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The Impact of Strategic Sourcing and Supplier Selection on the Operations of Goldfields Ghana Limited, Tarkwa Mine

Lord Emmanuel Yamoah

Abstract

This master's thesis main objective of the study is to examine the impact of strategic sourcing and supplier selection on the operations of Goldfields Ghana Limited. To reach this objective, we seek to examine the impact of strategic sourcing and supplier selection on the operations of Goldfields Ghana Limited, Tarkwa Mine. This research was purposely a survey which employed mixed approach; structured questionnaire was developed, pre-tested and personally administered to the target population of Mantrac, Sandvik, AEL, DHL, and Goldfields Ghana Limited, Tarkwa Mine, Supply Chain and Logistics Officers. Out of one hundred (100) questionnaires that were distributed, thirty-five (35) were returned. SPSS was used in the analyses of the responses. Based on an objective analysis of the obtained data, the major findings depict that the current sourcing at Goldfields Ghana Limited, Tarkwa Mine is multiple. Supplies are purchased both locally and internationally. Supplies decisions are based on price and quality of the materials; and how best to meet sustainability requirements. Total quality management is an essential tool in the supply chain and logistics operations. Both buyer and seller -firms consider building relationships in supplier selections in the areas of: finding the right supplier to deliver the materials at the right time, quality of the products, monitoring and evaluation, specification, and vendor rating.

Keywords: Strategic Sourcing, Supplier Selection, Strategic Operations

1.0 INTRODUCTION

1.1 Background of the Study

The dynamics of the present day competitive environment places increasing pressures on organizations to reinvent themselves continuously (McAdam & McCormak 2001), to adopt the supply chain management philosophy (Tracy & Tan 2001), develop long-term strategic partnerships with a few competent and innovative suppliers and collaborate with them in non-core process outsourcing in order to maintain or improve overall organizational performance and generate sustainable competitive advantage. One of the most important activities in any organization today pertains to procurement of materials and services that it requires in order to convert raw material into finished products that are useful for the customers. Sourcing has become strategic on two counts; *operational and economic*. Operationally there is a growing importance of sourcing due to several developments.

An analysis of the cost structure of manufactured goods over the last 30 years reveals that increasingly organizations spend over 70% on raw materials and purchased components and services. This puts a special emphasis on procurement and sourcing. Further there is a significant change in the trading partner relationships. From an era of "independence" between the supplier and the buyer, we have transformed into an era of "mutual dependence" and even further into a "state of interdependence". Finally, the increasing cost pressure that organizations face translate directly into reducing the input cost of materials and components even while increasing the quality and performance of these components. Clearly these operational considerations have pushed the importance of sourcing in organizations.

Carr and Smeltzer (1997) defined strategic sourcing as a processes of planning, evaluating, implementing and controlling all sourcing activities undertaken by an organization to achieve its long term goals. The principal objective of strategic sourcing is to effectively handle situations when faced with supply, competitive, and demand uncertainties (Milliken, 1987; Johnson & Johnson, 1991). It is achieved by developing a set of practices through which certain flexibilities could be obtained to face these uncertainties. Strategic Sourcing enables an organization to identify and select suppliers through strategic long term partnerships, by providing benchmarks, laying emphasis on supplier performance and providing feedback to suppliers. Moreover, in today's business context organizations compete in a

global environment and operate in multiple markets and geographical locations. This provides additional dimensions to strategic sourcing.

With the advent of the Internet, new market mechanisms have sprung in the electronic space enabling the buyers and the sellers to locate each other, discover products and prices efficiently and conduct business in a cost effective manner. For example, Alibaba.com, being a global leader in business-to-business (B2B) e-Commerce. It has a user community in excess of 42 million from more than 240 countries and regions (Alibaba, 2009). These users transact a number of trade leads with one another through its portal. Such electronic marketplaces help the buyers and the sellers reduce the transaction costs and the time in the entire procurement process. On account of these developments, practices such as outsourcing, global sourcing and e-procurement have become key aspects of strategic sourcing. The specific comparative advantages of different locations, countries and regions have led to an emerging trend in global production and sourcing systems. In such a scenario, the procurement and production process is typically organized with multiple country affiliations. A product may be designed in one country, manufactured in another and parts/components sourced in yet another (Pham and Quoc, 2006). This has introduced new dimensions in global sourcing as there are marked differences in performance and procurement practices in different regions of the world (Ruamsook et al. 2007).

Strategic sourcing requires certain planning and operational changes in the manner the procurement and supply management functions are managed. Internally in an organization, the status of purchasing within the organization and the nature of internal coordination required undergoes significant changes. Further there is a greater need for information sharing with the suppliers (Kocabasoglu and Suresh, 2006). The short-term objective of SCM is to increase productivity and reduce inventory and cycle time, while the long-term strategic goal is to increase customer satisfaction, market share and profits for all members of the virtual organization (Tan, 2002; Wisner and Tan, 2000). To realize these objectives, all strategic partners must recognize that the purchasing function, with its boundary-spanning activities, is a crucial link between the sources of supply and the organization itself (Wisner and Tan, 2000). Purchasing/sourcing connects suppliers and buyers closely, which are two of the driving forces of competitiveness in an industry (Porter, 1980). In view of these developments in the sourcing landscape we are motivated to examine the impact of strategic sourcing and supplier selection on the operations of Goldfields Ghana Limited, Tarkwa mines.

1.2 Problem Statement

“The problem statement describes the content for the study and it also identifies the general analysis approach” (Wiersma 1995, p. 404); “A problem might be defined as the issue that exists in the literature, theory, or practice that leads to a need for the study” (Creswell, 1994 p. 50). Frank Pajares states that effective problem statements should answer the question “Why does this research need to be conducted”? (Frank Pajares, 2007). Today, organizations worldwide have to cope with very keen competition and a dynamic environment as market conditions are changing rapidly and customers are demanding better and better products and services (AQCL 1997) in response to the increasingly stringent demands and to maintain or improve the competitive advantage, firms that excel must implement strategies to achieve cost reduction, continual quality improvement, increase customer service, delivery improvement and reduced concept-to-market product cycle time.

In addition, many companies currently have come to realize the importance of persistently strengthening and improving themselves to win or survive in the fierce competitive market. The pursuit of competitive advantage requires the development of global processes and strategies that become an integral part of a firm’s supply chain effort. For many, it is clear that pursuing global sourcing strategies and approaches that integrate engineering, purchasing, operations, logistics and even marketing. Global sourcing may well be one of the last untapped areas, which offers the kinds of performance breakthroughs required to maintain successful in highly competitive markets (Trent & Monczka 2003). On the contrary, a successful sourcing activity cannot be carried out unless cooperative buyer-supplier relationships are established. As companies adopt new manufacturing strategies, such as Just-In-time (JIT) it is expedient to consider those factors that influence buyer-supplier relationship. The problem of this study is compelled by the need to empirically examine the impact of strategic sourcing and supplier selection on the operations of Goldfields Ghana Limited, Tarkwa Mine.

1.3 Main Objective

The main objective of the study is to examine the impact of strategic sourcing and supplier selection on the operations of Goldfields Ghana Limited.

1.4 Specific Objectives

Specific objectives of the study include:

- a. To examine the strategic sourcing and supplier selection issues

- b. To examine the supplier selection criteria of Goldfields Ghana Limited, Tarkwa Mine?
- c. To recommend how Goldfields Ghana Limited, Tarkwa Mine, will evaluate the potential suppliers in order to find the best ones?

1.5 Research Questions

For the above problem, the study seeks to answer the following specific research questions:

- a. What kind of sourcing strategy is Goldfields Ghana Limited, Tarkwa Mine implementing currently?
- b. Which supplier selection criteria is Goldfields Ghana Limited, Tarkwa Mine using?
- c. How should the operations of Goldfields Ghana Limited, Tarkwa Mine, evaluate the potential suppliers in order to find the best ones?

1.6 Significance of the Study

This research study has three significances. First, the research findings could provide insight into strategic sourcing for suppliers in the supply chain management. Second, this research outcome will help the Goldfields Ghana Limited, Tarkwa Mine to identify the critical factors of the supplier selection. Third, research results could guide Goldfields Ghana Limited, Tarkwa Mine to increase the awareness of the relationship between supplier and buyer selection factors. This study is also eminent to supply, logistics and technical practitioners, who are part of companies that expect to coordinate process improvement and supply chain activities across worldwide locations and between functional groups. It is also beneficial to those in academia who are interested in outsourcing issues.

1.7 Limitation of the Study

The main limitations of the study are constraints of resources, access, and time. The finance and material resource needed for a large sample size for this study is inadequate. It is also not likely the researcher would have access to every locality of Ghana and its suburbs for respondents to fill the questionnaire. This limitation, in particular, accounted for delimiting the research to literate individuals particularly suppliers, management, and supply chain management staff workers of Goldfields Ghana Limited–Tarkwa mine. This research is also constrained by time. It is conducted within very limited academic time frame precisely three months. However, it did not allow us to use a large sample size which is a pre-requisite for reliability of surveys that aim at generalizing findings and making inferences from a sample about the population of one hundred for this study.

1.8 Delimitation of the Study

The study was only delimited to only staff of Goldfields Ghana Limited, Tarkwa mine. Moreover, stakeholders in this study are limited to suppliers and community members of “Akoon”- (Tarkwa). Finally, the sample for this study is delimited to a sizable one hundred respondents. This study narrows its scope to focus upon the supplier selection process which assists in maintaining effective supplier linkages. We believe that the results of this research may portray the current interaction between firms and their suppliers.

1.9 Organization of the Study

The study is organized into five chapters. Chapter one is the introductory chapter that covers the Background of the study, Problem statement, Research questions, Research objectives, Significance of the study, Limitations of the study, Delimitations, and Organization of the study. Chapter two is the review of relevant literature. It covers supply chain management, definition and brief historical perspective, sourcing, strategic sourcing and supplier selection, importance of supplier selection, determine the criteria, supplier evaluation method, and choosing the right supplier. Chapter three is the methodology section. It focuses on the research design, (continue) Chapter four is presentation of data and analysis of results and findings. Chapter five is the summary, conclusion and recommendations.

2.0 LITERATURE REVIEW

2.1 Supply Chain Management

2.1.1 Definition and Brief Historical Perspective

Supply Chain Management is a network of facilities that produce raw materials, transform them into intermediate goods and then final products, and deliver the products to customers through a distribution system. It spans procurement, manufacturing and distribution (Lee & Billington 1995) the basic objective of supply chain management is to “optimize performance of the chain to add as much value as possible for the least cost possible”. That is, it aims to link all the supply chain agents to jointly cooperate within the firm as a way to maximize productivity in the supply chain and deliver the most benefits to all related parties (Finch 2006). Adoption of Supply chain

management practices in industries has steadily increased since the 1980s. A number of definitions are proposed and the concept is discussed from many perspectives. According to New and Payne, (1995), supply chain management is management of material, money, men, and information within and across the supply chain to maximize customer satisfaction and to get an edge over competitors.

