

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF ART AND SOCIAL SCIENCES

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KNUST

TOPIC

THE EFFECT OF INFORMATION SHARING ON SUPPLY CHAIN
MANAGEMENT:

A CASE STUDY OF LOGS AND LUMBER LIMITED, KUMASI

A THESIS SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE
DEGREE OF MASTER OF BUSINESS ADMINISTRATION (MBA)

BY:

ISSAH IBRAHIM MERIGAH

AUGUST,2009

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DECLARATION

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

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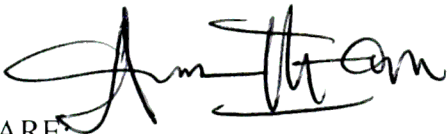
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DEDICATION

Dedicated to Jamilatu Yakubu, and Humul-Hairat Issah

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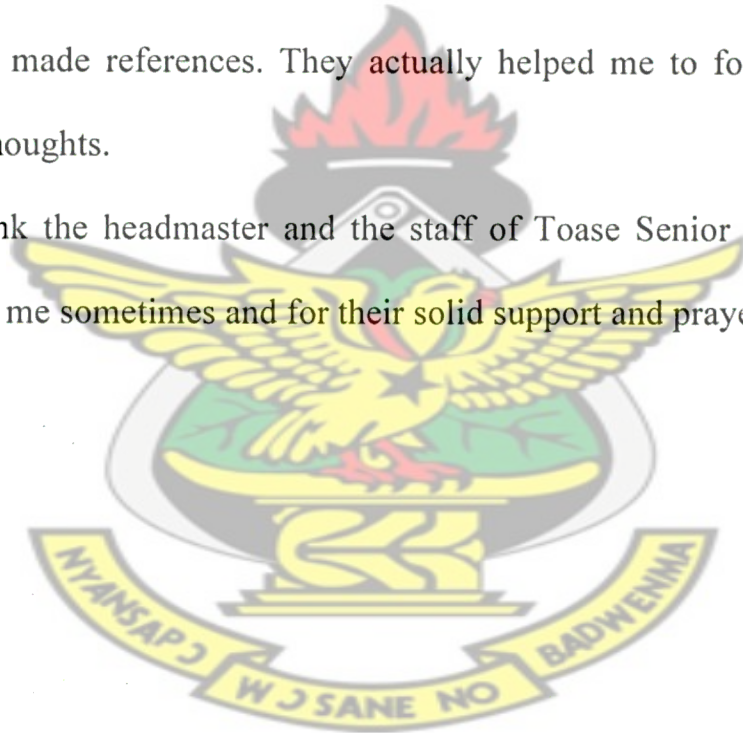


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I take this opportunity to express my profound gratitude to the Almighty Allah for seeing me through this great work. I thank Dr. F.T. Oduro who was my supervisor for reading through the script and making useful suggestions and corrections.

I particularly want to thank Miss Regina Boakyewaa, an MBA student of KNUST for her encouragement and support. May the good Lord bless her abundantly. My acknowledgement will be incomplete if I fail to thank all the authors of the books from which I made references. They actually helped me to form opinions and directed my thoughts.

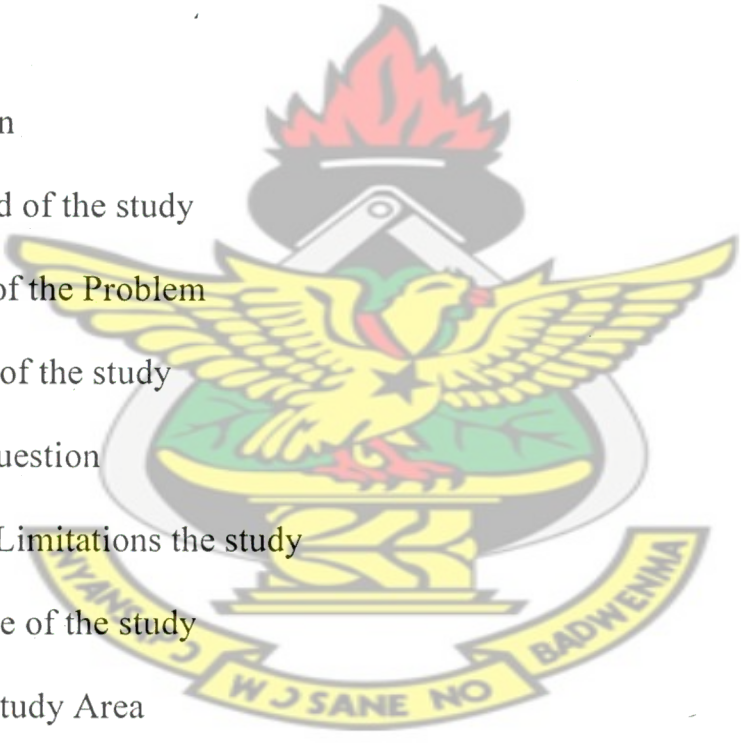
Finally, I thank the headmaster and the staff of Toase Senior High School for doing without me sometimes and for their solid support and prayers.



ABSTRACT

This study investigated the effect of information sharing on supply chain management at Logs and Lumber Limited in Kumasi. This topic was chosen because much of the economic activity generated by timber companies contribute significantly both to the local and the national economies and the subsequent foreign currency turn over in such organizations is very high. Also, supply chain efficiency is highly important as today's competition is no longer between companies, but between supply chains. This study was conducted through interviews and questionnaires. Literature, which was relevant to the subject matter, was reviewed to determine the awareness level of information sharing, the effectiveness of information sharing and how information sharing can impact on the profitability of the organization. A brief profile of the company, which was studied, was included in the work. The research revealed that there was no effective information sharing practices in the supply chain management. There was no proper coordination of the key members of the chain to ensure effective information sharing. It has therefore been recommended that information sharing should be given priority attention as it is a means of reducing cost and thereby impacting the profitability of the organization.

TABLE OF CONTENTS

Title	Pages
Declaration	i
Dedication	ii
Acknowledgement	iii
Tables and Figures	iv
	
1.0 Introduction	1
1.1 Background of the study	1
1.2 Statement of the Problem	2
1.3 Objectives of the study	4
1.4 Research question	4
1.5 Scope and Limitations the study	5
1.6 Significance of the study	5
1.7 Choice of study Area	6
1.8 Methodology	7
1.9 Organization of the study	8

CHAPTER TWO

2.0 Review of Literature	9
2.1 Overview of effective Information sharing in the Supply chain management	9
2.2 Definition of supply chain management	9
2.3 Importance of Information sharing in supply chain management	14
2.4 The Implication of Information sharing for Organizations	18
2.5 Information sharing and inventory management	19
2.6 Information sharing and Bullwhip Effect	22
2.7 Information sharing in Supply Chain Management: The role of ICT	23

CHAPTER THREE

3.0 Methodology and Company Profile	-	-	27
3.1 Introduction	-	-	27
3.2 Sources of Data	-	-	27
3.3 Primary Data	-	-	27
3.4 Secondary Data	-	-	28
3.5 Population	-	-	28
3.6 Sampling Technique and Sample size	-	-	28
3.7 Research Design	-	-	29
3.8 Instrument for Data Collection	-	-	29
3.9 Data collection Procedure	-	-	30
3.9a Data Analysis and Presentation Techniques-	-	-	30
3.9b Company Profile	-	-	31

3.9.1 Historical Background	-	-	31
3.9.2 Location	-	-	31
3.9.3 Directors	-	-	32
3.9.4 Organizational structure	-	-	32
3.9.5 General Manager	-	-	33
3.9.6 Forest Cordinator/Transport Manager	-	-	33
3.9.7 General Production Manager	-	-	34
3.9.8 Chief Engineer	-	-	34
3.10 Profile of Management Stuff	-	-	35
3.11 External Auditors	-	-	39
3.12 Sales	-	-	40

CHAPTER FOUR

4.1 Results of the study	-	-	43
4.2 Introduction	-	-	43
4.3 Background analysis of the structured interview	-	-	43
4.4 Educational Background of Respondents	-	-	44
4.5 The customers of the Organization	-	-	45
4.6 Presence of supply chain department	-	-	46
4.7Awarenes of Information sharing	-	-	48
4.8 Questionnaire Analysis	-	-	50
4.9 Age Distribution of Respondents	-	-	50

4.10 Level of Education	-	-	51
4.11 Views on Information sharing	-	-	53
4.12 Information sharing Practices	-	-	54
4.13 Awareness level of Information sharing-	-	-	55
4.14 Organizational Attitude to Information sharing	-	-	57
4.15 Effectiveness of information sharing -	-	-	59
4.16 Information sharing between Top level management and lower staff			62
4.17 Constraints to establishing information sharing systems	-		63

CHAPTER FIVE

5.0 Summary, Conclusion and Recommendation	-	-	64
5.1 Introduction	-	-	64
5.2 Summary	-	-	64
5.3 Conclusion	-	-	65
5.4 Recommendations	-	-	66
5.5 References	-	-	68
5.6 Appendix A	-	-	75
5.7 Appendix B	-	-	79

LIST OF TABLES AND FIGURES

Fig. 1	Generic Configuration of a supply Chain Management	13
Table A	Export Sales	40
Table B	Local Sales	41
Table C	Concessions	42
Table 1	Age Distribution of Respondents	43
Table 2	Educational Background of Respondents	44
Table 3	The customers of the Company	45
Table 4	Presence of supply Chain Department	46
Table 5a	Does Information sharing impact on company activities?	48
Table 5b	Is Information sharing a good idea?	48
Table 6	Does information censorship help companies?	49
Table 7	Age distribution of Respondents	50
Table 8	Educational Background of Respondents	51
Table 9	Information sharing is foundation to SCM	53
Table 10	Information sharing practice	54
Table 11	Awareness levels of Information sharing	55

Table 12	Organisational attitude to information sharing	57
Table 13	Effectiveness of Information sharing	59
Table 14	Information sharing Between Top level Management and Lower level stuff	62
Table 15	Constraints to establishing Information sharing	63



CHAPTER ONE

1.0 GENERAL INTRODUCTION

1.1 Background of the Study

Information is required in virtually all human activities. The availability of information is especially important for most business and economic activities. From the supply of raw materials to manufacturing activities in the factories through to the chain of distribution to the final consumer of a good, some kind of information is required by the various operators at each stage.

