

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI  
KNUST SCHOOL OF BUSINESS

ASSESSING THE ROLE OF E-PROCUREMENT ON SUPPLY CHAIN  
MANAGEMENT IN A MINING AREA: THE CASE OF ANGLOGOLD ASHANTI  
IDUAPRIEM (TARKWA) LIMITED.

A Thesis submitted to the Department of Information System and Decision Science,  
Kwame Nkrumah University of Science and Technology in partial fulfilment of the  
requirements for the degree of MASTER IN BUSINESS ADMINISTRATION (Logistics  
and Supply Chain Management) School of Business, College of Art and Social Sciences

BY

JAMES YAW OSEI - OWUSU

B. A. (HONS) ECONOMICS AND SOCIOLOGY

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## DECLARATION

I here by declare that this submission is my own work towards the MBA 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 acknowledgment has been made in the text.

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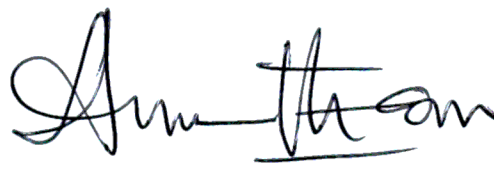
MR. DAVID ASAMOAH  
Supervisor

  
.....  
Signature

16/10/09  
.....  
Date

Certified by:

MR. JONATHAN ANNAN  
Head of Department

  
.....  
Signature

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## DEDICATION

I dedicate this academic work to the late Mr. Dominic Nsiah my former lecturer in business forecasting.

Sir, your words of inspiration and fatherly advice inspired most of us to gather courage, strength and passion for the course.

It is rather unfortunate you did not live to see our graduation, your untimely death has created a big vacuum in our lives.

May the Almighty Lord grant you peace and a perfect resting place till we meet again.



## ACKNOWLEDGEMENT

It will be a mark of ingratitude for me to claim all the credit for this work. At the same time it is equally impossible for me to mention the names of all the kind of people who have helped me in diverse ways in my education culminating in the successful completion of this work. However, I feel morally bound to thank a few here, for their exceptional contributions.

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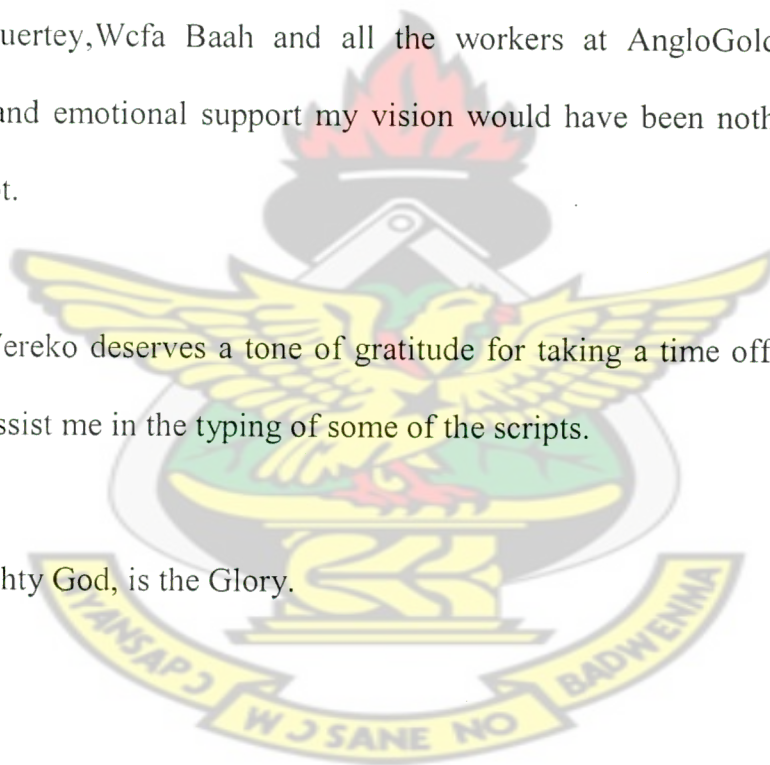
I equally owe a social debt of gratitude to a host of intellectuals, friends and loved ones such as my dear wife, Josephine Osei, Janice Jessica Osei and Blessing Fortunar Osei my daughters, Mr. Kwadwo Osei- Amo, Registrar Presbyterian University College, Mr.



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Above all, to the Almighty God, is the Glory.



## ABSTRACT

The introduction of Legacy systems and Enterprise Resource Planning Systems, (ERPS) as well as the current Information Technologies (IT) such as Electronic Data Interchange (EDI) and Enterprise Application Integration (EAI) has made the global business environment very competitive and highly electronic. This has made many companies and business entities move away from their manual process of doing business. The purpose of this project work is to do a thorough analysis on the importance of using e –procurement at work places and also ascertain whether e-procurement can help combat corruption and fraud and finally assess some of the problems involved in using e-procurement at work establishments. The research methodology adopted to collect the data in the field concerning the problem included questionnaire, interview and personal observation. The outcome of the study revealed that the use of a software system and the adoption of an effective internal control measures can help combat corruption and fraud. The study also revealed that e-procurement is a sound solution for companies to initiate the e-wave as it promises high cost savings. Savings to benefit- include a reduction in ordering and delivering times, purchasing, transaction and hiring of labour. Maverick spending (off contract purchasing) is also reduced through better controlled purchases.

Recommendations were made to companies and other corporate bodies to adopt e-procurement in their business activities in order to enable them enjoy the numerous benefits that come with the practice of e-procurement and also help them to overcome some of the problems associated with their supply chain activities such as oscillations of inventories, inventory stock outs and late deliveries.

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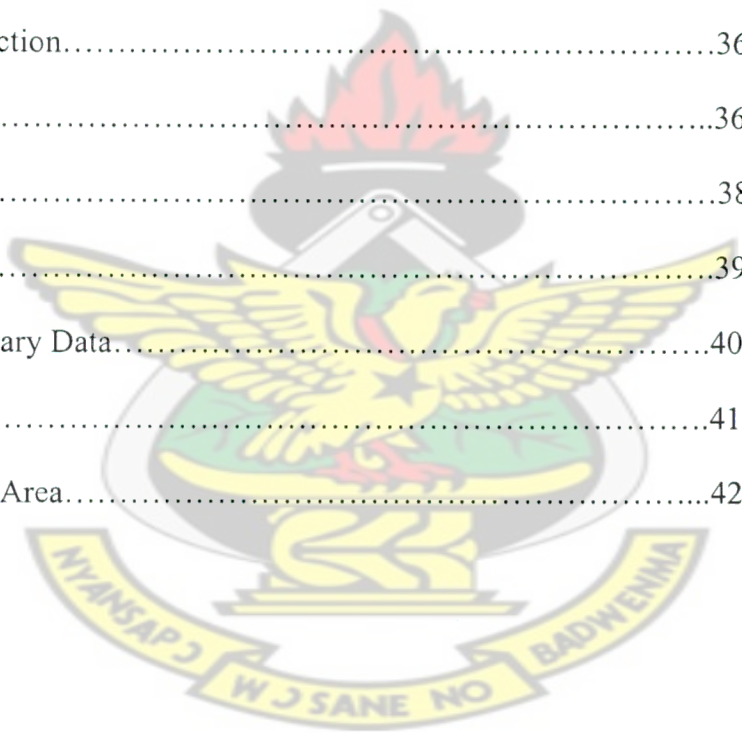
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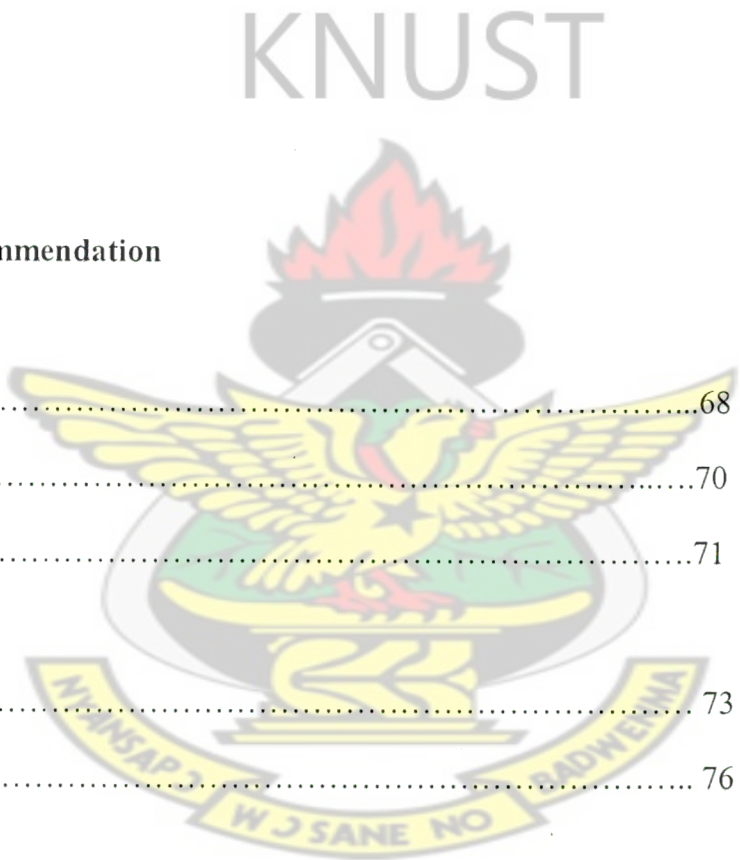
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## **LIST OF ACRONYMS**

1. AGC.....AngloGold Ashanti
2. AIDS.....Acquired Immune Deficiency Syndrome
3. AT.....Agency Theory
4. B2B.....Business to Business
5. CGML.....Chirano Gold Mines Limited
6. CIP.....Carbon-In-Pulp
7. DSD.....Direct Store Delivery
8. EAI.....Enterprise Application Integration.
9. EDI..... Electronic Data Interchange
10. E-Logistics..... Electronic Logistics
11. EPA.....Environmental Protection Agency
12. E-Procurement.....Electronic Procurement.
13. ERP..... Enterprise Resource Planning
14. E-Wave..... Electromagnetic Wave.
15. GDP.....Gross Domestic Product
16. GEMMWU..... General Manufacturing Metal Workers Union
17. GMWU.....Ghana Mine Workers Union
18. GNPC.....Ghana National Petroleum Corporation.
19. IBM..... International Business Machines.
20. IFC.....International Finance Corporation
21. IT.....Information Technology
22. KBV.....Knowledge Based View

23. LTIFR.....Lost Time Injury Frequency Rate

24. MLTIFR.....Malaria Lost Time Injury Frequency Rate

25. MRO..... Maintenance Repair and Overhaul

26. NP.....Network Perspective

27. PNDCL.....Provisional National Defence Council Law

28. PO.....Payment Orders

29. RBV.....Resource Based View

30. SAP..... System –Analyse And Programmentwicklung

31. SC.....Supply Chain

32. SCM..... Supply Chain Management

33. SCT.....Strategic Choice Theory

34. SPSS.....Statistical Package for Social Science

35. ST.....System Theory

36. TCA.....Transaction Cost Analysis

37. VCT.....Voluntary Counselling and Testing

38. 3PL.....Third Party Logistics





## CHAPTER ONE

### INTRODUCTION

#### 1.0 Background

The Republic of Ghana covers an area of 238,540 square kilometers (km<sup>2</sup>) on the coast of West Africa and supported a population of about 20.6 million in 2003. Ghana was primarily an agricultural economy; this sector accounted for about one- third of the gross domestic product (GDP) and more than 50% of the labour force. Formal mining and quarrying accounted for approximately 25% of the GDP and about 10% of Government revenues and employed about 14,000 workers, or less than 1% of the labour force. Artisanal mining which is locally known as “galamsey,” may have accounted for an additional 100,000 people involved in diamond, gold, and industrial mineral exploitation, some of which was illegal. Ghana was the second leading gold producer in Africa after South Africa, the third leading African producer of aluminium metal and manganese ore, and a significant producer of bauxite and diamond. In addition, a number of industrial minerals, which included clays (kaolin), dimension stone, limestone, salt, sand and gravel, and silica sand, were produced on a small scale (Barning, 1997, p. 1). The GDP based on purchasing power parity was \$44.44 billion with an estimated real growth rate of 4.7% compared with 5.8% in 2002. The GDP per capita was estimated to be \$2,200. The inflation rate increased to 26.7% from 14.8% in 2002 (U.S. Central Intelligence Agency, 2004§1).