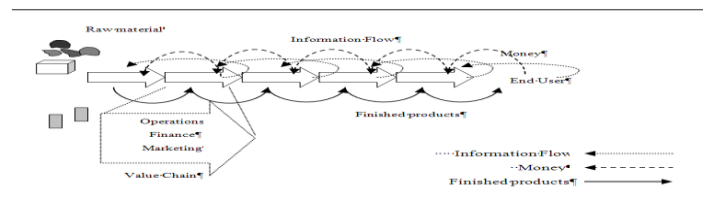


Figure 2.1 Supply Chain
Source: KpocZak (1997)

This study focused on the definition propounded by KpocZak (1997), ‘as set of entities, including suppliers, logistics services providers, manufacturers, distributors and resellers, through which materials, products and information flow’. In the 1950s and 1960s, most manufacturers emphasized mass production to minimize unit production cost as the primary operations strategy, with little product or process flexibility. In the 1970s, material requirements planning (MRP) was developed and managers realized the impact of huge WIP inventories on manufacturing cost, quality, product development, and delivery lead-time. The intense global competition of the 1980s forced world-class organizations to offer low-cost, high-quality, and reliable products with greater design flexibility. Manufacturers utilized Just-In-Time (JIT) and other management programs to improve manufacturing efficiency and cycle time. The evolution of SCM continued into the 1990s as organizations further extended best practices in managing corporate resources to include strategic suppliers and the logistics function. Many manufacturers and retailers are embracing the concept of SCM to improve efficiency and effectiveness across the supply chain.

2.2 Sourcing

This chapter focuses first into the sourcing function and then to the supplier selection process. The initial decisions in sourcing function include determining between single and multiple sourcing, sourcing locally, nationally or internationally and how to place purchasing authority. When starting the supplier selection process, the group of suitable suppliers have to be discovered. The initial stage of discovering the suppliers can be conducted by using the information available in trade directories and other public sources. A deeper analysis might require sending requests for information.

2.3 Strategic Sourcing and Supplier Selection Issues

Strategic purchasing is defined as the process of planning, implementing, controlling, and evaluating highly important purchasing in an effort to meet a firm’s goals (Carr and Smeltzer, 2000; Carr and Pearson, 1999 and 2002). A number of articles address the need for purchasing to assume a more strategic role (Carr and Smeltzer, 2000; Carter and Narasimhan, 1994, 1996a, and 1996b; Ellram and Carr, 1994; Narasimhan and Das, 1999; and Pearson and Gritzmacher, 1990). A strategic purchasing function is viewed by top management as an important resource of the firm. From a theoretical perspective, a firm’s resources can be used to support its capabilities so the firm can achieve a competitive advantage (Carr and Pearson, 2002; and Reck and Long, 1988). The strategic purchasing is involved in the firm’s strategic planning process and purchasing is treated as an equal to other major functions in the firm (Freeman and Cavinato, 1990).

At a macro level, a strategic use of purchasing requires a purchasing manager to monitor the company’s environment, forecast changes in that environment, share relevant information with suppliers and colleagues in other functions, and identify the company’s competitive advantages and disadvantages relative to its suppliers. At a micro level, strategic purchasing involves the identification of critical materials, the evaluation of possible supply disruptions for each of them, and the development of contingency plans for all identifiable supply problems (Burt and Soukup, 1985). In order to compete effectively in the world market, a company must have a network of competent suppliers. Supplier assessment and selection is designed to create and maintain such a network and to improve various supplier capabilities that are necessary for the buying organization to meet its increasing competitive challenges.

A firm’s ability to produce a quality product at a reasonable cost and in a timely manner is heavily influenced by its suppliers’ capabilities, and supplier performance is considered one of the determining factors for the company’s success (Krause, Scannell, and Calantone, 2000; Krause, 1997; Tan, Lyman, and Wisner, 2002; Monczka, Trent, and Callahan, 1994; Tan, Handfield, and Krause, 1998; Choi and Hartley, 1996; Shin, Collier, and Wilson, 2000; and

Davis, 1993). Consequently, without a competent supplier network, a firm's ability to compete effectively in the market can be hampered significantly.

There are several key reasons why suppliers are becoming increasingly critical to the competitive success of the U.S. firms. First, manufacturers are beginning to focus on their core competences (Prahalad and Hamel, 1990) and areas of technical expertise, that is, firms concentrating on what they do best. An emphasis on internal competences requires greater reliance on external suppliers to support directly non-core requirement. Second, developing effective supply base management strategies can help counter the competitive pressures brought about by intense worldwide competition. To remain globally competitive, firms in the U.S. must receive competitive performance advantages from their suppliers that match or exceed the advantages that suppliers provide to leading foreign competitors. Third, suppliers can support directly a firm's ability to innovate in the critical areas of product and process technology. As organizations continue to seek performance improvements, they are reorganizing their supplier base and managing it as an extension of the firm's business system (Vonderembse and Tracey, 1999; Trent and Monczka, 1998; and Morgan and Monczka, 1996).

Given that over 50% of the cost of goods sold worldwide is derived from purchased materials, supplier selection is an important strategic decision and serves as a source of competitive advantage (Simpson, Siguaw, and White, 2002). Supplier selection becomes a central concern as the buyers look to form strategic partnerships (Spekman, 1988; and Mabert and Venkataramanan, 1998). A growing emphasis on establishing long-term channel relationships, driven by competitive pressures and business complexity, has encouraged many firms to become highly selective in their choice of supplier. To build more effective relationships with suppliers, organizations are using supplier selection criteria to strengthen the selection process. Vonderembse and Tracey (1999) indicated that managers should focus on a set of supplier selection criteria that evaluates suppliers across multiple dimensions including product quality, product performance, and delivery reliability. Effective evaluation and selection of suppliers is considered to be one of the critical responsibilities of purchasing/sourcing managers. The evaluation process often involves the simultaneous consideration of several important supplier performance attributes that include price, delivery lead time, and quality.

On the other hand, Peter Kraljic (1984, in Van Weele 2010, 197) created the Kraljic matrix that shows the appropriate strategy depending on the type of the product, impact on financial result and supply risk. The figure below shows four different types of products and four different strategies to be carried through depending on the impact on the financial result and supply risk. However, Jonsson (2004, 89) argues that strategic sourcing is unique to each company, and not one sole sourcing strategy that can lead to success. As can be seen in figure 2, performance based partnership is optimal for strategic products as the supply risk is high and purchasing impact on financial results is high. The backbone of the whole strategy is the successful supplier selection; the suppliers are screened in terms of references, financial situation, research and development (R&D) aspects in the past and in the future, capacity, logistics functions and quality control. (Van Weele 2010, 198-199).

The Kraljic matrix shows that competitive bidding is the best choice for leverage products with low supply risk and purchasing's high impact on the bottom line. Leverage products make up a high percentage of the purchasing company's profit, and there are multiple suppliers in the markets. For bottleneck products with high supply risk and low impact on the bottom line, secure supply and search for alternatives is the right choice. Bottleneck products are supplied only by one supplier or there is another reason for unsecure supply. For routine products, such as office supplies, the systems contracting and e-commerce solutions is the best option. In these cases, the supply risk is not significant, and purchasing has low impact on the bottom line. (Van Weele, 2010).

As can be seen in figure 2.2, Kraljic was well aware of the different kinds of business relationships. Well-managed supply chain relationships can bring major benefits to the company. Handfield et al., (2009, pp. 122-123), emphasized that, a close relationship between buyer and seller can bring many advantages such as trust and long-term contracts. Mutual trust enables sharing of more sensitive information. For example, cost structure of products and cost-reductions can be thought through in joint effort. Long-term contracts are more likely to be made when the seller-buyer relationship is close; both of the parties trust each other and are able to see the benefits over a long time period. Long-term contracts give an incentive for the supplier to invest in advanced facilities, get involved in the development of technology and more importantly sharing risks. (Hand-field et al., 2009, p.123).

Langley, Coyle, Gibson, Novack and Bardi (2008, 110-111) introduce the intensity of the relationship as three alternatives: transactional, collaborative or relational. The transactional relationship means that the company sees the supplier only as a vendor whereas in relational situation the relationship reaches the strategic level. In strategic relationship the company defines the business objectives and practices together with the suppliers. The transactional relationship involves quite little discussion and involvement in each other's businesses; mainly just the money and goods are transferred. The relationship type between these two is partnership, which brings benefits to both of the parties but is not as involved as strategic relationship. (Langley et al. 2008, 110-111). Langley et al., (2008, 111), list

the variables in the business relationship as; duration, obligations, expectations, communication, cooperation, planning, goals, performance analysis, benefits and burdens. Each business relationship consists of these elements, and by affecting these elements also the benefits of the relationship can be increased. However, the benefits should not be just one sided or else the business relationship will not be on a solid base.

2.4 importance of Supplier Selection

Supplier selection is central to the work of all buyers, and is probably the most important function in the purchasing process (Erridge, 1995, p.151). The need to identify and select a new supplier can arise from a number of reasons. A source used in the past may have gone out of business. Its price may have risen unreasonably or its quality slipped to unacceptable levels. Its technology may be outdated. The purchasing manager has a lot of sources of supplier information (Scheuing, 1989, p.215-217). These include published sources, internal sources, personal contacts and international sources. Next, the purchasing manager formulates the selection criteria to be applied through this specific process. In most cases, where such decisions are made, the selection process is comprehensive. Included among the criteria used by one company was the requirement that the supplier should have the 'necessary capabilities and experiences'. This meant that a potential supplier (Baily, 1998, p.143-144):

- a. Was viable in longer term financially, technically, and in production terms;
- b. Would be able to participate in the early phases of product design and development as a full partner in the process;
- c. Would openly share information on the functional, assembly and the services requirements of parts, including cost and quality targets;
- d. Would be orientated towards taking cost out of product and improving total system performance to mutual benefit;
- e. Would be able to develop prototypes as well as manufacture volume production;
- f. Would be prepared to agree to cost structure targets;
- g. Would work with the buying company so as to increase their flexibility in meeting changing demands and operate on a pull rather than a push basis, in the process, reducing their own wastes such as inventory holding, unnecessary inspection and excess work in progress as well as those of the buying company.

