix B, Table 6.9 – ‘Impact on compliance’ and Table 6.10 – ‘Impact on maverick spending’ for data collected);





**Fig4.9 Impact on compliance with procurement process**



**Fig. 4.10 Impact on maverick spending**

The above fig 4.8 and fig 4.9 shows that the implementation of e-procurement has increased compliance to procurement process and reduced occurrences of maverick spending. All three buyers confirmed an increase in compliance with procurement processes.

The basic reason given for the increased compliance to procurement processes included the inability to proceed to the next stage in the web-based e-procurement system when the previous stage is not completed. Unlike the traditional paper-based system which required the manual completion of certain forms like Sole Source Justification and Risk



Assessment which one could deliberately ignore under the pretense of forgetfulness, the web-based system does not allow users to advance their contract request for approval unless these sole source justification is provided and the risk assessment completed electronically as a result of they been mandatory fields. This was confirmed by the buyers who indicated incomplete contract request as a challenge of the old paper-based system at the contract request stage requiring them to go back to end-users to ensure all contract forms are completed before action is taken on such request. On occasions where the buyers failed to scrutinize contract request forms appropriately, contracts were executed without the appropriate completed contract forms. Whilst others noted they have been simply forced to comply in order to get their work done, others also argued the requirement of the Company's Health and Safety Experts to review and approve the risk assessment completed for the proposed services ensures that the appropriate level of risk assessment is done for every proposed services assisting in the determining the appropriate risk response plan before the commencement of the services unlike the previous paper-based system where risk assessments could be done "any how" because completed risk assessment did not require the approval of the Company's Health and Safety Experts. The minority of 4% which is 1 key end-user who confirmed a reduction in compliance to procurement process noted the "rigid" nature of the system rather force them to develop "workarounds" when urgent services are required to be executed by proceeding to instruct contractors to execute the works and services for which a contract request has not been raised. It was noted once the service is completed the Contractor surely gets paid though with a lot of difficulties. The respondents who confirmed the deployment of e-procurement has had no effect at all on procurement compliance argued the automation of the contract request and inability to proceed to the next stage when the previous stage is incomplete does not constitute compliance because sole source

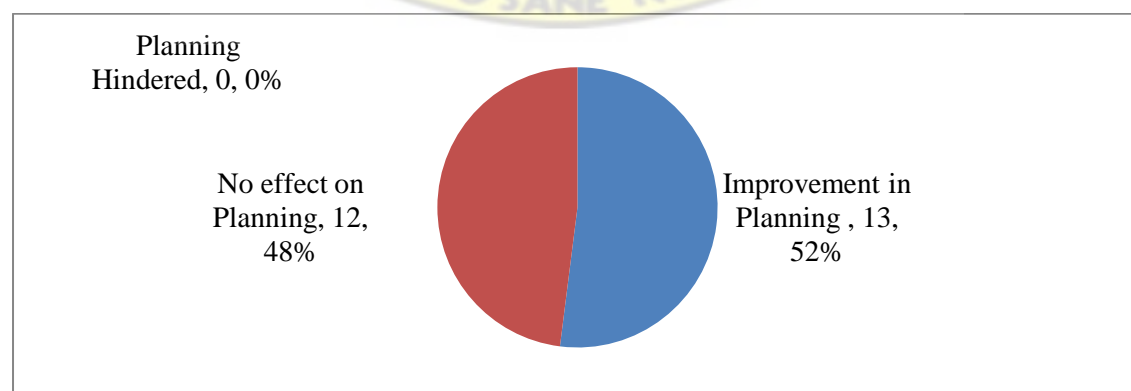
justification from one contract request can always be copied and pasted into another request whilst risk assessments levels can always be selected without reviewing the specific scope in subject to determine if the those risk levels are applicable. The 84% of the respondents confirming an increase in compliance to procurement processes as result of e-procurement deployment attest to the findings of the Aberdeen Group (2005) where six out of ten companies noted for best practices in e-procurement recorded an increase in compliance as a result of e-procurement deployment.

Reasons for reduction in maverick spending was given as that the implementation of e-procurement had taken all the “purchasing power” which end-users formally had and given to the Company’s Contract’s Department. This was because, in the old paper-based procurement system, end-users could request for quotations from prospective contractors and based on the end-user’s ‘evaluation’ select a contractor for a proposed service and further instruct the Contractor to commence the service before even completing a contract request to be forwarded to the Contract Department (specifically buyers). However, with the implementation of e-procurement and the mandatory requirement to have all quotations from Contractors uploaded in the web-based system, end-users are not able to request for quotation from contractors as they do not have functionality to request for quotes in the web-based system and only the Contracts Department has been granted that functionality. Some also noted that the mere fact that there is a system in place for procurement deters them from indulging in acts of “maverick spending”. On how e-procurement has neither reduced or increased occurrences of maverick spending as confirmed by 20% of the respondents, it was noted that some contracts expire and end-users in attempt to prevent another bidding process which may possibly end up awarding the contract to another contractor ( who may be more competitive than the incumbent) who the end-user may not be in support of for no technical reason, deliberately allow such

contractors to continue to execute the services until such a time that payment is long overdue. This they noted once the service gets executed, Newmont is forced to pay the contractor. Others simply noted that the same attitude of the old paper based system has been carried into the e-procurement system era and as such there has not been any impact on maverick spending as end users are still able to collect quotations from contractors and instruct them to start work with the certainty that once the work get completed and they are able to prove that the work was surely required to be executed, Newmont would surely pay the Contractor. On the basis of the data representation, a majority of 76% confirming a reduction in maverick spending indicates that the deployment of e-procurement in Newmont has indeed reduced occurrences of maverick spending thus confirming the assertion of Moon (2005) that e-procurement results in greater control over procurement spending (less maverick buying) and better employee compliance. This also confirms Parida and Sophonthummapharn's (2008) exploratory study in which all four Swedish and Indian Firms confirmed a reduced maverick spending as a benefit of deploying e-procurement in their organizations.

### **Planning and Forecasting**

E-procurement improves planning and forecasting as shown in the chart below (Refer to Appendix B, Table 6.11 – 'Impact on planning and forecasting' for data collected);



***Fig 4.11 Impact of e-procurement on planning and forecasting***

Planning and forecasting was ranked 6<sup>th</sup> with a relative importance index of 32%. This is not surprising as only thirteen (13) of the key end-users confirmed an increase in improvement in planning and forecasting as result of e-procurement. A good number of 9 of the end-users and all 3 buyers confirmed the implementation of e-procurement has not had any impact on planning and forecasting. As mentioned earlier some of the respondents did not know such an application tool existed whilst some of those who knew about its existence were not using it. All the buyers acknowledged knowing the value of this planning tool but were not using it.

This study reveals that e-procurement improves planning and forecasting even though the body of literature does not capture this. However, it is worth noting that a majority of 52% confirming improvement in planning is not impressive and once again it means a buying organization could invest in e-procurement tools which would not be used by its employees. This reiterates the fact already indicated that employee appreciation of an e-procurement system is key to achieving all the benefits of e-procurement.