Legislation that affects mining and mineral exploration in Ghana includes the Minerals and Mining Law, 1986 (PNDCL 153), as amended by the Minerals and Mining (Amendment) Act, 1994 (Act 475); The Investment Promotion Act, 1994 (Act 478); the Additional Profits

Tax Law, 1985 (PNDCL 122); the Minerals Commission Law, 1986 (PNDCL154); the Minerals (Royalties) Regulations, 1987 (LI 1349), the Environmental Protection Agency Act, 1994 (Act 490), and the Environmental Assessment Regulations, 1999, and as amended, 2002. The 1986 mining law had been instrumental in attracting more than \$5 billion in foreign investment to the Ghanaian mining industry between 1986 and 2002. Act 475 reduced the 45% general mining corporate tax rate to 35%, which is the same as that imposed on other industries. The Petroleum (Exploration and Production) Law, 1984 (PNDCL 84), sets out the policy framework and describes the role of the Ministry of Mines and Energy, which regulates the industry. Ghana National Petroleum Corporation (GNPC), which is empowered to undertake petroleum exploration and production on behalf of the Government, is authorized to enter joint ventures and production-sharing agreements with commercial organizations; GNPC was established under the GNPC Law of 1983 (PNDCL 64). The regulation of artisanal gold mining is set forth in the Small-Scale Gold Mining Law, 1989 (PNDCL 218). The Precious Minerals Marketing Corporation Law, 1989 (PNDCL 219), set up the Precious Minerals Marketing Corporation (PMMC) to promote the development of small-scale gold and diamond mining in Ghana and to purchase the output of such mining, either directly or through licensed buyers. Concerned with the drop off of investment in the mining sector since 1999, the Ministry of Mines prepared draft legislation to revise PNDCL 153 to enhance Ghana's international competitiveness; the legislation was submitted to Parliament in mid-2002(Ghana Chamber of Mines).

The Ministry of Mines and Energy oversees all aspects of the Ghanaian mineral sector and is the grantor of mineral and energy exploration and mining leases. Within the Ministry, the Minerals Commission has responsibility for administering the Mining Act, recommending mineral policy, promoting mineral development, advising the Government on mineral matters, and serving as a liaison between industry and the Government. The Ghana Geological Survey Department conducts geologic studies, and the Mines Department has authority in mine safety matters. All mine accidents and other safety problems also must be reported to the Ghana Chamber of Mines, which is the private association of operating mining companies. The Chamber also provides information on Ghana's mining laws to the public and negotiates with the mine labour unions on behalf of its member companies (Geological Survey Department).

In the gold sector, Red Back Mining Inc. of Canada,[through its subsidiary Chirano Gold Mines Ltd.(CGML) ] operated the Chirano gold mine; Anglo Gold Ashanti Ltd. of South Africa operated the Bibiani, the Iduapriem, and the Obuasi gold mines; Golden Star Resources Ltd. of Canada operated the Bogoso/ Prestea, the Prestea Underground, and the Wassa gild mines; Gold Fields Ltd. of South Africa operated the Damang gold mine; and Denver-based Newmont Mining Corporation, held interest in the Ahafo and the Akyem gold reserves (Minerals Year Book – 2003)

AngloGold Ashanti has two operations in Ghana: Iduapriem (open-pit) and Obuasi (which comprises both surface and underground operations). Formerly assets of Ghanaian-based Ashanti Goldfields, these mines became part of AngloGold Ashanti in April 2004 when the

business combination of Ashanti and South African-based AngloGold came into effect. The Iduapriem and Teberebie properties are adjacent to each other and are part of the Tarkwaian Goldfields. In 2007, Iduapriem and Obuasi had a total attributable production of 527,000oz, equivalent to approximately 10% of group production (Op.cit)

During the course of the year, AngloGold Ashanti acquired the 15% minority shareholding of the government of Ghana and the International Finance Corporation (IFC). Since 1 September 2007, Iduapriem has been 100%-owned by AngloGold Ashanti.

In line with the company's belief in creating value for all stakeholders with every ounce of gold produced, the company has also begun creating economic, social and intellectual value for the country as well as for people in the communities in its operational areas (Ibid).

### 1.1 Statement of the Problem

Business is becoming increasingly competitive and organisations need to find creative ways to operate as efficiently as possible. Delivering quality products to customers at the right time, at the right place, and at the right price has become a new challenge.



The Supply chain management (SCM) approach has increasingly been given prominence by many organizations as an opportunity to achieve these goals. Firms are effectively using new information technologies like the Internet and Wireless telecommunications to improve service and delivery processes. Through secure intranet systems and business – to – business (B2B) e-commerce platforms, the focus is on improving information management; integrating internal systems with external partners.

Procurement either public or private has also for a long time been characterised with fraud, corruption, malpractice and inefficiency. This has led to waste of both public and private companies funds in most situations and hence increases their cost of production. Therefore in this era of globalisation, one would like to examine how information technologies like the internet and wireless telecommunications can help combat such problems.

## 1.2 Objectives

The objectives of the study were to;

- (a) Outline some of the importance that AngloGold Ashanti Iduapriem limited, Tarkwa derives from using e-procurement on its Supply Chain activities.
- (b) Examine how the software system used for e-procurement works in the company and its suppliers.
- (d) Assess whether the software system used at AngloGold Ashanti Iduapriem limited, Tarkwa can help combat corruption and fraud in their procurement activities.
- (e) Assess some of the problems or disadvantages that AngloGold Ashanti Iduapriem limited, Tarkwa encounter in using a software system for e-procurement.



### 1.3 Relevance of the study

The introduction of legacy systems and Enterprise Resource Planning (ERP) Systems at work places has gone a long way to facilitate issues concerning procurement. The issue is that many companies in the country today still handle issues of procurement manually, this research would serve as a guide to policy makers to enable them introduce software systems such as SAP and Pronto at their work places and if possible configure them to suit their work practices in order to reduce cost, ensure efficiency and transparency.

Society and individual corporate bodies would also learn from this new way of doing business and would be able to integrate it in to their business practices.

The researcher would also be equipped with much knowledge concerning doing business electronically and would be in a better position to offer some consultancy services to individuals and corporate bodies that wish to adapt electronic procedures in their business activities.

### 1.4 Research Question

In this research the primary research question was:

Why has AngloGold Ashanti Iduapriem limited, Tarkwa introduced a soft ware system in its procurement activities?

To answer this primary research question, the following secondary research questions were answered:

- a. How does the software system at AngloGold Ashanti Iduapriem limited, Tarkwa work in the various departments and with suppliers?

- b. To what extent could the software system be used to prevent corruption and fraud?
- c. What are some of the problems involved in the usage of the software system?

### 1.5 The Scope of the study

Anglo gold Ashanti as a mining company has branches all over the world but time and cost could not permit the researcher to capture all its branches, the scope of the study was therefore limited to one of its catchment areas in Ghana especially its branch at the Western part of Ghana known as AngloGold Ashanti Iduapriem limited, Tarkwa.

### 1.6 Limitations

It is an undisputable fact that all mining companies do not easily release information to outsiders about their operations; this research also encountered this problem.

The bureaucratic procedures the researcher had to go through before being granted access to information by management was by itself a big limitation to the researcher.

The reluctance of some respondents was also a major problem the researcher faced in the course of the research. This was coupled with changes in appointment dates which really affected the smooth progress of the study. Interviewees were making excuses in order to escape making time to honour the interview and others were careful not to release any vital information that would enable the company's competitors gain some advantage. Finally, since the researcher was currently residing in Kumasi and had to travel occasionally to Tarkwa in the Western Region to gather information, the cost of transportation was high and it constituted as one of the many constraints that the researcher encountered.

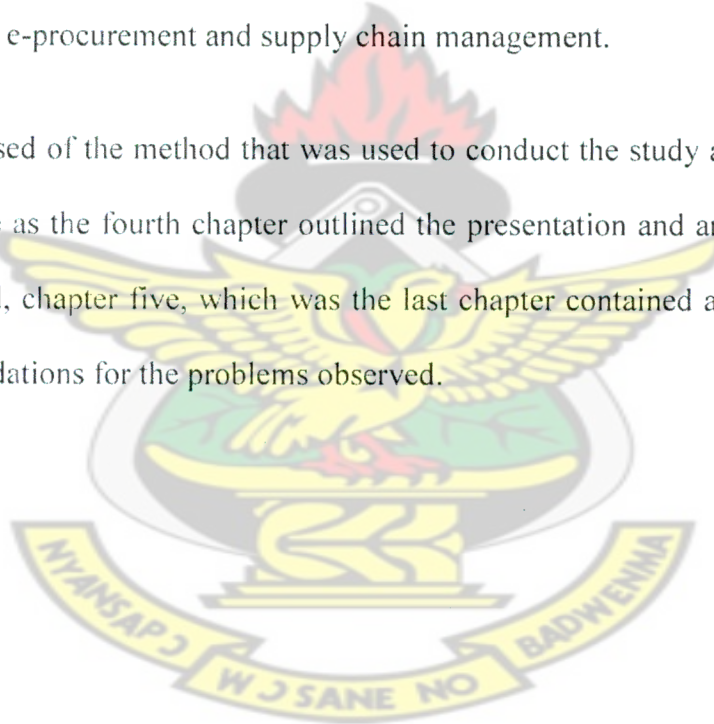
Notwithstanding all the above listed limitations and others, the researcher did his best to complete the study within the stipulated period.

### **1.7 Organisation of the study**

The Study was organised into five coherent chapters. The first chapter consisted of the background to the study area. It also contained the problem statement, stated objectives, justification for the study, Research Questions, limitations, and how the study was organised.

The second chapter was also labelled the literature review and it contained a theoretical frame work developed on e-procurement and supply chain management.

The third chapter comprised of the method that was used to conduct the study as well as the company's profile, where as the fourth chapter outlined the presentation and analysis of the data collected in the field, chapter five, which was the last chapter contained a summary of the study, and recommendations for the problems observed.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter covers the study on existing projects and frameworks. The study seeks to discover the knowledge and ideas that have been established on E-Procurement and Supply Chain Management in terms of their strengths and weaknesses.

A survey conducted earlier this year by the National Association of Purchasing Management and Forrester Research found that 81 percent of companies surveyed used the internet to identify suppliers, 71 percent purchased at least some indirect materials online, and 45 percent purchased some direct materials on line. There's no question that e-procurement is here to stay, but in what form? Like e-logistics, the industry is reinventing itself to more closely meet customer needs.

#### **2.1 Definition of E-Procurement**

One of the key supply chain activities is procurement. This activity is one of the key factors that will determine the success of the enterprise. E-Procurement, by using e-business mechanisms deployed on procurement, offers many innovative methods that can improve the process of procurement. E-Procurement systems can improve efficiency and effectiveness by automating processes, replacing human labour with information technology, facilitating the breakdown of functional silos towards horizontal processes that cut across departments and divisions (Neef, 2001).



Procurement is the acquisition of goods and / or services at the best possible total cost of ownership, in the right quantity and quality, at the right time, in the right place and from the right source for the direct benefit or use of corporations or individuals, generally through a contract. Simple procurement may involve nothing more than repeat purchasing. Complex procurement could involve finding long term partners- co even “co-destiny” suppliers that might fundamentally commit one organization to another.

According to Knudsen (2002), e-procurement is simply aspects of the procurement function supported by various forms of electronic communication.

E- procurement (electronic procurement, some times also known as supplier exchange) is the business-to-business or business-to-consumer or business-to-government purchase and sale of suppliers, work and services through the internet as well as other information and networking systems, such as Electronic Data Interchange and Enterprise Resource Planning. Typically, e-procurement Web sites allow qualified and registered users to look for buyers or sellers of goods and services. Depending on the approach, buyers or sellers may specify costs or invite bids. Transactions can be initiated and completed. Ongoing purchases may qualify customers for volume discounts or special offers. E-procurement soft ware may make it possible to automate some buying and selling. Companies participating expect to be able to control parts inventories more effectively, reduce purchasing agent overhead, and improve manufacturing cycles. E-procurement is expected to be integrated with the trend toward computerized supply chain management.



E- procurement is part of the business-to-business (B2B) commerce being conducted on the internet, in which buyers make purchases directly from suppliers through their web sites, by using software packages or through e-marketplaces, e-hubs, and trading exchanges. (W. Atkinson, 2000).

E- procurement is still in the evolutionary phase. More companies currently tend to purchase indirect goods and services over the internet than direct goods. One reason is that a company does not have to be as careful about indirect goods since they typically cost less than direct products and they do not directly affect the quality of the company's own final product. Companies that purchase direct goods over the internet tend to do so through suppliers with whom they already have an established relationship.

(W. Atkinson, op.cit).

E-procurement is done with a software application that includes features for supplier management and complex auctions. The new generation of E-procurement is now on-demand or a soft ware-as-a-service.

Min and Galle state that Electronic Business generally refers to “an inter-organizational information system that is intended to facilitate Business-To-Business (B2B) electronic communication, information exchange and transaction support through a web of either public access or private value-added networks” (Min and Galle, 1999).

Amit and Zott define that business conducted over the internet is E-Business (Amit and Zott, 2001).

IBM defines e-procurement as “the acquisition of direct and indirect products and services using the Internet and new technologies to facilitate a seamless, end-to-end stream of strategic procurement activities by connecting buyers with suppliers. Typically includes tools and business intelligence systems that enable improved responsiveness and analysis within the procurement organization” (IBM, 2005).

By combining the procurement and e-business definition, we can define E-Procurement as “the use of IT and Internet to satisfy internal demands with external sources which adhere to objectives set at the strategic level”.

