FACTORS AFFECTING SUPPLY CHAIN MANAGEMENT IN MANUFACTURING COMPANIES IN TANZANIA: CASE STUDY OF TANZANIA DISTILLERS LIMITED (TDL)

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DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION (MBA) IN TRANSPORT AND LOGISTICS MANAGEMENT OF THE OPEN UNIVERSITY OF TANZANIA

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CERTIFICATION

I, the undersigned, certify that I have read and hereby recommend for acceptance by Open University of Tanzania (OUT), a dissertation titled; "Factors Affecting Supply Chain Management in Manufacturing Companies in Tanzania: Case Study of Tanzania Distillers Limited (TDL)" in partial fulfillment for the degree of Masters of Business Administration (MBA) in Transport and Logistics Management offered by the Open University of Tanzania (OUT).

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Dr. DEUS D. NGARUKO

Supervisor

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Date

DECLARATION AND COPYRIGHT

I, Saraja, Ruboya Salume, declare that, this dissertation is my original work and that; it has not been presented and will not be presented to any other university for a similar or any other degree award.

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Signature

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Date

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Furthermore, my thanks also go to all those who have contributed to this research in one way or another, such as my fellow students and others in the preparation of this paper. Kindly receive my gratitude. Lastly, but not least, my thanks go to members of staff of Tanzania Distillers Limited (TDL) or popularly known as Konyagi who participated in the study as respondents.

DEDICATION

I dedicate this dissertation to my family. This dissertation is the fruit of their sacrifice and dedication to supporting my studies and career.

ABSTRACT

This study aimed to examine factors affecting supply chain management practices in manufacturing companies in Tanzania by focusing on Tanzania Distilleries Limited (TDL). Specifically, the study aimed to establish supply chain management practices used by TDL, assess the effectiveness of supply chain management practices at TDL and identify factors affecting supply chain management at TDL. The methodology used to conduct this study was case study research and involved the use of various data collection methods and tools such as questionnaires and interviews. The study also used secondary data collection methods such as documentation to collect data.

The study concludes that the main factors that affect supply chain management practices by order of significance were; employees' incapability, high management cost, low product quality performance, process and technology incapability, improper production scheduling, policies and regulatory appliance, improper distribution time management and supplier(s) misbehave. Others were breakage of beverage bottles during transportation, high transportation costs for distributing finished products to dealers scattered throughout the country, poor road infrastructure which causes delays in distribution of products to consumers and the unreliability of suppliers of raw materials.

To avoid supply management challenges arising from the supplier side; the study recommends that TDL should only consider reliable suppliers. To overcome the challenge of lack of awareness on supply management practices among it's staff members, TDL should provide frequent training to staff members on the best practices of supply chain management in form of seminars and workshops.

LIST OF ABBREVIATIONS AND ACRONYMS

ECR	Efficient Customer Response
JIT	Just In Time
NDC	National Development Corporation
POS	Point of Sale
OUT	Open University of Tanzania
SCM	Supply Chain Management
TBL	Tanzania Breweries Limited
TDL	Tanzania Distillers Limited
TDFL	Tanzania Development Finance Limited

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information to the Problem

This study aimed to examine factors affecting supply chain management in manufacturing companies in Tanzania by focusing on Tanzania Distilleries Limited (TDL). Specifically, the study aimed to establish supply chain management practices used by TDL, assess the effectiveness of supply chain management practices at TDL and identify factors affecting supply chain management at TDL. A supply chain consists of all inter-linked resources and activities needed to create and deliver products and services to customers Supply chain management is the process of managing supply and demand, sourcing raw materials and parts, manufacturing and assembly, distribution across all channels, and delivery to the customer (Hakanson, 2009).

Supply chain management has its roots from historical military campaigns. Before the term supply chain was coined, the term used for management and movement of product and services was logistics. The development of logistics was originally undertaken by the military in ancient times. For example, the Roman legions used a flexible system consisting of supplies, storage depots, and magazines (Britannica, 2009). The magazines were stocked with supplies and arms, superb road systems, mobile repair shops, service corps of engineers and armourers, and extensive coordination and planning. This resulted in an efficient, fast, and formidable army that won many battles and conquered much of Europe and Asia, and held it for many hundr In recent years research in the area of green manufacturing has extended into green supply chain management. Most of this research addresses issues related to evaluating current or

potential suppliers ‘environmental practices, the environmental/economic benefits and drawbacks of establishing a green supply chain, and reverse logistics. Adding to the latter stream of research, in this study we focus on the upstream portion of the supply chain and the changes in the entire supply chain and operations strategy that result from using recycled versus virgin materials. Although this issue is relevant to any company for which the use of recycled materials is a viable option, these changes are especially pronounced in the corrugated cardboard industry which is the primary context for this study, because of the prevalence of vertical integration and multiple supplier/customer/competitor relationships in the supply chain.

The source of recycled material is post-consumer waste (PCW), of which paper, metals, glass, and plastics are the largest categories (Kharbanda and Stallworthy1990). Prior to the actual recycling process, this material is usually referred to as “used”. However, because “used” can also refer to material or products intended for repair or remanufacture, we use the term“recycled” for clarity As the demand for environmentally friendly products has grown, the technology for converting PCW into new products has improved, and more recycling programs have been put in place. As a result, the demand for recycled material and the availability and variety of products with recycled content continues to increase. eds of years (Britannica, 2009). So in recent years, Supply Chain Management has been suggested as an infrastructural source for E businesses (Behnam ajdari and ekhtyarzadh, 2010). In this regard, Supply Chain Management highlights the integration of the supply chain activities and the associated information flows through improvement ofexisting links in the chain to achieve a reliability and ongoing competitive advantage (Lavdon, 2002). Supply chain also

includes all activities associated with the flow and transformation of goods from the raw material stage (extraction) to delivery to the final consumer (Bopp, 2011).

The intensification of the global competition in a constantly changing business environment raises the Need of appropriate reaction of industrial manufacturing companies and emphasizes on the companies' flexibility in an uncertain external environment. So today's organizations in line with their customers' expectations as well as the competitive advantage need to an appropriate model like Supply Chain Management to obtain and maintain the suitable status In today's organizations customers are along with the organizations' members in the production of goods and service delivery procedures of doing things and processes knowledge development and competitive advantage. Today based on this evidence and other facts it is not surprising that demand management programs and even distribution be considered as a priority.

SCM assists the business organization to compete in the dynamic international market. The objective of SCM is to incorporate activities across and within organizations for providing the customer value. This should also be applicable to the academia, which represents a type of non-profit organizations. The goal is to provide the society value by producing high quality graduates and research outcomes. An integrated educational supply chain involves coordination and information sharing up and down the process among all stakeholders. With technology facilitating information flow, a coordinated supply chain can be designed to meet the strategic, planning, and operating objectives of the educational institutions. It also means establishing effective and feasible relationships both inside and outside the organization (Sandelands, 1994).

1.2 Statement of the Problem

Supply chain management is the management of upstream and downstream activities, resources, and relationships with suppliers and customers, which is required to deliver products or services. In theory, if supply chain management is done well, it contributes to growth of the particular company by giving it a competitive advantage through differentiation and lower costs.

For the supply of raw materials used by manufacturing firms and supply of goods manufactured by manufacturing firms to be smooth, there must be an effective supply chain management. Any weaknesses in the supply chain management can severely affect production and delivery of products to consumers. This may have negative impacts on the profitability of the manufacturing companies. Lack of awareness of upcoming technologies telecommunications and IT impediments and energy supplies unreliable. Full package production and fast replenishment demands adequate IT systems to connect the buyer and supplier. This requires a modern and reliable telecommunications infrastructure, and backup from IT professionals.

Burt, et al (2003), De Boer, et al (2001), Sarkar, A (2006), and academic studies on supply chain management, but none of them addressed factors affecting supply chain management in manufacturing companies. As a result, there is a knowledge gap that needs to be addressed. It is the objective of this study to fill that knowledge gap by focusing on Tanzania Distillers Limited (TDL) as a case study.

1.3 Objective of the Study

1.3.1 General Objective

The general objective of this study was to examine factors affecting supply chain management in manufacturing companies

The study was guided by the following specific objectives;

i. To examine supply chain management practices used by TDL

ii. To assess the effectiveness of supply chain management at TDL

iii. To identify factors affecting implementation of supply chain strategies at TDL

iv. To identify measures to be taken to improve supply chain management at TDL

1.4 Research Questions

1.4.1 General Research Question

What are the factors affecting supply chain management in manufacturing companies in Tanzania, specifically Tanzania Distilleries Limited?

1.4.2 Specific Research Questions

This research study was guided by the following research questions:

i. What are supply chain management practices used by TDL?

ii. How effective is supply chain management at TDL?

iii. What are the challenges faced by TDL in implementing supply chain strategies?

iv. What measures should be taken to improve supply chain management at TDL?

1.5 Significance of the Study

This study will serve as a guideline to all stakeholders in the procurement profession and manufacturing industry in Tanzania to establish supply chain management practices used by Tanzania Distilleries Limited, the effectiveness of supply chain management at the company factors that hinder implementation of supply chain management at the company.