Information is data which is expressed in such a way that it is new to its recipient and removes uncertainty from the mind of the recipient (Jankowicz, 2000). The quality of information therefore greatly depends on the availability of adequate and reliable data. By removing uncertainty, market information reduces the risks associated with business activities. It enables entrepreneurs to take new risks by providing relatively clear picture of future business operations. This enhances good business and economic forecasting, an essential activity for most business and economic units.

Supply chain management is an important activity that permeates through most business and economic activities. It involves the tracking of the movement of goods (whether as raw materials, semi-processed goods, or finished goods) from

supply source to a destination for a profit. The essence of supply chain management is, therefore, to ensure efficiency to generate profit or to ensure value for money. Supply chain management activities generally entail conducting synergy analysis in the supply chain to ensure efficiency and effectiveness in managing the supply of goods.

The type and sources of information vary from one business activity to the other. Generally, however, the essential information on goods required for the purposes of supply chain management are information on the size and quantity of the item, its source and destination, and the most efficient means of transporting it. Even though the availability of relevant information for supply chain management is important, the utilization of this information by management of business is even more important in determining the profitability and success of the business.

1.2 Statement of the Problem

Supply and/or procurement of goods and services are core to virtually all business and economic units. Whether the firm is in the manufacturing, distribution or service industry, some amount of supply or procurement functions are carried out in the course of performing its core business. Manufacturing companies purchase raw materials for use in their production activities. Similarly, distribution companies also buy from manufacturers or other distributors and sell to the public or other distributors. Even service providing companies can be regarded as

supplying their technical or professional services. Some business units can also engage solely in the supply of goods while others may produce and supply at the same time. In any of these scenarios, market information on the supply chain is required to ensure efficiency in the process.

Information may be obtained from internal sources of businesses such as inventories and sales records or it may be obtained from external sources such as points of supply and destinations and transport requirements. Whether the information is obtained from internal sources or external sources depends on the specific needs of each business unit.

Logs and Lumber Limited is a Kumasi-based timber processing and export company. The company harvests raw logs and timber from the forest and processes them into semi-finished wood products before exporting them to the international market. The company's core operations, therefore, centre on procuring and supplying goods (timber). This necessarily involves stocks and inventory management in order to ensure efficiency in the process.

Logs and Lumber Limited would therefore require information on its sources of supply of raw logs and lumber, as well as information on the external market conditions such as size and quantity of the products consumers want to buy and the time the products are expected to be delivered. This study will examine how

information affects supply chain management of companies using Logs and Lumber Limited as a case study.

1.3 Objectives of the Study

The main aim of the study is to examine how the availability of information or the lack of it affects supply chain management at Logs and Lumber Limited. The specific objectives are:

- (i) to examine the impact of information on profitability at Logs and Lumber Limited
- (ii) to examine the impact of information on customer retention by Logs and Lumber Limited
- (iii) to examine the role of information on the relationship between supply and demand.
- (iv) to examine impact of information against the “bullwhip effect”
- (v) to make appropriate recommendations.

1.4 Research Question

Apart from the above, research questions further throw light on the boundary of the research and give it an overall direction. For this study, the following are the major research questions:

1. Will the availability of information reduce incidence of bullwhip effects in supply chain management?

2. To what extent is effective information management being practiced in the wood industries?
3. Will effective information management and its availability help in the expansion and growth of wood industries?

1.5 Scope and Limitations of the Study

The scope of the study has been limited to assessing the impact of information on supply chain management at Logs and Lumber Limited in Kumasi. Three main factors constrained the study to this scope. First, inadequate time and financial resources would not permit a much larger study. Second the need to ensure meaningful results of the study also necessitated the limitation of the current study to its scope. The third reason being that there is a greater number of wood processing industries in Kumasi (especially in the Ahinsan industrial area) than elsewhere in Ghana.

1.6 Significance of the study

Having gone through this research work, a lot of issues concerning information sharing in the supply chain management will be raised with possible solutions.

The significant of the study will be as follows:

- a) Unearthing of the causes of lack of information sharing in supply chain management.

- b) The research will enable the world to be aware of the problem facing the supply chain management as far as information sharing is concerned – in order to find appropriate solutions to them.
- c) It will assist other organizations with similar problems with the opportunity to re-adjust to the best ways of doing thing.
- d) The personnel of the organization would become aware of the importance of information sharing
- e) Findings from the research are expected to help managers to have insight into the effect of information sharing on the activities of their supply chains.
- f) This study can be used as reference for further research.

1.7 Choice of Study Area

Logs and Lumber Limited is one of the leading timber processing and export firms based in Kumasi. Its core activities include harvesting raw logs and lumber from the forest and processing them for export. The company's activities therefore centre on procurement and supply chain activities. It has to track the movement of its raw materials as well as the movement of its "finished" products. This entails managing the chain of supplies from the sources of raw materials to the destination of their processed products. The company's activities are, therefore, typical of any supply and procurement management company.

Second, Kumasi is the reputed commercial city of Ghana. It supplies goods to basically all parts of the country due to its strategic location. Companies which are located in this Metropolis will devote extra attention to their supply chain management because of the demands imposed on them by virtue of their location in the commercial metropolis. Export companies located in Kumasi will also devote extra attention to their supply chain activities because their products have to be transported to either Tema or Takoradi efficiently for export.

The availability of data for the study also informed the choice of Logs and Lumber Limited in Kumasi for the study. The researcher is quite familiar with the business and economic environment of Kumasi Metropolis. This will reduce difficulties associated with collecting data from unfamiliar areas. Besides, Logs and Lumber Limited is a major player in the timber processing and export market. It is expected that adequate and reliable data will be obtained from Logs and Lumber Limited for the study.

1.8 Methodology

In this study both quantitative and qualitative methods were used to gather data on a section of the population which was systematically analyzed. A detailed questionnaire and interview guide was designed which posed specific and structured questions on all relevant issues in connection with information sharing at logs and Lumber limited. The qualitative methods included the use of in –

depth interviews with officials of the company and especially those involved in the supply chain activities of the company. The quantitative part involved the use of structured questionnaire on the sampled population. The sampled size for the structured interview was sixteen and the sampled size for the questionnaire was fifty.

For secondary source, extensive literature relevant to the study was reviewed. Also, the responses received from both the questionnaire and the structured interview were analyzed using SPSS

1.9 Organization of the Study

The study will be presented in five chapters. Chapter One outlines the general introduction and research context of the study. Chapter Two will review previous literature on the relationship between information and supply chain management. Chapter Three will outline and describe the study area and the research methodology. Chapter Four will present the analysis of the field data and Chapter Five will state the summary, recommendations and conclusions are stated in Chapter Five.

CHAPTER TWO

2.0. REVIEW OF LITERATURE

2.1 Overview

This chapter attempts to review existing literature on effect of information sharing in the supply chain management. Under the study, the following will be covered

- i. Definition of supply chain management
- ii. Importance of information sharing in supply chain management.
- iii. The implication of information sharing for organizations.
- iv. Information sharing and inventory management
- v. Information sharing and Bullwhip Effect.
- vi. Information sharing in supply chain management: the role of ICT

2.2. Definition of Supply Chain Management

The supply chain management literature offers many variations on the same theme when defining a supply chain. The most common definitions as proposed by Houlihan (1985), Stevens (1989), Lee et al. (1993) and Lamming (1996) is a system of suppliers, manufactures, distributors, retailers and customers where materials flow downstream from suppliers to customers and information flows in both directions.

A supply chain is also a network of facilities and distribution options that functions to procure materials transform these materials into intermediate and finished products and distribute these finished products to customers. Supply chains exist in both service and manufacturing organizations, although the complexity of the chain may vary greatly from industry to industry – and firm to firm. Realistic supply chains have multiple end products with shared components, facilities and capacities.

Traditionally, marketing, distribution, planning, manufacturing and the purchasing of organizations along the supply chain operate independently. These organizations have their own objectives and they are often conflicting. Houlihan (1985) is credited with first coining the term “supply chain” but it seems researchers have varying interpretations of exactly what managing a supply chain means. The common thread in any definition is that supply chain management seeks to integrate performance measures over multiple firms or process.

According to Martin (1994), supply chain management covers the entire integrated Process of acquiring raw materials, transforming the raw materials into final products and delivering these products to end customer. The highest level of supply chain involves two integrated processes; first are the process of production planning and the corresponding inventory

control process; and second are the process of distribution and the underlying logistics process.

Supply chain management is also defined by the Global Supply Chain Forum (GSCF) as "the integration of key business processes from end user through original suppliers that provide products, services and information that add value for customers and other stakeholder" (Lambert et al., 2006 P.66).

Simchi – Levi et al. (2003) define a supply chain as network of companies comprising suppliers, manufactures, warehousing centers, distributors and retailers; raw materials, intermediate and finished products that flow between them. A supply chain can also involve third parties that provide logistics. (Mentzer et al., 2001)

Bowersox (1997) also defines supply chain management as the coordination of the different relationships existing across the supply chain. It involves both intra-business relationships and inter-business relationships. The concept also refers to a series of interconnected relationships and process related to the entire supply chain.

Supply chain fundamentals.

There seems to be a universal agreement on what a supply chain is. Teigen (1997), Swamination et al, (1996) define a supply chain to be "a network" of autonomous or

semi-autonomous business entities collectively responsible for procurement, manufacturing and distribution activities collectively responsible for procurement, manufacturing and distribution activities associated with one or more families of related products.

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

Ganershan et al (1995) have yet another analogous definition: A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products and the distribution of these finished products to customers.