## **2.2 Types of E-Procurement**

There are seven main types of e-procurement namely; Web-based ERP (Electronic Resource Planning) which deals with creating and approving purchasing requisitions, placing purchase orders and receiving goods and services by using a software system based on internet technology, e-MRO (Maintenance, Repair and Overhaul), the same as web-based ERP except that the goods and services ordered are non-product related MRO supplies, e-sourcing which deals with identifying new suppliers for a specific category of purchasing requirements using internet technology

According to Pierre Mitchell, a research principal with AMR Research, the major focus these days is on the e-sourcing segment of e-procurement, rather than on e-purchasing. E-sourcing includes all the activities that are used in creating the contract for the goods and services you plan to buy. E-purchasing is the execution of these buys against the contract and includes technology such as electronic catalogs. "e-sourcing is where the real value is being added today," says Mitchell.

The other types include e-tendering; that is sending requests for information and prices to suppliers and receiving the responses of suppliers using internet technology, e-reverse auctioning, using internet technology to buy goods and services from a number of known or unknown suppliers, e-informing that is gathering and distributing purchasing information both from and to internal and external parties using internet technology and e-market sites which expands on Web-based ERP to open value chains. Here buying communities can access preferred suppliers products and services, add to shopping carts, create requisition, seek approval, receipt purchase orders and process electronic invoices with integration to suppliers supply chains and buyers financial systems (Ibid, 2000).

The e-procurement value chain consists of Indent Management, eTendering, eAuctioning, Vendor Management, Catalogue Management, and Contract Management. Indent Management is the work flow involved in the preparation of tenders. This part of the value chain is optional, with individual procuring departments defining their indenting process. In works procurement, administrative approval and technical sanction are obtained in electronic

format. In goods procurement, indent generation activity is done on line. The end result of the stage is taken as inputs for issuing the NIT. (W. Atkinson, Supara).

### **2.3 Importance of E-Procurement to Organisations**

In reality e-procurement has the advantage of taking supply chain management to the next level, providing real time information to the vendor as to the status of a customer's needs. For example, a vendor may have an agreement with a customer to automatically ship materials when the customer's stock level reaches a low point.

Ramanathan (2004) argues that e-procurement enhances public efficiency in three areas. First, e-procurement when augmented with process reengineering can greatly reduce administrative costs. A large volume of documents such as requisition, purchase order and invoice gets prepared and transported within an organisation and cross organisations in relation with procurement. Administrative effort put into preparing these documents can greatly be reduced via e-procurement. The public sector can enhance efficiency by reducing the number of people employed for administering the procurement function.

E-procurement offers the greatest opportunity for companies to improve processes, reduce costs, and increase productivity across the supply chain. It offers two major benefits – efficiency and effectiveness. Efficiency is seen in lower procurement costs, reduced unauthorized buying, faster cycle times, and better integration with the back-office systems. Effectiveness is realized through higher quality purchasing decisions and increased control over the supply chain (Webster, 2008).



In a recent study, the Aberdeen Group found that e-procurement is one area of e-commerce that is delivering rapid and quantifiable results by significantly increasing purchasing efficiencies and reducing costs for the acquisition and ongoing management of business expenditures. Aberdeen estimates that a mid-size organization can expect to save almost \$2 million per year through the use of e-procurement technologies (Webster, op.cit. P.36).

E-procurement has also become an enabler for many of the best practices as well as a best practice in its own right. Automating and distributing transaction processing into the hands of employees frees the procurement team to do more value-added work (Ibid, P.36)

The emergence of e-procurement makes use of new tools such as reverse auctions, global sourcing, aggregated volumes, and fast and inexpensive communications, enabling more companies to implement best practices and save money. For example, reverse auctions are used as a powerful negotiating tool to enable multiple users to bid and sell to individual buyers, greatly increasing the competition and improving the purchase price for buyers. Companies are using reverse auctions to drive purchase costs down to the lowest possible price (Ibid, 2008).

Global sourcing is emerging as a powerful practice in the procurement arena. Tapping the world wide market allows companies to increase their competitiveness, find additional suppliers, improve communications with suppliers, access leading-edge technology, optimize usage, and reduce total procurement costs (Attaran and Mohsen, 2002).



In the field of E-Business, E-Procurement is regarded as having far greater potential for cost savings and business improvements than online retailing or Enterprise Resource Planning (ERP) systems (Neef, 2001). The benefits come not only through direct cost savings but also through the improved operational efficiency of companies. They can shrink dramatically the number of suppliers with whom they deal, reduce the administration costs and gain a clearer picture of their overall purchasing strategy. For large corporations in particular, E-Procurement may even be the most important element of E-Business for operational excellence (Barua et al., 2001).

E-Procurement is the automation of the procurement processes so that the sourcing, vendor selection, purchasing processes, shipment status tracking and payments can be made through the internet. With the increasing pressures on global competition, organizations are looking at various ways to reduce the costs. This has given a different definition to the way procurement has been functioning, and making it the strategic section for cost reduction. The main purpose of the E-Procurement is to reduce the cycle time for executing purchasing processes which directly drive down the costs (Knudsen, 2003). Besides, E-Procurement has increased the opportunities to attract greater number of suppliers. This also provides for greater bargaining power to the buyers and leads to huge cost advantage to the organization. In addition, E-Procurement gives a sharper view of disparities which occur between pricing, quality and delivery among the suppliers.

With the advent of internet, companies can communicate and interact with their suppliers, customers and employees to an extent that never before possible. Thus, E-Procurement does not only mean putting purchasing decisions online, but also means linking suppliers into the purchasing network and broadening the range of employees who can carry out transactions. This enables aggregation of purchasing process across multiple departments or divisions without removing individual control. In other words, E-Procurement improves the operational efficiency of the company (Knudsen, 2003).

From perspective of the suppliers, E-Procurement enables the suppliers to become more proactive in the way that they do business. Instead of just showing the products in a catalogue and waiting to be approached by buyers, the suppliers can be linked into companies' inventory systems to see when goods may be due for renewal. Indirectly, this has created a more reactive purchasing policy for the buyers to find the best price and quality across a wide range of suppliers.

#### **2.4 Implementation issues associated with e-procurement**

Managers should not make application investment decisions without a clear understanding of technology limitations. Many of the procurement automation applications have earned mixed reputations due to vendors who made promises that did not come to fruition. There are many reasons for failures, for instance many of the software solutions are difficult to implement, integration too is not a factor considered in the selection and implementation of applications and finally employees refusal to use the products due to lack of proper training.

According to a recent study of 50 e-commerce managers conducted by Forrester Research, enterprises are asking more than simple purchasing functions from their e-procurement applications. E-procurement applications have to go beyond basic procurement and support the whole spectrum. Among the managers' key concerns raised in the survey were ease of use and integration (Womack and Jones, 1996).

Sharmin (2002) outlined the following as issues of concern to Managers before investing in online procurement software:

In house experts which has to do with lack of sufficient online procurement experts, employees education; getting employees educated, content management that is presenting and maintaining a data base of products from multiple suppliers demands. Integration which has to do with integrating existing back-office systems for invoice processing and accounts payable, content rationalization that is rationalizing across many suppliers, business process re-engineering that is capturing the full value of online resource management software, downsizing that is reducing the number of employees involved in purchasing and better communication that is communicating openly with employees and teaching them about technology are also some of the issues managers should attach much importance before investing in any online procurement software.

## **2.5 Examples of companies that have been successful in using e-procurement.**

In most companies, the purchasing process has not changed in decades. The majority of businesses still employ a largely paper-based process that is inefficient and error-prone.

Recent industry research indicates that only 8 percent to 10 percent of the largest 5,000 companies have purchased e-procurement systems. However, e-procurement is gaining broad appeal. Faced with skyrocketing expenses of traditional procurement systems, companies are forced to emphasize e-procurement over other IT projects. In fact, e-procurement is the fastest-growing software segment, followed by customer relationship management, supply chain management, and enterprise resource planning (Attaran and Mohsen, 2002).

Early adaptors of e-procurement have reported lower costs of goods and services purchased, lower inventory levels, shorter lead-times, and improved communications with suppliers. The savings generated through the application of e-procurement was 25 percent at Fleet Bank, 22 percent at Compaq, 20 percent at IBM, and 18 percent at DuPont (Attaran and Mohsen, op.cit).

The elimination of uncertainty between trading partners that have an effect on the value of the end product creates a win-win situation for all parties. By sharing information over the Internet, the buyer and seller develop a single dynamic forecast. The result is more accurate forecasting with lower inventory levels. E-procurement enables trading partners to collaborate more effectively, plan more accurately, and respond more rapidly up and down the value chain (Op.Cit, 2002).

The following are examples of some companies that capitalized on the e-procurement advantages.



The e-procurement initiative has proven very valuable to the Mercedes-Benz Espana Vitoria Plant. The old procurement process at the Spanish automaker was cumbersome, resulting in high costs, maverick buying, and slow flow of important information between the plant and suppliers. The plant purchased goods and services from 1,500 different suppliers. The company wanted to automate its procurement process, streamline the entire process, tighten control, and enforce optimized purchasing strategies. Mercedes-Benz Espana implemented MySAP e-procurement, which integrated easily with its existing SAP ERP system. The solutions provided impressive results: The number of suppliers was reduced to 200 and purchasing lead-times were cut. Purchasing staff have more time to concentrate on strategic tasks such as evaluating suppliers and negotiating long-term agreements. The project is expected to save \$1.5 million to \$3 million a year (Ibid, 2002).

Dell Computer sells PCs directly to customers and starts assembly after receiving a customer order. The company leverages the internet to deal with customers and suppliers. Dell is able to manage its large worldwide supply chain and avoid unnecessary fluctuations by sharing demand data as well as current inventory positions of components with many of its suppliers on the internet. Dell is using Agile Anywhere, an Internet-based technology to fulfill individually customized products within a delivery target of five days or less. Aggregating all product information in a single system on the Internet enables Dell to disseminate product changes instantly and track them across the supply chain. The system helps Dell to extend its leadership position in a competitive computer market. By 2000, Dell had linked 90 percent of its suppliers to its factory floor using the Web-based technology allowing everyone to see up-to-the minute information on orders and replenishments. Dell reduced inventories to five



day's worth, down from 13 in 1997, resulting in a \$50 million saving. Dell is planning to do more with its Internet technology. The PC maker is encouraging customers to adopt Web-based procurement systems that can link directly into Dell's order management system. Litton Industries used the option to order PCs from Dell. The change cut the average time to submit an order from 21 days to less than two, and provided a saving of \$200,000 for Litton. (op.cit, 2002).

In 2001, \$15.55 billion-diversified manufacturer Emerson was expected to report its first decline in year-end earnings per share in more than four decades. The highest priority for Emerson was to wring as much cost out of operations as possible, using the e-procurement system the company has been building the previous couple of years. The system is called Materials Information Network. It stores information about preferred suppliers and special pricing, and it contains detailed product specifications on materials the company uses to make products. MIN went live in January of 2001 and is helping consolidate buying activity across 60 divisions, steering employees toward the lowest-cost suppliers. Emerson anticipates that MIN will save the company \$30 million in 2001 and \$500 million by 2005 by decreasing the amount the company spends on direct supplies (Ibid, 2002).

Cost savings are also the motivation for America West Airlines. The \$2 billion carrier was losing money even before the Sept 11 attacks of 2001. To cut costs, the company has invested heavily in e-procurement. In the summer of 2001, America West began using Material-Net's reverse auction tools to buy indirect goods such as hotel stays and cleaning services. The auctions yielded price breaks, some as high as 40 percent. The airline is

planning to add other e-procurement apps, such as electronic requests for information and order management, in a bid to consolidate all of its procurement into a single platform and further drive costs down (Op.Cit, 2002).

The \$13 billion Eastman Kodak Co. spends more than \$6 billion each year for goods and services ranging from office supplies to automobile fleets. Kodak is using e-procurement to trade electronically with suppliers. The company is in the process of rolling out an application that supports reverse auctions worldwide. The new application enables buyers to announce their needs to vendors that then bid their prices down until a bid is accepted. Kodak's goal is to have reverse auctions account for as much 20 percent of the company's annual purchasing within the next year. Since Kodak began using auctions last summer, the company has slashed up to 20 percent off the prices of goods it purchased. The company is planning to expand the use of the technology to all of its worldwide facilities (Attaran, and Mohsen,Supara).

FedEx Corporation is a \$20 billion global enterprise, has more than 370 facilities in the United States and Canada, and delivers nearly five million packages a day the corporation spends more than \$7billion dollars annually on indirect goods and services such as office supplies, delivery carrier supplies, and vehicle parts. Traditionally, FedEx relied on inefficient paper-based procurement to manage indirect purchase requisitions, ordering, and fulfilment. The process was manual and labour-intensive. In 1999, FedEx chose e-procurement solutions from Ariba to automate and streamline its paper-based procurement processes. Since the advent of e-procurement at FedEx, overall purchasing cycle times have

been reduced from between 20 percent to 70 percent. The company reduced the number of suppliers by more than half, achieved more competitive pricing from suppliers, and gave its own employees better service. The full return on investment was achieved within three months. Today, only one-fifth of FedEx's yearly requisitions go through the Ariba system. The company is expanding its e-procurement activities in terms of users and supplies to achieve more savings (Ibid, 2002).