#### **4.2.4 Section D – Challenges or Problems Encountered By End-Users and Buyers in using E-Procurement in Newmont**

##### **End-User Challenges**

- **Approval** – This is the commonest problem amongst all challenges faced by End-Users. The issues with approval include; First bureaucracy in approving one work item. Too many approvers are required to complete one work item. Newmont's Sustainability and External Relations Department responsible of approving risk assessments is noted to also contribute to delay in getting approvals as contract request is noted to delay at this stage.

Secondly, the work-based system does not have time limits within which work item not worked on automatically routes or escalates to the next approver. With this, it is not surprising some approvers fail to approve work request on time until they are chased around. The system is perceived to also give too much power to approvers as they can simply reject work items without giving any tangible reason.

Also the automatic routing of work request to the responsible approver's workflow results in issues and delay in getting work request approved when the particular responsible person is unavailable such as being indisposed or on leave.

Some approvers are also believed to deliberately fail to delegate their financial authority to another person in their department when they are going on leave thus making it difficult to get work request approved in their absence. What worsens this is the difficulty in routing work request from one approver's profile to another. This requires reporting to the contracts department as only specific people in Newmont have the access and power to do that and it sometimes takes days unattended to.

- **Suppliers** – This is the second commonest problem faced by End-Users. Most suppliers do not understand and know how to navigate through the web-based system requiring them to constantly rely on End-Users any time they need to create invoices for work completed in the system or take part in a sourcing event.

Some suppliers names in the system are also wrongly spelt making it difficult find them to select when raising request.

- **System Notifications** – The third commonest problem faced by End-Users. The web-based system notifications are only sent user's work-flow within the same web-based system and users only get to see work request when they log on into the system. These notifications remain unseen as long as a user does not log into the



system because the notifications are not routed to user's outlook mails which are always opened during working hours.

- **Network Challenges** – This is the fourth commonest problem faced by End Users. Technology problems such as a freeze in the web-based system when users are working in the system and requirement to start all over again when the problem is resolved.
- **T-Codes** – This is the fifth commonest problem faced by End-Users. Whilst some End-Users noted there are too many codes to be remembered to ensure work is done in the web-based system, others noted they simply select codes without understanding what it means and its implications to get their work done.
- **Under-utilization of the e-procurement web-based System** – This is the least common problem identified by End-Users. They noted they acknowledge there are a lot of applications available which they can use but are unable to use them because they do not understand how to use them or even know they exist.

#### **End-User Suggested Solutions to Problems**

1. **Approval** - It was suggested work items not attended to should be escalated to the next approver after a defined time limits. End-Users attaching full details of work request to the work request would solve a lot of delay issues as well reduce the number of rejected work request by approvers. Training was also suggested to be organized for all approvers to teach them how to delegate their financial authority when going on leave. Timely response from the contracts department on work requests which need to be moved from one approver's profile to another could greatly curb delay in getting approvals for works to commence.



2. **Suppliers** - More training should be organized for Suppliers/Contractors. Bidders should be taken through how to access the system and upload their RFP proposals.
3. **System Notifications** – The web-based e-procurement system generated notifications should be routed also to employee outlook emails to keep employees up to date on work request pending their actions
4. **T-Codes** – More training should be organized for End-Users on what the various codes means and how to use them. Some options such as company which always need to select should be defaulted as every employee's data is already known.
5. **Under-utilization of the system** - End Users requested for e-learning and face-to-face training sessions

### **Buyer Challenges**

Two main challenges are faced by Buyers in the use of the e-procurement system as;

1. **Suppliers** – This is the commonest problem faced by Buyers. Most suppliers do not understand and know how to navigate through the web-based system requiring them to constantly rely on Buyers any time they need to download agreements sent to them and upload the signed agreements as well as take part in a sourcing event. Suppliers are also noted to keep changing their contact persons who work in the system on their behalf resulting in Buyers teaching new contractor contacts always
2. **Network Challenges** – This was the second commonest problem faced by Buyers. The least internet problem results in inability to access the system

## **Buyer Suggested Solution**

The basic solution suggested by buyers is more training should be organized suppliers for contractors to bring them up to speed on how to use the system.

### **4.3 SUMMARY**

Newmont's procurement practice prior to e-procurement was primarily paper-based supported with buyer's emails. Challenges of this procurement practice as identified by the organization and users included;

- Lack of transparency
- Delay in getting approvals
- Missing documents
- Voluminous paperwork and destruction of hard copy documents by liquids
- Huge efforts required to complete tasks and long processes in completing tasks
- Fatigue
- Lack of knowledge on procurement requirements
- Lack of compliance in raising contract request
- Inability to send soft copy Request For Proposal Packages
- Limited space to store bulky Request For Proposal Packages
- Difficulty in monitoring bid deadlines and restricting late bids

E-procurement is deployed in Newmont through procurement applications in Enterprise Resource Planning (ERP) software known as Systems and Applications Products.

Newmont's perceived impact of e-procurement prior to its deployment included;

- Improvement in transparency into processes and compliance to procurement regulations and processes
- Achievement of cost savings from reduced prices through the use of electronic sourcing
- Availability of a central repository for all contract documentation through its life cycle
- Reducing the level of effort required by staff in manually obtaining information

E-procurement has positively impacted transparency, communication, compliance, planning and forecasting, record keeping and retrieval of documents and efficiency. Amongst these record keeping and retrieval of documents is most significantly impacted followed by transparency, communication, efficiency, compliance in descending order with planning and forecasting being the least impacted in Newmont.

Problems encountered by end-users and buyers in using e-procurement in Newmont include;

- Delay in getting approvals
- Suppliers' lack of competence in the use of the system
- Network challenges
- Failure of the system to route all notifications to user's outlook emails
- Lack of understanding on how to use t-codes
- Under-utilization of the e-procurement system

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 SUMMARY AND CONCLUSIONS

With reference to the objectives of the study and the method used to analyze the data collected, the study reveals that whilst Newmont's old procurement practice was primarily paper-based supported with electronic mails from buyers, Newmont currently uses e-procurement through an Enterprise Resource Planning software known as Systems and Applications Products (SAP).

The study also confirmed that e-procurement improves record keeping, transparency, communication, compliance to procurement processes, planning and forecasting and efficiency (in terms of reduced; lead times, volume of paperwork, efforts required to complete similar task as old paper-based system and mistakes).

The study further confirms that e-procurement does not automatically result in reduced prices paid for services *per se*. This partly confirms statement by Price Water House Coopers (2001) that information and communication technologies to procurement does not on its own result in cost savings. Where the right application tools are not used, procurement prices would not be impacted.

#### 5.2 E-PROCUREMENT; A TACTICAL TOOL TO SUPPORT STRATEGIC GOALS

Procurement is an emerging strategic activity within firms and organizations which is undergoing a revolution with the development of technology.

Newmont's approach to e-procurement followed a strategic intent to resolve identified challenges of their previous old procurement practice which was primarily manual paper

based augmented with electronic mails. These challenges as identified by the Organization included lack of transparency, poor compliance, lost opportunities for savings, lack of standardization in contract administration processes across all Newmont sites and regions and poor visibility by the corporate office into spending in all its subsidiaries.