OBJECTIVES OF SUPPLY CHAIN

The objective of supply chain management is to be able to have the right products in the right quantities (at right place) at the right moment at minimal cost. More precisely, the objective can be translated into more precise areas of concern, which are: flexibility, delivery, reliability, and delivery time/lead time and inventory level. Delivery reliability and delivery times are both aspects of customer service, which is highly dependent on flexibility and on inventory (Teigen, 1997)

ORIGIN OF SUPPLY CHAIN

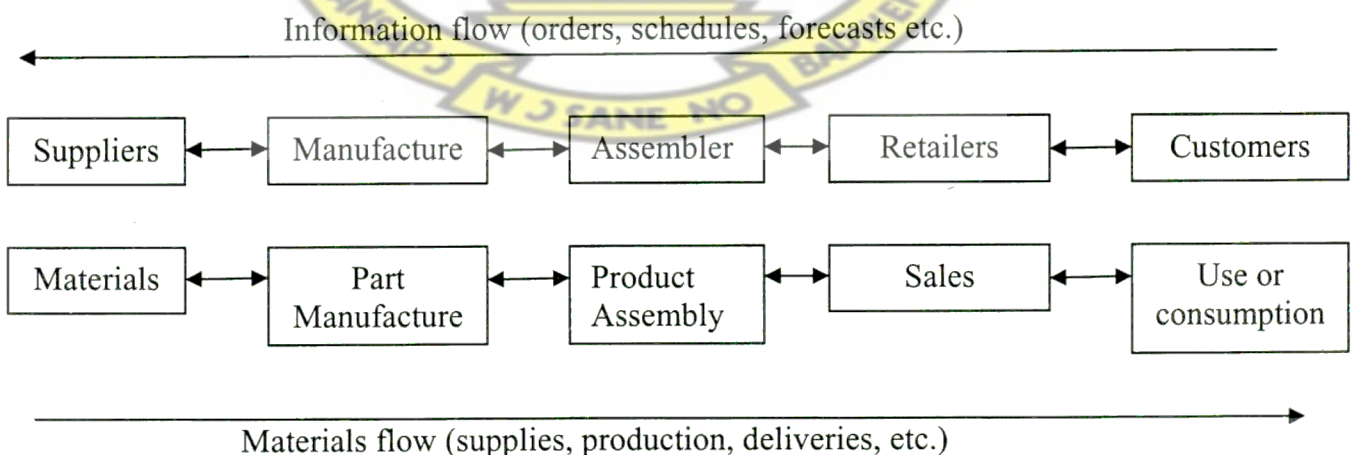
Supply chain management is a concept that has originated and flourished in the manufacturing and production industries, according to Vrijhoef et al. (1999). The first

signs of supply chain management were perceptible in the Just – in – Time (JIT) delivery system as part of the Toyota Production System. (Shingo, 1988). This system aimed to regulate supplies to the Toyota motor factory just in the right – small – amount, just on the right time. The main goal was to decrease inventory drastically, and to regulate the suppliers' interaction with the production line more effectively.

After its emergence in the Japanese automotive industry as part of a production system, the conceptual evolution of supply chain management has resulted in an autonomous status of the concept in industrial management theory and a distinct subject of scientific research, (Bechtel et al. 1997), (Cooper et al. 1997).

Concept of supply chain management

Supply chain can be considered as “the network of organizations that are involved, through upstream and downstream linkage, in different processes and activities that produce value in the form of products and services in the hands of the ultimate customer”(Christopher 1992).



Source: Vijhoef et al(1999)

Fig 1. Generic configuration of a supply chain manufacturing.

The figure above shows a generic configuration of a supply chain in manufacturing, with information flows (such as orders, schedules, forecasts) circulating between customers, retailers, assemblers, manufacturers and suppliers. Materials flows (as supplies, production, deliveries, and products of whatever kind) circulate from their use within the manufacturing from raw materials or component, through to their use within the manufactured product.

Supply chain management looks across the entire supply chain rather than just at the next entity or level, and aims to increase transparency and alignment of the supply chains' coordination, regardless of functional or corporate boundaries (Cooper et al. 1993).

2.3. Importance of Information Sharing in Supply Chain Management

In modern highly competitive markets, there has been a reorientation of management practices towards collaboration between trading partners. Strong collaboration between supply-chain partners is an important way of sustaining companies' competitive advantages. Intensified competition is no longer between individual companies, but between supply-chains. (Cooper, Lambert et al. 1997; Blackwell and Blackwell 1999; Lambert and Cooper 2000)

According to Lee and Whang (2000), supply chains comprise three important flows: material, information and finance. Managing the coordination and integration of these flows within and across companies is essential to achieving effective supply chain management. Effective supply chain management is a

prerequisite to quality of service and profitability. To them companies must broaden their area of analysis and decision making to encompass not single business units but whole supply chains.

Information sharing is basic to effective coordination in a supply chain. Many studies have found that information sharing has great impacts on supply chain performance, especially in reducing the bullwhip effect. (For example' Lee and Whang 2000; Xu, Dong et al. 2001; Yu Yan et al 2001). Information sharing enables companies to make better decisions in their operation leading to better resource utilization and lower supply chain costs.

Better management of information allows companies to be more responsive to customers' demands (Lee 2000; Mentzer 2004)

Advances in Information and Communication Technology (ICT) enable companies to share information. For example, the internet allows organizations to transfer digital data instantly and with high fidelity at near zero marginal cost. There are no obstacle, the fundamental questions are: what information should be shared, with who should be shared and how it should be shared to optimize competitiveness and profitability.

INFORMATION SHARING

As information sharing is the foundation of supply chain integration (Lee 2000), decisions on the level of integration are strongly correlated with decision on what

information should be shared and how it should be shared. Cooper et al. (1997) contend that designing the configuration of the supply chain is not merely determining with whom companies should integrate but also designing how companies' activities are linked to those of their partners and deciding what information should be made accessible by partners.

The information in a supply chain can be classified in different ways e.g. Strategic or tactical; logistics, or pertaining to consumers (Mentzer 2004). Lee and Whang (2000) discuss various types of shared information and their potential benefits. For example, sharing order status can improve the quality of customer service, reduce payment cycles and reduce labour cost. Sharing retail sales data can mitigate the bullwhip effect.

The value of information sharing depends on several conditions. For example, Simchi-Levi and Zhao's (2003) showed that demand sharing has no significant benefits for a manufacturing under tight capacity. Lee, So and Tang (2000) found that demand information sharing has more value if demand is highly correlated over time, high variable, or the lead time is long.

With whom should information be shared?

Supply chain structure is how companies are arranged to form a supply chain and how all activities are linked (Cooper Lambert et al. 1997; Dewitt et al. 2001). Cooper et al. (1997) suggest that companies need to determine carefully with

which partners of supply chains they should be closely integrated. Cooper et al. also point out that level of integration depends on various factors including firm capabilities, the complexity of products, and corporate culture.

Research determining with which partners in a supply chain company should share information is very limited. Raghunatan (2003) examines demand information sharing in a supply chain comprising a manufacturer serving many retailers and analyzes the optimal number of retailers that should be involved in information sharing. He found that the supplier will more likely to include more sharing partners when demands amongst retailers are independent, as the value of information sharing will increase significantly with the increasing number of sharing partners. This study confirms Cooper et al. (1997) argument that decision on how many retailers should be involved in information sharing depends on product characteristics.

The correlation of demand amongst retailers depends on the nature of products, consumers segments and geographical location of partners (Raghunatan 2003). Lee, So and Tang (2000) also found that benefits of information sharing increase with the number of retailers involved when the demand processes variance are correlated over time.

Should information be censored?

An attribute of information is its timeliness; delayed transmission of information exacerbates the effects of volatility affecting the upstream level of supply chain (Forrester 1958). Chen (1999) examines the impact of delay of information transmission (also called information lead times) between supply chain stages.

Bourland et al. (1996) found that timely demand information affects supplier's inventory policy and that sharing demand information daily can decrease supplier's expected inventory cost especially when demand variability is high.

Another attribute of information is the level of detail or completeness of information. If the information is transmitted every week, for example, there would be a question whether data should be provided on daily basis or aggregated per week. It is obvious that aggregated data has different variance than daily data and this could affect operating decision of companies in a supply chain.

2.4. The Implication of Information Sharing for Organizations

Realizing the benefits of information sharing depends on companies' ability to utilize shared information in their business processes. Kulp et al. (2004) did a survey to investigate the impact of information sharing on companies' performance. They found that the highest margin companies are not simply exchanging information but they combine collaboration. Lee and Whang (2000)

argue that information sharing is only enabler for achieving supply chain efficiency.

Gavirneni (2002) showed that the benefits of information sharing can be obtained if companies change their operation policy.

If companies want to take full advantages of information sharing, some significant changes in organization need to be implemented. Companies should move toward collaboration with their partners to achieve common goals of supply chain efficiency that is built based on a high level of trust between companies.

Lee (2000) argues that collaboration and coordination can be achieved through exchanging decision rights, work and resources. Exchanging decision rights, such as in a VMI program, should not be considered merely to alleviate the bull whip effects or to simply shift costs and responsibility to other parties, rather it should noted that other parties are in the best position to accomplish such decisions.

Mentzer (2004) further argues that people can impede or facilitates collaboration. Information sharing will not bring significant benefits if people in organization still persist with past behaviour, exemplified by functional silos thinking.

2.5. Information Sharing and Inventory Management

According to Horne (1998), inventory forms a link between production and sale of a product. A manufacturing company must maintain a certain amount of inventory during production. This inventory is known as work in progress (WIP).

Weston and Brigham (1990), explain inventory management as given also by Horne (1998).

The Encyclopedia of management also defines inventory as or use inventory as a quantity or store of goods that is held for some purpose or use. Inventory may be kept “in house”, meaning on the premises nearby for immediate use, or it may be held information a distant warehouse or distribution centre for use. With exception of firms utilizing just – in – time methods, more often than not, the term “inventory” implies a stored quantity of goods that exceed what is needed for the firm to function at the current time (e.g. Within the next few hours).