The purpose of supplier selection is to determine the optimal supplier who offers the best all-round package of products and services for the customer (Swift & Gruben 2000) and greater use of advanced supplier selection and monitoring practices tends to increase profitability and product quality (Ittner et al., 1999).

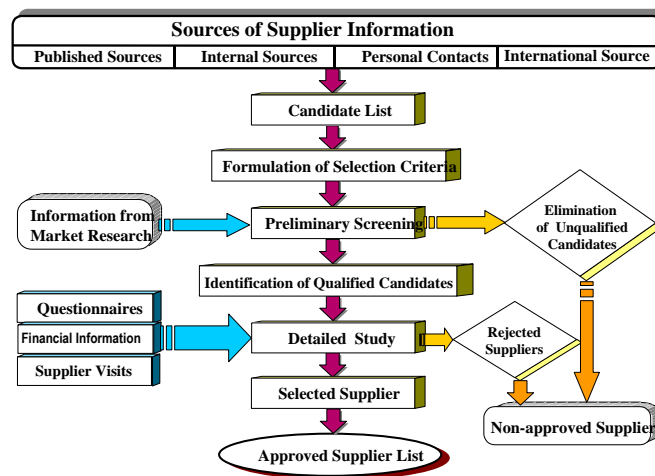


Figure 2.3 Selecting a New Supplier
Source: Scheuing (1989)

2.5 Determining the Criteria

Analytical supplier selection usually requires a lot of time because of evaluating suppliers in multiple categories. Companies have differences in their supplier selection criteria, but a few criteria are commonly considered as the important ones. Mwikali & Kavale (2012, 190) write that after surveying multiple industries the most important factors affecting the purchasing performance are quality, on-time delivery and costs. The other factors include joint development, trust, level of supply chain management, communication, technical capability and reputation. For the ongoing search for new suppliers they suggest creating a data bank with the information of the potential suppliers.

The data bank can help in the supplier selection process in the long run. (Mwikali & Kavale 2012, 190-191). Langley et al., (2008, 518) present an overview of the vendor selection criteria. There are multiple different classifications of these criteria and depending on the nature of the product, the criterion becomes relevant or irrelevant. Langley et al. categorized these criteria under quality, reliability, capability, financial and desirable qualities. Another way to sort the criteria would be qualitative and quantitative criteria. The second most important factors are delivery and earlier performance, which are both considered as part of the reliability factor. The earlier performance of the vendor reflects to the quality of the final product, the warranty issues and sales numbers. In international sourcing the reliability factor has become even more crucial because of the distances; cultural and political uncertainties. The next criteria category is the capability of the supplier. The capability category includes production and technical capability, level of management, and operating controls. The capability factor should be considered in order to ensure suppliers' ability to deliver the products of right quality and quantity.

Bad labor relations can be an obstacle for the supplier's capability. Labor relations can be reflected through the amount of strikes, and personnel turnover rate. If the employees have gone to strike multiple times and they are not content with their employer's decisions, the supplier is more likely to have more product defects and disruptions in the production. (Langley et al., 2008, 519; 2009, 244). The information considered can include; credit references, annual sales and profits, list of other customers, the defect percent-age, quality management and manufacturing equipment. (Young 2009, 244.)

The fourth criterion group is the financial factors; the stability of the company and the price of the product or service purchased. In traditional purchasing the total cost of ownership (TCO) has become more and more important. Instead of buying the product with the lowest price, the buyer considers the additional factors when calculating the true cost of the product or service (Handfield et al., 2009, 408). The financial figures can include multiple factors, but the overall stability is most commonly evaluated. The remaining criteria are grouped under the fifth category: desirable qualities. The category includes example; attitude of the vendor and possible training services. The desirable qualities are not rated very high in the importance of the selection criteria. (Langley et al.)

2.6 Supplier Evaluation Method

After examining the available suppliers and narrowing the list down, the purchaser has to evaluate the ones with the most potential. The evaluation method depends on the nature of the purchased item and the amount of information available. If there is not enough information available, the purchaser should send a RFI. When purchasing simple low-dollar-value items, the examination of basic information available on the web-sites is sufficient. In more complicated cases, when the purchasing has a high money value or it is critical for the business strategy, it is necessary to do a thorough evaluation of the suppliers. Young (2009, 244) presents possible evaluation methods as surveys, examining the financial situation, visits to the manufacturing site or an evaluation of a third-party. Usually surveys and examining the financial situation are done first and after that a possible plant visit is conducted. If the purchaser wants a proper evaluation done, the analysis of the potential supplier's management, quality, service level, capacity and information technology is necessary. Supplier survey is conducted to find out the basic information about the company. Supplier survey can be one of the first stages of limiting the suppliers in the selection pool i.e. figuring out if the supplier has any potential (Handfield et al. 2009, 244). The information considered can include e.g. credit references, annual sales and profits, list of other customers, the defect percent-age, quality management and manufacturing equipment. (Young 2009, 244.)

An evaluation conference is a meeting in which the purchaser discusses the purchase with the possible suppliers. If the supplier does not understand the complexities of the purchase or sees that their product is not suitable, they will be cut out. A plant visit gives the purchaser visible information what the production facilities are like. The group visiting the plant is usually cross-functional i.e. there are professionals from many departments such as engineers who know the technology, marketing professionals and sales representatives. (Young 2009, 245.) However, the plant visits are expensive as in most cases it takes a lot of time to travel to the location and to collect all the information needed (Handfield et al., 2009, 246).

The quality capacity analysis is one of the most critical pieces of information to many companies. If the potential supplier's products and processes do not fulfil the purchasing company's quality requirements, the company will be left out of further evaluation (Young 2009). When assessing the quality, not only products and processes are analyzed, but also safety, training and maintenance are taken in consideration (Hand-field et al., 2009, 251). Another analysis to help the decision making is capacity capability analysis that is performed to assure the capability to supply. The delay of required items can turn out to be very expensive, and thus the capacity requirements must be confirmed in the early stage. The organization's management style should be examined. It might take several visits to get a thorough understanding of how the company is managed, but the management style correlates to the employees' motivation to work. All the employees are part of creating the organization culture and also building the company's

overall image. A company with encouraging working environment and functional facilities is less likely to have problems resulting from labour's dissatisfaction or continuous cost savings. (Young 2009, 246.) Also Handfield et al. pay attention to the employee capabilities and issues related to that. The employee commitment, work-force turnover, employee morale, individual skills and relations with the management reveal a lot about the inner atmosphere and general capabilities. (Handfield et al. 2009, 249.)

Service capability analysis includes the on-time delivery rate, treatment of special orders, settling of disputes and level of information flow. Analyzing the flexibility that is, capability to adapt to changes, can also be a factor to consider when choosing a supplier. In case the purchasing company is going to implement Just in Time ideology (JIT), the suitability of the supplying company has to be carefully examined. JIT strategy can enhance the flexibility and it can bring the benefits of better quality, shorter lead time, reduced inventory and less scrap and rework. However, JIT ideology requires seamless co-operation between the customer and the supplier. In case there are changes in the customer's schedules, also the supplier's schedules have to be rearranged. (Young 2009, 246-247.) JIT ideology requires also enhanced information technology. Young (2009, 247) states that the level in which the information technology should be examined depends on the purchasing company's capability and their requirements. Handfield et al., consider it important not to analyze just the current technological capabilities but also the future plans. The resources planned for research and development in this area are very significant for companies searching for the advantage through technological solutions. (Handfield et al., 2009, 251.)

2.7 Choosing the Right Supplier

After evaluating the potential suppliers, the best ones should be contacted for further negotiations. Usually supply manager or purchaser handles supplier selection, depending on level of authority. In more complex purchases, it is common to have a cross-functional team involved. The team can include personnel from finance, quality control, design, finance and other relevant departments. In certain purchases, such as the purchasing of similar technical components, commodity groups are used. The commodity groups usually consist of production planners, engineers and supply managers. The difference between commodity groups and cross-functional teams is that cross-functional team is usually used for only one purchase whereas commodity teams are more of a permanent solution. (Young 2010, 247-252).

Traditional buying process has alternative ways to get the desired products or services. Burt et al., (2010, 247) define competitive bidding as "transparent procurement method in which bids from competing contractors, suppliers, or vendor are invited by openly advertising scope, specifications, and terms and conditions of the proposed contract as criteria by which the bids will be evaluated". The advantage of competitive bidding is the lowest price, but Young (2010, 249) criticizes the best price not bringing the best result in the end. For purchasing critical goods, negotiation is more efficient. By negotiating about the relevant issues, there will be less misunderstandings and the mutual trust can be created. The cost pressure of competitive bidding might lead into quality problems and other lacks in service capability. In order to get best out of competitive bidding, there are five things to consider: The value of the purchase should be high enough, the specifications have to be clear and there must be enough sellers in the market. Furthermore, there has to be enough time to pull through the competitive bidding process, and sellers need to have professional attitude towards the bidding process. (Young 2009, 247-248.)

Competitive bidding is not a suitable approach when costs are difficult to estimate, there are very few suppliers in the market and price is not the most important factor. Specifications are prone to change over time, negotiations help purchasing company to adjust. When doing competitive bidding in the private industry, the requests for bids are sent to three to eight possible suppliers. The requests are for the suppliers to tell their price for the settled terms and conditions of the purchaser. In ideal situation competitive bidding leads to getting the lowest bid for the contract. However, if the purchasing company still negotiates after the bidding with the group of lowest bidders, it will hurt their future competitive bidding process. Later on the bidders will wait for the negotiations to give their best offer. (Young 2009.)

Lysons and Farrington (2012, 198) present the reverse auction method: buying organization lists describe the wanted items at a certain price; suppliers compete by offering best price for the deal. Reverse auction is done in real-time, and limitation is the timeline set by the purchasing company. Reverse auctions attract multiple bids and thus the prices go down. However, reverse auctions cannot be carried through if there is no prequalification process for the bidders. For example, if the supplier makes a bid with lower price than the costs, they cannot make it in the long run. There has to be some kind of background information of the supplier before considering approving the bid. It has to be taken in consideration that the suppliers will not have identical products in terms of quality and durability. (Young 2009, 249.)

Young (2009, 250) introduces two-step bidding often used by technology companies. Two-step bidding is useful in situations where you might not have the clear specifications of the wanted product. The first step is to ask

for bids on technical solutions, but price is not considered yet. After getting multiple suggestions on technical features and picking ones that are satisfactory, comes the setting of price. Price is set either based on the lowest bid or result after negotiating about lowest price. (Young 2009).