From the discussions, it is obvious e-procurement is not deployed in organizations because it is simply the new trend in procurement but rather a tactical tool purposely used to support strategic goals of a function which in the case of Newmont was to resolve the identified challenges of its old procurement practice.

Choice of which e-procurement system best suits an organization must therefore be made on the ability of the e-procurement function to support the Organization's strategic goals.

The study also reveals additional challenges associated with a manual paper-based semi-electronic system which includes; delay in getting approvals as result of documents changing hands, lost documents, voluminous paperwork, huge efforts required to complete tasks resulting in fatigue, difficulty in establishing requirements, long processes in getting work done and storage for hard copy documents.

While it is argued that the use of electronic mail is a form of e-procurement, organizations which intend to go that line must prepare adequately as these were the challenges identified in Newmont where electronic mails were used to augment a manual paper-based system; inability to send RFP packages due to email size restrictions, difficulty in monitoring bid closing and deadlines, difficulties in restricting and handling late bids.

### **5.3 E-PROCUREMENT IMPACT**

This research has shown that e-procurement has a positive impact on transparency, communication, compliance, planning and forecasting, record keeping and retrieval of documents and efficiency. Amongst these record keeping and retrieval of documents is most significantly impacted followed by transparency, communication, efficiency, compliance in descending order with planning and forecasting being the least impacted in Newmont.

From the research, it can be concluded that whereas Newmont's perceived positive impact on transparency, compliance, reduced efforts required by staff to get work completed and record keeping through having a central repository for all contract documentation through its life cycle, has been achieved, Newmont's perceived impact of cost savings through electronic sourcing, using tools such as reverse auction of e-procurement system has not been achieved and only remains a dream and not a reality.

#### **5.3.1 Record Keeping and Retrieval of Documents**

The implementation of e-procurement improves record keeping and ease in retrieval of documents. This takes away the problems associated with missing documents and resulting rework. Newmont has achieved its perceived impact of record keeping through having a central repository for all contract documentation through its life cycle

#### **5.3.2 Transparency**

E-procurement improves transparency into processes, activities and work load. End users were particularly excited about their ability to review and determine who is responsible for a required action and as well as determining which invoice has already being paid to avoid their approval of double payment. This suggests that e-procurement is a powerful



tool for monitoring, ensuring accountability and checking possible fraud in an organization.

End-Users excitement about being to access sourcing events themselves to see the bid prices in their “original” state as input by bidders implies that e-procurement also improves trust and confidence end-users have in procurement personnel and department in an organization.

E-procurement offers buyers the opportunity to access other contracts worked on by other buyers to make comparisons and also see the workload of other buyers. It can therefore be concluded that e-procurement in improving transparency also improves knowledge sharing in an organization as asserted by Ageshin (2001) and Croom and Brandon-Jones (2007) and saves the man-hours that would have been spent in teaching others, assist in ensuring fairness in teams as no one person in a team would be overworked and assist in making procurement personnel proactive and responsible.

### **5.3.3 Communication**

E-procurement improves communication by making information flow easier, quicker and eliminates the ambiguity in information. One click of a button results in relay of same information to several recipients concurrently - no one person has advantage over the other. For buyers, the valuable man-hours spent in splitting work packages to send by mail to each individual bidder are non-existent in the e-procurement era.

It can therefore be concluded that e-procurement in making communication quicker and easier also improves personnel efficiency as waste is eliminated. However, employee personal attitude to work and how proactive they are influences the extent of value to be derived from e-procurement in an organization.

It can also be concluded that e-procurement in improving communication helps prevent injustice which could be meted out to a bidder in the manual paper-based system in instances where the procurement personnel or buyer forgets to send the same information already sent to other bidders to a particular bidder. Here one click of a button results in same information to everybody at the same time.

#### **5.3.4 Efficiency**

E-procurement positively impacts efficiency through a reduction in; lead times, volume of paper work, administrative procedures, mistakes, level of effort of staff whilst increasing employee time to concentrate on their core technical roles.

Lead times for planning, raising contract request, approvals have all reduced. Volume of paperwork as suggested by Gardenal (2013) and Shalle *et al* (2013) and the associated time to save hard copy documents have reduced. Repetition of administrative processes has reduced as End-Users can duplicate contract request. Mistakes in risks assessments have reduced as contract requests are automatically routed to risks experts in the organization for their review, comments and approval. Mistakes of Buyers wrongly typing in Contractor's address and agreement reference have reduced as these are automatically updated as the agreement template is being downloaded.

End- User and Buyer efforts to achieve same result as the old paper-based system have reduced.

End-User effort in processing invoices has reduced as contractors are now required to create their own invoices in the system for End-Users to simply accept. Buyer efforts in splitting RFP Packages, sending mails and follow up calls have been saved.

Newmont's perceived impact of cost savings through e-sourcing has however not been achieved though there has been a reduction in sole-sourced services. Buyers are not

exploiting opportunities for savings through the use of e-auction on the e-sourcing portal of the system.

Whilst e-procurement can result in a reduction in prices paid, prices paid for services in Newmont have clearly not been affected with the implementation of e-procurement though it has resulted in more competitive tendering other than sole sourcing. Reasons discussed for this result implies that supplier co-operation in e-procurement deployment as well as their knowledge in information technology influences the extent of value a buying organization would derive from its e-procurement system. This also means that a buying organization's provision of e-procurement without getting the buy-in and appreciation of the system by its procurement personnel also influences the extent of value to be derived from the e-procurement system.

Supplier participation in tendering procedures had not improved contrary to statement by Gardenal (2013) that e-procurement promotes competitiveness and ensures higher level of supplier participation in tendering procedures.

It can be concluded that whilst e-procurement has the tendency to result in reduced prices; it could at the same time reduce competition resulting in lost opportunities for cost savings contradicting

Inferring from a confirmation of a reduction in paperwork and elimination of erroneous double payment in the old manual procurement practice, the implementation of e-procurement saves cost associated with purchasing paper and making undeserved payments to contractors.

### **5.3.5 Compliance**

E-procurement improves compliance to procurement processes. As discussed, End-User inability to complete request in the web-based system until all mandatory requirements have been provided or met such as completion of risk assessments has really improved compliance to processes in Newmont. Whilst this may be against the will of some end-users, they do not have choices and are only forced to comply to get their work done.

E-procurement also reduces maverick spending in organizations. The implementation of a system to control spending by requiring end-users to raise contract request and all contractor quotations except in the event of sole sourcing to be uploaded in system whilst restricting access to conduct a sourcing event to only buyers in the e-procurement system has been Newmont's sure way to reduce maverick spending. Though there remain a recorded number of cases of end-users developing "workarounds" not to comply, such occurrences has really reduced.

### **5.3.6 Planning and Forecasting**

E-procurement improves planning and makes it simple. End Users can plan their required services for a defined period within the system to guide them to know when to raise a contract request in order to ensure timely execution of contracts. Buyers can do same to also conduct their sourcing events on time considering the lead time for most sourcing events. This study however reveal that though the ERP SAP suite used for e-procurement in Newmont has a planning tool, it is really used and its value is not been realized.