## 2.6 E-procurement products

The procurement of non-production goods is an important component of the field of operating resource management. This field is still fairly small compared to other software industries, but it is growing rapidly.

There has been a significant growth in e-procurement products recently. Vendors are responding to the market, and the demand for robust e-procurement applications is heating up. Oracle rolled out Oracle Sourcing, allowing users to integrate into Oracle or rival back-end systems. People Soft and Baan have released electronic procurement products tied into their enterprise resource planning software packages. Ariba will add a module to its e-procurement platform that will let companies use a finer set of criteria to find suppliers. SAP, whose Enterprise Buyer is being used by more than 1,100 customers, will add a module to let companies grade how well multiple suppliers collaborate with one another. The endorsement of e-marketplaces and growing awareness of e-procurement benefits will continue to persuade more companies to explore the opportunities. Macaluso, N (2000, October 20).

## 2.7 Definition of Supply Chain

Jayashankar (Janyashankar et al, 1996) defines a supply chain to be “a network of autonomous or semi-autonomous business entities collectively responsible for procurement, manufacturing, and distribution activities associated with one or more families of related products.”

Lee and Billington (Lee and Billington, 1995) has a similar definition: “A supply chain is a network of facilities that procure raw materials, transform them into intermediate goods and then final products, and deliver the products to customers through a distribution system.”

The supply chain represents the flow of materials, information and funds as they move in a process from supplier to manufacturer to wholesaler to retailer and to consumer. The supply chain activities transform raw materials and components into a finished product that is delivered to the end customer. The elements of a supply chain typically consist of production planning, material sourcing, transportation management, warehouse management and demand management. These functions are tightly integrated to provide the products and services to the end user in an efficient, timely and profitable manner (Scott and Oldfield, 2004).

In addition to internal functions, the supply chain also comprises the activities of external entities which include materials and parts suppliers, manufacturers, distributors, and transportation providers. The supply chain not only encompasses the movement of goods between supply chain participants, but also the flow of information and funds.



Supply Chain execution begins at the point a demand is created and is about the efficiency and effectiveness with which that demand is fulfilled (Scott and Oldfield, 2004). Many organizations are looking to supply chain optimization as a means of gaining significant competitive advantages.

## **2.8 Supply Chain Management (SCM)**

Organizations increasingly find that they must rely on effective supply chains, or networks, to successfully compete in the global market and networked economy. In Peter Drucker's (1998) new management paradigms, this concept of business relationships extends beyond traditional enterprise boundaries and seeks to organize entire business processes throughout a value chain of multiple companies.

During the past decades, globalization, outsourcing and information technology have enabled many organizations, such as Dell and Hewlett Packard, to successfully operate solid collaborative supply networks in which each specialized business partner focuses on only a few key strategic activities (Scott, 1993). This inter-organizational supply network can be acknowledged as a new form of organization. However, with the complicated interactions among the players, the network structure fits neither "market" nor "hierarchy" categories (Powell, 1990). It is not clear what kind of performance impacts different supply network structures could have on firms, and little is known about the coordination conditions and trade-offs that may exist among the players. From a systems perspective, a complex network structure can be decomposed into individual component firms (Zhang and Dilts, 2004).



Traditionally, companies in a supply network concentrate on the inputs and outputs of the processes, with little concern for the internal management working of other individual players. Therefore, the choice of an internal management control structure is known to impact local firm performance (Mintzberg, 1979).

In the 21st century, changes in the business environment have contributed to the development of supply chain networks. First, as an outcome of globalization and the proliferation of multinational companies, joint ventures, strategic alliances and business partnerships, there were found to be significant success factors, following the earlier "Just-In-Time", "Lean Manufacturing" and "Agile Manufacturing" practices. Second, technological changes, particularly the dramatic fall in information communication costs, which are a significant component of transaction costs, have led to changes in coordination among the members of the supply chain network (Coase, 1998).

Many researchers have recognized these kinds of supply network structures as a new organization form, using terms such as "Keiretsu", "Extended Enterprise", "Virtual Corporation", "Global Production Network", and "Next Generation Manufacturing System". In general, such a structure can be defined as "a group of semi-independent organizations, each with their capabilities, which collaborate in ever-changing constellations to serve one or more markets in order to achieve some business goal specific to that collaboration" (Akkermans, 2001).

The security management system for supply chain is described in ISO/IEC 28000 and ISO/IEC 28001 and related standards published jointly by ISO and IEC.

The definition an American professional association put forward is that Supply Chain Management encompasses the planning and management of all activities involved in sourcing, procurement, conversion, and logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, Supply Chain Management integrates supply and demand management within and across companies. More recently, the loosely coupled, self-organizing network of businesses that cooperates to provide product and service offerings has been called the Extended Enterprise.

Supply Chain Management can also refer to Supply chain management software which are tools or modules used in executing supply chain transactions, managing supplier relationships and controlling associated business processes.

Supply chain management (SCM) is the management of a network of interconnected businesses involved in the ultimate provision of product and service packages required by end customers (Harland, 1996). Supply Chain Management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point of origin to point of consumption (supply chain).

Supply chain event management (abbreviated as SCEM) is a consideration of all possible occurring events and factors that can cause a disruption in a supply chain. With SCEM possible scenarios can be created and solutions can be planned.

Global competition is forcing enterprises to restructure their business process from conventional operation towards integrated partnership. One of the new strategic management philosophies that serves to integrate a number of best practices is the area of Supply Chain Management (SCM) (Ines, 2002). By integrating the disparate business processes in the supply chain, the enterprises experience noteworthy performance improvements in transaction and production related costs, in asset utilization, and in responsiveness to customers needs.

SCM was defined as “the integration of business processes from end user through original suppliers, that provides products, services and information that add value for customers and other stakeholders” (Cooper, 1997).

According to (Christopher, 1992), “Supply Chain Management is the process of strategically movement and storage of materials, parts and finished inventory from supplier through the firm and on to the customer.”

Ellram and Cooper (Ellram and Cooper, 1990) defined SCM as “an integrative philosophy to manage the total flow of a distribution channel from the supplier to the ultimate user.”

According to (Stevenson, 2007), “supply chain management is the strategic coordination of business functions within a business organization and throughout its supply chain for the purpose of integrating supply and demand management.”

From the above definitions, SCM can be summarized as “the management of materials and information flows both in and between facilities across Supply Chain.”

SCM is a cross-functional approach in managing the movement of raw materials into an organization and the movement of finished goods out of the organization toward the end consumer. As organizations are striving to focus on core competencies and become more flexible, they have reduced their ownership of raw materials sources and distribution channels. These functions are increasingly being outsourced to other corporations that can perform the activities better or more cost effectively. The effect has been to increase the number of companies involved in satisfying consumer demand, while reducing management control of daily logistics operations. Less control and more supply chain partners led to the creation of SCM concepts. The purpose of SCM is to improve trust and collaboration among supply chain partners and thus increasing efficiency and profitability.

## **2.9 Theories of Supply Chain Management**

Currently there exists a gap in the literature available in the area of supply chain management studies, on providing theoretical support for explaining the existence and the boundaries of supply chain management. Few authors such as Halldorsson, et al. (2003), Ketchen and Hult (2006) and Lavassani, et al. (2008) had tried to provide theoretical foundations for different



areas related to supply chain with employing organizational theories. These theories includes; Resource-based view (RBV), Transaction Cost Analysis (TCA), Knowledge-based view (KBV), Strategic Choice Theory (SCT), Agency theory (AT), Institutional theory (InT), Systems Theory (ST) and Network Perspective (NP)

Six major movements can be observed in the evolution of supply chain management studies: Creation, Integration, and Globalization (Lavassani et al., 2008), Specialization Phases One and Two, and SCM 2.0.

### **2.9.1 Supply Chain Management Problems**

The adoption of Supply Chain Management in organization's business activities comes with a lot of benefits; however, if care is not taken its adoption could create a lot of problems for companies. A good Supply Chain Management System must therefore address the problems associated with its implementation; distribution network configuration and distribution strategy. The distribution network configuration has to do with number, location and network missions of suppliers, production facilities, distribution centers, warehouses, cross-docks and customers. The distribution strategy on the other hand includes questions of operating control (centralized, decentralized or shared); delivery scheme (e.g., direct shipment, pool point shipping, Cross docking, DSD (direct store delivery), closed loop shipping); mode of transportation (e.g., motor carrier, including truckload, LTL, parcel; railroad; intermodal, including TOFC and COFC; ocean freight; airfreight); replenishment strategy (e.g., pull, push or hybrid); and transportation control (e.g., owner-operated, private carrier, common carrier, contract carrier, or 3PL).



According to Douglas M. Lambert (2002), the above activities must be well coordinated together in order to achieve the least total logistics cost.

### **2.9.2 Supply chain business process integration**

Successful SCM requires a change from managing individual functions to integrating activities into key supply chain processes. An example scenario: the purchasing department places orders as requirements become appropriate. Marketing, responding to customer demand, communicates with several distributors and retailers as it attempts to satisfy this demand. Shared information between supply chain partners can only be fully leveraged through process integration (Op.Cit, 2002).

Supply chain business process integration involves collaborative work between buyers and suppliers, joint product development, common systems and shared information.

Lambert and Cooper (2000) operating an integrated supply chain requires continuous information flow. However, in many companies, management has reached the conclusion that optimizing the product flows cannot be accomplished without implementing a process approach to the business. The key supply chain processes stated by Lambert and Cooper (Ibid) are: customer relationship management, customer service management, demand management, order fulfillment, manufacturing flow management, supplier relationship management, product development and commercialization and returns management.

Managers of the product development and commercialization process must coordinate with customer relationship management to identify customer-articulated needs; select materials and suppliers in conjunction with procurement, and develop production technology in manufacturing flow to manufacture and integrate into the best supply chain flow for the product/market combination (Op.Cit, 2000).

A.T. Kearney Consultants (1985) noted that firms engaging in comprehensive performance measurement realized improvements in overall productivity. According to experts internal measures are generally collected and analyzed by the firm including cost, customer service, productivity measures, asset measurement and quality.

### **2.9.3 Components of SCM Integration**

The SCM components are the third element of the four-square circulation framework. The level of integration and management of a business process link is a function of the number and level, ranging from low to high, of components added to the link (Ellram and Cooper, 1990; Houlihan, 1985). Consequently, adding more management components or increasing the level of each component can increase the level of integration of the business process link. The literature on business process re-engineering, buyer-supplier relationships and SCM suggests various possible components that must receive managerial attention when managing supply relationships.

Lambert and Cooper (2000) identified the following components which are: Planning and control, Work structure, Organization structure, Product flow facility structure, Information

flow facility structure, Management methods, Power and leadership structure, Risk and reward structure and culture and attitude.

However, a more careful examination of the existing literature will lead us to a more comprehensive structure of what should be the key critical supply chain components, the "branches" of the previous identified supply chain business processes, that is, what kind of relationship the components may have that are related with suppliers and customers accordingly.

Bowersox and Closs states that the emphasis on cooperation represents the synergism leading to the highest level of joint achievement (op.cit, 1996).

A primary level channel participant is a business that is willing to participate in the inventory ownership responsibility or assume other aspects of financial risk, thus including primary level components (Bowersox and Closs, Ibid). A secondary level participant (specialized) is a business that participates in channel relationships by performing essential services for primary participants, thus including secondary level components, which are in support of primary participants. Third level channel participants and components that will support the primary level channel participants, and which are the fundamental branches of the secondary level components, may also be included.

Consequently, Lambert and Cooper's framework of supply chain components does not lead us to the conclusion about what are the primary or secondary (specialized) level supply chain

components (Bowersox and Closs, Ibid, p.g. 93). That is, what supply chain components should be viewed as primary or secondary, how these components should be structured in order to have a more comprehensive supply chain structure, and to examine the supply chain as an integrative one.

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components (Bowersox and Closs, Ibid, p.g. 93). That is, what supply chain components should be viewed as primary or secondary, how these components should be structured in order to have a more comprehensive supply chain structure, and to examine the supply chain as an integrative one.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY AND COMPANY'S PROFILE**

#### **3.0 Introduction**

Methodology can be defined, as the branch of philosophy that analyses the principles and procedures of inquiry in a particular discipline (WordNet, 2005).

This chapter is divided into two parts, with the first part dealing with the research methodology, whilst the second part outlined the company's profile.

#### **3.1 Research methodology**

The research methodology covered data collection, sample survey and the methods of analysis. The study also involved the use of both primary and secondary data.

This chapter also outlined the various tools, methods and procedures that were used together data for the study. The study also adopted both qualitative and quantitative research approaches such as empirical and statistical data. This approach was deemed more effective as each approach complemented the other, rendering the study accurate and authentic.