The findings of the study will also serve as a stepping stone for future researchers on the same or similar topics by suggesting areas that need further studies to be conducted. Last but not least, successful completion of the study will enable the researcher to partially fulfill the requirements for the award of a Masters degree in Business Administration (MBA) in Transport and Logistics Management offered by the Open University.

1.6 Limitation of the Study

In conducting this research study, the researcher faced the following limitations:

Time constraint

The researcher is faced the limitation of time constraint due to the fact that this is an academic undertaking and it needs to be completed according to the academic almanac of the Open University of Tanzania (OUT). The time available for completing the study was only eight weeks, which was not enough. As a result, the researcher used only a smaller sample size so as to finish the study in time.

Financial constraints

The researcher was willing to cover more ground and involve a larger sample size for the study, however, due to financial constraints, this was not possible. As a result, the researcher had to limit the sample size and the timeframe used for conducting the study so as to complete the study within the constraints of the research timeframe and within the planned budget.

1.7 Organization of the Dissertation

The dissertation consists of five chapters. The first chapter contains background, statement of the problem, objectives, research questions, significance and limitations of

the study. The second chapter consists of literature review, the third chapter consists of methodology of the study, the fourth chapter consists of research findings and the fifth chapter consists of conclusion and recommendations.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Overview

This chapter presents a summary of the conceptual framework, theoretical literature and empirical literature reviewed by the researcher. Theoretical literature reviews includes various concepts and theories related to supply chain management. Empirical literature review includes review of various empirical studies conducted o supply chain management while the conceptual framework describes various variables of the study.

2.2 Definitions

2.2.1 Supply Chain Management

Hakanson (2009) defines supply chain as all inter-linked resources and activities needed to create and deliver products and services to customers. The author also defines supply chain management as management of the process of supply and demand, sourcing raw materials and parts, manufacturing and assembly, distribution across all channels, and delivery to the customer.

2.2.2 Logistics management

Logistics management is the management and movement of product and services, including storage and warehousing, and their transport via air, land, and water (Coyle, et al, 1998).

2.3 Theoretical Literature Review

2.3.1 Economic Theory of Competition

Competition between supply chains could also be regarded as emergent (Storey et al., 2006), along with other forms such as co-opetition and national competition whereby

the behaviour causing competition arises from the interaction between supply chains for resources, innovation and advantage of particular sort. Building on the process orientation discussed above, emergence extends this idea to a logical conclusion by looking at interaction from the opposite end, i.e. in terms of results. Thus, emergence focuses on the behavioural outcome of interactions between entities and treats these outcomes as a result of the very same interaction between entities. Over time, this should allow certainoutcomes to be expected of certain types of interaction and possibly vice-versa. Based on this, emergence expressly assumes that competition (competitive interaction) must involve more than one entity. To be accommodating to supply chain vs. supply chain competition, theories must place equal emphasis on process orientation as they do on emergence. For supply chains, doing this may be instrumental to understanding how some of the complexities of supply chains play in to affect how supply chains compete.

2.3.2 Operation Management Theory

Operations consist of the jobs or tasks composed of one or more elements or subtasks, performed typically in one location operations transform resource or data inputs into desired goods, services, or results, and create and deliver value to the customers. Operations management is the design, improvement, and the management of the transformation processes that create value by converting inputs, such as raw materials, labor, and/or customers into outputs, such as goods or services. Operations management is concerned about Systems and how to make them operate Better, whether more efficiently, more effectively, at a higher level of quality, at reduced cost, and/or at lower environmental emissions, using the appropriate criterion or criteria determined by the organization.

2.3.4 Processes Involved in Supply Chain Management

2.4.1 Identification of Needs

The first step involved in supply chain management is identification of needs for materials to be supplied including the quantity of supplies, type of supplies, the distance to be covered, the mode of transportation to be used, financial resources needed to complete the task as well as human resources needed to complete the task. All these needs must be identified before the supply process begins (van Weele, 2005).

2.4.2 Identification of Suppliers

The next step is identification of suppliers. Suppliers can be identified among the old, familiar suppliers or through a market study. A list is made of the potential candidates and a Request for Information (RFI) is sent to the ones on the list (van Weele, 2005). Based on the information a shorter list of suppliers is drawn up, and a Request for Proposal (RFP) is sent to this limited amount of potential candidates.

2.4.3 Supplier selection

The most important step of the process is supplier selection that needs to be performed with care to avoid errors that may have long-lasting effects to a company There are two ways to decide which supplier to choose: competitive bidding and negotiations. After the bids requested in the RFP arrive, the purchaser makes decision based on information provided in bids or invite the suppliers to further negotiations (Monczka et al., 2005). Bidding is the most effective when the price is a dominant criterion and product specifications are well defined. Negotiations, on the other hand, are the most sensible option if the purchase requirements are complex, there are several performance factors that need to be agreed on, or there are some risks that need to be discussed

(Monczka et al., 2005). After bidding, negotiations, or both, a proposal for selection is made.

2.4.4 Supplier Evaluation and Selection

Among the most significant parts of the procurement process is supplier evaluation and selection. Monczka et al. (2005) state that the first step involves recognizing there is a requirement to evaluate and select a supplier for an item or service. The recognition that a need exists to evaluate suppliers can come about in many different ways. Supplier selection begins with formulation of the criteria that will be used to select suppliers.

The second step is to identify key sourcing requirements. These according to Telgen et al. (2005) are the Programme of Requirements. They add that a distinction is made between functional and technical specifications. Functional specifications describe what the good or service actually has to do or provide. Technical specifications describe which product/service is looked for. They include management capability; employee capabilities; cost structure; total quality performance, systems and philosophy; process and technology capability; environmental regulation compliance; financial stability; production scheduling and control systems; supplier's sourcing strategies, policies and techniques and Longer-term relationship potential (Monczka et al. 2005).

Nellore et al. (2009) add that a specification is a document that is used to build a product. To strengthen communication and avoid confusion-related errors, redundant statements need to be minimized. They cite Clark and Wheelwright (2003) who point to four modes of communication that have great significance in the relation between specifications and the suppliers.

The third step in supplier selection and evaluation entails determining the sourcing strategy. No single sourcing strategy approach will satisfy the requirements of all purchases (Telgen et al. 2005; Monczka et al. 2005). Because of this, the procurement strategy adopted for a particular item or service will influence the approach taken during the supplier evaluation and selection process. Some of the decisions that a purchaser has to make when developing a sourcing strategy include: single versus multiple sources; short-term versus long-term contracts etc. It entails a clear understanding of the differentiations in purchasing. The sector in which the buying organization operates; the supply market; the product market; the product or service that is purchased and the buying situation (Telgen, et al. 2005).

The fourth step is to identify potential supply sources. The degree to which a buyer must search for information or the effort put forth toward the search is a function of several variables, including how well suppliers can satisfy cost, quality, or other performance variables. Sources of information that is helpful when seeking to identify potential supply sources include: suppliers, sale representatives and information data bases. The fifth step is pre-qualification. The aim of this step is to limit suppliers in selection pool. By means of a Request for Information (RFI), a purchaser obtains some basic information from a selection of suppliers about their organization and/or their product range. Due to limited resources and variability in the performance of suppliers, purchasers perform a first cut of potential supply sources (Telgen et al. 2005). Next, a Request for Quotation (RFQ) accompanied by a List of Requirements (LOR) is used to ask suppliers to submit an offer. In practice, a quotation is sometimes also referred to as bid or tender (Telgen et al. 2005). De Boer et al. (2001) have summarized this phase as sorting rather than ranking and define pre-qualification as the process of reducing the set of all suppliers to a smaller set of acceptable suppliers.

Sarkar and Mohapatra (2006) suggest that pre-qualification of suppliers has a number of elements in common with supply base reduction. A pre-requisite for developing a strong buyer supplier relationship they argue is to have a small number of suppliers. In most procurement entities, the number of registered suppliers is large, but only a small fraction of suppliers actually get the business year after year. Sarkar and Mohapatra (2006) proceed to observe that much of the information on unknown suppliers collected through internet, peer feedback and onsite visit will lack quantitative measurement. Even information on known suppliers may not have been stored in a form that lends itself to quantitative conversion. To evaluate these suppliers against the factors, the buying team has to resort to subjective, qualitative assessment.

2.4.5 Supplier Final Selection

This phase constitutes the sixth and seventh step in the Monczka et al. (2005) process. According to Monczka et al. (2005), this is supplier evaluation and selection using a list of so called approved suppliers from the Approved Vendor List (AVL). Hence, supplier selection comprises more than one decision. Within purchasing management, one of the prime functions is supplier selection. Supplier selection is one of the most important decision making problems since selecting the right suppliers significantly reduces the purchasing costs and improves corporate competitiveness. Vokurka et al. (2006) explicitly states that, it is probable that of all the responsibilities which may be said to belong to the purchasing officers, there is none more important than the selection of a proper source.