## 5.4 PROBLEMS OF E-PROCUREMENT USAGE

The use of e-procurement in Newmont is not without challenges. Buyers and End Users face challenges in using the ERP system for e-procurement. Below are challenges confronting End-Users and suggested solutions;

- **Delay in Approval** – This is the commonest problem amongst all challenges faced by End-Users. Work request stay in an approver's workflow for as long as it is unapproved. The absence of time limits on approval is noted to contribute to this.

There are difficulties in re-routing request from one approver to other as it requires action from the contracts department.

It was suggested work items not attended to should be escalated to the next approver after a defined time limits.

Timely response from the contracts department on work requests which need to be moved from one approver's profile to another could greatly curb delay in getting approvals for works locked up in unavailable employee workflows.

- **Suppliers** – Suppliers do not understand and know how to navigate through the web-based system requiring them to constantly rely on End-Users any time they need to create invoices for work completed in the system or take part in a sourcing event.

It is suggested that more training should be organized for Suppliers/Contractors and Bidders should be taken through how to access the system and upload their RFP proposals.

- **System Notifications** – Some web-based system notifications are only sent to user's work-flow within the same web-based system and users only get to see work request when they log on into the system. These notifications remain unseen as long



as a user does not log into the system because the notifications are not routed to user's outlook mails which are always opened during working hours.

Routing of all system-generated mails to employee emails is suggested to resolve this problem.

- **Network Challenges** – Technology problems such as a freeze in the web-based system when users are working in the system and requirement to start all over again when the problem is resolved.
- **T-Codes** – End-Users have difficulties understanding the implications of the selecting certain T-Codes. Some T-Codes are simply selected complete request whether they are right or wrong. To resolve this issue, continuous training should be organized for End-Users.
- **Under-utilization of the e-procurement web-based System** – End Users are not exploiting a lot of applications available in the SAP suite for their benefit. The use of e-learning and face-to-face training would enable End-Users exploit opportunities available to them.

For Buyers, there are two challenges they are confronted with in using the web-based system;

- **Suppliers** – Suppliers find it difficult to navigate through the web-based system to participate in sourcing events, download and upload agreements. Suppliers are also noted to keep changing their contact persons who work in the system on their behalf resulting in Buyers teaching new contractor contacts always.

Continuous training for the suppliers is suggested to resolve this problem

- **Network Challenges** – The least internet problem results in inability to access the system



## **5.5 RECOMMENDATIONS**

The recommendations are;

### **5.5.1 Newmont continuous use of e-procurement**

First and foremost, Newmont Ghana Gold Limited should continue with the use of e-procurement for its procurement practice.

The implementation of e-procurement in Newmont Ghana Gold Limited has resolved the identified challenges of lack of transparency and poor compliance identified by the organization. Even though the challenge of loss of opportunities for savings opportunities has not been addressed by the implementation of e-procurement, this is only one out of three applicable identified challenges and could be addressed. Also, all the other challenges identified by the Organization's End User's and Buyers have been resolved by the implementation of e-procurement except delay in getting approvals.. Then again this is only one out of seven identified problems.

### **5.5.2 Establishment of Time lines for request approval**

The web-based system should be upgraded to define time lines for approving request. All request not approved within such timeline should be automatically routed to the employee's superior. This would coerce approvers to be proactive in approving request to ensure work get done on time.

### **5.5.3 Continuous Training for all End-Users, Buyers and Contractors**

Continuous e-learning and face-to-face training should be conducted for End-Users and Contractors on the use of the web-based e-procurement systems in carrying out required task and full utilization of the system. For End-User approvers, emphasis should be on how to approve work request and delegate financial authority to someone else so that

work can continue in the person's absence. End-Users should be taught the meaning and implications of the various codes they select to ensure codes are not just simply selected without being thought through.

Contractors should be taught how to access the system, download RFP package and agreements, enter bid prices and further upload their proposals and signed agreements. They should also be encouraged to teach other key personnel of their team to ensure that the absence of one person in their organizations does not put a stop to all activities which must be undertaken in the system.

#### **5.5.4 Newmont Buyers' Use of Auctions**

To resolve the challenge of lost opportunities for savings and realize Newmont's perceived impact of cost savings from the implementation of e-procurement, the Organization's Buyers should be encouraged to use the reverse auction tools available in the SAP suite in order to achieve the savings desired. The use of reverse auction should be a key performance indicator for all Buyers.

Secondly, the Business Process Team of the Supply Chain Management Department in collaboration with Buyers' superiors should periodically review services contracted to determine if there were opportunities using reverse auctions. This would encourage Buyers to use the reverse auction to realize the desired savings anticipated by the Organization.

#### **5.5.5 Routing of all System-generated notifications to Employee outlook mail**

All System generated notifications on required tasks should also be routed to the responsible person's outlook email address instead of only the person's work flow home page to ensure timely execution of tasks especially approval of requests.

#### **5.5.6 Consideration of use of e-procurement by other Organizations**

All corporate organizations especially those in the mining industry should consider the use of e-procurement to help overcome the challenges of the traditional manual paper-based system such as lack of transparency and poor compliance with organizational procurement processes and procedures. Valuable benefits such as improved record keeping, communication, efficiency and planning are all free offers of e-procurement in addition to transparency and compliance.

#### **5.5.7 Consideration of use of e-procurement for Public Procurement in Ghana**

The government of Ghana should roll out e-procurement for public procurement in Ghana. This would improve transparency in processes to help curb corruption in procurement in Ghana as well all provide the opportunities e-procurement brings such as improved efficiency.

#### **5.5.8 Practical Hands-On Training for Students**

E-procurement should be taught better in schools by providing students the opportunity to try their hands on e-procurement web-based systems. This would enable students appreciate e-procurement's relevance and be ready to use them in their respective organizations should they find themselves in such.

### **5.6 LIMITATIONS OF RESEARCH**

This study is be limited by;

Newmont's redundancy exercises have reduced the population for study as some employees who are experienced with both the old practice and new system are no more in the Organization and not accessible to the researcher. This particularly affected the population for the buyers.

Also, the limited time available to complete this study limits the researcher's ability to include the impact of e-procurement on procurement practice from supplier's perspective.

Complete e-procurement was rolled out in Newmont in February 2013 so the experience drawn from the end-users and buyers is from their eighteen months experience in using the e-procurement system. Problems recorded therefore are limited to their eighteen months of experience.

## **5.7 RECOMMENDATION FOR FURTHER RESEARCH**

It is recommended that this study is extended to more companies currently using e-procurement to determine e-procurement impact in various organizations and the factors for successful e-procurement deployment.

This study should also be extended and further studies done to determine the impact of e-procurement on the entire supply chain.

It is also recommended that further studies should be undertaken on the role of suppliers in the success of e-procurement deployment in a buying organization.