#### **3.2 Scope**

The assessment was conducted based on the e-procurement procedures used by AngloGold Ashanti and their suppliers. The study was also limited to the Tarkwa captured area of AngloGold Ashanti in Ghana.

### **3.3 Sample Size and Sampling Technique**

A sample size of 50 respondents was selected from the Tarkwa operational area of AngloGold Ashanti. This comprised of employees, Heads of departments (Managers) and members of staff belonging to the procurement department.

In all, four departments were targeted, namely; Procurement (Purchasing), Finance, Processing (Production), and Human Resource Management (HRM). These people were chosen using first and foremost the non-probability sampling method. This was due to the time frame in which the study had to be completed. It was then prudent to select a small size or minimal number to cover for the study. Specifically, the purposive or judgmental sampling method was used. This form of sample is often used when working with very small samples such as in case study research and when one wish to select cases that are particularly informative (Neuman, 2000).

### **3.4 Tools of Data Collection**

The tools that were used for this research included questionnaires and informal interviews. The questionnaire were used to collect quantitative data, where as the qualitative data were collected using interviews.

#### **3.4.1 Questionnaire**

In all 50 questionnaires were self-administered, twelve each were given to the departments of Finance, Human Resource Management and Processing (Production). Fourteen (14) of the remaining questionnaires were administered at the Procurement (Purchasing) department.

In the departments of Finance, Human Resource Management and Operations, eleven (11) of the questionnaires were given to the employees to answer whilst one (1) each of the questionnaires was reserved for their Heads of departments (Managers). In the case of the procurement department thirteen (13) of the questionnaires were given to the employees working there whilst the remaining one was given to the Head of department (manager) to answer.

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The questionnaires were printed in English with neatly printed lines for respondents to provide their responses. It was also numerically stated to differentiate one question from the other. Boxes were provided for respondents to tick where necessary.

Before questionnaires were administered they were subjected to thorough testing and amendments before they were dispatched to respondents.

On the other hand, pre-coded questions were also given to respondents to answer. With these questions, answers were provided for respondents to select their choice. Some of the questions were multiple choice where as others were "Yes" or "No" type.

The lengths of the questionnaires were influenced primarily by the scope of the study and the depth of information desired.



### 3.4.2 Interviews

An interview is a purposeful discussion between two or more people (Kahn and Cannell, 1957). The use of interviews can help one together valid and reliable data that are relevant to his research question(s) and objectives. Therefore in this research Senior Officers such as heads of departments (managers), heads of procurement and deputy director in charge of operations were strategically selected and interviewed as part of the data gathering process. This was done for relational analysis of views and for other confirmatory responses given by respondents who work at the various departments. Information from this category of people shed authentic light on how policies were formulated and managed in relation to e-procurement activities at AngloGold Ashanti.

The use of interview in this study was also deemed appropriate in order to get as close as possible to interviewees and to be able to solicit information which might not be divulged on the questionnaire. This was intended to afford interviewees the opportunity to express themselves and to afford the researcher the chance to ask other relevant questions that came to mind during the interview process.

Structured and semi-structured questions were used in this data collection exercise. It must be stated here that, the collection of information through this purpose was not meant for analysis, but rather to serve as an informational background for the other instruments used.

The structured questions were also used to solicit information from senior members who had no formal training on e-procurement. These questions were written on papers and the

researcher could categorically ask them to respond to them and their responses captured on tape.

The semi-structured questions were used for further clarification from respondents on responses that were not clear. These questions were formed during the process of the interview. Most of the questions involving AngloGold Ashanti's policies and laws on the implementation of its e-procurement activities were asked using interviews. This was done in order to help the researcher solicit literature to justify the various assertions made.

### **3.4.3 Observation**

According to Mikkelsen (2005), "observation of physical structures, social difference, behaviour action and symbols provides important information for posing central questions". The researcher therefore used various methods of observation in order to collect qualitative data concerning the topic in question and suggest ways by which they can be intervened. In this regard situational observation was used as a tool in the data gathering process. This gave the researcher the opportunity to observe some of the day-to-day operations of AngloGold Ashanti Iduapriem limited, Tarkwa. The researcher also spent time at the procurement (or purchasing) department to observe how the department uses the software system of the company to procure goods upon receiving a request from any of the departments.

On any visit to areas of data collection, issues concerning the subject would be looked at with keen interest. Notes about the things observed were written down. This was done because the researcher did not want to avoid forgetting any vital information about the message.

Respondents were also asked for clarification on things which were not clear after observing them in their area of operations during interviews.

### **3.5 Primary and Secondary Data.**

Both primary and secondary research data would be analysed and used in this study. Primary data would include information gathered from the respondents by the researcher himself through questionnaires, interviews and observation.

This primary data will provide reliable and authentic firsthand information relevant to this study about the operations of AngloGold Ashanti e-procurement activities and challenges facing its implementation as well as other issues necessary for the research.

Secondary data in the form of articles, journals, research works, gazettes and other written sources and so on would be analysed to identify what other people have written on the problem under study.

Other sources of secondary data would include press releases, the internet as well as literature on existing research on this area of study.

An interview guide would be prepared as a tool to collect data from the selected sample of respondents in places where the questionnaire would prove inadequate and would not produce the relevant information.

### 3.6 Analysis

Quantitative and qualitative methods of analyzing statistical data would be employed in the analysis of the data. The results would subsequently be computed into percentages. Percentage values, which are not round figures, would be approximated to the nearest whole numbers. Diagrammatic representation of the statistical summaries of the results would be presented in the form of pie charts, bar graphs and tables.

Computer data analysis software such as SPSS and other relevant software, such as Microsoft excel would be the main tools employed to analyze the data in order to help interpret results.

Social Science Statistical Package (SPSS) would be used to analyse the pre-coded questions. This package would be used to computer the percentages because it is easier to use. It can also be used to make the table needed for discussions of the results.

The other questions that are open-ended would be analysed by listing all the vital response given by the respondents. They would then be considered based on their relevance to the research. This would give the general ideas about the problem under study.

In all six main processes would be involved in the research. The process would include

- a) Pre-Editing: this would look at examination of the responses received for completeness, relevance, appropriateness and its importance to the study.
- (b) Coding of Rough Data: this would involve grouping of the data into the various categories and subjects for easy analysis.



- (c) First Write up: this would be the stage where all the information would be written to form one continuous piece.
- (d) Data Entry: in this modern techniques would be employed to typeset the data.
- (e) Data Modification: at this stage the researcher would send the drafts for editing and for expert advice after corrections have been made to give it an appreciable form.

Finishing: at this stage the entire project would be put together and final corrections made. It would be at this stage that printing and binding would take place to give the research its completeness.

### 3.7 Profile of the Study Area

AngloGold Ashanti is a leading producer of gold. With its headquarters in Johannesburg, South Africa, the group has 20 operations and a number of exploration programmes in both the established and new gold-producing regions of the world. AngloGold Ashanti has two operations in Ghana: Iduapriem (open-pit) and Obuasi (which comprises both surface and underground operations). Formerly assets of Ghanaian-based Ashanti Goldfields, these mines became part of AngloGold Ashanti in April 2004 when the business combination of Ashanti and South African-based AngloGold came into effect. Iduapriem comprises two properties, Iduapriem and Teberebie, in which, prior to September 2007, AngloGold Ashanti had a combined effective stake of 85%. The IFC held 10% and the government from 1 September 2007, its shareholding in the operation increased to 100%. In 2007, AngloGold Ashanti produced 5.5Moz of gold from its operations – an estimated 7% of global production – making it the third largest producer in the world. The bulk of its production came from deep-

level, underground mines (40%) and surface operations (3%) in South Africa. Contributions from other countries were Australia (11%), Ghana (10%), Mali (8%), Brazil (7%), Tanzania (6%), the United States (5%), Guinea (5%), Argentina (4%) and Namibia (1%). Iduapriem and Obuasi had a total attributable production of 527,000oz, equivalent to approximately 10% of group production. The group has 277,457,471 ordinary shares in issue and a market capitalisation of \$11.9 billion as at 31 December 2007.

AngloGold Ashanti has a group policy in place that encourages the employment of local employees and replacement of expatriate employees over time, through skills transfer programmes and career development of local people.

Localisation plans at all the company's operations were reviewed during the course of 2007 and emphasis is being placed on the following: identification of potential, talent management, succession plans, and training and development plans. Reviews of progress will take place every quarter during visits to the mines by the regional executive teams.

The Iduapriem mine is situated in the western region of Ghana, some 70km north of the coastal city of Takoradi, and 10km south-west of Tarkwa. Iduapriem is an open-pit mine and its processing facilities include a carbon-in- pulp (CIP) plant.

The Iduapriem and Teberebie mines are located along the southern end of the Tarkwa basin. The mineralisation is contained in the Banket Series of rocks within the Tarkwaian System of Proterozoic age. The outcropping Banket Series of rocks in the mine area form prominent

arcuate ridges extending southwards from Tarkwa, westwards through Iduapriem and northwards towards Teberebie.

Iduapriem as a company has its mission statement to be “to create value for its share holders, employees and business partners through safe and responsible exploring, mining and marketing of its products”.

Its vision statement is” to be a leading innovative mining company in respect of safety, the environment, operating efficiency, financial returns and the positive impact that they have on the communities in which they operate”.

The Value of the Iduapriem is that people are their business. They treat each other with integrity, dignity and respect. Safety is their number one value. They value diversity and are committed to ensuring that the contribution of every individual is recognised and rewarded. They take responsibility for their actions and deliver on their commitments.

They strive for continuous improvement and excellence through innovation. They want communities and the societies in which they operate to be better off for them having been there. They respect and protect the environment. Their primary focus is gold but they would pursue value-creating opportunities in other minerals where they can leverage their existing assets, skills and experience.

Iduapriem recorded two lost-time injuries in February and March 2007, after these incidents, the mine achieved 3.57 million hours worked without a lost-time injury by year-end. The Lost Time Injury Frequency Rate (LTIFR) in 2007 was 0.46. Management has resolved to improve its safety performance by intensifying training and education. The aim is to move progressively towards a well-structured, behaviour-based, safety culture. During the past seven years, there has not been a fatality on the mine.

The mine was recommended for certification for the OHSAS 18001 system after an audit by external auditors, SGS, at the end of the year. Iduapriem occupational health and safety programmes are being managed in line with this new system where the goal is to achieve continual improvements in occupational health and safety.

On the environmental front, Iduapriem was judged the best reclaimed mine (in the mining sector) for 2006 by the Environmental Protection Agency during 2007. Iduapriem retained ISO 14001 certification after a surveillance audit by external environmental auditors.

In June 2007, Ghana's Environmental Protection Agency (EPA) named Iduapriem as the winner of the Best Reclaimed Mine award for 2006. This was announced during the national celebrations to mark World Environment Day. Koduah Dapaah of the mine's Environment Department said: "The award is very important to us as it recognises the emphasis that we, as a large-scale mining company, have placed on rehabilitation and environmental stewardship." He added: "Mining has been one of the key areas for economic growth, social advancement and infrastructure development in Ghana for many decades, but mining can



also impact adversely on the long- term and sustained use of the natural environment if not carried out in a responsible manner. A balance has to be found between the two.” This is particularly important in Tarkwa, which is in the Wassa West endowed with natural resources above and below the ground. The pristine coastline and extensive rainforest (believed to be around 40% of the country’s closed forest) within the province compete in a land use sense with some of the richest gold deposits in Africa, along with the cities, towns and villages that are home to many thousands of people, including subsistence farmers.

Unionised and non-unionised employees are actively involved in the joint Safety, Health and Environment committees. Co-ordinators and representatives see to the day-to-day management of safety in their departments. Heads of departments have direct responsibility for safety and health in their area while the manager of the mine’s Health, Safety and Environment Department is the overall co-ordinator of safety and health on the mine.

A central tenet of Iduapriem’s safety and health policy, which is based on AngloGold Ashanti’s policy, is that employees are responsible for working in a safe manner and it is their duty to report all unsafe conditions to their supervisor. Regular inspections ensure that risks are continually assessed.

Communication regarding safety and health takes place at the weekly toolbox meetings run by line supervisors, through monthly meetings of the Safety, Health and Environment Committee, and through the use of notice boards and e-mails.

All new employees and contractors go through a safety induction process before they start work. Safety and health representatives and other employees undergo formal training in hazard identification and risk assessment, fire-fighting, first aid and emergency response. Training is also given in job safety analysis, accident and incident investigations and workplace inspections.

There is a comprehensive mine-wide emergency response plan in place at Iduapriem with four emergency rescue stations strategically positioned on the mine and a trained response team in each department. Emergency drills (evacuation and fire, for example) are scheduled regularly for all departments.

There are two ambulances on site. Minor injuries can be treated at the clinic where initial treatment can also be administered for major injuries before patients are referred to the government hospital in Tarkwa or to other medical facilities for further treatment.

As part of the mine's emergency preparedness, first-aid and safety courses are run for the community and some staff members of the district hospital have been given training in dealing with cyanide-related emergencies.