The purpose of inventory management is to determine the amount of inventory to keep stock – how much to order and when to replenish or order.

We attribute incentive problems is supply chains to lack of credible information sharing and three major risk imbalances: Capacity risk, inventory risk, and quality risk (Ozer, 2004). Because of lack of credible information sharing, the adverse effects of inventory and quality risk are more severe for a decentralized supply chain than for a vertically integrated supply chain.

Inventory control problems have attracted the attention of researchers for many years. Fundamentally, according to Ozer (2004), the problem is one of matching supply and demand by efficiently coordinating the production and the distribution

of goods. An important aspect of good inventory management is effective use of information. Knowing how to use information effectively also enable a manager to decide what data to collect, buy and store, and what information technology to invest in. Good inventory management is no longer a competitive advantage. It is an essential capability to survive in a global market.

Cachon and Fisher (2000): Gavimani et al (1999) say that sharing inventory information can improve supply chain performance, with the upstream member (ie. the supplier) enjoying most of the benefits.

Inventory information provides the supplier with more timely and less distorted demand signals. These signals are then factored into the supplier's order decision, resulting in lower safety stock and/or higher service levels compared to cases where no inventory information is shared. Croson and Donohue (2004) observed that upstream supply chain members (i.e. manufactures and wholesale) enjoy significantly more reduction information order oscillations than downstream members (i.e. retailers and wholesalers) when all inventory information is shared.

Closs et al (1998) investigated the effects of information sharing on inventory and service levels information a four stage supply chain. Based on real-life data obtained from Hewlett Packard, Walter et al (1999) developed a simulation model in which they examine the effect of shared information on inventory levels. They

conclude that available daily demand information for suppliers may lead to decreasing inventory levels for the entire supply chain.

2.6. Information Sharing and Bullwhip Effect

According to Sterman (2000), the Bullwhip effect is a magnification of order oscillations as one move up the supply chain, away from final customer. This magnification is usually measured information terms of change information the variance of orders placed at each supply chain consisting of a retailer and manufacturer, bullwhip behaviour would imply that the variance of orders received by the manufactures is higher than the variance of demand experience by the retailer. This behavoiur is witnessed in a number of industries, ranging from consumer packaged goods to real estate.

The Bullwhip effect is named after the action of a whip where each segment further down the whip goes faster than that above it (“whiplash effect”) the same effect occurs in a supply chain, but information reverse order. The term was coined by proctor & Gamble management who noticed an amplification of information distortion as order information traveled up the supply chain

The Bullwhip effect is all observed phenomenon information forecast-driven distribution channels. The effect indicates a lack of synchronization among supply chain members because of corrupt key information about actual demand (Buchmeister et al. 2006)

The concept has its roots in Forrester's (1961) "Industrial Dynamics". According to him, Variability coupled with time delays in the transmission of information up the supply chain and time delays information manufacturing and shipping goods down the supply chain create the Bullwhip effects

Lee et al (1997) were the first to identify four key operational factors that encourage Bullwhip behavior. These factors include:

1. fixed costs in production, ordering or shipping, which encourages order batching
2. shortage gaming, which encourage phantom orders
3. Price promotions, which encourage forward buying, and
4. Errors information demand signaling which encourage order adjustments.

They, at the same suggest methods such as information sharing and strategic partnership to decrease the amount of variance amplification in the supply chain.

2.7 Information sharing in supply chain management: the role of ICT

Supply chain management often requires the integration of inter-and intra-organizational relationships and coordination of different types of flows within the entire supply chain structure.

In a traditional vision of the supply chain, demand flows up the chain (from each trading partner to its upstream trading partner) and product flows in the opposite directions. Time delays, distorted demand signals and poor visibility of exceptional conditions result in critical information sharing gaps and serious challenges for supply chain managers, including misinformation and ultimately, mistrust. This disruption ht results from dramatic sudden changes in forecasted demand is amplified as it travels up through the supply chain. This “bullwhip effect” is responsible for much of the inefficiency in supply chains. (Lee et al. 1977; Chen et al. 1999).

Information and communication technology (ICT) and in particular the internet, have played a fundamental role in helping companies reach the goals of supply chain integration. The internet can change the role and type of relationships between the various players, crating new value networks and developing new business model (Muffatto and Payaro, 2004).

The transaction cost theory (Coase, 1937; Williamson, 1975) provides an insight into institutional arrangements for economic relationships between organizations. The focus of transaction cost theory is on the conditions under which a transaction is likely to be carried out internally (hierarchical organization) or externally (in the market).

Organizations need to choose a coordination mechanism in order to economize transactions. Williamson argues that under high transaction costs, firms tend to choose vertical integration to control the transaction process by closer

supervision. However, organizations may adopt electronic tools to lower transaction costs and improve information sharing, thus facilitating improved planning and more coordinated actions to reduce uncertainty.

Porter (1980) developed the five forces model to consider strategic choices in competitive environments. The basis of this model is that a firm exists within an industry and in order to succeed, it must effectively deal with the competitive forces which exist within the particular industry.

Porter (1985) also considered the concept of the value chain with primary activities forming a linear information flow from the supplier through to the customer.

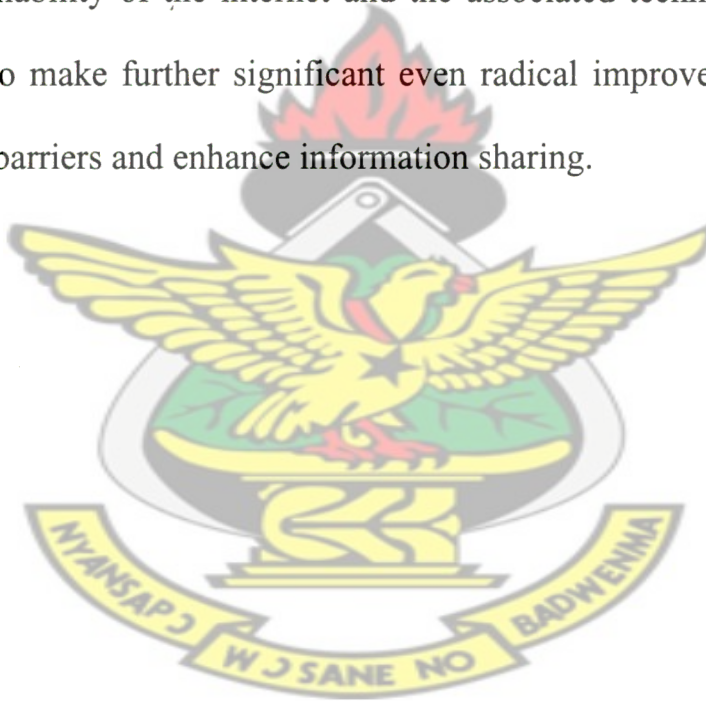
Information communication technology is a key factor that enables for competitive advantage by cementing relationships with customers, enabling integration forward or backwards in the industry value chain.

According to Roberts and Mackay (1998), the key business benefits that information communication technology can bring are: improvements to customer service through simpler processes and reduced lead times, lower supply chain costs through simpler integrated processes, lower administrative costs, more efficient processes and improved management information.

The internet provides the opportunity for demand data and supply capacity data to be visible to all companies within a manufacturing or production supply chain. Consequently, companies can be in a position to anticipate demand fluctuations

and to respond accordingly. The internet has given companies even greater tools for tightly orchestrating relationships across the entire supply chain and creating strategic partnerships and operational linkages with a dynamic web of large and small firms spanning all continents. Internet-enabled shared information helps break down organizational policies and functional fences helping supply chain alliance members develop a common understanding of the competitive environment. (Boyson et al. 2003).

In short, the availability of the internet and the associated technologies provide the opportunity to make further significant even radical improvements to break down functional barriers and enhance information sharing.



CHAPTER THREE

3.0 METHODOLOGY AND COMPANY PROFILE

3.1 Introduction

This chapter covers the steps used in conducting the study. It looks at the sources of data, research design, population, samples and procedures, instruments used for collection of data and analysis of the data collected.

3.2 Sources of Data

The main sources of data were from both primary and secondary sources. Each source has its unique strengths and weaknesses so combining the two would cancel out the method effect leading to a greater confidence being placed in the researcher's conclusion (Saunders et al. 1997:1999)

3.3 Primary Data

Data from this source was basically received from the employees of the company. This was made up of owners, management personnel and supply chain personnel in the company. A combination of data collecting instruments such as questionnaire, discussion and interviews were used to collect data.

3.4 Secondary Data

Data from this source was collected from Business Bulletins, journals, articles from the internet and books written by experts from the field of supply chain.

3.5 Population

Koul (1985) refers to population as any collection of specified group of human beings or of non - human entities such as objects, educational institutions, time units, geographical areas, and prices of items or salaries drawn by individuals. Anderson et al (2003: 14) also defines a population as “a set of element of interest in a particular study”. This study was undertaken to find out the effect of information sharing in supply chain management on business and economic units. The population of the study therefore comprises all business and economic units in Ghana, which are in involved in supply of goods and services. Due to resource constraints, Logs and Lumbers Limited in Kumasi was selected for the study.

3.6 Sampling Technique and Sample Size

Respondents were selected using a mix of sampling techniques. Purposive sampling method was used in selection of respondents from the supply chain departments and key officials of the company on the assumption that they have adequate knowledge on the

topic under investigation. In this regard only respondents responsible for managing the supplies and distributions of the company were interviewed for the study. In all, sixteen key officials were interviewed and the sample size for the questionnaire was forty six. The technique for the selection of the respondents for the questionnaire was randomly done.

3.7 Research Design

Research design is the deliberate planned “arrangements for analysis and collection of data in manner that aims to combine relevance to the research purpose with economy of procedure” (Selltiz et al. 1981 in Jankowaz, 2000:190). The research design for the study is the quantitative approach to research. This involves collecting quantifiable data, which can be analyzed using statistical tools and techniques.