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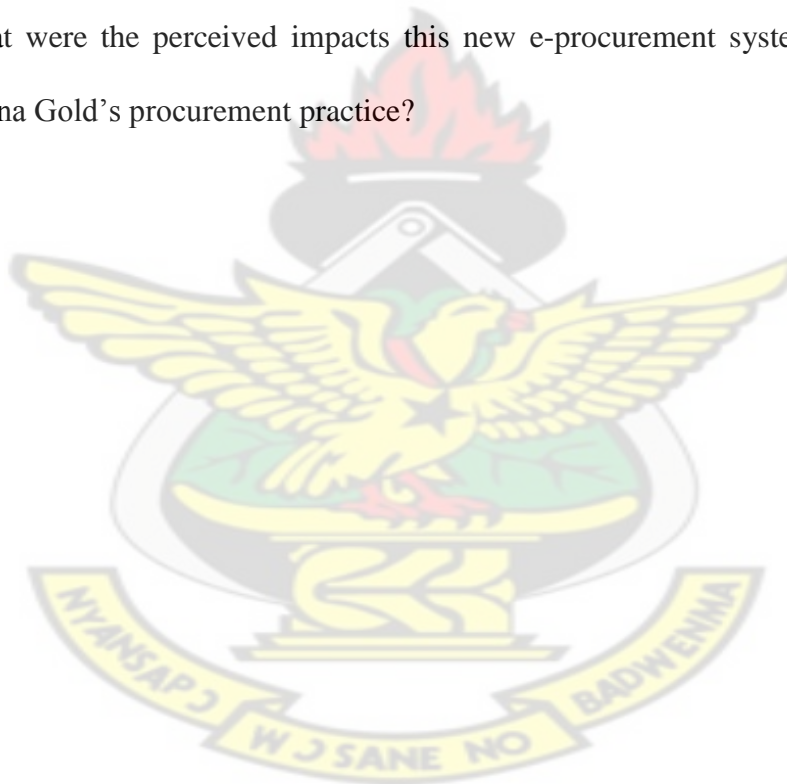
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## **APPENDIX A**

### **Interview guide for Interview with Supply Chain Subject Matter Expert**

1. How was procurement done in Newmont prior to the implementation of e-procurement?
2. Why was this old practice changed to e-procurement?
3. What were the challenges with this old procurement practice?
4. What kind of e-procurement system is used in Newmont Mining Corporation?
5. How is it used?
6. What were the perceived impacts this new e-procurement system on Newmont Ghana Gold's procurement practice?





# KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

## RESEARCH QUESTIONNAIRE FOR END-USERS

### THE IMPACT OF E-PROCUREMENT ON PROCUREMENT PRACTICE; A CASE STUDY OF NEWMONT GHANA GOLD LIMITED

**Introduction:** You are kindly requested to complete this questionnaire which is to collect data for academic purposes only. All information would be kept confidential. The study is to establish the impact of e-procurement on Newmont's procurement practice. A Comparison of your experiences prior to the implementation of SAP (web-based e-procurement) for procurement of services and experiences after the implementation of SAP is required to be able to complete this questionnaire.

Below is a summary of the major changes that have occurred as a result of implementing SAP for procurement of services in Newmont for End Users. This is to remind you of key activities in order to complete the questionnaire;

#### End Users

Phase	Previous	Current
Planning	Paper Based	Planning tool in E-Sourcing Portal
Request for Contracts	Completion of "Request for Contract Action" Form	Raise "Contract Request Form" in E-Sourcing Portal
Processing Payment	Paper based approval of invoices - Approvers with required financial authority to stamp and sign on invoices	Creating service entry sheets in ECC or accepting in ECC, service confirmations created by Contractors in their SRM Portal

*Using the ECC, SRM and E-Sourcing applications in SAP for procurement in Newmont is thought to have impacted the six variables in the Table below in relation to procurement. Please rank the variables in descending order from most impacted which is 6 to least impacted which is 1 to indicate the impact ECC, E-Sourcing and SRM in SAP has had on Newmont's procurement practice in relation to procurement of services only.*

***NB: Please note that 6 means most impacted and 1 means least impacted***

<b>Impact Theme</b>	<b>Description</b>	<b>Rank</b>
Compliance	Impact on; <ul style="list-style-type: none"> <li>• End Users complying with Newmont's laid down procedures for procurement. Example; completing Contract Request Form (CRF) in E-Sourcing Portal.</li> <li>• End Users authorizing contractors to start a service for which there is no contract or service order.</li> </ul>	
Efficiency	Impact on; <ul style="list-style-type: none"> <li>• volume of paperwork</li> <li>• mistakes, repetition of administrative procedures</li> <li>• User Efforts to complete same tasks as previous paper-based system and time to concentrate on core activities</li> <li>• cycle times for completing; planning, contract request, getting approvals and processing invoices for payments</li> </ul>	
Communication	Impact on; <ul style="list-style-type: none"> <li>• ease of flow information</li> <li>• speed of flow of information</li> </ul>	
Planning and Forecasting	Impact on planning and forecasting for Services	
Transparency	Impact on transparency into processes and work load	
Record Keeping and Retrieval of Documents	Impact on record keeping and retrieving documents	

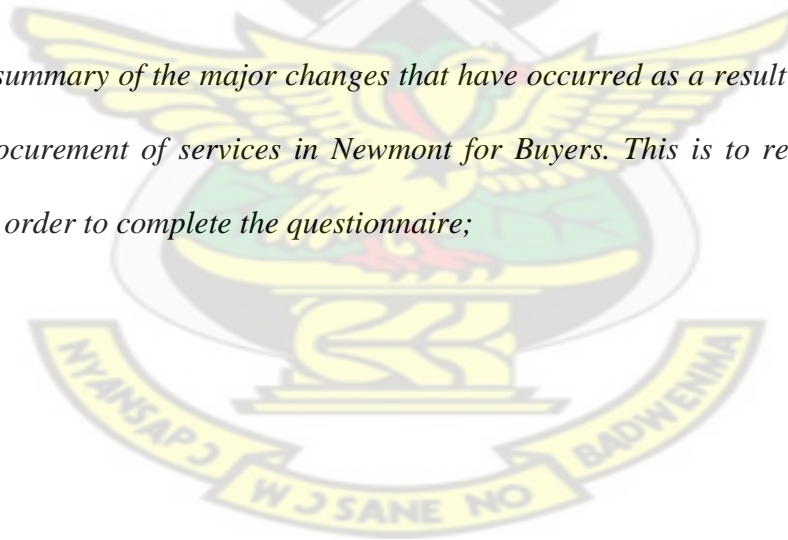
**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**RESEARCH QUESTIONNAIRE FOR BUYERS (CONTRACT  
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*Below is a summary of the major changes that have occurred as a result of implementing SAP for procurement of services in Newmont for Buyers. This is to remind you of key activities in order to complete the questionnaire;*