2.8 Operational Issues in SCM

SCM has evolved from process reengineering efforts to coordinate and integrate production planning at the factory level in order to expand the scope of strategic fit (Chopra and Meindl, 2001). Positive results from these intra-functional efforts have extended the SCM philosophy throughout the enterprise. Further, process improvements at the firm level highlighted the need for suppliers and customers of supply chain managed firms to adopt an integrated SCM philosophy. Making a supply chain's linkages as frictionless as possible is the tactical goal of such an integrated philosophy. Key tactical coordination decisions for SCM relate to transportation, transformation, and information transmission.

2.8.1 Transportation

Transportation decisions impact product flow not only between supply chain members but also to the market place. In many supply networks, transportation costs account for a significant portion of total supply chain cost. In determining the mode(s) and route(s) to employ through supply chain, transportation decisions seek to strike a balance between efficiency and responsiveness so as to reinforce strategic position of the supply chain. For example, an innovative product's typically short life-cycle may warrant expensive air freight speed for a portion or all of its movement through the chain, while a commodity is generally transported by slow but relatively economical water or rail freight. Shipping via truck is used frequently. Trucking is more responsive and more expensive than rail, and less responsive and less expensive than air. Most supply chains employ an intermodal strategy: raw materials are transported by rail or ship, components by truck, and finished goods by air.

A supply chain's transportation network decisions are inextricably linked to strategic network design decisions. Transportation network design choices drive routing decisions in the supply network. The major decisions are whether to ship directly to buyers or to a distribution center, and whether a routing scheme is needed. As consumers' expectations regarding merchandise availability and delivery become more instantaneous, the role of a supply chain's transportation network is more critical.

2.8.2 Transformation

"A transformation network links production facilities conducting work-in process inventories through the supply chain" (Erenguc, Simpson, and Vakharia, 1999, p.224). Suppliers linked to manufacturers to distribution systems can be viewed as a transformation network hinging on the manufacturer. Transforming supplies begins at the receiving stations of manufacturers. The configuration of manufacturing facilities and locations of transformation processes are determined by plant level design decisions. The manufacturing process strategy employed at a specific plant largely drives the decisions. While an assemble-to-order (ATO) plant may have very little investment in production, it requires larger investment in subassembly inventories. On the other hand, a make-to-stock (MTS) facility may have little or no investment in process inventories, it typically requires larger investments in raw materials and finished goods inventories. A make-to-order (MTO) facility may have significant investment in components and production facilities, with few raw materials and finished goods inventories.

A product's final form can take shape closer to the end consumer. To keep finished goods inventory costs as low as possible, and better match end demand, a supply chain may employ postponement to delay customizing end products. Major design decisions such as facility configuration and transformation processes are considered longer term decisions. These decisions constrain the short to mid-term decisions addressed in a plant's aggregate plan. An aggregate plan is a general production plan that encompasses a specific planning horizon. Information required to develop an effective aggregate plan include accurate demand forecasts, reliable supply delivery schedules, and the cost trade-offs between production and inventory. Each supply chain member develops an aggregate plan to guide medium term tactical decisions. To ensure that these individual plans support each other, the planning process must be coordinated. The degree and scope of coordination will depend on the economics of collaborative planning versus the costs of undersupply and over-supply.

2.8.3 Information Sharing

A distribution channel is typically composed of a manufacturer, a wholesaler, a distributor, and a retailer. The "bull-whip effect" is a classic illustration of dysfunction in such a channel due to the lack of information sharing. This effect is characterized by increasing variability in orders as orders are transferred from retailer upstream to distributor, wholesaler, and finally manufacturer. Distorted demand information induces amplifications in order

variance as orders flow upstream. Therefore, the manufacturer bears the greatest degree of order variability. This is a major reason manufacturers initiate collaborative efforts with downstream channel members.

3.0 METHODOLOGY

Previous chapters have given an extensive idea about relevant literature review and state of strategic sourcing and supplier selection on operations of Goldfields Ghana Limited, Tarkwa Mine. This chapter presents the methodological concerns used in conducting this research. It presents a series of steps which include research perspectives, research purpose, research approach, research strategy, sample selection and data collection. Finally, structured questionnaire, pilot testing and administration, response rate, access strategies and credibility of the research were discussed.

3.1 Research Perspectives

Elabi et al (2002 cited in Opoku & Naeem, 2004) maintain that conducting any type of research, should be governed by a well-defined research methodology based on scientific principles. Hence, research methodology defines the systematic scientific procedures used to arrive at the results and findings for a study against which claims for knowledge are evaluated (Nachamias et al., 1996; Saunders et al., 2007). Having defined our research objectives, we had to decide about three main issues dealing with research methodology: the research purpose, the research approach and the research strategy.

3.1.1 Research Purpose

The research purpose is a broad statement of what the researcher intends to achieve. Research can be carried out in different ways depending on the research problem before the investigation is started. According to authors like (Sanders et al., 2000, 2007; Cooper & Schindler 2006; and Yin, 1994) a research could be broadly split into exploratory, descriptive and explanatory: Exploratory research is valuable means of finding out “what is happening”, seeks new insights; ask questions and to assess phenomena in a new light” (Robson, 2002). Exploratory approach is helpful when the researcher wants to clarify the understanding of a problem if the researcher is unsure of the precise nature of the problem. There are three principal ways of conducting exploratory research: a search of literature, interviewing experts in the subject, and conducting focus group interviews (Saunders et al., 2003). Exploratory research can be linked to the activities of the traveller or explorer (Adams and Schvaneveldt, 1991). Its great advantage is the flexibility and adaptability to change.

According to Adams & Schvaneveldt (1991), the flexibility inherent in exploratory research entails that the focus is initially broad and becomes progressively narrower and more specific as the research progresses. Descriptive research is to “portray an accurate profile of persons, events or situations” (Robson, 2002). Besides, Saunders et al., (2000) also expatiated that a descriptive research can be seen as an extension of exploratory research. According to Dane (1990), descriptive research means either defining a phenomenon or differentiating it from the other phenomenon. With a descriptive research the researcher also needs to have a clear picture of the phenomena he/she will further investigate. It is often used to study the difference between the old and new outcomes. Descriptive research covers the whole subject and depth of the case. It is mostly used when there is no need to investigate cause and effect relationship and when the problem is well structured (Yin, 1994).

Explanatory research is a study that seeks to establish relationship that exists between variables. It is often termed as a causal study which is normally used when the purpose of the study is to answer “why” in a given context. The goal of the explanatory research is to examine the cause and effect relationship among two or more phenomena. The purpose is to identify how one variable affects the other, and also seeks to provide an explanation to the causes and effects of one or more variables (Saunders et al 2000, 2007; Cooper & Schindler 2006; Malhotra and Birks, 2007). It is often conducted to determine whether the cause and effect relationship is valid or not (Dane, 1990). Anderson & Svensson, (1994) suggested that a research starts with exploratory phase to find what the study is about and persists to describe and explain depending on the objective of the study. This research is mainly exploratory. In fact, we need to explore how strategic sourcing and supplier selection on the operations of Goldfields Ghana Limited, Tarkwa Mine is being carried out.

3.1.2 Research Approach

According to Guba & Lincoln (1994); Denzin & Lincoln (1994a) there are two methods or approaches of research – qualitative and quantitative. The objective of a quantitative research is to discover the association between independent and dependent variables in a population. In most cases, quantitative methods used are contained by natural science and the plan is to explicate causal relationships and to make possible generalization and also to forecast the future. Conversely, qualitative research is a formless, exploratory research method based on small samples planned to

provide insight and understanding of the dilemma situation (Mahotra & Peterson, 2006). It is predominantly used for any data collection such as interview or data analysis procedures that generates or uses non-numerical data. According to Leavy (1994), in the qualitative approach the aim is to explain rather than to predict phenomena and understanding things rather than to measure. Creswell, (2003) summarizes the distinction between quantitative and qualitative approaches as shown in table below.

Table 3.1 Distinction between Quantitative and Qualitative Approach: Creswell (2003)

Qualitative	Quantitative
Objective is to discover and encapsulate meanings once the researcher becomes immersed of the data	Objective is to test hypotheses that the researcher Generates
Concepts tend to be in the form of themes, motifs, generalizations, and taxonomies. However, the objective is still to generate concepts.	Concepts are in the form of distinct variables
Measures are more specific and may be specific to the individual setting or researcher; e.g. a specific scheme or values.	Measures are systematically created before data collection and are standardized as far as possible; e.g. factors of supplier selection.
Data are in the form of words, from documents, observations, and transcripts. However, quantification is still used in qualitative research.	Data are in the form of numbers from precise measurement
Theory can be casual or non-casual and is often inductive	Theory is largely casual and is deductive
Research procedures are particular and replication is difficult	Procedures are standard and replication is assumed
Analysis proceeds by extracting themes or generalizations from evidence or organizing data to present a coherent, consistent picture. These generalizations can be used to generate hypotheses.	Analysis proceeds by using statistics, tables or charts and discussing how they relate to hypotheses

Our research study seeks to gain insight, and to examine the impact of strategic sourcing and supplier selection on the operations of Goldfields Ghana Limited, Tarkwa Mine. Therefore, this research confines itself to the qualitative approach where in-depth interview through semi-structured interview guide is conducted to get the needed information on the topic under study.

3.1.3 Research Design/Strategy

Research strategy refers to the plan that a researcher will pursue to execute an investigation to address the research questions. It specifies sources of data and constraints that may hamper the research and how they will be addressed (Saunders et al., 2007). Yin, (1994) emphasized that the research strategy explains how the researcher collects and analyses data gathered. The type of research strategy to be used by a researcher depends largely on the research purpose (descriptive, explanatory or exploratory). Several authors like (Saunders et al., 2000, 2007; Cooper & Schindler 2006; Malhotra & Birks 2007) stated that the main research strategies are: experiment, survey, grounded theory, action research, case study, ethnographic study, and archival research. According to Yin, (1994,) there are five (5) primary research strategies in social sciences Namely: experiment, survey, archival analysis, history and case study. As portrayed in Table 3.2, the use of any of these strategies depends on the following three conditions:

- a. The type of question posed
- b. The extent of control an investigator has over the actual behavioural events
- c. The degree of focus on contemporary events as opposed to historical.