3.8 Instrument for Data Collection

Two main types of data were used for the study. These are primary and secondary data. The primary data was collected from the area. The secondary data was mainly information obtained from the review of previous literature in the field of supply chain management. The field data was gathered using structured questionnaire and interview schedules. The questionnaire contained both close – ended and open – ended questions. The interview schedules was expected to ensure respondents understood

the questions being raised in the questionnaires and ensure a high response rate to the questionnaires, as the presence of the researcher compelled some of the respondents to give due attention to the questionnaires.

A dichotomous response items were also used to enable respondents use Yes and No answers which is easy to adopt.

3.9 Data Collection Procedure

The researcher distributed the questionnaire to the various members of the sample population. The questionnaire items were distributed through personal contact. This was to enable the researcher receive a quick response. Respondent who could read and write were given one week to return their responses. This was to enable them reflect on the questions and provide accurate answers.

3.9a. Data Analysis and Presentation Techniques

Field data for the study was analyzed using Microsoft spread sheets and Statistical Package for Social Scientists (SPSS). The data collected were coded and analyzed using frequencies and percentages. These were presented mostly in table form. The frequencies and percentages were used to judge the effectiveness of information sharing in the supply chain

management. The data analysis was based on the responses received from the respondents

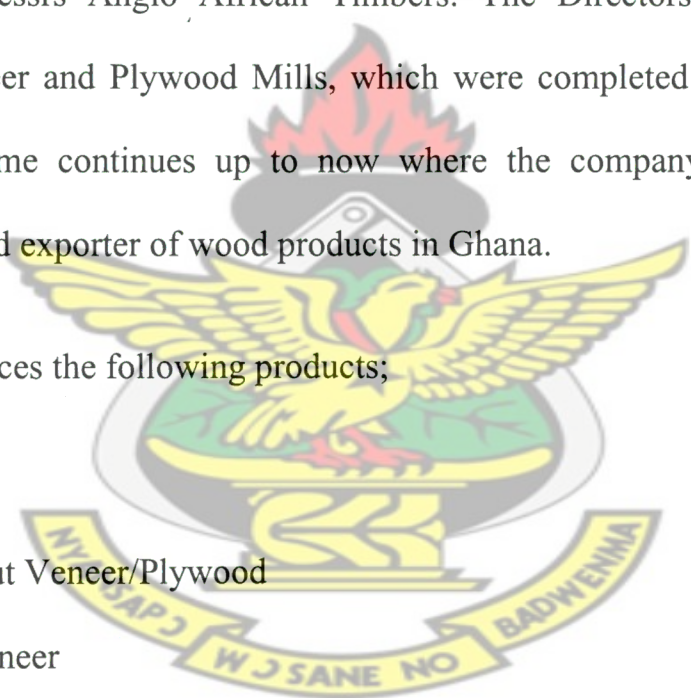
3.9b Company Profile

3.9.1 Historical Background

LOGS & LUMBER LTD was incorporated as a private limited liability company on June 17, 1967 and commenced business on July 10, 1967. It was a sawmill purchased from Messrs Anglo African Timbers. The Directors initiated the installation of Veneer and Plywood Mills, which were completed in 1972. The expansion programme continues up to now where the company became the leading producer and exporter of wood products in Ghana.

The company produces the following products;

- a) Lumber
- b) Rotary Cut Veneer/Plywood
- c) Sliced Veneer
- d) Finger jointing, Moldings and Lamination.



3.9.2 Location

The headquarters of the company is in Kumasi on the Lake Road Industrial Area in the Ashanti Region of Ghana. It also has shipping offices in Takoradi in the

Western Region of Ghana. The headquarters, which also houses the production units, is sited on a land of about ten (10) hectares.

3.9.3 Directors

A three -member Board of Directors runs the company and is responsible for the long term planning and management of the company. The Board is made up of:

- a) William John Bitar (Owner and Shareholder/Director)
- b) Avedis Jeghalian (Managing Director/Director)
- c) Frank Addo (Director)

William John Bitar is presently holding 100% shares. The company has an employee population of 1420. The Managing Director, Mr Avedis Jeghalian, is responsible for the day to day running of the company. The Board meets quarterly to review and discuss policy, administrative and managerial issues pertaining to the running of the company.

3.9.4 Organisational Structure

The apex of the management structure is occupied by the Managing Director and the following line managers work under him;

- a) General Manager
- b) Forest Co-ordinator/Transport Manager

- c) General Production Manager
- d) Chief Engineer

The specific job schedules of the divisional heads are detailed below:

3.9.5 General Manager

The general manager is

- a) In charge of General administration, personnel and financial management of the company
- b) Responsible for managing budgets and ensuring effective budgetary control system
- c) Preparation of monthly, quarterly and annual financial reports for the Board of Directors
- d) Provides advice on all financial and administrative matters.

3.9.6 Forest Co-ordinator/Transport Manager

The Forest coordinator/ Transport manager

- a) Provides assistance to the Managing Director in the procurement of raw materials (logs) for the company in collaboration with the General Production Manager.

- b) Is responsible for the Day to day management and administration of permits and purchases of raw materials (logs)
- c) Co-ordinates managerial and administrative matters relating to staff engaged in raw material (Logs) procurement as well as transport and logistics.
- d) Controls the company's fleet of Transport & Bush operation Equipments.

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3.9.7 General Production Manager

The general production manager

- a) Is responsible for production planning
- b) Is responsible for scheduling and execution of all sales contracts
- c) Co-ordinates activities at all levels of production



3.9.8 Chief Engineer

The chief engineer

- a) Co-ordinates the activities of the Mechanical, Electrical and

Civil/Construction sections

- b) Responsible for the design and fabrication of machinery and equipment according to company's requirement and specification

3.10 Profile Of Management Staff

a) **William John Bitar**

He has been the Executive Director of this company since 1981; he is the son of the original purchaser of this company from Anglo Africa Timbers, Mr John Bitar. Presently he is the sole shareholder of this company.

b) **Avedis Jeghalian**

An Electro Mechanical Engineer by profession, Mr. Avedis joined this company in 1988 and was the former Chief Engineer before being appointed Managing Director. He holds a Masters degree in Electro Mechanical Engineering from the USSR and is a Lebanese national.

c) **Richard Kuagbela**

Mr. Richard Kuagbela holds AIA certificate and has been working with this company for the past 31 years. He was the Administrative

Manager for some time and was later appointed as Financial Controller; currently he is the General Manager.

d) **Garabet Leon Kinoyan**

Mr. Kinoyan joined this Company as a Transport Manager. He holds a BTS in Electro-Mechanics from Yerevan Electro Mechanical Technical (Armenia) since 1982. In 1987 he obtained his MSC in Electro/Mechanical Engineering from Yerevan Polytechnic (Armenia). He is a Research Engineer from the same Polytechnic where he majored in Research and Development in Electrical Control and Automation devices. In 1997 he graduated from the Institute for Australian Studies, Wollongong University where he had done an MBA in Management. He is also Computer Literate. He has 15 years working experience in various fields.

e) **Pietro Fiore**

Expert in Sliced Veneer production with about 38 years experience in Europe and Africa. Mr Fiore has worked with this company since 1997. He is an Italian National.

f) **Pedro Chico Bernardo Jnr**

Mr. Bernardo, a Philipino, has been with this Company since 2003 as our Mechanical Engineer. He holds a Bachelors' degree from FEATI UNIVERSITY (Philippines).

KNUST

g) **Fred Bumanlag**

A Graduate with Bachelor's degree in Mechanical Engineering, he also had additional training in total production maintenance and energy conservation programme. He has experience in the installation and maintenance of industrial machinery, as well as knowledge and skills in electrical wiring installation and troubleshooting hydraulic and pneumatic control installation. He is a national of the Philippines and has been working with the company for the past 3 years.

h) **Khoren Grigoryan**

Holds MSc in Electro Mechanical Engineering and has had knowledge and experience in engineering since 1985. He is also experienced in installation and trouble shooting.

i) **David Gyamfi**

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David Gyamfi has been working with this company for the past 9 years. He is a Chartered Accountant by profession and holds ICA (Gh) qualification. He is the Chief Accountant and joined this company from Mim Timbers.

j) **Toni Abdel Nour**

Toni Abdel Nour is a holder of a certificate in Mechanical Engineering and specialises in Caterpillar Engineering. He joined this company 5 years ago.

k) **R. E. Sagoe**

R. E Sagoe has been with this company since 1980 as the Personnel Manager. He worked with GIHOC for 14 years in the Personnel Section.