Procurement Cycle Activity	Previous	Current
Planning	Plan for End-User's services in personal notebooks	Plan for End-Users services in E-Sourcing Portal
Request for Contracts	End User completion of "Request for Contract Action" (RCA) Form	End- User Raising "Contract Request Form" in E-Sourcing Portal
Contract Sourcing	Buyer either mails soft copy bid documents to Contractor's e-mail address or Contractor comes to receive hard copy bid document from Newmont's Office.	Electronic sourcing on E-Sourcing Portal.
	In response, bidder either mails soft copy proposal to Newmont's e-mail address or sending a hard copy proposal to Newmont's Office. Both could be required.	Bidder responds on E-Sourcing Portal , uploads soft copy proposal and sends identical hard copy response proposal on some occasions to Newmont
	Evaluation was manual paper-based	System-based scoring or evaluation done outside the system
	On notification of Award, scanned Contract Award Letters and notices of unsuccessful bidding were sent by email to successful bidder and unsuccessful bidders respectively. Hard copy letters sent on rare occasions.	A notification of award is generated from the system and routed to the successful bidder. Formal award letters or notification of unsuccessful bidding is prepared by the Contract Administrator and sent outside the system and saved to the bid
Contract Development and Maintenance	Select appropriate contract template from shared drive and complete as appropriate	Select appropriate contract template from SAP system and complete as appropriate
	Send soft copy agreement to Contractor by email or Contractor comes to receive hard copy contract document from Newmont Office	Upload soft copy in E-Sourcing Portal for Contractor to download
Contract Execution	Contractor signed agreement sent by email to Buyer or delivered hard copy signed agreement to Buyer. Completed executed agreement saved in agreement folder on s-drive and a copy sent by email to Contractor. Hard copy agreement also sent on some occasions	Contractor uploads soft copy signed agreement in e-sourcing portal. Buyer downloads signed agreement and completed executed document is uploaded in e-sourcing for Contractor to download
Contract Administration	All records, claims and disputes saved in contract folder on shared drive. Change Orders and Variations initiated using RCA Form	All records, claims and disputes saved in contract folder in e-sourcing portal. Change Orders and Variations initiated using CRF in e-sourcing portal
Contract Close Out	Contractor release form sent to contractor for signing through email or printed hard copy form forwarded to contractor.	Contractor release form sent to contractor for signing through email or on e-sourcing portal

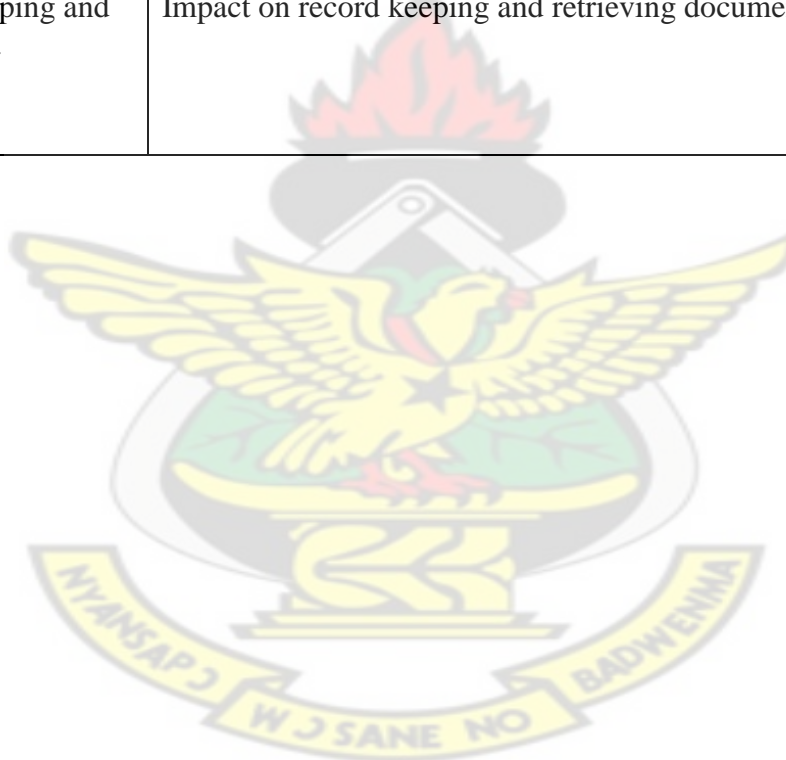
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*Please rank the variables in descending order from most impacted which is 6 to least impacted which is 1 to indicate the impact ECC, E-Sourcing and SRM in SAP has had on Newmont's procurement practice in relation to procurement of services only.*

***NB: Please note that 6 means most impacted and 1 means least impacted***

Impact Theme	Description	Rank
Compliance	Impact on; <ul style="list-style-type: none"> <li>• End-Users complying with Newmont's laid down procedures for procurement. Example; completing Contract Request Form (CRF) in E-Sourcing Portal.</li> <li>• End Users authorizing contractors to start a service for which there is no contract or service order.</li> <li>• Buyers' complying with Newmont's laid down procedures for procurement; that is Contract Sourcing, Contract Development and Maintenance, Contract Execution, Contract Administration and Close Out.</li> </ul>	
Efficiency	Impact on; <ul style="list-style-type: none"> <li>• volume of paperwork</li> <li>• mistakes, repetition of administrative procedures</li> <li>• Buyers effort to complete same tasks as previous paper-based system and time to concentrate on core activities</li> <li>• cycle times for completing; contract sourcing, contract development and maintenance,</li> </ul>	

	<p>contract execution, contract administration and contract close out</p> <ul style="list-style-type: none"> <li>• Supplier participation and competitiveness in sourcing events</li> <li>• Prices paid for Services</li> </ul>	
Communication	<p>Impact on;</p> <ul style="list-style-type: none"> <li>• ease of flow information</li> <li>• speed of flow of information</li> </ul>	
Planning and Forecasting	Impact on planning and forecasting for Services	
Transparency	Impact on transparency into processes and work load	
Record Keeping and Retrieval of Documents	Impact on record keeping and retrieving documents	





**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**RESEARCH QUESTIONNAIRE FOR END-USERS**

**THE IMPACT OF E-PROCUREMENT ON PROCUREMENT PRACTICE; A**

**CASE STUDY OF NEWMONT GHANA GOLD LIMITED**

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*Below is a summary of the major changes that have occurred as a result of implementing SAP for procurement of services in Newmont for End Users. This is to remind you of key activities in order to complete the questionnaire;*

Phase	Previous	Current
Planning	Paper Based	Planning tool in E-Sourcing Portal
Request for Contracts	Completion of "Request for Contract Action" Form	Raise "Contract Request Form" in E-Sourcing Portal
Processing Payment	Paper based approval of invoices - Approvers with required financial authority to stamp and sign on invoices	Creating service entry sheets in ECC or accepting in ECC, service confirmations created by Contractors in their SRM Portal

## **SECTION A**

*Please answer by ticking in the appropriate box provided*

1. What is the effect of SAP on End-Users authorizing Contractors to start services for which a contract has not been signed or service order has not been raised (i.e. in the case of low risk services) by the Contracts department?

Greatly reduced such occurrences	Reduced such occurrences	No effect at all	Increased such occurrences	Greatly increased such occurrences
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. What is the effect of SAP on End-User's compliance with Newmont's procurement processes?