What is perceived as buying in its most operative level takes place after supplier selection. Issuance of purchase order and follow-up is divided into four steps. First, a

purchase order (or a longer term contract) is prepared and issued (Dobler et al., 2006). It can include an order for only one product or cover several routine rebuys for a longer period of time. In the latter case the order is called a call-off or a frame agreement. After placing the order, especially in the case of products with long delivery times, it should be followed up. The follow-up of the order refers to checks that are made usually by phone or email once or several times during the delivery time to ensure that the supplier is enable to deliver the product as agreed. The next step in the process is to receive the product and inspect that it matches the order (Leenders et al., 2002).

The inspections are important because shortages and damages in the delivery are detected before the product is taken into use. The final step is payment. However, it shouldn't be made before the purchaser has checked that the purchase order, the received product, and the invoice are equivalent If there aren't any problems, the order can be closed (Dobler et al., 2006). The last step is the maintenance of the records. It naturally involves gathering and storing the documents produced in the process but also analyzing which important documents to keep and which to dispose of. A vital point in document management is easy access. A company should at least have records of the purchase orders, commodities, and suppliers (Leenders et al., 2002).

2.4.6 Supplier Management

According to Kannan et al. (2002) there are three dimensions that underlie supplier management: effective supplier selection, meaningful assessment mechanisms of supplier performance, and innovative supplier development strategies. Carr et al. (2009) and Wagner (2006) extend from the three dimensions by adding identification and pre-selection of the suppliers. Another perspective taken into supplier management is the

strategic perspective that is more abstract compared to the previous ones. The strategic perspective emphasizes the creation of long-term agreements and strategic relationships as well as the integration of purchasing, manufacturing, and technology into the product value chain (Monczka et al., 2003).

Also, Van Weele (2005) views supplier management from the strategic point of view. He states that the main element of supplier management is strategy. When constructing the framework, firstly, it is important that the strategic aspect is taken into consideration because supplier management strategy should be aligned with the needs of the business (Handfield, 2006). Traditionally purchasing functions have had very distant outlook on suppliers. The main focus has been on selecting the cheapest supplier (Iloranta et al., 2008). However, nowadays the conceptions have changed towards understanding the strategic aspect related to suppliers and the need to develop some plans and guidelines for managing them (Iloranta et al., 2008). Many companies have thousands of purchased commodities and suppliers, and not all of them should or could be managed in the same way. Therefore, creating strategies for segments that contain the suppliers of similar commodities seems rational. The biggest benefit of segmentation is that it helps companies allocate better their scarce resources (Iloranta et al., 2008).

Originally the purchasing portfolio model used for segmentation was developed by Peter Kraljic (1983). The segmentation is based on two criteria: strategic impact to the business and level of supply risk. Strategic impact can refer to high purchasing volume but also to effect on the core business. If the strategic impact is high, the supplier has a major impact on revenue, customers, and reputation of the company (Handfield, 2006). Supply risk refers to the risk of failure delivery by the suppliers. Risky suppliers are suppliers who are not 100 sure that they can deliver commodities according to the

specifications and requirements for quantity and delivery timeframe. A challenging market situation may be caused by long timeframes for obtaining a commodity, high costs, or some difficulties with switching a supplier (Handfield, 2006). The determinant of the degree of risk a supplier poses is is availability (van Weele, 2005). For example advertising agencies that have some unique competencies can be regarded as bottleneck suppliers (Handfield, 2006). Therefore, an effort should be made to find some new sources of supply to improve availability of needed goods or services (Monczka, 2005).

2.4.7 Supplier Sourcing

Supplier sourcing consists of three elements: geographical area, width of supplier base, and level of commitment to the relationship. The choice of the geographical area is made between local and global. Local souring has benefits like more dependable service but on the other hand global sourcing is competitive in areas such as price, quality, and bigger variety (Leenders et al., 2002). The width of the supplier base depends on the decisions whether the company wants to buy certain commodities from one, few or several suppliers. A common rule is that the wider the supplier bases the smaller the risk. The level of commitment to the relationship refers to the choice whether the company wants to buy certain products from a partner supplier or from a supplier with whom it has a relationship (van Weele, 2005).

In addition to sourcing, the approach to contracts needs to be considered when developing supplier management strategies. Decisions need to be made about two issues: whether to make a contract at all and whether the contract should be tied to price or performance. First, the volume of the commodity and the situation in the market need to be analyzed (van Weele, 2005).

If the volume is very small the commodity should be bought on spot basis instead of making a contract with a supplier. The benefit of making a contract is that the price and delivery are secured, which facilitates planning and budgeting. However, if the contract is long the company may lose its contact to the market and the latest developments (van Weele, 2005).

If the company decides that a contract should be made, the next issue to consider is what the contract should be like. The options are contracts based on price or service level. The contract based on price is very straightforward whereas the service level agreement covers many issues such as guarantees, maintenance, and tests. The latter is mainly used in service and investments equipment purchases (van Weele, 2005).

2.4.8 Supplier Selection Criteria

By contrast, during the selection phase, products, prices, and other delivery related issues of the eligible suppliers are assessed, and a decision is made which supplier to do business with. Moreover, pre-selection can be conducted to potential suppliers unlike the actual supplier selection. That way the buying company can have a list of approved suppliers that can be used when the purchase need arises. (de Boer et al., 2001). The pre-selection process contains two steps: criteria formulation and supplier pre-selection based on the criteria (de Boer et al., 2001). There are two types of criteria: independent and dependent. The independent criteria are used when screening for eligible suppliers, and they relate to a supplier's organization and its prosperity (de Boer et al., 2001).

Supplier selection criteria are classified into four groups: general business environment and financial issues, organization and strategy, technology, and other factors. The first

two groups relate to the suppliers' financial well-being and management capability. The third group covers the technical issues that are linked directly to the production of the product or the service. The fourth criteria focus on sustainability and associated risks. Other criteria include; business environment and economic performance financial issues, financial stability, financial control system, competitiveness, organization and strategic issues, organizational structure, personnel, supplier's strategy (e.g. cost-efficiency or specialized producer), safety record, quality and environmental systems and geographical locations (de Boer et al., 2001).

The right method for gathering supplier information is chosen depending on the monetary value or importance of the commodities, or amount of knowledge about the companies beforehand. The main methods are surveys, financial analyses, supplier visits, capability analyses, and third-party evaluations. The surveys and financial analyses are usually the ones to begin with (Burt et al., 2003). A survey includes a series of questions which potential suppliers answer (Burt et al., 2003). Thereby, the survey is actually very similar to the Request for Information (RFI). The survey gives an overall picture of the size and the condition of the company. For firsthand experiences the evaluator can contact some of the references on the customer reference list (Leenders et al., 2002).

A good survey is comprehensive, objective, and flexible. It should include all the necessary questions to be able to make pre-selection decisions, and the questions should be set in a non-biased way. Furthermore, it should be possible to make some minor modifications to the questions because of changing purchasing requirements (Monczka et al., 2005).

Especially with high-value, high-volume commodities there is a need for several additional and specifying questions However, the survey can never fully cover all the independent criteria presented. For example the assessment of the suppliers' competitiveness cannot solely be made with the survey. Supplier visits or capability analyses can be utilized if a more thorough evaluation is needed (Leenders et al., 2002). Even if the suppliers were asked to give some information about their sales, profits, and credit ratings in the survey, an objective financial analysis should be prepared by the financial department of the buying company. If the results of the analysis are very negative, the supplier can be excluded from further considerations because it is obviously incapable of performing satisfyingly.

The financial well-being of a supplier is vital because if a contract is made with a supplier which is in a bad financial condition, a risk is taken that the supplier goes bankrupt, has no resources for investments, or becomes financially dependent on the buying company (Monczka et al., 2005). Therefore, the financial analysis should be made in the beginning of supplier pre-selection process. Another method of supplier discovery is supplier visits. During the visit the buying company gets some firsthand information about the manufacturing and technical capabilities of the supplier which cannot be obtained through any surveys. A team conducting the visit can consist of only purchasers but also of engineers or other experts (Burt et al., 2003). To be able to get the most benefit out of the visit it is important that the supplier is asked to provide all possible information beforehand, and an outline is made of the issues to be discussed before the trip. Afterwards a report should be written to illustrate the findings (Leenders et al., 2002). Often the team performing the visit has a limited amount of time to make observations in the facility.

Depending on the buying company and the suppliers in question specific analyses of the suppliers' capabilities can be made. Quality, capacity and capability are issues of importance. If a supplier's quality level does not match the requirements of the buying company, the evaluation process should not go further with that supplier (Burt et al., 2003). The reason is that the product the supplier is offering has huge life-cycle costs caused by high quality defect expenses. It may be difficult to find a simple method for evaluating quality; hence nowadays many companies expect that the suppliers have quality certificates to prove their capabilities. Also, management capabilities could be of interest to the buying company (Leenders et al., 2002).