Table 3.2: Relevant Research Strategies

Research strategy	Form of research Question	Control over behavioural events?	Focuses on contemporary events?
Experiment	How, Why	Yes	<i>Yes</i>
<i>Survey</i>	Who, What, Where, How Many, How Much	<i>No</i>	<i>Yes</i>
Archival Analysis	Who, What, Where, How Many, How Much	No	<i>Yes/No</i>
<i>History</i>	How, Why	No	<i>No</i>
<i>Case study</i>	How, Why	No	<i>Yes</i>

Source: Yin (1994)

In this study, the survey strategy is the most appropriate strategy because it requires the opinion of a population about a particular discipline and data will also be gathered from a sample of Management and suppliers who are into purchasing and supplies of materials through the means of a questionnaire been designed. Again, due to the purpose of the study and formulation of research questions, we deployed a survey strategy; this provides the opportunity of gaining in-depth information from a wider number of respondents having to do with strategic sourcing and supplier selection.

3.2 Types of Data Collected

3.2.1 Primary Data

Primary data is the set of data that has not been there in that form before the researcher collected it. Therefore, this kind of data is unique and until it is published, no one except the researcher has access to it. The main methods of collecting primary data include questionnaires, interviews, observation, case studies and critical incidents. According to Fowler, (2002), primary data can either be qualitative in nature usually in the form of words or quantitative usually in the form of numbers.

3.2.2 Secondary Data

Secondary data is data that has already been collected by someone else for a specific purpose. So the researcher just “re-uses” what is already available for either getting ideas in the exploratory phase of the research process or in the design phase to define and sample frames as well as to supplement the main research. Difficulties with secondary data can arise from the fact that it has been collected for a different purpose, this might use different definitions and one cannot assess to what extent it was ‘modified’ during the original collection process. Thus, secondary data gives a profound background for the research and is crucial in getting a research project started (Fowler, 2002).

In this study, data and relevant information were collected using both primary and secondary data sources. The secondary data mainly consisted in scientific literature and articles published in selected journals and professional magazines. This information was gathered to get an overview of the topic. The primary data have been collected through interviews (see the interview guide in appendix A) and the distribution of a questionnaire (see appendix B). Interviews were conducted with a number of suppliers and supply chain management staff who are into supplies. Interviewees were located in Tarkwa. The researcher met the respondents on their respective companies. Contacts for the interview were obtained from the Goldfields Ghana Limited, Tarkwa Mine’s website. The rest of the contacts were obtained by utilizing the Facebook network. We adopted face-to-face distribution of the questionnaire to respondents in all the five companies across the nation and collected them back after respondents had fully answered all the items in the questionnaire.

3.3 Population

The target population for the study encompassed all the 5 companies, constituting 60 staffs in the supply chain management departments.

3.4 Sampling

3.4.1 Sample size

Out of the sample frame of 1000 staffs of the various suppliers from the 4 companies, a sample size of 100 was selected based on our judgment due to the cost and time constraints. Using a large sample in this survey would have required larger financial resources which could not be afforded. Furthermore, the time limit within which the research was to be accomplished did not allow the use of larger sample size. The following are the numbers of questionnaires distributed in each of the five considered companies: Sandvik 35; Mantrac 40; Komatsu 10; AEL 10 and DHL 5

3.4.2 Sampling Technique

Sampling is a major problem for any type of research. We can't study every case of whatever we are interested in, nor should we want to. Every scientific enterprise tries to find out something that will apply to everything of a certain kind by studying a few examples, the results of the study being, as we say, "generalizable". (Becker Howard, 1998). According to Neuman, W. Lawrence (2006), sampling strategies used in research are in two main categories namely probability sampling and nonprobability sampling/non-random samples. Quantitative researchers' use probability sampling and their primary goal is to get a representative sample or a small collection of units from a much larger collection or population, such that the researcher can study the smaller group and produce accurate generalizations about the larger group. Researchers focus on the specific techniques that will yield highly representative samples which are based on theories of probability from mathematics point of view (Neuman, W. Lawrence 2006).

Alternatively, qualitative researchers tend to use nonprobability or nonrandom samples. This means they rarely determine the sample size in advance and have limited knowledge about the larger group or population from which the sample is taken. They select cases gradually, with the specific content of a case determining whether it is chosen. Nonprobability sampling include: haphazard, accident, or convenience sampling; quota sampling; purposive or judgmental sampling; snowball sampling; deviant case sampling; sequential sampling and theoretical sampling (Neuman, W. Lawrence 2006). Table 4.3 shows a variety of nonprobability sampling techniques.

Table 3.3 Nonprobability sampling techniques

Types of Nonprobability samples

TYPE OF SAMPLE	PRINCIPLE
Haphazard	Get any cases in any manner that is convenient
Quota	Get a present number of cases in each of several predetermined categories that will reflect the diversity of the population, using haphazard methods.
Purposive	Get all possible cases that fit particular criteria, using various methods.
Snowball Get	Get cases using referrals from one or a few cases, and then referrals from those cases, and so forth.
Deviant case	Get cases that substantially differ from the dominant pattern (a special type of purposive sample)
Sequential	Get cases until there is no additional information or new characteristics (often used with other sampling methods).
Theoretical	Get cases that will help reveal features that are theoretically important about a particular setting/topic.

Source: Neuman, W. Lawrence (2006)

In selecting a sample of (100) respondents, a non-probability random sampling technique, specifically convenient sampling was used. This technique was chosen because it was convenient since the considered population is from four (5) companies located at different towns in Ghana. This was done by first identifying the companies who supply Goldfields Ghana Limited, Tarkwa Mine materials. Secondly, total sample was distributed according to the proximity of each company because we employed face-to-face distribution of the questionnaire to respondents across the region and collected them back after completion. Table 3.4, below displays the questionnaire distribution rate for each university. Finally, a simple random method was used to select respondents from each of the four companies.

Table 3.4 Number of Respondents Surveyed

Company	Expected sample size
TARKWA MINE	14
MANTRAC	46
Sandvik	25
AEL	10
DHL	5
TOTAL	100

3.5 Data Collection Process

The instruments for data collection in this study were literature on the subject and a combination of data sources (data triangulation) such as open and closed-ended questionnaires, and semi structured interviews (more details are brought in the sections below). The combination of these instruments enables the strengths of one method to counteract the weaknesses of the other and it also helps to check the validity of the findings and generate a rich profile on strategic sourcing and supplier selection on the operations of Goldfields Ghana Limited, Tarkwa Mine.

3.5.1 Structured Questionnaire

Literature abounds with the benefits of questionnaires and interviews as survey instruments (Powell & Silipign, 2004; Babbie, 2003; Busher & Harter, 1980). The advantages of using questionnaires and interviews as a survey instrument for this study are that it facilitates wider geographic contact. It maintains anonymity and ensures uniformity of measurement from one unit of measurement to another, therefore enhancing reliability. Qualitative data from semi structured interviews and open-end questionnaires generate a range of qualitative data that enables the researcher to develop an in-depth understanding of the situation. In this study, self-administered, structured questionnaire was used to collect data from respondents. The questions sought respondents' over all views on the supplier selection criteria used by Goldfields Ghana Limited, Tarkwa Mine. In all, the questionnaire has two different parts. The first part is designed for suppliers' and supply chain management staffs which pose questions on personal information, strategic sourcing and supplier selection issues, and perceived importance of supplier selection factors. The second part is for supply chain management staffs which show questions on respondents' identification data, the evaluating the potential suppliers in order to find the best ones, and supplier selection criteria.

The questionnaire was developed from an extensive review of the literature and previously used similar instruments (Benbunan-Fich, Hiltz & Harasim 2005; Kenny, J. (2003). A majority of the closed ended questions consisted of (5) point structured pre-coded Likert-type ordinal/interval scale represented as follows: Strongly agree, Agree, Neutral, Disagree, strongly disagree. A major strength of the above five (5) point pre-coded Likert scaling is that during analysis, we were able to compile the group on the total pool of items (strongly agree, and agree) with respondents with the lowest score (disagree and strongly disagree) while eliminating the middle group (neutral) whose attitude may be inconsistent or unclear. Likert pre-coded scaling was adopted because it has been widely used in instruments measuring opinions, beliefs and attitude. Also because it facilitates the analysis of data referred to as direct data entry.

3.5.2 Pilot Testing and Final Administration

A pilot study was conducted in preparation for the study. Bell (cited in Naoum, 1998) describes a pilot study as getting the bugs out of the instrument so that the subjects in the main study would experience no difficulty in completing the instrument so that one can carry out preliminary analysis to see if the wording and format of the questions would present any difficulty when the main data is analyzed. The pilot study validates the research method and research approach. It provides a trial run for the questionnaire which involves testing the wording of the questions and identifying ambiguous questions and testing the technique that would be used to collect the data. A preliminary draft as well as the final questionnaires was given to focus group members to test the clarity and meaningfulness of the questions, thereafter, the content and construction of the questionnaire. Fink (2003b in Saunders et al., 2007) suggested that a minimum of ten (10) members for pretesting is adequate. Based upon this, we chose a sample of twelve (12). Two (2) suppliers each and supply chain management staffs from all the six (6) companies. Each of the respondents was told the purpose of the questionnaire and assured of anonymity before they were given the questionnaire to respond to.

Finally, after modifications and improvements were made to get a more effective instrument, the questionnaires were administered to the target population by means of personal contact. Respondents were first informed of the purpose, assured anonymity and confidentiality of responses. Ultimately, respondents were given the questionnaire to fill and return between 3rd, November to 17th, November 2014. April. After collection, the data was

scrutinized for completeness, comprehensibility, consistency and reliability. This step is normally referred as “cleaning” the data in order to eliminate numerous problems that may arise during data analysis (Powell & Silipigni 2004). Thus, reading the results, looking out for surprise responses and verifying the coding of data after which data analysis was undertaken.

3.6 Access Strategies

The letter of introduction to the participants included an explanation of the purpose of the study. The questionnaire was accompanied by a cover letter which described the objectives of the survey, assured the participants of confidentiality of the information. The terms were defined in the cover letter of the questionnaire to provide minimum deviation in participant understanding of the terminologies used. The informed consent form (**Appendix A and B**) was designed for suppliers, and supply chain management staffs of the selected companies before administering the questionnaire to them.

3.7 Credibility of the Research

Research is said to be valid when conclusions are true. It determines how good answers are provided by the research. While the concepts of internal and external validity and reliability have been very crucial in quantitative studies, qualitative researchers have distanced themselves from the quantitative paradigm by developing the following four criteria in ensuring trustworthiness in qualitative studies: credibility (in reference to internal validity); transferability (in reference to external validity and generalability); dependability (in reference to reliability) and conformability (in reference to objectivity), (Guaba, 1981; Easterby-Smith, 1991; ; Yin, 1994). Some of the strategies that need to be considered in order to meet the above criteria and therefore ensure trustworthiness in qualitative studies are triangulation interactive questioning with the use of probes, rephrasing of questions to test if the respondent is honest, appropriated to scrutinize the instrument by the researcher’s supervisor and peers, frequent debriefing session between peers and promoter to widen the researcher’s vision, and an in-depth methodological description provided in the study and examination of previous findings (Shenton, 2004).