L) **E.K Essien**

Mr. Essien has been with the company since 1999 and holds a certificate from the Forestry Training School as a Technical Officer since 1970. He is currently the Forest Coordina

3.11 External Auditors

The external auditors of the company are Messrs Pannel Kerr Forster, Chartered Accountants

3.12 SALES

Table A Export Sales

PRODUCT	2003		2004		2005	
	VOL	VALUE	VOL	VALUE	VOL	VALUE
	M3	(€)	M3	(€)	M3	(€)
Lumber	8,686	2,882,400	10,821	3,775,833	9,442	3,509,511
Plywood	1,231	385,898	938	513,365	906	276,099
Sliced Veneer	5,591	5,008,299	7,153	5,866,076	7,432	6,550,189
Rotary Veneer	4,485	1,330,205	2,729	1,025,471	2,144	638,414
Mouldings & F/J	5,448	2,039,609	5473	2,006,547	5,569	2,126,523
Lamination					347	283,298
TOTAL	25,442	11,646,410	27,114	13,187,292	25,840	13,384,034

Table B Local Sales

PRODUCT	2003		2004		2005	
	VOL	VALUE	VOL	VALUE	VOL	VALUE
	M3	(€)	M3	(€)	M3	(€)
Local Sales	4,102	287,878	2,007	254,496	1,045	164,341

Input of Logs – M3

SECTION	2003	2004	2005
Lumber/Moulding/FJ	56,866	53,884	40,348
Rotary	28,169	18,850	10,689
Veneer/Plywood			
Sliced Veneer	24,885	25,971	25,928
Total	109,921	98,706	76,966

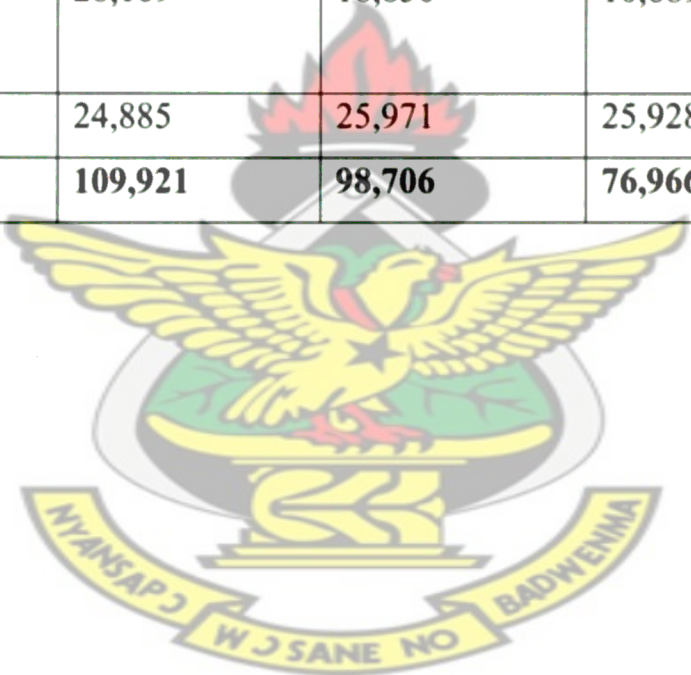


Table C Concessions

CONCESSION	AREA KM ²	DISTANCE FROM KUMASI
Pra Anum Forest Reserve	48.41	130 km
Esukwakwa Forest Reserve	62.44	150 km
Nkrabea Forest Reserve	100.20	128 km
Aboniyere Forest Reserve	41.20	122 km
Bonsambepo Forest Reserve	48.00	148 km
Sui ‘ A ’ Forest Reserve	104.53	180 km
Sui ‘B’ Forest Reserve	37	220 km
Bia tributaries North F/R	59.57	330 km
Mafia ‘B’ Off Forest Reserve	171.00	280 km
Trans Bia Off Reserve	197.07	380 km
Bia Tawya Forest Reserve	410	300 km

CHAPTER FOUR

THE RESULTS OF THE STUDY

4.2 Introduction

This chapter basically discusses the findings, analysis and interpretation of the study. With the objectives of obtaining meaningful insights, this study administered questionnaires and conducted structured interviews with the management and staff of logs and lumber limited.

4.3 Background analysis of Data of the S. Interview.

These include the age distribution of respondents, educational background, type of operation and the level of information sharing activities of the organization.

Table 1

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-30yrs	6	37.5	46.2	46.2
	31-40yrs	6	37.5	46.2	92.3
	41-50yrs	1	6.2	7.7	100.0
	Total	13	81.2	100.0	
Missing	System	3	18.8		
Total		16	100.0		

Age distribution of Respondents

Table one above shows the age characteristics of the sampled population interviewed. The respondents were aged between 20 and 40 years with only one respondent aged over 40 years. It is interesting to note that out of the 13 responses received from respondents, 92% were aged between 20 and 40 years. This paints a good Picture of the interest of the youth in the timber industry.

Table 2
Educational Background

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Basic/Elementary	2	12.5	12.5	12.5
	Secondary	6	37.5	37.5	50.0
	Tertiary/Professional	8	50.0	50.0	100.0
	Total	16	100.0	100.0	

4.4 Educational background of Respondents

From this table, it could be seen that encouragingly, fifty percent of the people interviewed have either tertiary or professional level of educational qualification, 37% of these respondents also have secondary education and 12.5% have basic or elementary education.

With this high rate of literacy in the organization it is expected that respondents would be well informed about the importance of information sharing. This could also mean that the company will have a very good blend of professionals to work with.

4.5 The customers of the Organization

The above table shows the type of customers the company deals with. The type of customer, either retailers or wholesalers will inform the company as to how and what information should be shared, so this topic was explored to determine the people the company does business with.

Table 3

The customers of the company

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid retailers	1	6.2	6.2	6.2
wholesalers	14	87.5	87.5	93.8
WR	1	6.2	6.2	100.0
Total	16	100.0	100.0	

Out of the 16 people interviewed, only one person indicated that the company's customers are retailers, another person ticked both. It could be inferred from this that the company's customer are wholesalers, since about 90% of the respondents indicated so.

Also, according to the managing director of the company, they only produce for wholesalers, so this amply explains why more than ninety percent of the respondents also indicated that the company produces for wholesalers.

Table 4

4.6 Presence of supply chain department

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	5	31.2	31.2	31.2
	yes	11	68.8	68.8	100.0
	Total	16	100.0	100.0	

On the presence of a supply chain department, about 69% answered yes. But when you come to whether the head of the supply chain department has access to top management, about 64% said no which raises a concern as to the kind of supply chain department they have, whether it is a whole department or not? .The

question on who makes orders for supplies gives a clear picture on the nature of the department. There were varying responses: one person indicated the managing director, whereas two people indicated the finance officer, nine indicated the head of supply chain department: the rest gave other responses which were all centered on head of department (stores or storekeeper). Now making reference to comments made by the managing director, he gave a picture which the responses confirmed. According to him, there is no supply chain department but rather they have stores for each department manned by able storekeepers who make reports to management through their sectional head.

It is these sectional heads that make orders and is authorized by the finance officer and the managing director, reflecting what the responses indicated. This clearly establishes the kind of supply chain department being operated by the company.

A cross tabulation of the educational background and the presence of supply chain department as well as who orders for supplies did not give a picture portraying that people with higher education have technical knowledge on issues concerning supply chain management.

Even though there is not a properly constituted supply chain department as seen in the above discussion, there are evidences of its practice indicated in tables 4b, 4c and 4d in the appendix. For example, on the following questions whether

suppliers know their production schedule; whether suppliers have access to their inventory information; and whether stores are linked to production, 93% and 100% respectively said yes, revealing a good practice of supply chain management.

4.7 Awareness of Information Sharing

Questions were put across to respondents to ascertain their level of awareness about information sharing.

Table 5a and 5b

Does information sharing impact on company activities?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	16	100.0	100.0	100.0

Is information sharing a good idea?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	16	100.0	100.0	100.0

There was a 100% positive response that information sharing is a good idea and it impacts on the company’s activities. This is clear information that there is great awareness of the importance and relevance of information sharing by the respondents.

On the issue of whether information censorship helps the company, responses were equally divided. It is interesting to note that, notwithstanding the high level of awareness of information sharing by the respondents, they were sharply and equally divided in their responses as seen in the table below.

Table 6

Does information censorship help companies?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	8	50.0	50.0	50.0
	yes	8	50.0	50.0	100.0
	Total	16	100.0	100.0	

4.8 Questionnaire Analysis

This study assessed the effect of information sharing in the supply chain management in terms of the awareness level, effective information sharing, practices and the nature of information sharing at logs and lumber limited.

Even though 50 questionnaires were distributed, only 46 responses were received.

The response rate may be attributed to the apathy of the respondents.

4.9 Age Distribution of Respondents

Table 7

		Frequency	Percent	Valid Percent
Valid	21-30yrs	14	30.4	31.8
	31-40yrs	10	21.7	22.7
	41-50yrs	14	30.4	31.8
	over 50yrs	7	13.0	13.6
	Total	45	95.7	100.0
Missing	Missing	1	4.3	
Total		46	100.0	

From the table, it could be seen that 31.8% of the respondents were aged between 21-30 years, 22.7% between 31-49 years, 31.8% 41-50 years and 13.6% over 50

years. Unlike the trend in the structured interview where majority of the respondents were below 40 years, in this case we have about over 45% of the respondents aged over 41 years.

This may imply that as the sample size increased, the true reflection of the actual age becomes manifested. Also, another interesting characteristic was that, most of the respondents holding key positions (managerial) were aged over 40 years perhaps indicating that experience comes with age.

4.10 Level of Education

Table 8 Educational Background of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Basic/Elementary	8	17.4	17.4	17.4
	Secondary	12	26.1	26.1	43.5
	Tertiary/Professional	26	56.5	56.5	100.0
	Total	46	100.0	100.0	

The table indicates a very positive spectacle so far as the respondent’s level of education is concerned, out of the 46 respondents, 17.4% of them have either

basic or Elementary education, 26.5% with secondary education and whooping 56.5% having either tertiary or professional qualification. The most revealing aspect of this finding is the number of tertiary or professionals human employed by the organization. This may imply that the organization has a rich stock of human resource to power its business agenda.



4.11 Views and Awareness of Information sharing

Table 9

Information sharing is foundation to scm

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Don't Know	2	4.3	4.3	4.3
Agree	30	65.2	65.2	69.6
Strongly Agree	14	30.4	30.4	100.0
Total	46	100.0	100.0	

information sharing is basic scm

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Agree	36	78.3	78.3	78.3
Strongly Agree	10	21.7	21.7	100.0
Total	46	100.0	100.0	

From the responses gathered from the table above, it could be observed that out of the 46 respondents, over 95% at least agreed that information sharing is the foundation of supply chain management. This does not come as a surprise since majority of the respondents have at least secondary education and therefore stand a better chance of understanding what supply chain information entails.

With regard to the question of information sharing being basic to supply chain management, there was 100% positive response (see appendix - table 3b)

4.12 Information Sharing Practices

Table 10

information sharing practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	18	39.1	39.1	39.1
	Agree	26	56.5	56.5	95.7
	Strongly Agree	2	4.3	4.3	100.0
	Total	46	100.0	100.0	

On the question of information sharing practices in the organization, even though about 576% of the respondents agree to information sharing being practiced, a

significant number of 39% disagree with this assertion indicating a worrying scenario. A cross tabulation of the responses with their educational levels and their years of work in the organization does not give any indication of a pattern or relationship. This suggests that their responses are not due to their educational background or how long they have worked in the organization.