2.4.9 Key categories the Supply Chain Management

While the value chain and marketing approaches propose generic ideas and capabilities, proponents of the supply chain approach go a step further and identify specific activities, backed by detailed processes that can improve a firm's competitive advantage and success. Supply chain management encompasses end-to-end management of a product or service (Hakanson, 2009). All parts and products within the supply chain have to be delivered to factories, distributors, and customers. The choice of the transport mode (air, sea, or land) affects all other areas of supply chain management, such as warehousing, production, packaging, planning, location (of suppliers, manufacturing, and customers), inventory control, and information management (Coyle, et al, 2006). Therefore factors such as transit time, reliability, accessibility, security, impact on inventory, product degradation or obsolescence, trace-ability, and so on are important. Once the carrier is selected, computer models are used to optimize routing. The overall effectiveness of the shipping function is a major way to reduce costs (Council of Logistics Management, 2001).

More recently, managing the reverse flow of products has become an important ability. Reverse Logistics is the management of the reverse flow of products. This includes customer dissatisfaction with the product or at the end of the product life cycle, when the product is returned for recycling. Reverse logistics is driven by losses from customer dissatisfaction or the cost and challenges of recycling (Tibben-Lembke, 2002). All manufacturing or supply of services starts with a forecast of demand. The problem is that forecast errors can result in lost business (if forecast is low) or high inventories (if forecast is too high). Forecast errors lead to the ”bullwhip” effect and can cause excessive inventories, poor customer service, lost revenues, misguided capacity plans, and missed production schedules (Lee, et al, 1997).

Furthermore suppliers often push products to market, but more recently the retailers are interested in stocking only what the consumer will buy. The solution to the “bullwhip” effect is supply chain collaboration – an activity requiring two or more companies to share responsibility of exchanging common planning, management, execution, and performance measurement information (Anthony, 2008). Such a collaborative relationship transforms how information is shared between companies and drives change to the underlying business processes. Typically, the process is to get data from Point of Sales (POS) systems, which is sent back to the manufacturer, who arranges for quick replenishment. Consequently, production volumes and sales to retailers are based on sell-through information (Poirier, 2009).

The sell-through data are used to replenish products at a retailer through a process called continuous replenishment. Hence, if a firm has the ability to understand real-time market demand and respond quickly it is possible to manufacture only what sells in the

market. This continuous replenishment process or the synchronized supply chain faces various barriers including lack of scalability (Barret and Oliveira, 2001). With accurate dynamic forecasts made from customer demand and promotions, the correct raw material inventory can be stocked. Furthermore, purchasing becomes a strategic function – hence strategic sourcing is initiated to reorganize the company's supply base for materials and services in order to reduce external expenditures and internal processing costs (Banfield, 2009).

Aggressive companies have partnered with suppliers to reduce the number of suppliers by 40 % to 85% (Banfield, 2009). This supplier reduction program also reduces internal processing costs as larger orders go to fewer suppliers. In addition, aggressive companies review their supplier's cost structure and technical capabilities in order to select the best supplier. They also set up internal supply management teams to manage the supply process (Riggs and Robbins, 2006). These initiatives result in higher volumes with better prices and quality from the short-listed suppliers. Costs can be reduced through industry collaboration and bidding via the supply chain. Normally, bidders attempt to position themselves as a low cost or differentiated (value added) supplier. There was a strong emphasis on asset management via lower inventories and warehouse space. Companies recognize that product inventories are expensive to hold. Therefore many companies implemented Just-In-Time (JIT) deliveries of parts, a methodology initially implemented by Toyota Motor Company (Shingo, 2001). Some companies have been more aggressive and have implemented vendor-managed inventory (VMI).

For example Apple Computer Inc. has set up a partnering deal with suppliers. A supplier keeps inventory in the warehouse on consignment and moves it to the factory

on demand – only then is it considered sold. Moreover, inventory occupies warehouse space, which is costly – therefore there is a drive to reduce multiple warehouses. Hence, regional distribution centers, instead of a warehouse, have become popular (Bleakley, 2005).

For example, Philips has reduced its warehouses for consumer products from 22 to 4 in Europe. The re-distribution centers are typically located within or near major markets. This can often result in longer delivery cycles, but can be compensated with supply chain programs like continuous replenishment. The next step is to manage inventory by a centralized information system (Christopher, 2006). Japanese companies led by automobile industry have implemented lean manufacturing techniques such as Kanban which is a system that emphasizes manufacturing in small lots with minimum inventory build-up in the production process. For example, Kanban manufacturing and Just in Time (JIT) delivery of parts This results in lower inventories, better deliveries, and lower costs (Liker and Wu, 2008). Another activity to lower costs is outsourcing of manufacturing and manufacturing closer to the customers and large markets. The reason for this is that in every industry customers are expecting greater customization of products and services to meet their individual needs. To meet these needs, companies are pursuing a supply chain compression strategy. Some of the strategies pursued by companies are:

2.4.10 Intra-Company Postponement

Moving final product configuration from factory to distribution centers in selected markets. This solution requires a modular product design, which allows last minute customization, to meet customer, at a distribution center near the customer. The term postponement is the last stage of manufacturing, which was postponed until the last possible moment.

2.4.11 Inter-Company Postponement

This involves moving final product configuration downstream to a channel partner, intermediary, or retailer. The agent model involves moving all inventory to the assembler, and allowing the channel and reseller to focus on sales. In the indirect model, the supplier assembler is responsible for order processing and delivery, thereby eliminating the distributor and reseller, and sales channel.

2.4.12 Outsourcing

Companies are realizing that manufacturing (especially of low-value added activity) is not a core competency. Outsourcing of such activity can reduce costs and increase productivity per employee. Any one of these strategies is able to save costs and improve return on investment. Depending on which strategy is used, some companies have shown an increase in economic value (Anderson and Lee, 2009). Factors of the supply chain (such as planning, purchasing, manufacturing, order and management, warehouse management, and logistics) have resulted in a formidable challenge because many activities were adopted and introduced ad-hoc in a company. However, with the advent of powerful information technology systems, many solutions towards better integration have been introduced (Anderson and Lee, 2009). The benefit of integration is the creation of supply chain that reads customer demand and responds quickly to customer and market needs. Such a lean and responsive system is, in theory, able to shorten time to do anything and have a shorter cash to cash cycle. The cash to cash cycle is the time taken to convert an order into cash and is a key measure of financial performance (Poirier, 2009).

One of the most effective integration solutions is Efficient Consumer Response (ECR) - it enables the integration of factory or vendor supply and customer demand.

Specifically, it focuses on demand management, supply management, and enabling technologies that links these activities. ECR can coordinate introduction of new products, consumer promotions, product range/variety, and replenishment (Poirier and Reiter, 2009). The benefit of ECR is lower cost, less inventory, and improved product availability ECR can result in extensive collaboration between suppliers, logistics service providers, and retailers. Hence, supply chains can become demand chains, resulting in the optimum quantity of products in the market, with little or no stock-outs in the retail outlets (Poirier and Reiter, 2009).

2.4.13 The Supply Chain Concept

The term supply chain according to Monezka et al (2002) encompasses all activities associated with the flow and transformation of goods from the raw materials stage, through to end users, as well as the associated information flows. Materials and information flows both up and down the supply chain. The supply chain includes all activities of converting materials through the input stage, conversion phase and outputs. The cycle is often repeated several times in the journey from the initial producer to the ultimate customer as on organization's finished good is another's input. The structural entity of the supply chain is concerned with activities such as make, transform, move and store. Primary supply chains are those that ultimately provide the goods or services to the customer (Monezka et al, 2002).

What supply chain management is about is the linkage of the immediate seller/buyer relationship into a longer series of events. A company's suppliers have their own suppliers, and often our direct customers are not the ultimate consumers. Supply chain management sees the various buyers and sellers as part of a continuum, and recognizes the benefit to be derived from attempting to take a strategic view of the chain. Supply

Chain Management is concerned with the coordinated flow of materials and services from origins through suppliers into and through the organization and onto the ultimate consumer in such a way as to maximize value added and minimize cost. Associated flows of information and funds are also included. This can be visualized through the flow of goods (Baily, et al 2005). According to Monezka et al (2002) Supply chain management is the integration of activities through improved supply chain relationships to achieve a competitive advantage. Supply chain management is the process of planning, implementing and controlling the operations of the supply chain with the purpose to satisfy customer requirements as efficiently as possible.

Aziotopoulos (2004) view supply chain management as a cross-functional approach to managing the movement of raw materials into an organization and the movement of finished goods out of the organization toward the end-consumer. As corporations strive to focus on core competencies and become more flexible, they have reduced their ownership of raw materials sources and distribution channels. These functions are increasingly being out sourced to other corporations that can perform the activities better or more cost effectively. The effect has been to increase the number of companies involved in satisfying consumer demand, while reducing management control of daily logistics operations. Less control and more supply chain partners led to the creation of supply chain management concepts.

Hadfield and Nicholas (2002) defined supply chain management as the management of the entire value added chain, from the supplier to manufacturer right through to the retailer and the final customer. It is the oversight of materials, information and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. Supply chain management involves coordinating and coordinating and

integrating these flows both within and among companies. It is said that the ultimate goal of any effective supply chain Management system is to reduce inventory. According to chartered supply chain management, professionals (CSCMP). Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement.