Because people in authority generally feel reluctant in disclosing their identity, we developed an early familiarity with the participants (suppliers, and supply chain management staffs) before the first data collection dialogue took place. This was achieved via preliminary visits to the six selected companies, this helped both the researcher and the participants to gain adequate understanding of the research topic and also helped in establishing a relationship of trust with the participants (suppliers and supply chain management staffs). In addition, the concept of triangulation was used: observation, focus groups and individual interviews were conducted. During the interview section supporting data was provided to participants, which served as an interview guide to explain the strategic sourcing of those in the group under scrutiny and verify particularly details supplied by participants. Individuals were able to share their views and experiences during the interview. Moreover, specific ploys were incorporated which helped to uncover deliberate lie. This was done through the use of probes which elicited detailed data and iterative questioning. A false question was raised by an informant and it was rephrased by the researcher through an extracted relevant data. Falsehoods information was detected and the suspect data were discarded.

3.8 Summary

In this chapter the theoretical basis behind the research perspectives, research purpose, research approach, and research strategy were discussed. Questionnaire was designed and administered to some selected people to scrutinize and check the wordings as well as the items of the questions before distributing to respondents. Since we cannot satisfy the entire population, a sample size of one hundred (100) respondents composed of suppliers, and supply chain management staffs were selected. These respondents belong to the six companies selected for this study. The research design of this thesis is displayed in figure 4.1. This design epitomizes a blueprint of the adopted methodology in this thesis.

4.0 DATA ANALYSIS

4.1 Introduction

The main essence of data analysis is to conduct a statistical analysis and interpretation of the data that was collected from the field to examine the objectives of the study. This chapter presents statistical analysis and interpretation of the research results. Information gathered from participants was analyzed using descriptive statistics. Research results were presented using pie chart, bar chart, and histogram. The chapter began with the analysis of respondents’ demographic data and further presented results on the impact of strategic sourcing and supplier selection. Because the characteristics of the respondents affect the results, we present descriptive data relative to respondents.

4.2 Response Rate of Participants

As indicated earlier, the study was conducted among supply chain and logistics companies: Sandvik, Mantrac, DHL, and AEL. These companies supply materials to their clients. The data were collected from 1st to 23rd December, 2014 through the administration of questionnaire (see appendix A). Out of the one hundred questionnaires that were administered, thirty-five (35) questionnaires, representing a response rate of 35% were collected. This means seventy-five (75) questionnaires, constituting 75% (100% - 35% = 75%) were not retrieved. Table 4.1 below presents information on various companies and participants drawn from each of these companies. The data in Table 1 indicate that fifteen (15) respondents were drawn from AEL; ten (10) were selected from Mantrac; six (6) and four (4) participants were drawn from Sandvik and DHL respectively. Participants were randomly selected and included in the study.

Table 4.1 Type of Company

	Frequency	Percent	Valid Percent	Cumulative Percent
AEL	15	42.9	42.9	42.9
DHL	4	11.4	11.4	54.3
Sandvik	6	17.1	17.1	71.4
Mantrac	10	28.6	28.6	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.3 Demographic Characteristics of Respondents

Research participants were asked to provide information related to the age, gender, and type of industry. Respondents provided varied responses for the questions. The demographic profiles of respondents are presented in Tables 4.2 and 4.3. From Table 4.2, one observes majority of the respondents (86.6%) were males, few (11.4%) were females. Dominance of males in the study was not deliberate, research participants were randomly selected. Perhaps, the difference in males and female’s ratio is a reflection of the employment ratio of males and females in the selected organizations.

Table 4.2: Respondents’ Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	31	88.6	88.6	88.6
Female	4	11.4	11.4	100.0
Total	35	100.0	100.0	

Source: Source: Researcher’s Field Data from SPSS Output

Information in Table 4.3 relates to age distribution of respondents. The SPSS output indicates that majority (85.7%) of the respondents were between 25 and 30 years; 14.3% of the participants were 31 years and above. This presupposes that the workforce in the selected companies is dominated by relatively young persons or individuals.

Table 4.3: Respondents’ Age

	Frequency	Percent	Valid Percent	Cumulative Percent
25-30	30	85.7	85.7	85.7
31 and above	5	14.3	14.3	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.4 Type of Industry

Figure 4.1 shows the various types of industry selected and included in the study. It is obvious that majority of the respondents, constituting 51.4%, were in the mining and quarrying industry; 20% were in the service sector; 11.4% belonged to service and delivery whilst 5.7% each of the respondents were selected from logistics and stores, mining and construction, and manufacturing respectively.

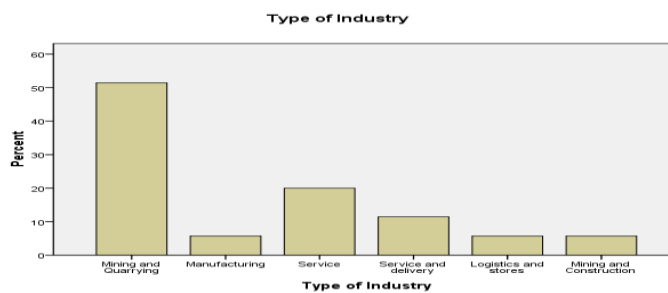


Figure 4.1: Type of Respondents' Industry
Source: Source: Researcher’s Field Data from SPSS Output

The dominance of the mining and quarrying industry in the research can be attributed to higher response rate of participants in the industry than in the other selected industries.

4.5 Respondents' Employment Positions

Figure 4.2 depicts respondents' positions in their respective companies. The figure indicates that 22.9% were logistics managers; 14.3% were purchase managers; 11.4% each were warehouse officers and materials managers respectively. Inventory analysts constituted 5.7% whilst commercial manager, driver instructor, post man, training office logistics, messenger, logistics and stores officer, front desk officer, conductor, parts counter analyst, leading hand, and operator comprised 2.9% each.

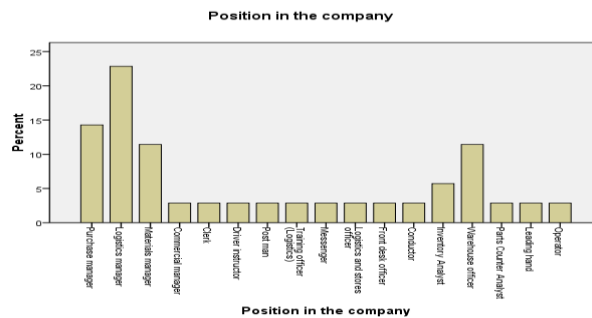


Figure 4.2: Respondents' Employment Positions
Source: Source: Researcher’s Field Data from SPSS Output

4.6 Summary of Analysis, Discussion and the Presentation of Findings

4.6.1 Research Question: What kind of sourcing strategy is Goldfields Ghana Limited, Tarkwa Mine, implementing currently?

One of the research questions asked respondents to indicate the type of sourcing strategy implemented at Goldfields Ghana Limited, Tarkwa Mine. The result is summarized in Figure 4.2.



Figure 4.2: Sourcing Strategy
Source: Researcher’s Field Data from SPSS Output

Participants’ response in Figure 4.3 indicates the current sourcing at Goldfields Ghana Limited, Tarkwa Mine is multiple. Supplies are purchased both locally and internationally. Supplies decisions are based on price and quality of the materials; and how best to meet sustainability requirements. In multiple sourcing, it is advantageous for an order to be split among multiple suppliers in which they all deliver the same type of product to the purchaser. Tarkwa Mine gets its major supplies from Mantrac, DHL, AEL, and Sandvik companies.

4.6.2 Research Question 2: Which supplier selection criteria is Goldfields Ghana Limited, Tarkwa Mine using?

Figures 4.3; to 4.19, summarize the various criteria used by Tarkwa Mine in selecting suppliers. The figures depict criteria such as durability, ergonomic, flexibility of operations, simplicity of operations, reliability, demand, modification, technical support, after sales service, current technology, geographical location, innovativeness, flexibility (payment, freight, price reduction, order frequency and amount), commercial relations, availability, and short delivery lead time

4.6.2.1 Durability

Durability is one of the criteria used by Tarkwa Mine in selecting suppliers for its logistics needs. Participants’ responses on the role of durability in the selection process are depicted in Figure 4.3. The figure shows 57.1% respondents rated durability as a very high criterion when supplying product or service. 37.1% of the respondents believed durability is highly considered while 5.7% believed it is lowly considered in the supply decision making process.

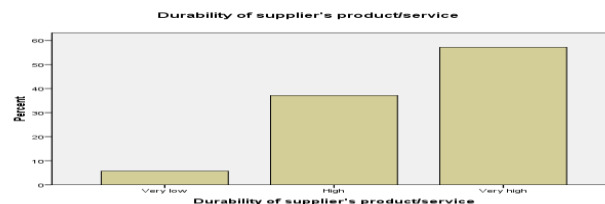


Figure 4.3 Durability of supplier’s product/service
Source: Researcher’s Field Data from SPSS Output

4.6.2.2 Durability of supplier’s

A second criterion is ergonomic. Results from the SPSS analysis in Figure 4.4, reveal 54.2% of the respondents believed high ergonomic quality of supplier’s product or service is considered in the selection of suppliers while 42.9% and 2.9% respectively considered ergonomic to be very high and low criterion.



Figure 4.4 Flexibility of supplier’s
Source: Researcher’s Field Data from SPSS Output

4.6.2.3 Flexibility was identified as the third criterion in the supplier selection process.

Research results from the study on flexibility are presented in Figure 4.5. The data indicate that flexibility was rated as a high criterion by 55% of the respondents. Only 5% of the respondents believed flexibility is a low criterion.

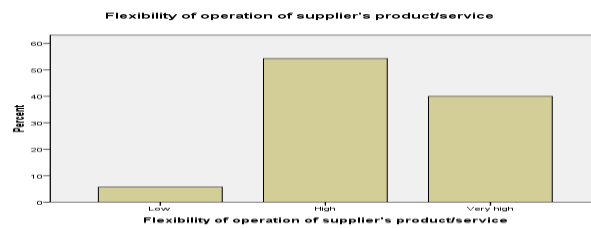


Figure 4.5 Flexibility of operation
Source: Researcher’s Field Data from SPSS Output

4.6.2.4. Simplicity is another criterion used by purchasers in the supplier selection process.

Participants’ responses to the question related to simplicity are presented in Figure 4.6. The figure reveals 57.5% of participants believed simplicity is highly considered in the selection process. 39.3% of the respondents indicated that simplicity is a very strong criterion when it comes to the selection of suppliers.