Iduapriem is making full use of its on-site occupational health centre, the Sam Jonah Clinic. Constructed during 2003 and 2004, and formally opened in February 2005, the health centre caters for the mine's employees and contractors, as well as emergency cases for the eight communities, comprising some 7,400 people, in the vicinity of the mine.

The centre offers primary health care, including minor surgical procedures following the commissioning of a theatre; medical surveillance of occupational diseases (for example, noise-induced hearing loss); medical examinations; voluntary counselling and testing (VCT) for HIV/AIDS; general counselling (including family planning); and a health education programme for mine workers.

Although smaller than other medical facilities in the district, the centre is well-equipped, boasting a laboratory and ECG, spirometry (to measure lung function) and audiometry facilities. The clinic also has its own ambulance to transport emergency cases – generally of a surgical nature – from the mine site to the district capital 10km away or, where necessary, to a teaching hospital. Dental and obstetric cases are referred to a district dentist and the local Tarkwa hospital respectively, while patients with eye conditions are referred to an optometrist for prescription spectacles in the case of refractory error, or to an ophthalmologist where an eye disease, for example glaucoma, is detected.

The health centre, which falls under Iduapriem's Health, Safety and Environmental Department, is currently run by a resident medical officer who is registered with Ghana's Medical and Dental Council. The centre is staffed by an occupational health superintendent, assisted by an occupational health nurse, three senior registered nurses and three staff nurses. A rigorous occupational health service is provided to employees and contractors, including entry, exit and periodic medical examinations which include monitoring for noise-induced hearing loss, occupational lung disease, radiation monitoring (for potentially exposed

employees), food handler examinations and screening for diabetes and cardio-vascular problems among others.

Malaria remains an area of concern for AngloGold Ashanti's operations in Ghana as it is for the operations in Guinea, Mali and Tanzania. Not only does the disease result in death, illness and absenteeism among employees, but it is a major cause of death in young children and pregnant women, and this obviously has an impact on employees' families and communities. At Iduapriem, the incidence of malaria decreased from 8.6% in 2006 to 7.8% in 2007. Correspondingly, the Malaria Lost Time Injury Frequency Rate (MLTIFR) declined from 388 in 2006 to 383 in 2007.

Under the direction of the Safety, Health and Environment Department, the Sam Jonah Clinic is responsible for the management of malaria. The strategy focuses on: education campaigns to make employees and members of the community aware of the causes, signs and symptoms of the disease as well as the importance of drug compliance; prevention control which involves the provision of insect repellants, encouraging employees to wear long-sleeved shirts and trousers during night shifts, the draining of stagnant water and the weeding of overgrown areas; and treatment, which is provided at the clinic with the laboratory providing essential back-up for effective diagnosis.

During 2007, Iduapriem spent \$29,776 (2006: \$22,605) on malaria drugs for employees.

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and as a training centre for group malarial projects. The centre functions as a satellite research centre and is equipped with the necessary supporting infrastructure. The insectary is operational and satellite mosquito stations are in place.

The HIV/AIDS prevalence level is estimated to be 3% in Ghana. In July 2007, management and representatives of the union and senior staff association met formally to discuss and adopt the group HIV/AIDS policy for Iduapriem. It is in line with Ghana's AIDS Commission Act 613 and Labour Act 651, 2003, and will be reviewed every two years. The HIV/AIDS programme was launched the following month and has been enthusiastically received by the workforce.

The programme places great emphasis on raising awareness of HIV/AIDS among employees, their families, contractors and the surrounding communities. The topic is brought into the induction sessions Mosquito Identification Insecticide susceptibility test Mosquito colony maintenance for new employees and those returning from leave and into toolbox talks. Messages are also communicated through audio-visual presentations, notice boards, banners and T-shirts, and the holding of quizzes and raffles.

Peer educators – one for every 20 employees – play a crucial role in the campaign. Equipped with kits containing educational material, they teach people about prevention, encourage counselling and testing, and explain how mother-to-child transmission can be avoided. They are supervised by a task team which assesses their performance, and they meet with the programme co-ordinator once a month to present a report and to discuss any problems that

may have arisen. Educators are also active in the surrounding communities. Condoms are distributed with payslips every month and are available at a number of vantage points.

Iduapriem has a voluntary counselling and testing (VCT) centre at the mine clinic. At present there is one trained counsellor but the plan is to train more counsellors as well as more peer educators in 2008. The centre is open to employees' families and dependants.

When patients test positive at the clinic, their results are sent to the local government hospital for a confirmatory test and it is there that they are treated and given anti-retroviral therapy (ART) when required.

However, the clinic does have the drugs to treat opportunistic infections. Since the centre opened during 2007, more than 50% of the mine's employees have attended VCT. Sixteen people have tested positive for HIV and of this number two are on ART. Iduapriem has formal monthly meetings with the Ministry of Health and quarterly meetings with Family Health International and the National AIDS Commission.

Iduapriem launched a VCT programme in August 2007 for employees, contractors and dependants. So successful was the initial launch programme that the mine ran out of state-supplied test kits in the first month and had to borrow some from Obuasi so that testing could continue. While the mine had an HIV/AIDS programme in place for a number of years, there was a need to add impetus to the programme, says occupational health nurse Grace Ansah. That impetus came when Ansah was selected to participate in a government-sponsored VCT

training course in Accra in mid-2007. On her return, the mine-based occupational health centre was certified as an official VCT facility.

There was a 6% increase in the number of people employed at Iduapriem in 2007 because additional workers were required for the mine's expanded operations. A further 5% increase is expected in 2008 as a number of existing vacancies are filled. Staff retention in 2007 improved with 13 resignations compared with 16 out of a smaller workforce in 2006.

Iduapriem is unionised with 66% of full-time employees represented by the Ghana Mineworkers' Union (GMWU) and 24% by the General Manufacturing and Metal Workers Union (GEMM). In total, 72% of employees are covered by the mine's collective bargaining agreement which covers all conditions of employment. As is the case every year, new rates of pay were negotiated between the company and the union in 2007.

The industrial relations climate at Iduapriem is healthy and calm, and in large measure this is due to the frequent formal and informal interaction between management and the unions and senior staff association. Every quarter management holds a briefing for all employees.

In Ghana, the use of expatriate labour is overseen by government and the state approves the company's expatriate quota on an annual basis. Expatriates are employed on a two-year contract during which it is required that local staff are trained to take over their roles. Iduapriem had five expatriates (0.01% of the workforce) on its payroll in 2007. An additional 17 expatriates are employed by the mining contractor.



## CHAPTER FOUR

### ANALYSIS, FINDINGS AND DISCUSSIONS

#### 4.0 Introduction

A total sample of fifty respondents was selected for the study. This was backed by an interview with two distinguished personalities mainly the head of procurement and one of the IT personnel in order to cross check the validity of the responses to the questionnaire.

The fifty respondents included the heads and staff of departments of finance, Human Resource Management, Processing and Procurement. In all forty-six (46) males and four (4) females constituted the sample frame.

The departments head captured in the sample frame as well as the two personalities interviewed constitute management at Iduapriem mining company, therefore any information provided by these people can be said to be expert opinion since it is gotten from the official mouth piece of the mining company.

#### 4.1 Analysis

The researcher intends to analyse some of the benefits associated with the practise of e-procurement at Iduapriem, examine how the software of the company works with its suppliers, find out if the software system used by the company can help combat corruption and fraud at the company's work place, assess some of the problems encountered by the system users in the usage of the software and finally assess the procurement methods used by the company in the selection of its suppliers.

4.1.1 Importance of e-procurement

Table 1: Benefits of using e-procurement

Benefits	Respondents	Percentage (%)
Lower transaction costs associated with purchasing	14	28
Lower prices of goods and services	5	10
Faster ordering and delivery times	12	24
Efficiency and transparency	16	32
Reduced labour (clerical costs)	3	6
TOTAL	50	100

Source: Researchers Field work

The benefit associated with e-procurement outlined in table 1 conforms to existing literature. Ramanathan (2004) argues that e-procurement enhances public efficiency in three areas. First, e-procurement when augmented with process reengineering can greatly reduce administrative costs. A large volume of documents such as requisition, purchase order and invoice gets prepared and transported within and across organisation in relation with procurement. Administrative effort put into preparing these documents can greatly be reduced via e-procurement.

Webster (2008) also outlines two major benefits associated with e-procurement as efficiency and effectiveness. Efficiency is seen in lower procurement costs, reduced unauthorized buying, faster cycle times and better integration with the back-office systems.

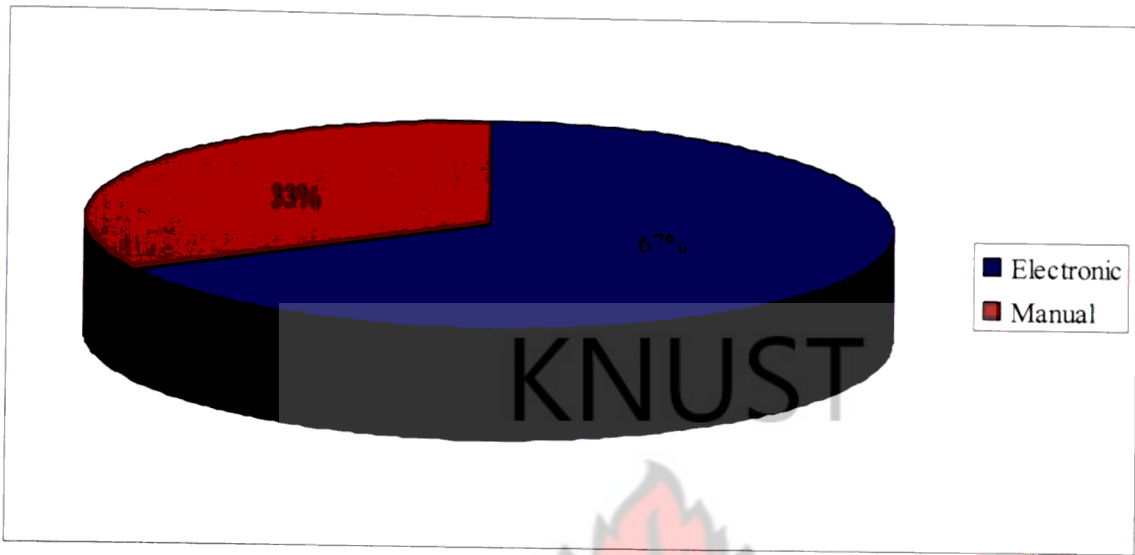
In the field of E-Business, E-Procurement is regarded as having far greater potential for cost savings and business improvements than online retailing or Enterprise Resource Planning (ERP) systems (Neef, 2001). The benefits come not only through direct cost savings but also through the improved operational efficiency of companies. They can shrink dramatically the number of suppliers with whom they deal, reduce the administration costs and gain a clearer picture of their overall purchasing strategy. For large corporations in particular, E-Procurement may even be the most important element of E-Business for operational excellence (Barua et al., 2001).

Some of the problems associated with supply chain management include oscillations of inventories, inventory stockouts, late deliveries, and quality problems (Stevenson, 2007).

The benefits associated with e-procurement outlined in table 1 are real and seems to address some of these problems. For instance faster ordering and delivery times as a benefit derived from deploying e-procurement can help address the problems of oscillations of inventories, stockouts and late deliveries.

4.2 Examination of the software

Figure 1: Examining how the software works with the suppliers.



Source: Researchers Field work

Here in examining how the company’s software works with its suppliers 67% of the respondents asserted that it was strictly electronic. To them, most of the company’s procurement activities are handled electronically. For instance the raising of payment orders (Pos) and awarding of contracts are done online.

Some of the company’s logistics activities are also handled electronically. Here it was revealed from the research that through the software the company is able to track some of its vehicles as well as monitor its movement.



Most of the goods that are supplied by the company's suppliers are programmed at the warehouse using the company's software. The movement of the suppliers at the company's site is also electronically executed.

All entrance to the company's buildings are electronically executed and therefore all authorised suppliers of the company would have to always move with their electronic identity cards if not they would be denied access to the company's site.

However, it was also revealed from the research that because of the complex nature of the software not all its procurement activities are executed electronically. For instance it was revealed from the research that not all the departments as well as every body at the company are connected to the software. Many suppliers of the company are not connected to the system and therefore the company deals with them manually. Payment of cheques after the execution of a contract is also done manually.

Suppliers of the company who do not also have systems to receive payment orders (Pos) print hard copies and later present it to the company. Even though contracts are done online the signing of the contract is done manually. Logistics activities of the company can be programmed however certain processes involved in its activities are handled manually, for example loading of items into vehicles; although fork lifters are used it is human beings and not computers that operate the fork lifters. Receiving items ordered at the ware house is also done manually, the off loading and parking are all done manually.