Baily and Farmer (2000) posited that the partnership approach to supplier is part of the concept of supply chain management. This approach is broader than the simple relationship between the suppliers and buyers of separate organizations. It deals with the total concept of managing materials in a positive way, all aspects from the suppliers and subcontractors through purchasing, stock control and distribution to the final customer. It is concerned with achieving the lowest cost in the whole manufacturing and supply process by identifying and balancing the relationship between the separate links in the supply chain and ensuring that the whole chain operates at the lowest total cost and the maximum efficiency. There is a link between the buyer's organization and the supplier as this is a vital element in ensuring continuity of supply.

According to Vickery et al (2003), supply chain management is the combination of art and science that goes into improving the way a company finds the raw components it needs to make a product or service and deliver it to customers. Supply chain management activities include; planning, sourcing of supplies, pricing, delivery and payment processes with suppliers. This is the manufacturing step. Schedule the activities necessary for production, testing, packaging the preparation for delivery. As the most metric intensive portion of the supply chain, measure quality levels, production output and worker productivity. Other activities include coordinating the

receipt of orders from customers, develop a network of warehouses, pick carries to get products to customers (Vickery et al, 2003).

2.4.14 Organizing for Supply Chain Management

The need to coordinate and share information across organizations and functional groups has resulted in the development of higher–level positions designed to oversee various supply chain activities. Total supply chain management is an organizational concept whose primary objective is to manage the two–way movement and coordination of goods and information from raw material through end user (Monezka et al, 2002). Materials management focuses on the coordination of goods, services and information from suppliers through operations, and it is a subset of total supply chain management. Physical distribution management focuses on the coordination of goods, services and information from operations through end user, and it is also a subset of total supply chain management (Vickery, et al 2003).

Conceptually, total supply chain management involves both materials management and physical distribution management. A structure that coordinates the diverse activities within a supply chain contracts greatly with one where separate supply chain groups or activities report to different executive managers. Organizing requires separate activities to report to an executive responsible for coordinating the flow of goods and information. The benefits of an integrated supply management chain include that; it provides direct over materials and service costs, it develop awareness of managing the system trade-offs within a supply chain. It opens channels of communication and stimulate the sharing of ideas across organizations and groups and it support the career paths of talented personnel by providing the means to develop-well-rounded expertise.

Purchasing: The perception of the role of purchasing has changed considerably. The function is now seen as being of major importance in ensuring the profitability and indeed survival of the organization. Inbound Transportation: Organization usually have a specialized traffic and transportation function to manage the physical and informational links between the supplier and the buyer (Vickery, et al 2003).

Organizations that focus on supply chain management must pay close attention to transportation. They recognize the need to control inbound materials shipments as tightly as they control outbound shipments to customers. Allowing a supplier to arrange for inbound transportation may not provide the cost control or coordination required on the inbound side of the supply chain. Inbound transportation is often outsourced to a specialized transportation provider. Quality emphasis has shifted from detecting defects at the time of receipt or use to prevention early in the materials – sourcing process. This requires a strong awareness concerning a supplier's role in the quality process. Progressive organizations work directly with suppliers to develop proper quality control procedures and processes.

Receiving and storage is usually part of the materials management function because of the need to control the physical processing and handling of inventory. Receiving and storage includes a variety of tasks. A firm must process inkling receipt records, usually through a computer terminal, which update the in – transit file, purchasing files, the accounts payable system. In control materials or inventory, the Materials control group is often responsible for managing materials releases to suppliers. This includes generating the materials release, contacting a supplier directly concerning changes, and monitoring the status of inbound shipments. Material control determines the actual order release quantities and shipment schedules (Vickery, et al 2003).

The inventory control groups required to support customer requirements, which emphasize the physical distribution side of the supply chainn. Order processing is a vital link in ensuring that a customer receives materials when and where it is needed. Production planning and scheduling is the activity involves determining the aggregate levels of production for a family of items along with a time – phased, detailed schedule of production. It relies on forecasts from marketing to estimate the volume of materials that are required over the near term. This is because operations must work together closely (Vickery, et al 2003).

Before a product heads to the customer, it may be stored for a period in a warehouse. This is particularly true for companies that produce according to a forecast in anticipation of future sales. Increasingly, as companies attempt to make a product only after receiving a customer order, this part of the supply chain may become less important. Shipping involves physically getting a product ready for distribution to the customer. This required packing to prevent damage, completing any special labeling requirements, completing required shipping documents, or arranging transportation with an approved carrier. Fewer and fewer organizations "own" the transportation link to their customers.

This is a part of the supply chain where full –service transportation providers can design and manage entire distribution networks. It includes a wide range of activities that attempt to keep a customer satisfied with a product or service after the initial sale. Often, this means having dedicated customer account manager who help in managing customer promotions, inventory control and delivery schedules (Monezka et al, 2002). Successful Supply chain management requires a change from managing individual functions to integrating activities into key supply chain processes. The purchasing

department places orders as requirements become appropriate. Marketing, responding to customer demand, communicates with several distributors and retailers, and attempts to satisfy this demand shared information between supply chains (Monezka et al, 2002). Supply chain business process integration involves collaborative work between buyers and suppliers join product development, common systems and shared information. According to Lambert and Cooper (2002) operating an integrated supply chain requires continuous information flows, which in turn assist to achieve the best product flows (Lambert, 2004).

The introduction of information systems in supply chain management originally was limited to the automation of clerical functions. Information systems were viewed as providing infrastructural support to the value chain and having an indirect impact on the competitiveness of a product. Companies were able to reduce costs through information systems (William et al 2007). Firms started to utilize information systems to directly influence the processes comprising the value chain. Through the utilization of information systems, companies have been able to integrate similar functions spread over different areas as well as curtail unnecessary activities, thus enhancing their capability to cope with sophisticated needs of customers and meet product quality standards (Rushton and Oxley, 2004).

Early (2009) classified the scope of information technology into the following categories according to whether information technology is widely used in the supply chain or whether it is selectively used for only information processing and whether it is applied for value creation or applied for the connection of value adding activities such as the use of ICT.

Ensuring the right quantity of parts for production or products for resale arrive at the right time. this is enabled through efficient communication, ensuring that orders are placed with the appropriate amount of time available to be filled. The supply chain management system also allows a company to constantly see what is on stock and making sure that the right quantities are ordered to replace stock. Supply chain management system enables a company to have constant contact with its distribution team, which could consist of trucks, trains, or any other mode of transportation. It allows the company to track where the required materials are at all times. As well, it may be cost effective to share transportation costs with a partner company if shipments are not large enough to fill a whole truck.

Ensuring production lines function smoothly because high- quality parts are available when needed. Having an effective supply chain management system in place ensure that production can always run smoothly without delays due to ordering and transportation. It also ensures that no sales are lost because shelves are empty. Managing the supply chain improves a company's flexibility has the ability to produce goods at lower prices. Supply chain management also enables companies to reduce the cost of purchased parts and products at acceptable levels. Supply chain management reduces costs by controlling the quality of goods thus reducing internal and external failure costs and working with suppliers to produce the most cost efficient means of manufacturing a product.

2.4.15 Supply Chain Management Problems

The supply chain management must address the following problems such as; poor distribution network configurations (number and location of suppliers, production facilities, distribution centers, warehouses and customers), poor distribution strategy,

lack of information needed to integrate systems and processes through the supply chain to share valuable information, including demand signals.

According to Baily and Farmer, (2000), one of the most important aspects for the buyer of assuring supplies is the maintenance of good supplier relationships. Good supplier relationships can be a major asset to the buyer not only in assuring supplies but also in maintaining quality levels and good prices. Good supplier relations have always been an important factor in the maintenance of supplies. This change has been brought by the increasing use made by buyers of techniques such as quality assurance, zero defect policies, statistical process control (SPC) and Just-in-Time (JIT), all of which place additional responsibilities on to suppliers who will only be willing to accept them if they see some long-term benefit for themselves in the relationship.

So in return for accepting these additional responsibilities it has become common to offer the supplier a long – term prospect of business in what is referred to as a partnership relationship with both parties offering and accepting complementary responsibilities and helping to solve problems to their mutual benefit. The partnership approach clearly influences the nature of the relationship between buyer and sellers. Choosing the right supplier is frequently the key to obtaining quality, performance and price. One of the most important aspects of the supplier selection process for important contracts is the plant visit known as the vendor audit or capability survey. It is most important that such surveys for the determination of supplier capability are conducted objectively (Baily et al, 2005).

According to Monezka et al (2002) , when inventory moves so fast that firms essentially hold zero inventory on hand, they are following a system know as the lean

supply chain – a combination of Just-in-Time purchasing, Just-in-Time transportation and just –in-time production. All three elements combined to create a supply chain that minimizes inventory investment and eliminate waste.

John Shook (2000), defines lean as a philosophy that seeks to shorten the time between the customer order and he shipment to the customer by eliminating waste. Womack and Jones (2006), in their book Lean Thinking, argue that all activities associated with lean attempt to achieve three objectives: flow, pull and striving for excellence. Flow means that inventory moves through the supply chain. Those in charge of materials at the plant their key metric is to have inventory available for production schedule and a secondary focus of not having too much or too little inventory. Those in charge of inbound and outbound yard at the plant should be managing all the inbound trailers, having high asset utilization and velocity in the shipping yard, and high productivity in the work place.