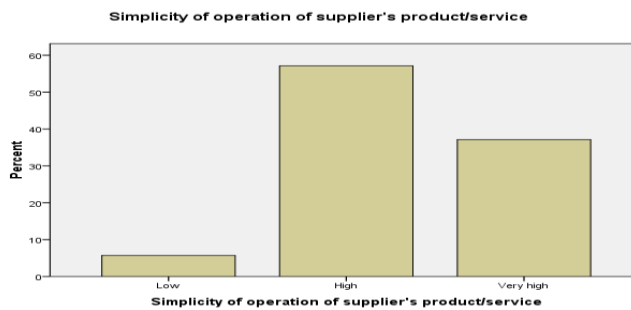


Figure 4.6 Source: Researcher’s Field Data from SPSS Output

4.6.2.5. A fifth criterion identified by participants as essential in the supplier selection process is reliability.

About 47% of the participants identified reliability as a very important criterion. Five percent each of the respondents believed reliability is somewhat important and not important respectively. The overwhelming response of respondents indicate reliability is an essential criterion.



Figure 4.7: Reliability
Source: Researcher's Field Data from SPSS Output

4.6.2.4 Supplier's reaction to demand

Participants identified reaction to demand as the sixth criterion in the selection of suppliers. 60% of the respondents believed supplier's reaction to demand is important. 20% each of the participants identified supplier's reaction to demand as very important and somewhat important.



Figure 4.8: Supplier's reaction to demand
Source: Researcher's Field Data from SPSS Output

Supplier's ability to modify its product or service is one of the criteria used by Tarkwa Mine in selecting suppliers for its outsourcing of materials. Participants' responses on the ability to modify product or service in the selection process are depicted in Figure 4.9. The figure shows 54. % respondents rated supplier's ability to modify its product or service as a very high criterion when outsourcing materials. 39% of the respondents believed the ability to modify product or service is important while 7% believed it is lowly considered in the supply decision making process.



Figure 4.9: Ability to modify
Source: Researcher's Field Data from SPSS Output

Technical support is another criterion used by purchasers in the supplier selection process. Results from the SPSS analysis in Figure 4.9, reveal 65% of the respondents believed technical support considered important in the selection process. The overwhelming response of respondents indicate technical support is an essential criterion.

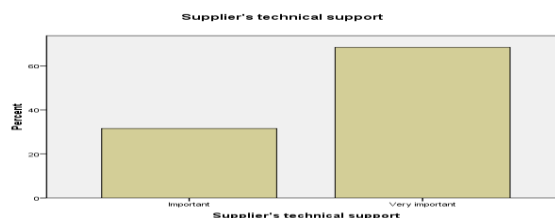


Figure 4.9: Technical support
Source: Researcher’s Field Data from SPSS Output

After sales service is another criterion used by purchasers in the supplier selection process. Participants’ responses to the question related to after sales service is presented in Figure 4.10. The figure depicts 57.5% of participants believed after sales service is highly considered in the selection process. 39.3% of the respondents indicated that after sales service is a very strong criterion when it comes to the selection of suppliers.

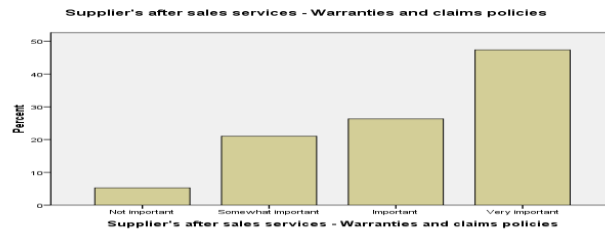


Figure 4.10: After sales service
Source: Researcher’s Field Data from SPSS Output

4.6.2.5 Current Technology

Current technology was identified as one of the criteria in the supplier selection process. Research results from the study on current technology are presented in Figure 4.11. The data indicate that current technology was rated as very important criterion by 47% of the respondents. 35% of the respondents believed the current technology is important while 18% believed it is somewhat important considered in the supply chain decision making process.

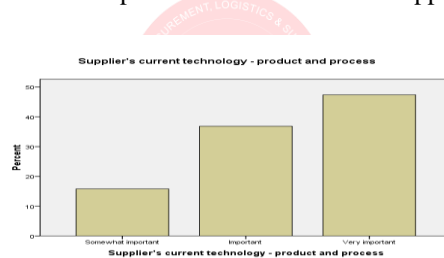


Figure 4.12: Technology
Source: Researcher’s Field Data from SPSS Output

Geographical location is another criterion used by Tarkwa Mine in selecting suppliers for its outsourcing of materials. Participants’ responses on geographical location in the selection process are depicted in Figure 4.12. The figure shows 49% respondents rated geographical location as a very important criterion when outsourcing materials. 39% of the respondents believed geographical location is important while 12% believed it is somewhat important.

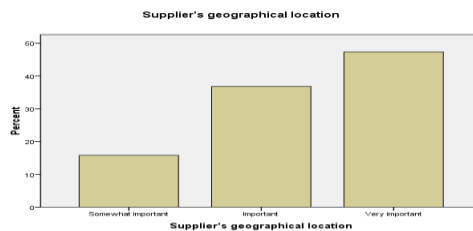


Figure 4.13: Geographical location
Source: Researcher’s Field Data from SPSS Output

4.6.2.6 Innovativeness

Participants identified innovativeness as a criterion in the selection of suppliers. 57% of the respondents believed innovativeness is very important. 38% of the respondents identified innovativeness as important while 5% of the participants identified innovativeness as somewhat important.

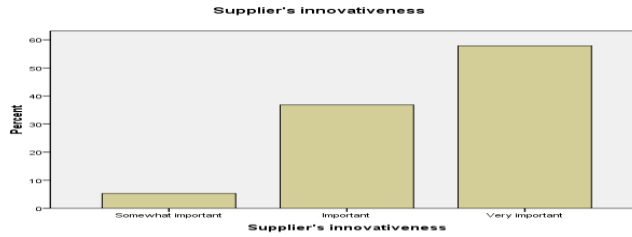


Figure 4.14: Innovativeness

Source: Researcher's Field Data from SPSS Output

4.6.2.7 Supplier's Flexibility

Supplier's flexibility in payment, freight, price reduction, order frequency and amount was identified as another criterion in the supplier selection process. Research results from the study on supplier's flexibility are presented in Figure 4.15. The data indicate that supplier's flexibility was rated as important criterion by 50% of the respondents. Only 5% of the respondents believed supplier's flexibility is not an important criterion.

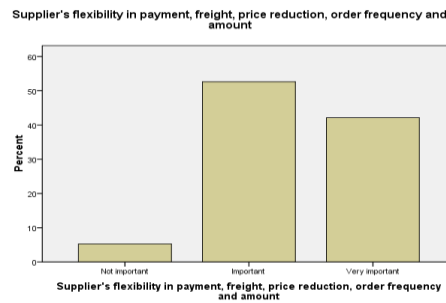


Figure 4.15: Flexibility

Source: Researcher's Field Data from SPSS Output

Commercial relation is another criterion in supplier selection. Results from the SPSS analysis in Figure 4.16, reveal 50% of the respondents believed commercial relation is important criterion in the selection of suppliers while 45% and 5% respectively considered commercial relation to be very important and somewhat criterion.

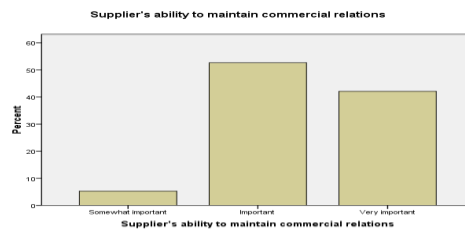


Figure 4.16: Commercial relation

Source: Researcher's Field Data from SPSS Output

4.6.2.8 Availability

Supplier' availability was identified as one of the criteria in the supplier selection process. Research results from the study on supplier's availability are presented in Figure 4.17. The data indicate that supplier's availability was rated as very important criterion by 48% of the respondents. 38% of the respondents believed supplier's availability is important while 15% believed it is somewhat important considered in the supply chain decision making process.

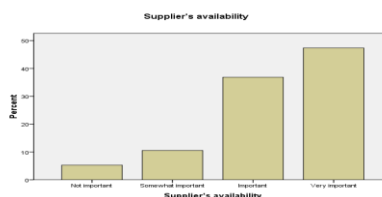


Figure 4.17: Availability
Source: Researcher’s Field Data from SPSS Output

4.6.2.9 Lead Time

Lead time is another criterion used by purchasers in the supplier selection process. Results from the SPSS analysis in Figure 4.18, reveal 50% of the respondents believed lead time considered very important in the selection process. The overwhelming response of respondents indicate lead time is an essential criterion.

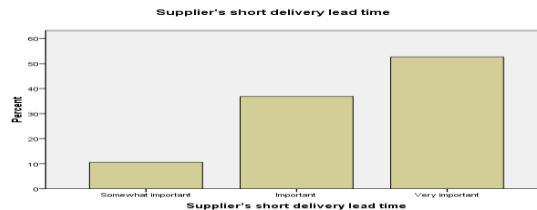


Figure 4.18: Lead time
Source: Researcher’s Field Data from SPSS Output

4.6.2.10 Relationship in supplier Selections

Participants identified relationship in supplier selections as another criterion in the selection of suppliers. 40% of the respondents believed total quality management 40% is a high criterion in relationship with supplier selections. 20% of the respondents identified getting the right supplier to supply on time as another criterion. 8% each of the participants identified quality of the products; specification; vendor rating; monitoring and evaluation; and quality of materials as another criteria of the relationship in supplier selections.

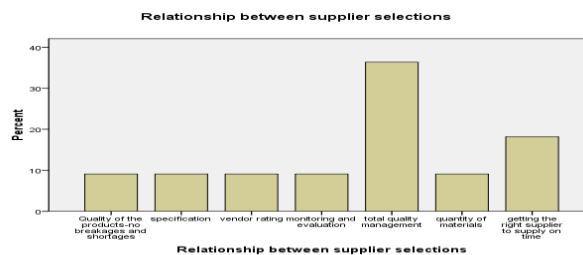


Figure 4.19: Supplier selection
Source: Researcher’s Field Data from SPSS Output

4.6.3 Research Question 3: How should the operations of Goldfields Ghana Limited, Tarkwa Mine, evaluate the potential suppliers in order to find the best ones?