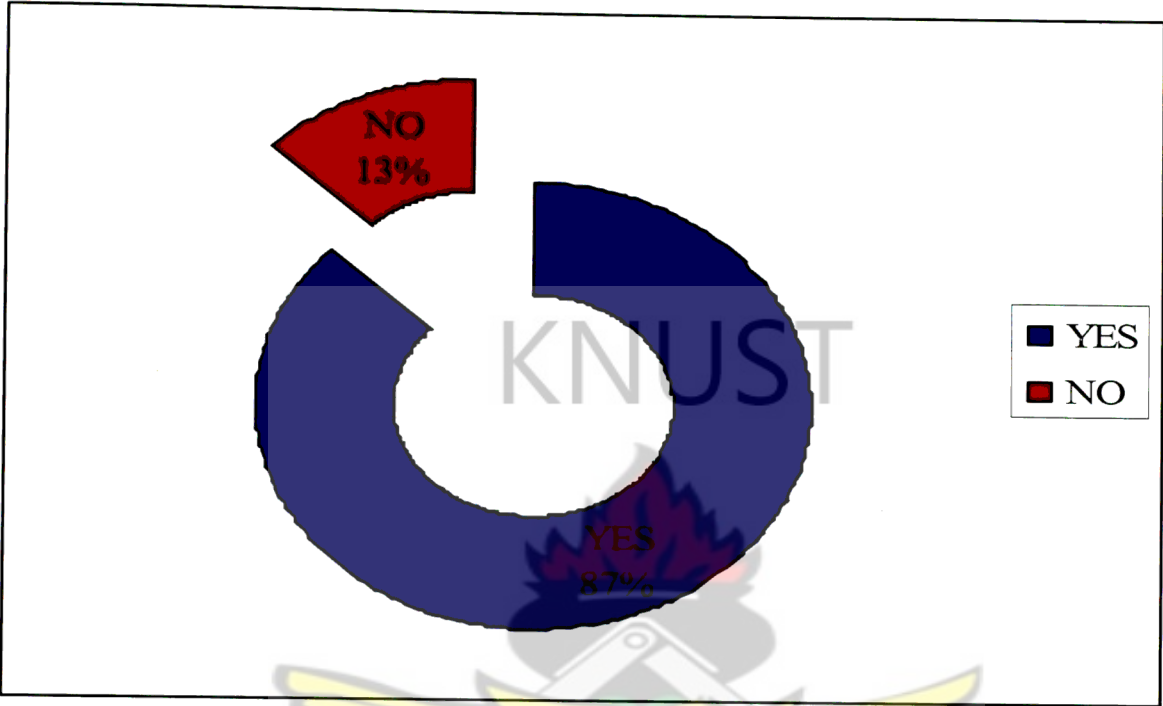
The manual explanation justifies the assertion of the 33 % of the respondents. Technically, e-procurement works electronically and not manual. Existing literature available supports this assertion.

However, various research and studies have also revealed that some companies still handle issues of procurement manually. Therefore, in this research the 33% of the respondents that asserted that their company's software works manually with their suppliers also conforms to existing literature.

In most companies, the purchasing process has not changed in decades. The majority of businesses still employ a largely paper-based process that is inefficient and error-prone. Recent industry research indicates that only 8 percent to 10 percent of the largest 5,000 companies have purchased e-procurement systems. However, e-procurement is gaining broad appeal. Faced with skyrocketing expenses of traditional procurement systems, companies are forced to adopt e-procurement over other IT projects. In fact, e-procurement is the fastest-growing software segment, followed by customer relationship management, supply chain management, and enterprise resource planning (Attaran, et al, op.cit).

4.3 Combating corruption and fraud

Figure 2: Can the software system be used to combat corruption and fraud



Source: Researchers Field work

The researcher wanted to find out if the software system used by the company can help combat corruption and fraud at the company’s work place.

87% of the respondents agreed that the usage of a software system can help combat corruption and fraud at work places. To these respondents softwares and internal control measures developed by their company to a large extent can prevent fraud.

One of the internal controls is that no individual can raise a payment order (PO) and at the same time approve it. Here information gathered revealed that when ever an order for an item comes from a department, a higher authority must approve it, the procurement department is

responsible for procuring the order and finally the finance department does the payment. This internal system of checks and balances configured in the operation of the system makes it impossible for any body to cheat the company using the company's software.

It was also finally revealed that software systems make procurement activities more transparent and every body involved can easily detect any malpractice done through the manipulation of the software system. The reason being that the various end users have their own access right and cannot go beyond their permitted access right.

This assertion conforms to existing literature because generally in every business setting depending on ones level in management position, access right is restricted.

According to (Laudon and Laudon, 2007), organizations have a structure that is composed of different levels and specialties. Their structures reveal a clear-cut division of labour. Authority and responsibility in a business firm is organized as a hierarchy, or a pyramid structure, of rising authority and responsibility. The upper levels of the hierarchy consist of managerial, professional, and technical employees, where as the lower levels consist of operational personnel.

There was also this assertion that it is not always true that the system can combat corruption and fraudulent activities. This was the view of 13% of the respondents. The argument advanced is that the IT officials have much knowledge about the access right of the various end users therefore any time there is a total collaboration between the system users and this



IT officials the company could loose huge sums of money. Therefore to avoid this situation, the various end users are advised to change their password daily or every week.

Another argument that was advanced by this category of respondents was that some times some workers can even team up with security officials to intentionally create light out and then steal, when this happens all security gargets cease to function including the software of the company, in such a situation the software cannot detect any fraud or crime although the company is able to restore light after some few minutes using its own plant. The researcher to some extent disagrees with this argument. The view of the researcher is that big companies like Iduapriem have electrical equipments called UPS which could be used to restore current for some minutes lets say fifteen to twenty minutes when ever there is a light out.

**Table 2: Problems of e-procurement**

Response	Frequency (f)	Percent (%)
Yes	3	6.0
No	47	94.0
Total	50	100.0

**Source: Researchers Field work**

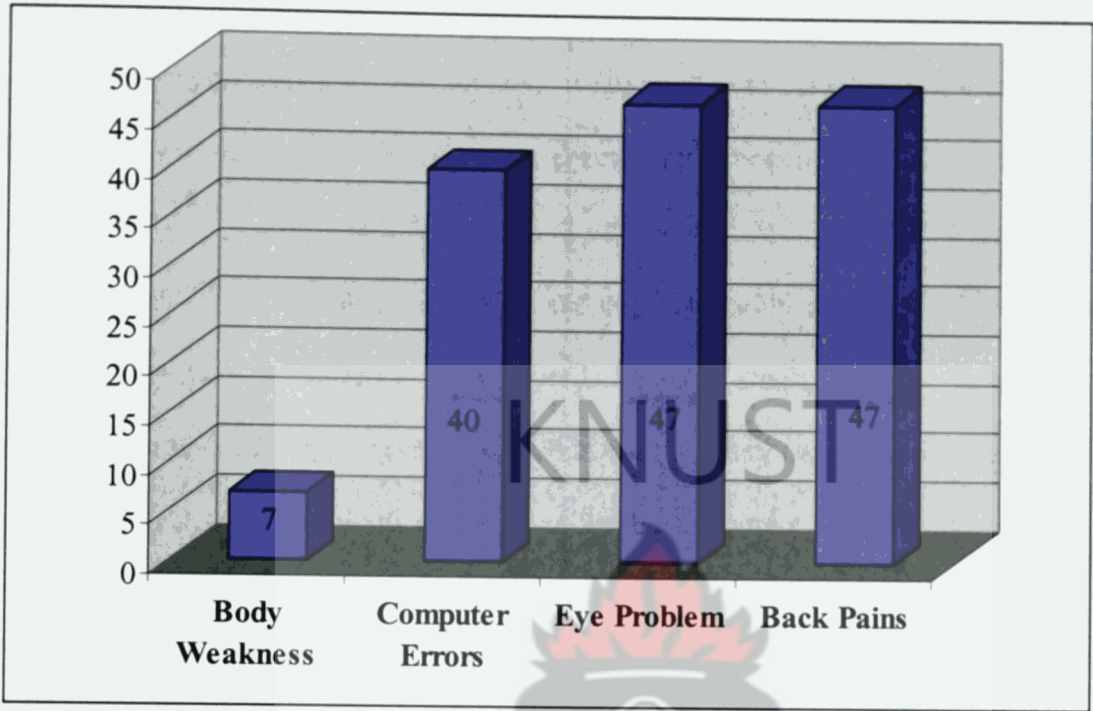
Here the researcher wanted to find out whether the usage of a software system poses problem or not for the company.

From Table 2, 3 (6.0%) of the respondents asserted that the usage of the software system poses problems for the company. These respondents were mainly from the Human Resource Department. Therefore, in order to find out what some of the problems were the researcher decided to have a personal interview with one of the IT personnel at the company, here it was revealed that the software works through the internet and therefore they could some times experience net work problem which could be associated with un plagued cable or link failure. Another problem cited was also the automatic locking of ones accounts due to the forgetfulness of ones password. The password of the end users are changed regularly as a means of trying to prevent persons from gaining access to the system and therefore any time system users forget of their passwords and they enter wrong passwords for three consecutive times their accounts closes automatically and they are denied access. Any time a problem is encountered in the course of using the system, work is brought to a halt. Information gathered from the research also revealed that time in the mining area is very important therefore any time there is a system failure it could cost the company billions of cedis.

47 (94%) of the respondents however disagreed that the software system could pose problems for their company. To these respondents, the system itself can not create problems for the company but the people involved with its usage can rather encounter problems through the usage of the system.

Figure 3 outlines some of the problems. Information gathered from the research indicates that there are even measures put in place by the company to curtail some of the problems that system users encounter in their operations.

**Figure 3: Problems encountered by people in using a software system for procurement.**



**Source: Researchers Field work**

Out of the 47 (94%) of the respondents that asserted that people encounter problems in the usage of a software system for procurement, 7 (14.89%) of the respondents were of the view that the system users often experience body weakness. The research revealed that these system users are always busy working for almost all the working hours of the company, therefore it is natural that they experience some form of body weakness.

Another 40 (85.11%) out of the forty-seven (47) respondents were also of the view that the system users make computer errors. It was revealed from the research that the computer errors occur whenever the system users were tired. An example of such a computer error was given as double entering of data into the system a requisition order or repeating a requisition

order that has been done earlier. It was finally revealed from the research that although the system was able to detect such an error through a process called "confirmation of order", which occurs immediately a requisition order is captured in to the system, it is still a problem to the company in the sense that it delays the procurement process.

All the 47 (100%) of the respondents agreed that eye problem and back pains like any human computer problems were predominant among their system users. Information gathered from the research was that the company has outlined measures such as providing each system user with a protective screen to protect their computers in order to reduce their direct eye contact with the system. The company also allows them to move around or to refresh themselves anytime they sit on the system for one hour.

Some of the problems encountered in the course of using the software to a very large extent can be described as human, for instance the problem of double entering in to the system a requisition order. These problems encountered by the system users are basic that any one encounters in the course of using the computer. Various scientific research and studies testifies to this assertion.

Some EDI users have experienced snags. In Planet IT, Proctor & Gamble, a leading packaged goods manufacturer, reported that it found errors in more than 30 percent of its electronic orders, although they were mainly due to human error. Additionally, some companies have been disappointed by e-procurement a software application that does not meet their needs. InformationWeek revealed that two of the leading obstacles to successful e-

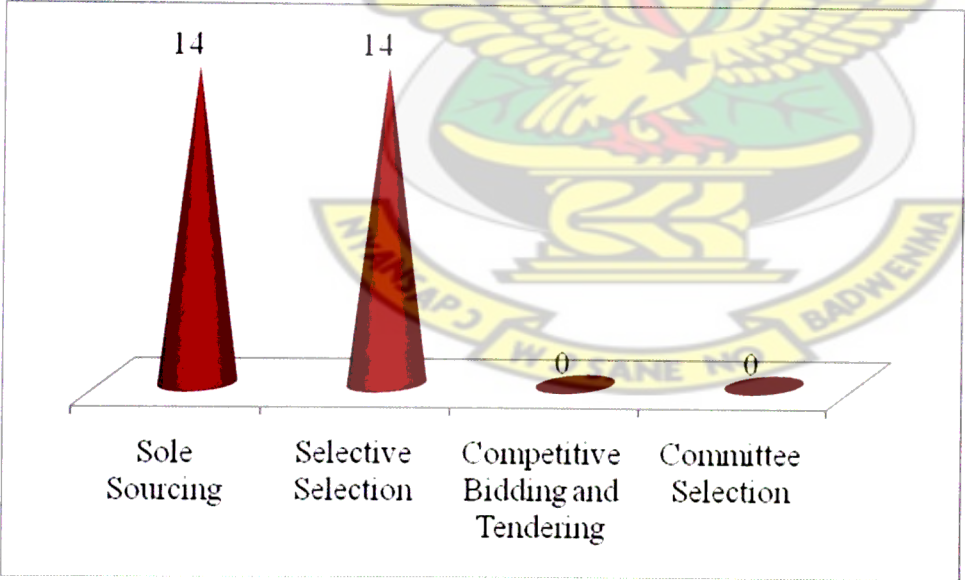


procurement are enabling suppliers to support e-transactions and generating and maintaining electronic product information.