Practitioners of lean supply chain focus on eliminating physical waste (in the form of inventory) and process waste (unnecessary steps in a value chain or time during which assets or goods are unnecessarily idle). Lean supply chain focuses on driving waste out of the entire value chain for a product. To have a truly lean supply chain firms have to go outside their four walls. They have to reach their suppliers because there are going to be constraints present at but their suppliers and customers (Nussle and Morgan 2004). Implementing a Just-in-time (JIT) purchasing system is the first major element of a lean supply chain. A JIT purchasing system means receiving frequent receipts of materials from suppliers to meet immediate requirement.

A JIT purchasing system is an operating philosophy that does not tolerate high inventory levels, less than perfect quality, or other inefficiency and waste between buyer and seller. It is a continuous supply chin improvement process that requires cooperation, coordination and information sharing to eliminate inventory throughout the supply chain (Monezka et al 2002).

JIT – in Time transportation, another key element of a lean supply chain, refers to the efficient movement of goods between the buyer and seller. This involves frequent deliveries of smaller quantities directly to the point of use at the purchaser. A lean transportation network relies on company – owned or contracted vehicle that pick up and deliver according to a regular and repeatable schedule in a closed loop. JIT transportation systems feature certain innovations that can further eliminate supply chain waste. This includes specialized transportation vehicles that allow easy leading and unloading of smaller quantities. The second innovation includes the extensive use of returnable plastic or steel containers. As drivers pickup materials from suppliers they leave empty containers that were used in earlier deliveries (Moneszka et al, 2002).

2.4.16 Measures and Tools to Manage and Improve Supply Chain Management

Any supply chain activity or system can be managed better or improved. To this end there are metrics and tools to help achieve this goal. Tyndall et al. (2006) have proposed looking at three facets: total cost approach, enterprise wide demand/supply matching, and a dashboard of select metrics (consisting of operational costs, time to response, margins, and customer service).

Another more comprehensive approach is called SCOR, or Supply Chain Operational Reference (Supply Chain Council, 2001). This consists of a series of 18 metrics that

measure customers/quality, time, costs, and asset utilization. With these metrics a firm can measure and strive to keep improving supply chain performance by getting a better score (Supply Chain Council, 2001). Firms are advised to use competitive benchmarking to review their performance in each category against the industry leaders, and then endeavor to emulate their success. Some proponents recommend other tools such as process mapping, and reengineering to review current supply chain processes and improve them based on customer needs (Poirier, 2009).

2.5 Empirical Literature Review

A study conducted by Tan et al., (2009) on supply chain management in the manufacturing sector found out those suppliers, manufacturers and customers, must be effectively integrated in order to achieve an effective supply chain. The study found that integration is much needed especially if the supply chain involves multiple organizations should bring to customers products at the lowest cost and quickest time.

2.5.1 Empirical Reviewed in the World

Another study conducted by Magretta (2006) on effectiveness of the supply chain management system used by Dell Computers found that Dell's supply chain model is based on the so-called "build-to-order" manufacturing systems which mean lower inventories, lower operational costs and hence higher degree of effectiveness in delivery of parts and supply of finished products to customers. The study found that Dell's inventory is equivalent to ½ a week of inventory, and this contributes to a shorter order to cash circle which is a key measure of financial performance of a company. Thus means a highly effective supply chain system. The study found that Dell's supply chain management system is the best in the manufacturing industry in the USA (Magretta, 2006).

In the manufacturing environment, the cash to cash cycles range from a few days to over 100 days. A superbly managed company can have a negative cash to cash cycle, by collecting monies from customers before the inventory of parts is purchased. Dell's supply chain represents a truly integrated supply chain from suppliers of parts to delivery of finished goods (Magretta, 2006).

2.5.2 Empirical Reviewed in Africa

Growing customer expectations, ongoing developments in communications, and transportation technologies have forced businesses to invest in, and direct attention to, their *supply chains*. Consequently, in order to remain competitive, there is pressure on businesses to decrease costs and enhance customer service levels. The automotive industry in South Africa is no exception. According to the Automotive Industry Development Centre (in South Africa), increasing operational complexities within the automotive industry, rising fuel prices, higher manpower costs owing to higher living costs and growing pressure from China and India to remain competitive have led to the industry's growing awareness of the impact that an efficient supply chain can have on business sustainability (Gabru 2008).

In addition, the South African automotive industry has also been adversely affected by the same economic climate (recession) as the international industry, where governments had to intervene with aid packages to save the industry from total collapse. In South Africa, the negative economic climate led to a reduction of operations (and in some cases operations were even closed down), and many employees in the industry were retrenched. In December 2008, 36 000 people were employed by original equipment manufacturers (OEMs) and 81 500 by automotive component manufacturers (ACMs).

Since the global economic crisis, the number of employees in the domestic automotive industry has declined, with 16 000 job losses (approximately 20% of the total) in the component manufacturing (ACM) sector. Therefore as at March 2009, the employment figure at ACMs was estimated to have fallen to 65 500 employees (NAACAM 2009: 1).

2.5.3 Empirical Reviewed in Tanzania

Tanzania's transportation network, a legacy of the colonial era, serves Tanzania's narrow bundle of raw material exports from hinterlands to ports, and has very limited inland interconnections Failure to develop new networks is at the core of the roads and railway problems experienced to date. Tanzania has four major road networks: The Tanzania-Zambia highway traversing Dar-es-salaam Coast, Morogoro, Iringa and Mbeya regions; the central line, starting from Dar-es-salaam passing through Coast, Morogoro to Dodoma administrative regions The North Eastern highway, connecting Dar-es-salaam Tanga, Kilimanjaro and Arusha; and lastly, the Lake Zone network, connecting Mwanza and Mara regions These highways link to trunk, rural and feeder roads in the hinterlands.

2.6 Conceptual wFrameork

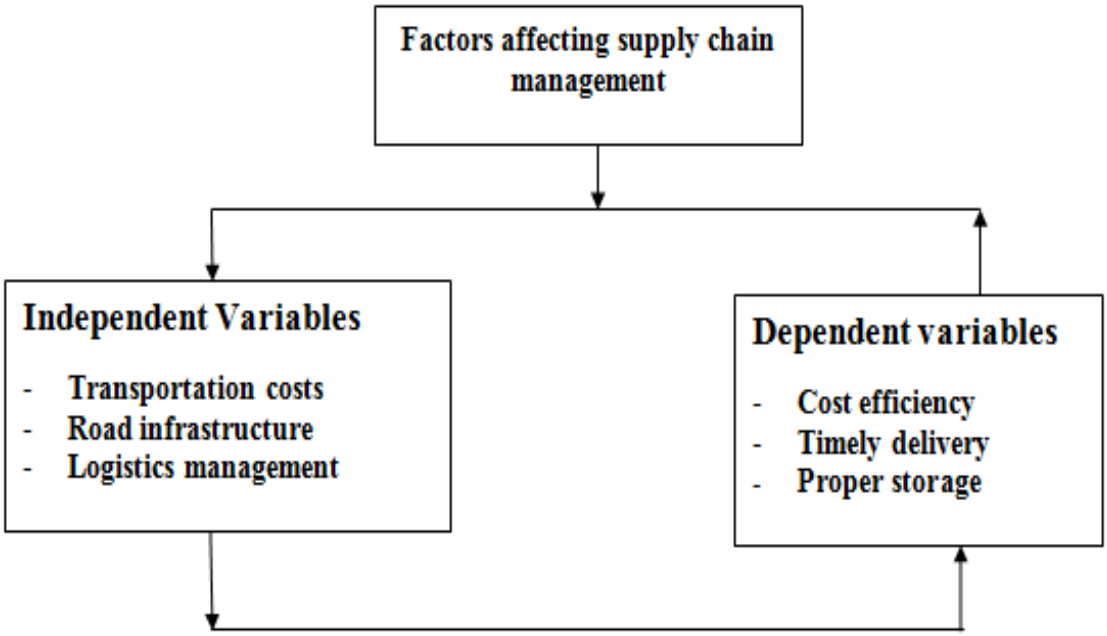

Figure 2.1: Conceptual Framework of the Study

Source: Researcher (2013)

The study was guided by conceptual framework shown above. According to the conceptual framework, factors affecting supply chain management include cost, infrastructure and logistics management. For supply chain management to be effective; it must be cost efficient, must ensure timely delivery of supplies and proper storage of suppliers once delivered.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

The chapter indicates the type of research design used; area of the study, population of the study, sample of the study, sample size, sampling techniques that were used to select respondents, data collection methods, type of data collected, methods of collecting data, sampling and sampling procedures, area of study, data management and analysis techniques and data reliability and validity.

3.2 Research Design

This study used descriptive research design using cross sectional survey data. Due to the fact that, case study is a comprehensive description and analysis of a single situation or a number of specific situations i.e. cases. Also, the use of case study research design enabled the researcher to conduct an extensive investigation of the Supply Chain Management System used by TDL, it's effectiveness and factors that affect it's effectiveness.