Research question three bordered on the evaluation of potential suppliers in the selection process. Varied responses were provided by participants. A summary of participants’ responses revealed the following as essential criteria in the evaluation process: price, quality of service, respectful business relationship, long-term business relationship, competitiveness of terms and conditions, overall financial condition, reputation of the company, expertise of sales staff, sustainability, corporate social responsibility, ability to constantly supply materials, and flexibility.

4.6.3.1 Price

The first criterion identified by participants in the evaluation process is price. Table 4.4 presents participants’ responses to the question. Most respondents (40%) identified price as a very important criterion in the evaluation process. Relatively few respondents (5.7%) believed pricing was not very important in the evaluation of companies for supplies.

Table 4.4: Price

Choosing a Vendor	Frequency	Percent	Valid Percent	Cumulative Percent
Not very important	2	5.7	5.7	5.7
Not important	2	5.7	5.7	11.4
Somewhat important	5	14.3	14.3	25.7
Important	12	34.3	34.3	60.0
Very important	14	40.0	40.0	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.6.3.2 Quality of materials

The second criterion identified by respondents in the evaluation process is quality of materials. Results from the SPSS analysis in table 4.5, reveal 51.4% identified quality of materials as a very important criterion in the evaluation process. Comparatively few respondents (14.3%) believed quality of materials was somewhat important in the evaluation of companies for supplies.

Table 4.5: Quality of materials

Choosing a Vendor	Frequency	Percent	Valid Percent	Cumulative Percent
Somewhat important	5	14.3	14.3	14.3
Important	12	34.3	34.3	48.6
Very important	18	51.4	51.4	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.6.3.3 Service

The third criterion identified by participants in the evaluation process is service. Table 4.6 presents participants’ responses to the question. Most respondents (48.6%) identified service as a very important criterion in the evaluation process. Relatively few respondents (11.4%) believed service was not very important in the evaluation of companies for supplies.

Table 4.6: Respectful business relationship

Choosing a Vendor	Frequency	Percent	Valid Percent	Cumulative Percent
Not very important	4	11.4	11.4	11.4
Important	14	40.0	40.0	51.4
Very important	17	48.6	48.6	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.6.3.4. Long term business relationship

A fourth criterion identified by respondents in the evaluation process is long term business relationship. Table 4.7 presents participants’ responses to the question. 57.1% of the respondents identified long term relationship as a

very important criterion in the evaluation process. Comparatively few respondents (2.9%) believed long term relationship was not very important in the evaluation of companies for supplies.

Table 4.7: Long-term business relationship

Choosing a Vendor		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not important	1	2.9	2.9	2.9
	Somewhat important	5	14.3	14.3	17.1
	Important	9	25.7	25.7	42.9
	Very important	20	57.1	57.1	100.0
	Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.6.3.5 Competitiveness of terms and conditions

The fifth criterion identified by respondents in the evaluation process is competitiveness of terms and conditions. Results from the SPSS analysis in table 4.8, reveal 45.7% identified competitiveness of terms and conditions as a very important criterion in the evaluation process. Relatively few respondents (2.9%) believed competitiveness of terms and conditions was not very important in the evaluation of companies for supplies.

Table 4.8: Competitiveness of terms and conditions

Choosing a Vendor		Frequency	Percent	Valid Percent	Cumulative Percent
	Not very important	1	2.9	2.9	2.9
	Somewhat important	6	17.1	17.1	20.0
	Important	12	34.3	34.3	54.3
	Very important	16	45.7	45.7	100.0
	Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.6.3.6 Financial condition

Participants identified financial condition as another criterion in the evaluation process. 51.4% of the respondents believed financial condition is very important criterion in the evaluation process. Relatively few respondents (2.9%) believed financial condition was not very important criterion in the evaluation of companies for supplies.

Table 4.9: Overall financial condition

	Frequency	Percent	Valid Percent	Cumulative Percent
Not important	1	2.9	2.9	2.9
Somewhat important	6	17.1	17.1	20.0
Important	10	28.6	28.6	48.6
Very important	18	51.4	51.4	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.6.3.7 Reputation

Reputation is another criterion used by purchasers in selecting a vendor. Results from the SPSS analysis in Table 4.10, reveal 57.1% of the respondents believed reputation considered very important in the selection process. The overwhelming response of respondents indicate reputation is an essential criterion.

Table 4.10: Reputation of the company

	Frequency	Percent	Valid Percent	Cumulative Percent
Not very important	1	2.9	2.9	2.9
Not important	1	2.9	2.9	5.7
Some what important	4	11.4	11.4	17.1
Important	9	25.7	25.7	42.9
Very important	20	57.1	57.1	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.6.3.8 Expertise

Participants identified expertise of sales staff as another criterion in selecting a vendor. Table 4.11 reveal. 57.1% of the respondents believed expertise of sales staff is very important criterion in selecting a vendor. Comparatively few respondents (2.9%) believed expertise of sales staff was not very important criterion in selection process.

Table 4.11: Expertise of sales staff

	Frequency	Percent	Valid Percent	Cumulative Percent
Not very important	1	2.9	2.9	2.9
Not important	1	2.9	2.9	5.7
Somewhat important	3	8.6	8.6	14.3
Important	10	28.6	28.6	42.9
Very important	20	57.1	57.1	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.6.3.9 Sustainability

Sustainability is another criterion identified by respondents in the selecting a vendor. Table 4.12 presents participants’ responses to the question. Most respondents (54.3%) identified sustainability as a very important criterion in selecting a vendor. Relatively few respondents (2.9%) believed sustainability was not very important in selecting a vendor.

Table 4.12: Sustainability

	Frequency	Percent	Valid Percent	Cumulative Percent
Not very important	1	2.9	2.9	2.9
Not important	1	2.9	2.9	5.7
Somewhat important	6	17.1	17.1	22.9
Important	8	22.9	22.9	45.7
Very important	19	54.3	54.3	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.6.3.10 Corporate social responsibility

Corporate social responsibility is another criterion used by purchasers in selecting a vendor. Results from the SPSS analysis in Table 4.13, reveal 60% of the respondents believed corporate social responsibility considered very important in selecting a vendor. The overwhelming response of respondents indicate corporate social responsibility is an essential criterion.

Table 4.13: Corporate social responsibility

	Frequency	Percent	Valid Percent	Cumulative Percent
Not very important	1	2.9	2.9	2.9
Not important	1	2.9	2.9	5.7
Somewhat important	3	8.6	8.6	14.3
Important	9	25.7	25.7	40.0
Very important	21	60.0	60.0	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.6.3.11 Supply materials

Participants identified ability to constantly supply materials as another criterion in selecting a vendor. Table 4.14 depicts, 54.3% of the respondents believed ability to constantly supply materials is very important criterion in selecting a vendor. Comparatively few respondents (2.9%) believed ability to constantly supply materials was not important criterion in the selection process.

Table 4.14: Ability to constantly supply materials

	Frequency	Percent	Valid Percent	Cumulative Percent
Not important	1	2.9	2.9	2.9
Some what important	5	14.3	14.3	17.1
Important	10	28.6	28.6	45.7
Very important	19	54.3	54.3	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

4.6.3.12 Flexibility

The last criterion identified by participants in selecting a vendor is flexibility. Table 4.15 presents participants’ responses to the question. Most respondents (60%) identified flexibility as a very important criterion in selecting a vendor. Relatively few respondents each (2.9%) believed flexibility was somewhat important and not important criterion in selecting a vendor.

Table 4.15: Flexibility - ability to adapt to changes

Choosing a Vendor	Frequency	Percent	Valid Percent	Cumulative Percent
Not very important	2	5.7	5.7	5.7
Not important	1	2.9	2.9	8.6
Somewhat important	1	2.9	2.9	11.4
Important	10	28.6	28.6	40.0
Very important	21	60.0	60.0	100.0
Total	35	100.0	100.0	

Source: Researcher’s Field Data from SPSS Output

5.0 CONCLUSIONS

5.1 Summary of findings

The purpose of this study was to examine the impact of strategic sourcing and supplier selection on the operations of Goldfields Ghana Limited, Tarkwa Mine. We examined the current strategic sourcing of Goldfields Ghana Limited, Tarkwa Mine in four major supply chain and logistics industries: criteria selection in outsourcing materials, relationship between suppliers, and criteria evaluation when choosing a vendor. Out of the one hundred questionnaires that were administered, thirty-five (35) were responded to. Based on an objective analysis of the obtained data, the major findings and conclusions of this study may be summarized as follows:

The current sourcing at Goldfields Ghana Limited, Tarkwa Mine is multiple. Supplies are purchased both locally and internationally. Supplies decisions are based on price and quality of the materials; and how best to meet sustainability requirements. In multiple sourcing, it is advantageous for an order to be split among multiple suppliers in which they all deliver the same type of product from the purchaser. Tarkwa Mine gets its major supplies from Mantrac, DHL, AEL, and Sandvik companies.

It appears the various criteria used by Tarkwa Mine in selecting suppliers for their outsourcing of materials are: durability, ergonomic, flexibility of operations, simplicity of operations, reliability, demand, modification, technical support, after sales service, current technology, geographical location, innovativeness, flexibility (payment, freight, price reduction, order frequency and amount), commercial relations, availability, and short delivery lead time.

In relation to the evaluation of potential suppliers in the selection process it seems the essential criteria in the evaluation process are: price, quality of service, respectful business relationship, long-term business relationship,

competitiveness of terms and conditions, overall financial condition, reputation of the company, expertise of sales staff, sustainability, corporate social responsibility, ability to constantly supply materials, and flexibility.

With respect to the relationships in supplier selections the data depicted that total quality management was rated higher. It appears the other factors clientele consider in building relationships in supplier selections include: finding the right supplier to deliver the materials at the right time, quality of the products, monitoring and evaluation, specification, and vendor rating.

5.2 Conclusion

Goldfields Ghana Limited, Tarkwa Mine adopts an achievable strategic approach to search for suppliers or companies whose rich expertise and competency can be leveraged. This will promote the efforts of the suppliers to contribute immensely to their ability to be viable competitors. The supplier selection criteria help an organization identify vendors that can offer superior product quality, financial condition, price, performance, availability, and Constance delivery of product or service.

5.2 Recommendations for Further Research

This study mainly examined the impact of strategic sourcing and supplier selection on the operations of Goldfields Ghana Limited, Tarkwa Mine. It is recommended that future research should: Little research has been done on how to measure purchasing performance. It would be helpful to explore how purchasing views itself, how it is viewed by top management, how it is viewed by other function areas with the firm, and how purchasing is view by suppliers to the firm.

International studies should be conducted to examine the sourcing and supplier selection strategy and practices across different countries. This is necessary with the more and more open economy around the world and sourcing has become a global activity.

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