Perhaps what it indicates is that if 39% disagree to information sharing being practiced in the organization, then it behoves on management to re-strategise on their information sharing practices.

4.13 Awareness level of information sharing in the organization

Table11

awareness level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very low	2	4.3	4.3	4.3
	Low	30	65.2	65.2	69.6
	High	12	26.1	26.1	95.7
	very high	2	4.3	4.3	100.0
	Total	46	100.0	100.0	

From this table it could be observed that the level of awareness of the value of information sharing in the organization is great low (70% of respondents saying so). This comes as a surprising revelation in view of the fact that the whole respondents expressed their view earlier that information sharing is the basic to supply chain management. What perhaps this implies is that, although the respondents know the importance of information sharing, management is not doing enough to sensitise the awareness in the organization. Education therefore becomes the greatest constraint to effective information sharing in the organization



Table12

4.14 Organizational attribute to information sharing

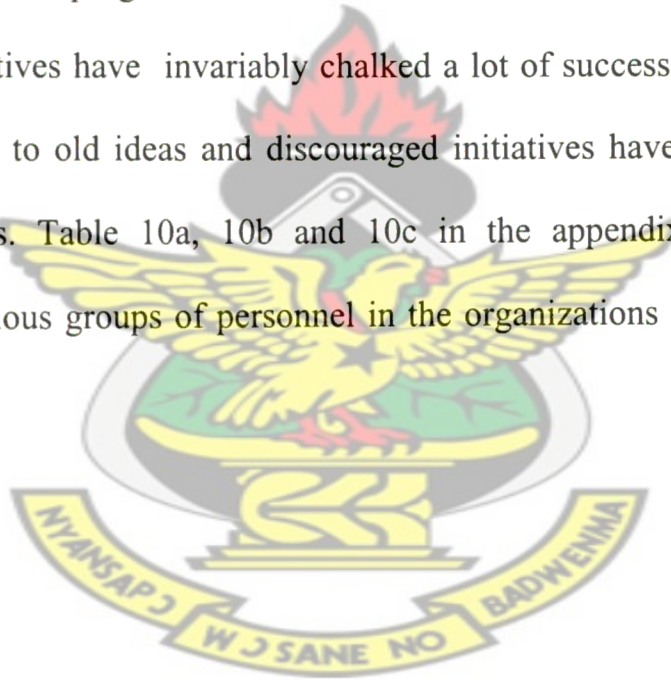
organisational attitude to information sharing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	poor	18	39.1	40.9	40.9
	good	18	39.1	40.9	81.8
	very good	6	13.0	13.6	95.5
	excellent	2	4.3	4.5	100.0
Total		42	95.7	100.0	
Missing	missing	2	4.3		
Total		46	100.0		

Concerning organizational attitude to information sharing, according to the table, 40.9% of the respondents conceded that it was poor, the same number said it was good, 13.6% opined that it was very good whiles 4.5% said it was excellent. It is evident from the table that despite the fact that 59% of the respondents say that at least the organizational attitude towards information was good, the 40.9% who

said it was poor is quite significant and therefore management will need to change their orientation towards information sharing.

For the attitude of top management to information sharing, it emerged that 27.3% of the respondents think that it was excellent. So averagely, on attitude, there is not any significant differences between all three levels of management (that is , top management level , middle and the lower level management). The median is centered on good attitude. Attitude to innovations is a factor that determines whether an entity will progress or not. Entities that have been receptive to innovation or initiatives have invariably chalked a lot of successes whiles those that have got stuck to old ideas and discouraged initiatives have not made any significant progress. Table 10a, 10b and 10c in the appendix illustrate the attitudes of the various groups of personnel in the organizations that constituted the sample.



4.15 Effectiveness of Information Sharing

Table 13

Effectiveness of Information Sharing in Inventory

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2	4.3	4.5	4.5
	4	12	26.1	27.3	31.8
	6	18	39.1	40.9	72.7
	8	8	17.4	18.2	90.9
	10	4	8.7	9.1	100.0
	Total	44	95.7	100.0	
Missing	9	2	4.3		
Total		46	100.0		

Effectiveness of Information Sharing in Production

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	4	8.7	9.1	9.1
	4	4	8.7	9.1	18.2
	6	22	47.8	50.0	68.2
	8	10	21.7	22.7	90.9
	10	4	.7	9.1	100.0
Total		44	95.7	100.0	
Missing	99	2	4.3		
Total		46	100.0		

Effectiveness of Information Sharing In Finance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	6	13.0	13.6	13.6
	4	24	52.2	54.5	68.2
	6	10	21.7	22.7	90.9
	8	2	4.3	4.5	95.5
	10	2	4.3	4.5	100.0
Total		44	95.7	100.0	
Missing	99	2	4.3		
Total		46	100.0		

Effectiveness of Information Sharing in Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	10	21.7	22.7	22.7
	4	16	34.8	36.4	59.1
	6	12	26.1	27.3	86.4
	8	4	8.7	9.1	95.5
	10	2	4.3	4.5	100.0
	Total	44	95.7	100.0	
Missing	99	2	4.3		
Total		46	100.0		

Effectiveness of Information Sharing in Suppliers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2	4.3	4.5	4.5
	4	14	30.4	31.8	36.4
	6	20	43.5	45.5	81.8
	8	6	13.0	13.6	95.5
	10	2	4.3	4.5	100.0
	Total	44	95.7	100.0	
Missing	9	2	4.3		
Total		46	100.0		

On these set of variables respectively for inventory, production, finance, customers, suppliers, with the means 6.00, 6.27, 4.73, and 5.64, finance recorded the lowest average, confirming the fact that it is the place where information sharing is mostly censored.

4.16 Information Sharing between Top Level Management and Lower Level Staff

Table 14

Information sharing between top level management and lower level staff

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	20	43.5	45.5	45.5
	average	16	34.8	36.4	81.8
	high	8	17.4	18.2	100.0
	Total	44	95.7	100.0	
Missing	missing	2	4.3		
Total		46	100.0		

Table 15

4.17 Constrains to establishing Information Sharing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Educational	16	34.8	47.1	47.1
	financial	6	13.0	17.6	64.7
	Other	4	8.7	11.8	76.5
	Technological	8	17.4	23.5	100.0
	Total	34	73.9	100.0	
Missing	no response	12	26.1		
Total		46	100.0		

The greatest constraint to information sharing was scored in the following: education had 47%, technology had 24%, and finance had 18%, making education the topmost priority as far as constraints to information sharing was concerned. In fact, this finding supported what was realized in the initial findings where it was realised that most people were not well informed (educated) on supply chain management issues.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter discusses the summary of the main ideas on the study by briefly touching on the study. It also covers the conclusion and recommendations.

5.2 Summary

Information sharing is a vital aspect of coordination amongst parties in a supply chain information sharing can increase supply chain efficiency by reducing inventories and smoothing production. Supply chain efficiency is highly important as today's competition is no longer between companies, but between supply chains. As such the topic, the effect of information sharing in supply chain management was chosen to show that proper information sharing practices can improve the business activities of individual organizations, hence profitability.

The study sought to find out how information sharing was being practiced in the timber industry as a means of improving it. Questionnaires and interviews were conducted for the management and staff of logs and lumber limited, the leading timber company in Ghana. The study revealed that in the areas of awareness and practices of information sharing there is still much to be done. The study also revealed that the success of modern day business depends largely on information

sharing. The study therefore concludes that there is no effective information sharing in the supply chain management and therefore there is the need to focus on information sharing if the company needs to survive and compete favorably in this turbulent economic climate.

Finally, the study offers a number of recommendations with regard to the appropriate practice of supply chain information sharing.

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5.3 Conclusion

The study examined the realities on the ground as far as effective supply chain information sharing was concerned. It was discovered that lack of relevant awareness of information sharing was the major factor affecting the proper coordination of the supply chain management. Based on the analysis of the data collected, it was clearly shown that with proper information sharing practices, the company can improve on its finances. Again, the study revealed that there were some losses being incurred as a result of inadequate information. This came about because of suppliers not meeting their schedule.

The scope of the study was limited to logs and lumber limited in Kumasi. Conceptually, the study focused on effective information sharing in the supply chain management in order to improve upon the profitability of the company.

The findings of the study were that; no effective information sharing in the supply chain management was being practiced. Also, there was no defined supply chain

department and therefore the activities of the company so far as supply chain management was concerned were not well coordinated.

The company depended on storekeepers who have attained that position by virtue of long service and not requisite qualifications.

5.4 Recommendations

After a study into the effect of information sharing on the supply chain management at logs and lumber limited, the following recommendations were made:

- a) To take full advantages of information sharing, some significance changes in organization need to be implemented once information sharing is in place. Companies should move towards collaboration with their partners to achieve common goals of supply chain efficiency that is built based on high level of trust between companies. Collaboration and coordination can be achieved through exchanging decision rights, work and resources.
- b) People can impede or facilitate collaboration. Information sharing will not bring significant benefits if people in organizations still persist with past behaviours.
- c) There is need for the creation of a supply chain department with a distinct duty of performing supply chain functions. This department should be well equipped with highly qualified supply chain management staff.

- d) Since lack of good information base was cited by many respondents as inhibiting the access of information from external sources, it is suggested that management of the company should set up an information base and the activities of the supply chain management automated.
- e) Another important issue to be considered is the need for human resources development. The company will need to train its staff on the relevance of information sharing in the new global information super highway. Unless this expertise is developed, the company will always lag behind its competitors.
- f) In addition, it is recommended that all relevant information regarding one's work should be made available. Information censorship should only apply when it involves trade secrets and other sensitive information.
- g) It is hoped that other researchers into information in the supply chain management or other related subjects would find this work useful in their quest for further research into the operations of the timber industry and supply chain management.