Greatly increased compliance	Increased compliance	No effect at all	Reduced compliance	Greatly reduced compliance
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Use of SAP for procurement allows End-Users to achieve the same results as the old paper-based system in the following;

	Within a much shorter time	Within a Shorter time	No effect on time at all	Within a longer time	Within a much longer time
Planning for Services required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Completing request for contracts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Getting approvals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Processing invoices for payments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. What is the effect of using SAP for procurement on the following ;

	Greatly reduced	Reduced	No effect at all	Increased	Greatly increased
Volume of Paperwork	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repetition of administrative procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mistakes which could have occurred in the old paper-based system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
End-User efforts to achieve same results as old paper-based system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
End-Users time to concentrate on their core activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. What is the impact of SAP on the following;

	Greatly improved	Improved	No effect at all	Hindered	Greatly hindered
Transparency in processes or activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Planning and forecasting of Services required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Record Keeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ease in retrieval of Documents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. What is the effect of SAP on communication in procurement?

	Extremely Quicker	Quicker	No effect at all	Slower	Extremely slower
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Speed of flow of information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Extremely easier	Easier	No effect at all	Difficult	Extremely Difficult
Ease of flow of information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Please write any other effects of SAP on your required activities in Newmont's new e-procurement system comparing the old and new and indicate whether the impact/effect is great or minimal.

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## **SECTION B**

1. What problems/challenges do you currently have using the SAP System for your required procurement activities as an End-User?

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2. What can be done to resolve these problems/challenges?

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## **SECTION C**

1. What challenges did you have in planning your required services prior to SAP implementation?

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2. What challenges did you have in raising contract request (RCA) prior to SAP implementation

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3. What challenges did you have in processing invoices for contractors to be paid prior to SAP implementation?

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4. Has the implementation of SAP resolved these problems?

Yes ☐

No ☐

Partially ☐

5. If No or Partially, Please indicate the problems which remain unsolved

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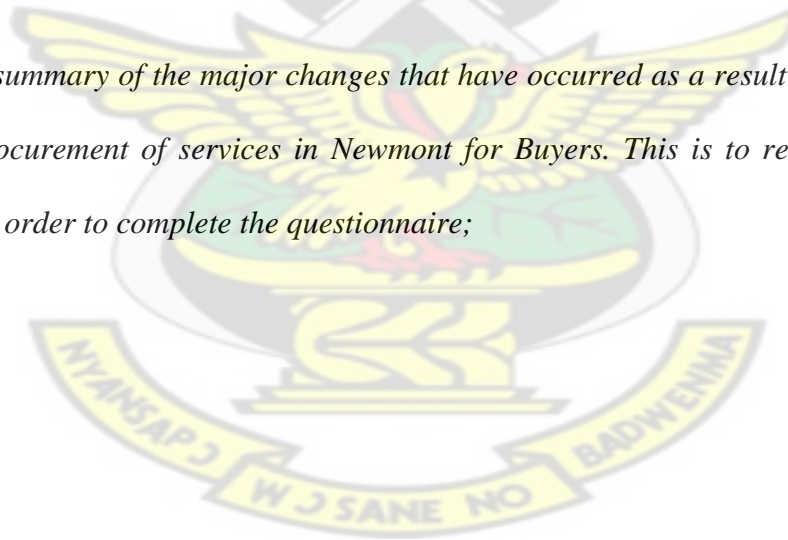
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*Below is a summary of the major changes that have occurred as a result of implementing SAP for procurement of services in Newmont for Buyers. This is to remind you of key activities in order to complete the questionnaire;*





Procurement Cycle Activity	Previous	Current
Planning	Plan for End-User's services in personal notebooks	Plan for End-Users services in E-Sourcing Portal
Request for Contracts	End User completion of "Request for Contract Action" (RCA) Form	End- User Raising "Contract Request Form" in E-Sourcing Portal
Contract Sourcing	Buyer either mails soft copy bid documents to Contractor's e-mail address or Contractor comes to receive hard copy bid document from Newmont's Office.	Electronic sourcing on E-Sourcing Portal.
	In response, bidder either mails soft copy proposal to Newmont's e-mail address or sending a hard copy proposal to Newmont's Office. Both could be required.	Bidder responds on E-Sourcing Portal , uploads soft copy proposal and sends identical hard copy response proposal on some occasions to Newmont
	Evaluation was manual paper-based	System-based scoring or evaluation done outside the system
	On notification of Award, scanned Contract Award Letters and notices of unsuccessful bidding were sent by email to successful bidder and unsuccessful bidders respectively. Hard copy letters sent on rare occasions.	A notification of award is generated from the system and routed to the successful bidder. Formal award letters or notification of unsuccessful bidding is prepared by the Contract Administrator and sent outside the system and saved to the bid
Contract Development and Maintenance	Select appropriate contract template from shared drive and complete as appropriate	Select appropriate contract template from SAP system and complete as appropriate
	Send soft copy agreement to Contactor by email or Contractor comes to receive hard copy contract document from Newmont Office	Upload soft copy in E-Sourcing Portal for Contractor to download
Contract Execution	Contractor signed agreement sent by email to Buyer or delivered hard copy signed agreement to Buyer. Completed executed agreement saved in agreement folder on s-drive and a copy sent by email to Contractor. Hard copy agreement also sent on some occasions	Contractor uploads soft copy signed agreement in e-sourcing portal. Buyer downloads signed agreement and completed executed document is uploaded in e-sourcing for Contractor to download
Contract Administration	All records, claims and disputes saved in contract folder on shared drive. Change Orders and Variations initiated using RCA Form	All records, claims and disputes saved in contract folder in e-sourcing portal. Change Orders and Variations initiated using CRF in e-sourcing portal
Contract Close Out	Contractor release form sent to contractor for signing through email or printed hard copy form forwarded to contractor.	Contractor release form sent to contractor for signing through email or on e-sourcing portal

## **SECTION A**

*Please answer by ticking in the appropriate box provided*

1. What is the effect of SAP on End-Users authorizing Contractors to start services for which a contract has not been signed or service order has not been raised (i.e. in the case of low risk services) by the Contracts department?

Greatly reduced such occurrences	Reduced such occurrences	No effect at all	Increased such occurrences	Greatly increased such occurrences
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. What is the effect of SAP on Buyer's compliance with Newmont's procurement processes?

Greatly increased compliance	Increased compliance	No effect at all	Reduced compliance	Greatly reduced compliance
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Use of SAP for procurement allows Buyers to achieve the same results as the old paper-based system in the following;

	Within a much shorter time	Within a Shorter time	No effect on time at all	Within a longer time	Within a much longer time
Planning for Services required by End-Users	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Determining the Sourcing approach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identify potential suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Prepare bid package	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prepare bid evaluation criteria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conduct sourcing event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evaluate proposals Processing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notification of Award	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contract Development and Notification of Award	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contract Execution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. What is the effect of using SAP for procurement on the following ;

	Greatly reduced	Reduced	No effect at all	increased	Greatly Increased
Volume of Paperwork	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repetition of administrative procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mistakes which could have occurred in the old paper-based system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Buyer efforts to achieve same results as old paper-based system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Buyers time to concentrate on their core activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. SAP has resulted in the following effects;

	Remarkable reduction	Reduction	No effect at all	Increase	Remarkable Increase
Supplier participation in bidding and competitiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prices of Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. What is the effect of SAP on communication in procurement?

