Assessing the Role of E-Procurement on Supply Chain Management in a Mining Area: The Case of AngloGold Ashanti Iduapriem (Tarkwa) Limited.

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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. 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 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. 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.

Keywords: Assessing, Role of E-Procurement, Supply Chain Management, AngloGold Ashanti, Iduapriem (Tarkwa) Limited.
INTRODUCTION
The Republic of Ghana covers an area of 238,540 square kilometers (km²) 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).

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, 2002).

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.

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.

In this research the primary research question was:
Why has AngloGold Ashanti Iduapriem limited, Tarkwa introduced a software 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?

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, sometimes 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. 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).

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.

Global sourcing is emerging as a powerful practice in the procurement arena. Tapping the worldwide 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).

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).

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.”
In the light of the above, a study to assess the role of E-Procurement on supply chain management in a mining area: the case of AngloGold Ashanti Iduapriem (Tarkwa) Limited as a step in the right direction.

METHODOLOGY
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.

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).

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

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.
ANALYSIS AND DISCUSSION

Table 1: Benefits of using e-procurement

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Respondents</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower transaction costs associated with purchasing</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>Lower prices of goods and services</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Faster ordering and delivery times</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Efficiency and transparency</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>Reduced labour (clerical costs)</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Field work, 2010

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

Source: Field work, 2010

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 software 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 whenever 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 anybody to cheat the company using the company’s software.
Table 2: Problems of e-procurement

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency (f)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
<td>6.0</td>
</tr>
<tr>
<td>No</td>
<td>47</td>
<td>94.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field work, 2010

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 researchers 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 sometimes experience network problem which could be associated with unplugged cable or link failure. Another problem cited was also the automatic locking of ones accounts due to the forgetfulness of one’s 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.
Figure 3: Problems encountered by people in using a software system for procurement.

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.

Source: Field work, 2010
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.

CONCLUSION AND RECOMMENDATION

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 support 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, 2002). 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 equipment.

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;

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.

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 reduces waste and corruption associated with procurement activities.

It was also revealed from the research that software 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 being done in the area of e-procurement in Ghana, perhaps like e-logistics this area is still new in the Ghanaian environment.

**REFERENCE**


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The New Public procurement Act (Act663).