Additionally, InformationWeek explains that numerous firms “sign on for E-procurement without anticipating the long road ahead. They dive into projects only to learn that E-procurement applications are limited in the types and scope of purchasing activity they address. Managing electronic catalogs with thousands of products, providing employees with the right mix of products and adequate information about them, and making it easy to search for items can also be tricky, requiring additional tools and threatening the efficiencies promised by moving purchasing to the Web”

**Procurement Methods**

**Figure 4: Methods used in the selection of suppliers**



**Source: Researchers field work**

In this section the researcher wanted to find out the various methods used by the company in the selection of its suppliers. Out of four (4) departments outlined for this research namely; Finance, Human Resource Management, Processing (Production) and Procurement (Purchasing), only respondents from the procurement (purchasing) department answered the question relating to the selection of suppliers of the company. The respondents of the other three departments did not answer the question concerning the selection of suppliers of the company. According to them they had no idea concerning how the selection of suppliers was done by their company. The researcher therefore had to rely on respondents from the purchasing (procurement) department who were usually involved in the company's selection of suppliers. Therefore it could be said that the information provided by these people are expert opinion and to a large extent can be relied on as an official mouth piece of the company. In all there were fourteen (14) respondents at the procurement (purchasing) department.

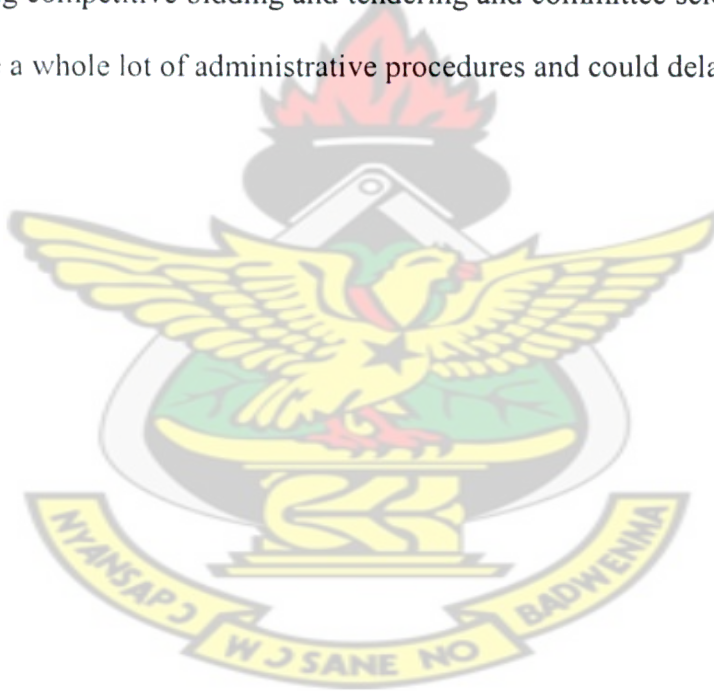
All the fourteen (14) respondents representing 28% contended that their company uses sole sourcing in the selection of suppliers when it comes to the purchasing of proprietary items.

The same respondents representing 28% also contended that their company uses selective selection in selecting suppliers when it comes to emergency buying.

Finally none of the 14 (28%) of the respondents mentioned competitive bidding and tendering as well as committee selection as a method used by their company in the selection of suppliers. To them competitive bidding and tendering as well as committee selection was

commonly used by the public sector and since their company was a private one, it did not engaged itself in such methods of supplier selection.

These methods of supplier selection outlined above conform to existing literature. The new Public Procurement Manual (Act 663,p 33 -34) outlines all the above mentioned supplier selection and iduapriem limited as a private mining company has taken sole sourcing or single sourcing and selective selection since these two methods allow emergency buying as well as quick purchasing. Time in the mining sector is very important hence iduapriem is justified for not adopting competitive bidding and tendering and committee selection since in most cases they involve a whole lot of administrative procedures and could delay purchasing.



## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATION

#### 5.0 Conclusion

The mining sector is currently one sector in the Ghanaian economy which has gained a lot of media attention. Its numerous benefits to the Ghanaian economy as well as its impact on the Ghanaian environment are perhaps some of the reasons for its attention.

This research was therefore set out to establish the role e-procurement plays in the supply chain activities of a mining area, AngloGold Ashanti, Iduapriem limited, Tarkwa was then chosen as a case for the research.

Reduced delivery and ordering times, less labour (clerical) cost, transparency and efficiency, low prices of goods and services and lower transaction costs were some of the benefits that were revealed in the research to be associated with the practice of E-procurement.

Various scientific research and studies supports this revelation. For instance early adopters of e-procurement have reported lower costs of goods and services purchased, lower inventory levels, shorter lead-times, and improved communications with suppliers. The savings generated through the application of e-procurement was 25 percent at Fleet Bank, 22 percent at Compaq, 20 percent at IBM, and 18 percent at DuPont. (Attaran, and Mohsen, op.cit).

Information also solicited from the research indicates that the use of a software system for e-procurement by a mining company can also help combat corruption and fraud. The reason



being that the software system and other internal control measures configured in to the system or put in place help to combat corruption and fraud.

The passing of the new procurement act and as well as the spelling out of procurement procedures in various mining areas and the professional code of ethics for procurement officers are some internal control measures put in place to help combat corruption and fraud.

It was also revealed from the study that Iduapriem as a mining company only uses two methods in the selection of its suppliers namely; sole sourcing and selective selection. Sole sourcing was used for proprietary items such as the purchase of machines and heavy capital equipments. Selective selection was also used during emergency situations.

Finally it was revealed in the research that the use of a software system for e-procurement does not create problems. Here it was revealed that the software system does not cause any problems in its usage, but the people involved rather encounter some problems in the usage of the software. These problems can be described as basic human problems that any body encounters in using the computer. The following were some of the problems outlined; body weakness, errors in entering information to the system, back pains and eye problem.

Finally it was also revealed from the research that in order to avoid the occurrence of such problems outlined above the company has adopted the following measures;

- (1) System users are allowed to walk around and relax themselves any time they sit by the computer for one hour continuously.

- (2) Computer screen protector have been provided for all system users in order to prevent the eye from having direct contact with the screen.

### 5.1 Recommendations

Every government that is given the mandate to rule in Ghana preaches probity, transparency and accountability. The passages of the New Procurement Act in 2003 as well as the promulgation of two other important Acts – The internal Audit Agency Act and The Financial Administration Act were all meant to ensure probity, transparency and accountability with respect to public spending and transactions.

This research has outlined many benefits associated with the usage of e- procurement, notably amongst the benefits includes transparency, efficiency; and reduced delivery and ordering times, reduced labour (clerical) costs, lower price of goods and services as well as lower transaction cost.

In view of the above benefits outlined, the following recommendations are therefore necessary;

1. All mining companies as well as AngloGold Ashanti iduapriem limited, Tarkwa should continue to adopt e-procurement in its operations. This is because it would help them to overcome some of the problems associated with their supply chain activities such as oscillations of inventories, inventory stock outs, and late deliveries.
2. The research also revealed that e-procurement can help combat corruption and fraud; I would therefore like to suggest that all mining companies as well as business entities should

configure some of their manual activities into software programmes such as SAP so as to enable them reduce waste and corruption associated with procurement activities.

3. It was also revealed from the research that softwares and other internal control measures put in place can help combat corruption and would therefore like to recommend that all mining companies and other business entities including Iduapriem should seriously embark on an effective human resource management package, such as good wages and salaries for its workers, good working conditions, good conditions of service and above all mutual respect for all categories of workers so that they would always feel comfortable at work and then contribute their best towards the development of their company. This is the only situation that internal control measures can work very effectively to help combat corruption and fraud.

It was revealed from the research that much has not been done in the area of e-procurement in Ghana, perhaps like e-logistics this area is still new in the Ghanaian environment; I would therefore like to recommend the following topics below for future research so as to create more awareness in this area;

1. Assessing the impact of e-procurement on supply chain management.
2. E-procurement, challenges and prospects.

## 5.2 Summary

The advancement of technology such as the use of the internet, intranet as well as the adoption of software programmes for business transaction is gradually making the global world very competitive and highly electronic.

Institutions and corporate bodies should learn to adopt software programmes such as SAP and Pronto in order to enable them survive in the global competitive environment. Although the research has outlined basic scientific problems encountered through the usage of a software system, the same research has outlined various benefits associated the practise of e-procurement.

It may also hereby be concluded that once the foregoing areas recommended for further research or some such areas of similar magnitude are researched into, there will be a greater contribution to knowledge to be applied for more positive impact on the economy and national development.





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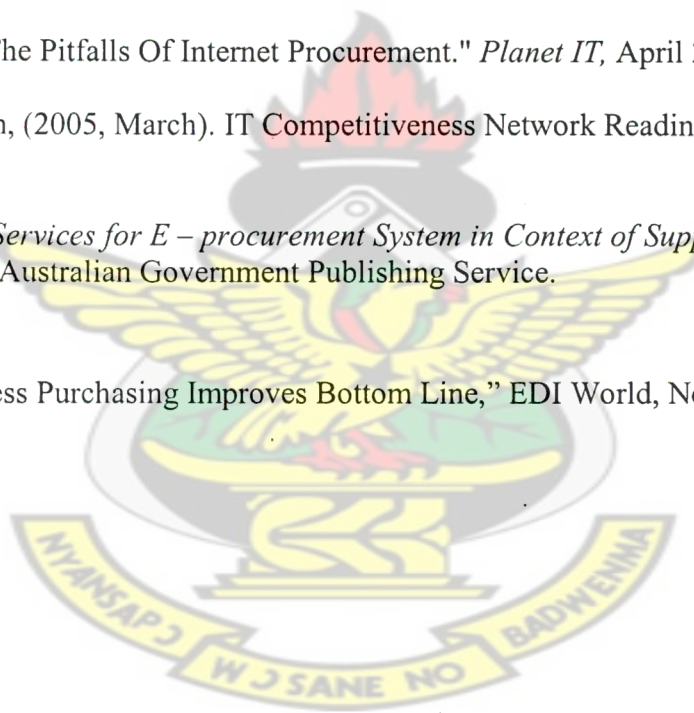
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## APPENDIX

KNUST SCHOOL OF BUSINESS

COLLEGE OF ART AND SOCIAL SCIENCES

### Questionnaire

#### TOPIC:

ASSESSING THE ROLE OF E – PROCUREMENT ON SUPPLY CHAIN MANAGEMENT IN A MINING AREA, ANGLOGOLD ASHANTI IDUAPRIEM LIMITED, TARKWA AS A CASE STUDY

This exercise is being undertaken by James Yaw Osei – Owusu, to collect data for his dissertation in partial fulfilment of a Masters Degree in Business Administration at the Kwame Nkrumah University of Science and Technology, Kumasi. He would therefore be grateful if you could kindly respond to the following questions. The information given will be treated as confidential and use for only academic purpose.

1. Which of the following departments do you belong to?

- (a) Finance
- (b) Human Resource Management
- (c) Operations (Production)
- (d) Procurement (Purchasing)

2. Is Procurement at your department done manually or through a software system?

.....

3. If it is done through a soft ware system, give the name of the soft ware system or if it is done manually, explain some of the procedures involved

Name of software.....

Manual procedures.....

.....

4. Are you the Head of your department Yes ☐ or No ☐ ?

5. If Yes explain how you use the software to authorise the purchase of goods at your department?

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.....  
.....

6. Does your company benefit from using e –procurement in its supply chain activities?  
Yes ☐ or No ☐

7. Listed below are some benefits associated with e – procurement. Tick the ones your company is enjoying, you can also add to the list.

- ☐ Lower transaction costs associated with purchasing
- ☐ Lower prices of goods and services
- ☐ Reduced labour (clerical costs)
- ☐ Faster ordering and delivery times
- ☐ Efficiency and Transparency
- Others.....  
.....

8. Apart from the benefits listed in 7 above state any other five importance that your company derives from using e – procurement in its supply chain activities.

- i.....
- ii.....
- iii.....
- iv.....
- v.....

9. Does your company have its own selected suppliers? Yes ☐ or No ☐?

10. Which of the following methods is used by your company in the selection of suppliers

- ☐ Competitive bidding and tendering
- ☐ Committee selection
- ☐ Selective tendering
- ☐ Sole sourcing
- Others.....

11. Can you briefly explain how your company’s software system works with its suppliers?

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12. Do you agree that procurement whether manual or through software is often characterised with fraud and corruption? Yes ☐ or No ☐

13. If yes state some ways that makes issues concerning procurement to be characterised with fraud and corruption

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

14. Can the software system used by your company help to combat corruption and fraudulent activities associated with procurement at your company?  
Yes ☐ or No ☐

15. If Yes provide reasons and if No explain

Yes.....  
.....  
.....

No.....  
.....

16. Does the usage of the software system for procurement pose some problems for your company? Yes ☐ or No ☐

17. If Yes state at least five of such problems

i.....  
ii.....  
iii.....  
iv.....  
v.....