	Extremely Quicker	Quicker	No effect at all	Slower	Extremely Slower
Speed of flow of information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Extremely easier	Easier	No effect at all	Difficult	Extremely difficult
Ease of flow of information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. What is the impact of SAP on the following;

	Greatly improved	Improved	No effect at all	Hindered	Greatly hindered
Transparency in processes and activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Planning and forecasting of Services required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. What is the effect of SAP on the following;

	Much improved	Improved	No effect at all	Hindered	Greatly Hindered
Record Keeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ease in retrieval of Documents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Please write any other effects of SAP on your required activities in Newmont's new procurement system comparing the old and new and indicate whether the impact/effect is great or minimal.

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## **SECTION B**

3. What problems/challenges do you currently have using the SAP System for the required procurement activities as a Buyer?

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4. What can be done to resolve these problems/challenges?

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## **SECTION C**

1. What challenges did you have in planning End-Users' required services prior to SAP implementation?

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2. What challenges did you have in processing contract request (RCA) prior to SAP implementation

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3. What challenges did you have in sourcing (determining the sourcing approach, identifying potential suppliers, preparing bid package and bid evaluation criteria, conducting sourcing, evaluating proposals, notification of awards) prior to SAP implementation?

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4. What challenges did you have in contract development and maintenance (preparation of contract documents and forwarding to contractors) prior to SAP implementation?

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5. Has the implementation of SAP resolved these problems?

Yes ☐

No ☐

Partially ☐

6. If No or Partially, Please indicate the problems which remain unsolved

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## APPENDIX B

### DATA COLLECTED FROM QUESTIONNAIRES

**Appendix BI:** Challenges confronting End-Users in Newmont's old procurement system

*Table 6.1 End-User challenges of old procurement system*

Problem	Frequency
Voluminous paperwork and too much time spent creating space to store paper documents	7
Lack of Transparency into processes	9
Delay in getting approvals	10
So much effort required in getting invoices approved	6
Long contract request process	1
Fatigue going through so much paperwork	2
Missing documents	8
Lack of knowledge on contract request requirements	2

**Appendix BII** Challenges confronting Buyers in Newmont's old procurement practice

*Table 6.2 Buyer challenges of old procurement system*

Problem	Frequency
Voluminous paperwork and too much time spent creating space to store paper documents	3
Lack of Transparency into processes and workload	3
Hard copy documents being destroyed by liquids	1
Inability to send some RFP Packages due to size e-mail size limits	2
Confidentiality of bids compromised	1
Missing documents	3
Limited space to store for bulky RFP proposals	2
Tedious evaluation and time consuming	1
Difficulty monitoring bid deadlines	2
Difficulty to restrict late bids	1

## APPENDIX BIII – Ranking of Impact Themes

*Table 6.3 Ranking of Impact Themes*

Impact Theme / Ranking	6	5	4	3	2	1
Compliance	0	12	13	15	7	0
Efficiency	8	15	3	10	6	5
Record Keeping and Retrieval of Documents	24	8	5	4	5	1
Transparency	20	12	4	6	5	0
Communication	11	10	8	9	6	3
Planning and Forecasting	0	0	6	8	8	25

## APPENDIX BIV – Impact on the Identified Impact Themes

*Table 6.4 Impact on Record Keeping and Retrieval of Documents*

Impact Variable	Frequency
Improved record keeping and ease in retrieving documents	23
No effect on record keeping	1
Hindered record keeping and ease in retrieving documents	1

***Table 6.5 Impact on Transparency***

<b>Impact Variable</b>	<b>Frequency</b>
Improved transparency	24
No effect on transparency	1
Hindered transparency	0

***Table 6.6 Impact on Ease of Flow of Information***

<b>Impact Variable</b>	<b>Frequency</b>
Information flow made easier	24
No effect at all	1
Information flow made difficult	0

***Table 6.7 Impact on Speed of Flow of Information***

<b>Impact Variable</b>	<b>Frequency</b>
Information flow made quicker	23
No effect at all	0
Information flow made slower	2

***Table 6.8 Impact on lead time for planning***

<b>Impact Variable</b>	<b>Frequency</b>
Planning within a shorter time	14
No effect at all	6
Planning within a longer time	5

***Table 6.9 Impact on Compliance***

Impact Variable	Frequency
Increased compliance	21
No effect on compliance	3
Reduced compliance	1

***Table 6.10 Impact on Maverick Spending***

Impact Variable	Frequency
Reduces occurrences of maverick spending	19
No effect at all	5
Increases occurrences of maverick spending	1

***Table 6.11 Impact on Planning and Forecasting***

Impact Variable	Frequency
Improvement in planning and forecasting	13
No effect at all	12
Hindered planning and forecasting	0



## APPENDIX BV – Summary of Problems of E-Procurement Identified By End-Users

*Table 6.12 End-User problems of e-procurement system*

Problem Description	Frequency	Suggested Solution
Delay in Approvals	2	
Network Challenges	3	
Bureaucracy in getting approvals	1	
Delay in approvals from HSLP/ESR	1	
System does not generate notifications to outlook mails. Notifications are sent to work flow and one has to log into SAP to see it ,making approval long	4	All system-generated notifications should be routed to outlook mails
System does not have time limits within which unattended work request would escalate to next approver	1	System should have time limits within which unattended work request would escalate to next approver
Too much power for approver who can just cancel request without justification	1	Requesters should upload details of work request for managers to see and approve
Suppliers don't understand the system making things difficult	3	Training should be organized for contractor/Suppliers
Suppliers don't know how to bid in the system so they cannot submit quotations	2	Bidders should be taught how to bid and upload their proposals in the system
Approval can be gotten from only specific approvers making it difficult to get approvals when one is out of office or on leave or when the person to approve is not directly involved in the work	1	

Some approvers fail to delegate their authority when leaving the office making approval difficult	1	Training for approvers on how to delegate financial authority
Difficulty in re-routing work from one approver to the next approver when he is not in the office. You need to raise a ticket, wait for days for it to be worked on.	1	Such reported cases should be worked on swiftly by the Contracts department
So many T-Codes to remember making it difficult once you forget.	2	More training should be organized for end-users and some options in the system should be defaulted
There are so many things one needs to know and are not easy to understand	1	More training should be organized for end-users
A lot of functionalities to make work easier but don't know how to use them; - under-utilization	1	e-learning and face-to-face training
Approvers still wait to be prompted even though the work would have been routed to them in their profile resulting in delay in approvals	1	Approvers should check their work-flow early to ensure timely approvals and get the quick turn around the system is intended for
Options are chosen to get work completed without understanding the consequences and implications of those options	1	More training should be organized for end-users
Some vendors names in the system are wrongly spelt, making it difficult and time consuming searching for them	1	

## APPENDIX BVI – Summary of Problems of e-procurement identified by Buyers

*Table 6.13 Buyer problems of e-procurement system*

Problem Description	Frequency	Suggested Solutions
Contractors find it difficult to navigate through the system	3	More training for suppliers
Suppliers keep changing contact persons	1	