3.3 Area of the Study

This study was conducted in Kinondoni District in Dar es Salaam region at Head Offices of Tanzania Distilleries Limited located within the premises of Millennium Business Park, Ubungo area. At the area of the study, the researcher met respondents of the study who are in one way or another involved in supply chain management activities at Tanzania Distilleries Limited.

3.4 Survey Population

A population is the theoretically specified aggregation of study elements. It is translating the abstract concept into workable concept. Also, target population is the complete group of specific population elements relevant to the research project. In this study, the population comprised of members of staff of Tanzania Distilleries Limited who are involved in supply chain management activities.

3.5 Sample, Sample Size and Sampling Techniques

The researcher used purposive sampling technique to select a sample size of 50 respondents out of 1,100. The sample included 3 members of the management staff of TDL, 8 members of staff of TDL from the supplying department, 9 members of staff from the store keeping department, 10 members from marketing department, 5 members from transporting department and 15 members of staff of from the Sales department.The sample size was obtained by using the following formula.

$$\mathbf{n} = \frac{z^2 \,.\, p \,.\, q \,.\, N}{e^2\,(N-1) + z^2 \,.\, p \,.\, q}$$

n = Sample size

N = 1, 1 00 (Population of members of staff of TDL).

e = .05 (constant)

z = 1.96 (for the confidence level of 95%)

p = 30% (0.3), q = 70% (1 – 0.3 = 0.7)

$$\mathbf{n} = \frac{(1.96)^2 \times 0.3 \times 0.7 \times 1{,}1000}{(0.5)^2 \times (6{,}500{,}000 - 1) + 1.96^2 \,.\, \text{x } 0.3 \text{ x } 0.7}$$

n = 52.2361 (approximately 52)

3.6 Data Collection Methods

The study used both primary and secondary data. Documentary sources such as relevant books, journals, articles, official publications, newspaper clippings, reports and seminar papers were utilized to present the facts and to substantiate the arguments in order to secure secondary data. In primary data, interviews, questionnaires, photographs, and observation, were used to collect data.

3.6.1 Interview Method

There are two types of interviews, namely structured and unstructured interviews. Both types of interviews were conducted with members of the management team of TDL. The researcher used interviews because they allowed face-to-face communication with respondents, It is a simple and easier way or method of acquiring information that provides straight answers to research questions. Through interviews, the researcher collected information on the supply chain management system used by TDL, how effective the system is and factors that affect the system.

3.6.2 Observation

According to Kothari (2006), observation is a data collection method that involves seeking information by the way of environment scanning. The researcher used observation method to find out how TDL implements it's supply chain management system, how effective the system is, factors that affect the system, and measures taken to improve it.

3.6.3 Documentary Review

Documentary review analysis is a data collection method that involves perusal of various documents such as reports, books, or websites. Documentary review analysis

was used to collect data and historical information on the supply chain management system used by TDL. Documentary review provided the researcher with historical data and information regarding supply chain management practices at TDL.

3.6.4 Questionnaires

In this study, questionnaires contained both, structured and unstructured questions. The researcher used questionnaires because they cover a large sample of respondents in the shortest possible time and using low costs. For this study, the main data collection method was questionnaires.

3.7 Data Management and Analysis Procedure

Data and information that was collected during the study was reduced into summary form that was processed by using Software Package for Social Scientists (SPSS).The findings of the research study were organized and the data were presented in the form of words, numbers and percentages by using tables, pie charts, histograms and graphs. Data collected from questionnaires was presented in tables and figures.

3.8 Data Reliability and Validity

To ensure validity and reliability of data collected during the research, a recognizance survey and pilot study was conducted. This helped the researcher to be familiar with the targeted area which make easier for data collection. Also, the researcher frequently visited the Supervisor to get advice and consultation on the progress of the research study and check the reliability and validity of the data collected

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Introduction

This section presents and interprets the results from the data analysis. These results include the demographic profile of the respondents presented in a frequency table and results of the study findings. The data in this section were generated from questionnaires filled, interviews reduction and collected from 50 officers of Tanzania Distillers Limited (TDL) in Dar es Salaam Region during June to July, 2013.

4.2 Description of Respondent's Job Position by their Demography

To describe characteristics of respondents, cross tabulation was used to present data related to gender, age, position of respondent in the work, and period of working in the TDL. This data is indicated in the subsections below:

4.2.1 Position distribution by sex

The results in the table (Table 4.1) below were generated using cross tabulation in order to explore the distribution of the respondent categories by Gender. Crosstabulation was between sex of respondents and positions held by respondents in the TDL, these were supplying officers, store keepers, marketing officers, transport officers, sales officers and managers

Table 4.1: Gender of Respondents-*Crosstabulation*

			Position of respondents						
			Supplying officers	Store keepers	Marketing officers	Transporting officers	Sales officers	managers	Total
Gender of respondents	Male	Count	4	7	2	2	8	2	25
		% within Position of respondents	50.0%	77.8%	20.0%	40.0%	53.3%	66.7%	50.0%
		% of Total	8.0%	14.0%	4.0%	4.0%	16.0%	4.0%	50.0%
	Female	Count	4	2	8	3	7	1	25
		% within Position of respondents	50.0%	22.2%	80.0%	60.0%	46.7%	33.3%	50.0%
		% of Total	8.0%	4.0%	16.0%	6.0%	14.0%	2.0%	50.0%
Total		Count	8	9	10	5	15	3	50
		% within Position of respondents	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	16.0%	18.0%	20.0%	10.0%	30.0%	6.0%	100.0%
X^2= 6.978					**df=5**			**p=0.222**	

Source: Field Data

From the table (Table 4.1) one can notice that there was equal number of male (50%) and female (50%) among sampled supplying officers from the studies organization. In the store keeping there were more male (77.8%) than female (22.2%), this can be because store department need powerful people to handle luggage (muscularity job). In marketing department male (20%) where fewer than female (80%), this can be because marketing responsibilities require people who can talk humbly, friendly with passion to clients and this characters are more to female than male. In transporting and logistics department there was almost equal number of male (40%) and female (50%) although female representative outnumber male but the different was not so big. And among

managers male were (66.7%) were more than female (33.3%) this is because it is common to find management levels in many organizations are occupied by men.

Furthermore, in general the table (Table 4.1) shows that there were more respondents from sales department (30%), followed by marketing department (20%), store department (18%), supplying department (16%) and lastly management department (6%). More workers in sales department; because for the any business to keep moving it has to sell its products, whatever we produced or manufactured in our businesses we have to sale them to get paid, therefore sellers should be many enough to ensure whatever is produced has to be sold. Additionally, observed p-value of 0.222 ($p>0.05$) implies that there was no significant different between employees in their sex, this means that employees were not positioned in department because of their sex. In other words sex was not the factor to position employee in an department.

4.2.2 Age Group of Respondents

The study also examined the age brackets of the sampled population to know the age group that most involve in these organization and why. Table 4.2 shows the outcomes of the survey.

The table (Table 4.2) bellow shows that more than three quarters of responded employees in every department were aged between 20-29 years old except for transport and logistics department and management level. In supplying department employees aged between 20-29 years were (75%), in store keeping department were (77.8%), marketing department (70%), sales department (86.7%). This implies that TDL employ youthful group who are hard working class (fresh blood)-they have the potential of competing themselves for the better working position (promotion) within the organization and consequently support organization. While in management level the table shows that majority (66.7%) of respondents were aged between 40-49 years old.

The p-value of 0.031 ($p<0.05$) implies that there were significance difference among employees in their age group. In fact it was clearly show with the table (Table 4.2) above in management level involved people of upper age (40-49 years old).

Table 4.2: Age Group of Respondents-*Crosstabulation*

			Position of respondents						
			Supplying officers	Store keepers	Marketing officers	Transporting officers	Sales officers	Managers	Total
Age group of respondents	Below 20 years	Count	0	0	0	1	1	0	2
		% within Position of respondents	.0%	.0%	.0%	20.0%	6.7%	.0%	4.0%
		% of Total	.0%	.0%	.0%	2.0%	2.0%	.0%	4.0%
	20-29 years	Count	6	7	7	3	13	0	36
		% within Position of respondents	75.0%	77.8%	70.0%	60.0%	86.7%	.0%	72.0%
		% of Total	12.0%	14.0%	14.0%	6.0%	26.0%	.0%	72.0%
	30-39 years	Count	2	2	2	0	1	1	8
		% within Position of respondents	25.0%	22.2%	20.0%	.0%	6.7%	33.3%	16.0%
		% of Total	4.0%	4.0%	4.0%	.0%	2.0%	2.0%	16.0%
	40-49 years	Count	0	0	1	1	0	2	4
		% within Position of respondents	.0%	.0%	10.0%	20.0%	.0%	66.7%	8.0%
		% of Total	.0%	.0%	2.0%	2.0%	.0%	4.0%	8.0%
Total		Count	8	9	10	5	15	3	50
		% within Position of respondents	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	16.0%	18.0%	20.0%	10.0%	30.0%	6.0%	100.0%
X^2= 26.752			**df=15**			**p=0.031**			

Source: Field Data

4.2.3 Educational Background of the Respondents Position

The study wanted to examine if there was a link between the level of education attained by the employees in this organization and their level of education. Therefore respondents were told to rate their highest education qualification on the scale ranged

from primary education qualification to PhD qualification. Table 4.3 below shows the results.