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APPENDIX A

STRUCTURED INTERVIEW

This survey is being conducted by a student of KNUST, Kumasi, on the Effect of Information sharing in the Supply chain management at Logs and Lumber Limited (LLL) in Kumasi in partial fulfillment of the award of Master of Business Administration Degree.

The questionnaire is solely for academic purposes and all information provided will be treated as confidential, please tick () or fill where applicable.

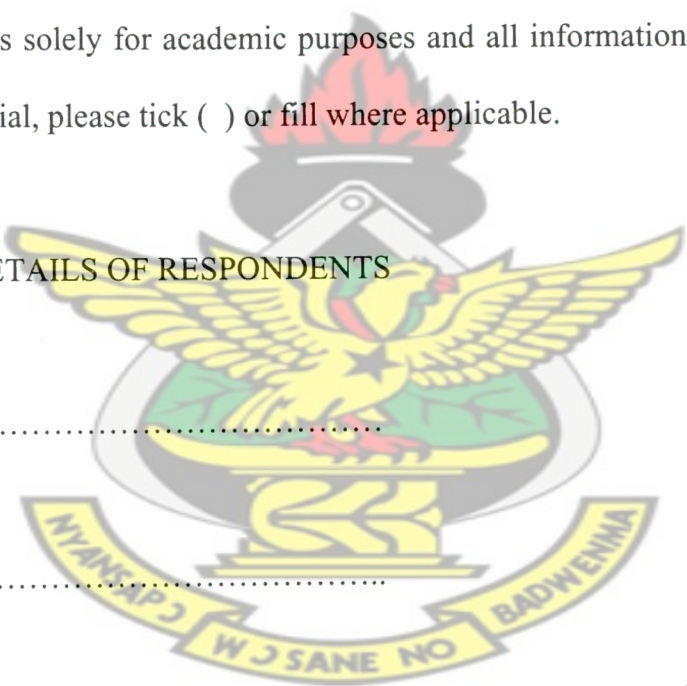
1. PERSONAL DETAILS OF RESPONDENTS

BRANCH

DEPARTMENT

POSITION

AGE 18-30 () 31-40 () 41-50 () Over 50 ()



EDUCATIONAL BACKGROUND

Basic/Elementary () Secondary () Tertiary/Professional ()

2. How long have you been in this organization?
- 1 – 5 years () 6 – 10 years () 11 – 15 years () Over 15 years
3. Who are your customers?
- Wholesalers () Retailers () others () Specify.....
4. Does your company have a supply chain department?
- YES () NO ()
5. Does the head of supply chain have direct access to top management, Directors, chief executive?
- YES () NO ()
6. Who orders for supplies when needed?
- Managing Director () Head of SCM () Finance officer ()
- Others () Specify.....
7. How do you get your supplies? Do your suppliers know your production schedule?
- YES () NO ()
8. Do you share your inventory information with your suppliers?

YES ()

NO ()

9. If No, how do your suppliers know that you need supplies?

10. Is your stores department linked with your production department?

YES ()

NO ()

11. If No, how do you share inventory information?

12. Do you sometimes experience overstocking of supplies or shortage of supplies?

YES ()

NO ()

13. Do you sometimes reject supplies from your suppliers?

YES ()

NO ()

14. Do you sometimes experience delays in delivery of raw materials?

YES ()

NO ()

15. When you experience such delays, does it affect your production schedule?

YES ()

NO ()

16. How often does the supply chain department meet to evaluate your work?

None () Once a year () Twice a year () More than two years ()

17. How do you receive your orders?

Verbally ()

Written requests ()

Via the Net ()

18. Does the company share its production information with its customers?

YES ()

NO ()

19. If yes, how do you do it?

Via the extranet () Internet () Radio () TV ()

20. Do you think information sharing can impact on the activities of the company?

YES () NO ()

21. Do you think it is a good idea for companies to share information?

YES () NO ()

22. Do you think information censorship help companies?

YES () NO ()

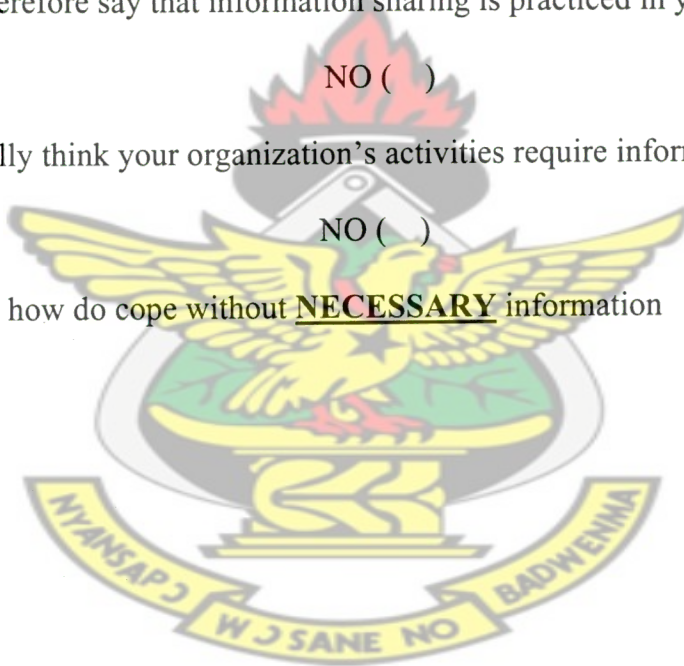
23. Can you therefore say that information sharing is practiced in your company?

YES () NO ()

24. Do you really think your organization's activities require information sharing?

YES () NO ()

25. If yes, then how do cope without NECESSARY information



APPENDIX B

QUESTIONNAIRE

This survey is being conducted by a student of KNUST, Kumasi, on the Effect of Information Sharing in the Supply Chain Management at Logs and Lumber Limited (LLL) in Kumasi, in partial fulfillment of the award of Master of Business Administration (MBA) Degree.

The questionnaire is solely for academic purposes and all information provided will be treated as confidential, please tick () or fill where applicable.

1. BRANCH
- DEPARTMENT
- POSITION

How long have you worked in this organization?

1- 5 years () 6- 10 years () 11-15 years () Over 15 years

AGE 20 () 21 – 30 () 31 – 40 ()

 41 – 50 () Over 50 ()

EDUCATIONAL BACKGROUND

Basic / Elementary education () Secondary education () Tertiary /
Professional ()

2. How will you assess the statement that information sharing is the foundation of
supply chain?

Strongly agree () agree () disagree () strongly
disagree () don't know ()

3. Information sharing is basic to effective coordination in supply chain.

Strongly agree () agree () disagree ()
strongly disagree () don't know ()

4. Information sharing is well practiced in your company

Strongly agree () agree () disagree () strongly disagree
Don't know ()

5. To what extent can you say that information is shared in the company?

80 – 100% () 60 – 79% () 40 – 59% () 20 – 39% ()
0 – 19% ()

6. What can you say is the awareness level of the value of information sharing in your organization?

Very high () High () Low () Very low ()

7. In general, does the company allow you access to all relevant information regarding your work?

Always () Usually () Sometimes () Never ()

8. On a scale of 1 (low) to 5 (high), how helpful has the information sharing in your company been?

1 () 2 () 3 () 4 () 5 ()

9. What is the organizational attitude towards information sharing?

Excellent () Very Good () Good () Poor ()

10. How will you classify information sharing between the following groups?

(a) Top level management and the lower level staff

High () Average () Low () None ()

(b) The company and its suppliers

High () Average () Low () None ()

(c) Stores and production

High () Average () Low () None ()

11. What is the attitude of the following groups of people to information sharing?

(a) Top level management

Excellent () Very Good () Good () Poor ()

(b) Middle level management

Excellent () Very Good () Good () Poor ()

(c) Low level management

Excellent () Very Good () Good () Poor ()

12. On a scale of 2, 4, 6, 8, 10 please rate the effectiveness of information sharing, putting the rated score against the items, where 2 signifies poor, 4 below average, 6 average, 8 good and 10 excellent.

Description	Score
Inventory	
Production	
Finance	
Customers	
Suppliers	

13. How often do you receive feedback from you customers?
- Always () Usually () Sometimes () Never ()
14. Do you request for feedbacks?
- Always () Usually () Sometimes () Never ()
15. Do you experience demand or delivery problems as a result of misinformation?
- Always () Sometimes () Never () don't know ()
16. Do you apply reciprocity with your clients (i.e. do you supply information only to those who supply it to you)?
- Always () Sometimes () Never () don't know ()
17. How do you feel about this statement? "ALL information should be shared"
- Strongly agree () agree () disagree () strongly disagree ()
18. How will you classify the level of information censorship in your company?
- High () Average () Low () None ()
19. Which one of the following departments has its information most censored?
- Stores () Production () Finance () IT ()

20. How do you consider the assertion that information censorship sometimes protects the company's secret?

Strongly agree () agree () disagree () strongly disagree ()

21. Information sharing should not be only within the company

Strongly agree () agree () disagree () strongly disagree ()

22. How will you rate the company's level of information sharing with the outside world?

Very high () high () low () No idea ()

23. What is the attitude of the company towards sharing information with the outside world?

Excellent () Very Good () Good () Poor ()

24. From your perspective, what is the greatest constraint to establishing an effective information sharing network that meets your needs in the company?

Financial () Technological () Educational () other (specify) -----

25. How will you assess the statement that effective information sharing impacts positively on companies' profits?

Strongly agree () agree () disagree () strongly disagree

26. Information sharing has improved the profitability of your company.

Strongly agree () agree () disagree () strongly agree

27. To what extent can you say that information sharing if practiced effectively can improve the profitability of your company?

80-100% () 60-79% () 40-59% 20-39% () 0-19% ()

28. What comments do you have on the state of information sharing in your company?

29. Any recommendations?

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