Table 4.3: Respondents Level of Education-*Crosstabulation*

			Position of respondents						Total
			Supplying officers	Store keepers	Marketing officers	Transporting officers	Sales officers	Managers	
Respondents level of education	Secondary	Count	0	0	0	2	1	0	3
		% within Position of respondents	.0%	.0%	.0%	40.0%	6.7%	.0%	6.0%
		% of Total	.0%	.0%	.0%	4.0%	2.0%	.0%	6.0%
	Diploma	Count	7	7	8	3	14	1	40
		% within Position of respondents	87.5%	77.8%	80.0%	60.0%	93.3%	33.3%	80.0%
		% of Total	14.0%	14.0%	16.0%	6.0%	28.0%	2.0%	80.0%
	Bachelor	Count	1	2	2	0	0	2	7
		% within Position of respondents	12.5%	22.2%	20.0%	.0%	.0%	66.7%	14.0%
		% of Total	2.0%	4.0%	4.0%	.0%	.0%	4.0%	14.0%
Total		Count	8	9	10	5	15	3	50
		% within Position of respondents	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	16.0%	18.0%	20.0%	10.0%	30.0%	6.0%	100.0%
X^2= 22.355			**df=10**			**p=0.013**			

Source: Field Data

Except for the transport and logistics officers and management level, table (Table 4.3) shows that in all other remained department majority of employees, actually more than three-quarter had diploma qualifications in their profession. And these were like that in supplying department diploma holder were (87.5%) while bachelor degree holders were (12.5%), in store keeping department diploma were (77.8%) and bachelor were (22.2%), marketing department diploma were (80%) and bachelor degree were (20%), sales department diploma holders were (93.3%), and transport and logistics department diploma holder were (60%). In management level-the table show that many workers (66.7%) had bachelor degree.

Therefore these results tell us that TDL equipped with intellectual employee in all departments. And, therefore the result of these study were from knowledgeable people

and are well informed in supply and management issues right from the school to the field. Observed p-value of 0.031 ($p<0.031$) implies that there was significant different between employees in their education qualification; from the table (Table 4.3) it is clear that employees at management level were people of higher education qualification compare to the rest of department.

4.2.4 Work experience of the Respondents by Position

The study went on to examine working duration of the respondents in this organization. Therefore respondent where told to rate their working duration on the prepared work bracket, the aim was to assess their experience in the job. Table 4.4 below has the results.

Table 4.4 bellow shows that majorities of workers in all visited department except for management level had work for the period of 2-5 years in TDL. This was illustrated that officers 85.7%, 55.6%, 70%, 80%, 53.3% in supplying department, store keeping department, marketing department, transporting and logistics department and sales department respectively had work for the period of 2-5 years. This implies that the rate of inflow and out flow of workers in TDL was high, for this reason, It means that many people did not stay for longer working in TDL. But for the unreason researcher and his assistant (assisting in collection of data) failed to know why employers did not stay longer working for this organization. On the other hand workers in management level were a bit more experience with organization's responsibilities, for them, majorities (66.7%) had worked in TDL for the period of at least 6-10 years.

Since observed p-value was greater than 0.05 ($p=0.345$) this means that there was no significant difference between employees in their durations of working in TDL.

Therefore it can be interpreted that working positions (selection of department to work in) did not consider employee experience in the studies organization.

Table 4.4: Duration of Working in TDL-*Crosstabulation*

			Position of respondents						
			Supplying officers	Store keepers	Marketing officers	Transporting officers	Sales officers	Managers	Total
Duration of working in TDL	< 1 year	Count	0	0	1	0	2	0	3
		% within osition of espondents	.0%	.0%	10.0%	.0%	13.3%	.0%	6.1%
		% of Total	.0%	.0%	2.0%	.0%	4.1%	.0%	6.1%
	2-5 years	Count	6	5	7	4	8	1	31
		% within Position of respondents	85.7%	55.6%	70.0%	80.0%	53.3%	33.3%	63.3%
		% of Total	12.2%	10.2%	14.3%	8.2%	16.3%	2.0%	63.3%
	6-10 years	Count	1	4	0	0	5	2	12
		% within Position of respondents	14.3%	44.4%	.0%	.0%	33.3%	66.7%	24.5%
		% of Total	2.0%	8.2%	.0%	.0%	10.2%	4.1%	24.5%
	11-15 years	Count	0	0	1	1	0	0	2
		% within Position of respondents	.0%	.0%	10.0%	20.0%	.0%	.0%	4.1%
		% of Total	.0%	.0%	2.0%	2.0%	.0%	.0%	4.1%
	16-20 years	Count	0	0	1	0	0	0	1
		% within Position of respondents	.0%	.0%	10.0%	.0%	.0%	.0%	2.0%
		% of Total	.0%	.0%	2.0%	.0%	.0%	.0%	2.0%
Total		Count	7	9	10	5	15	3	49
		% within Position of respondents	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	14.3%	18.4%	20.4%	10.2%	30.6%	6.1%	100.0%
X^2= 21.925			**df=20**			**p=0.345**			

Source: Field Data

4.3 Study Result by Objective

In this chapter the results that answer the research objectives were presented. To understand better this section a reader can go back to chapter one and review objectives. The collected data from the questionnaires were presented in tables while interviews were presented in summary of propositions. However, much of data for this research were quantitative. As mentioned above (section 3.6) SPSS software package (SPSS version 16) was used to analyse these data.

4.3.1 Supply Chain Management Practices

The study first examined supply chain management practices used by TDL. Accordingly respondents were given questionnaire with some variables to look at supply chain management practices in an organization, and told to rate how they perceived application of the given variables in the management of supply chain in TDL. The variables were *planning for supply chain, supplier(s) relationship management, manufacturing flow management, product development management, customer service management, demand management, order fulfilment, return management and audit performance of supply chain.* In which respondent were told to rate their opinions on the Likert scale ranging from strongly disagree (1) to strongly agree (4).

The mean scores and Chi-square values were employed to compute for the supply chain management practices. The analysis based on the mean scores and Chi-squire reflected the strengths and weaknesses of the said instruments (variables) in terms supply chain management. To interpret the obtained data, the following numerical values and interpretations were used to measure their application in supply chain management in TDL.

Mean Range	Response Mode	Interpretation
3.26-4.00	Strongly Agree	Used frequently
2.51-3.25	Agree	Used occasionally
1.76-2.50	Disagree	Used rarely
1.00-1.75	Strongly Disagree	Not used

Table 4.5: Supply Chain Management Practices-*ANOVA's Summary*

Constructs	Frequency	Means score	Sig. (p-value)	Interpretation
Planning for supply chain	50	3.74	0.881	Used frequently
Supplier(s) relationship management	50	3.52	0.366	Used frequently
Manufacturing flow management	49	3.65	0.385	Used frequently
Product development management	49	3.61	0.097	Used frequently
Customer service management	49	3.57	0.317	Used frequently
Demand management	48	3.23	0.291	Used occasionally
Order fulfilment	50	3.48	0.050	Used frequently
Return management	49	2.16	0.953	Used rarely
Audit performance of supply chain	50	3.72	0.318	Used frequently
AVERAGE MEAN SCORE	**3.40**			**Used frequently**

Source: Field data

Generally, the seven constructs on supply chain management: planning for supply chain, supplier(s) relationship management, manufacturing flow management, product development management, customer service management, order fulfilment, and audit performance of supply chain were rated high at means of 3.74, 3.52, 3.65, 3.61, 3.57, 3.48, and 3.72 respectively, which implies frequently use of constructs in management of supply chain. While the two constructs demand management and return management were rated low at means of 3.23 and 2.16 respectively, which implies occasionally use

of demand management and rarely use of return management in management of supply chain. The average mean of 3.4 signifies agreement by the respondent to the effect that supply chain management was frequently practiced in Tanzania Distillers Limited.

However the result shows that there was no significant difference between respondents in their perception that planning for supply chain (p=0.881), supplier(s) relationship management (p=0.366), manufacturing flow management (p=0.385), customer service management (p=0.317), product development management (p=0.097), demand management (p=0.291), and audit performance of supply chain (p=0.953) were used in the management of supply chain in TDL, all respondent had the same view that the said constructs were frequently used/practiced in management of supply chain; the observed p-values were greater than 0.05. Table 4.8 shows it clearly (see appendix).

It was god to identify supply chain management practice in the study organization was frequently practices. But the question is that how do they practiced? Are they effectively practised for the development of the industry? These questions are going to be answered in the next section (section 4.3.2) below. However, from the table (table 4.5) above, among examined constructs of supply chain management practices demand management and return management practices were rated lower than other constructs. Whereas, return management was ranked least among other constructs practice.

Researcher tried to find out why return management practice was said to be rarely practiced in TDL, but because of academic time limit it was not possible to extend this study to such extent. However researcher has come up with some assumptions which need to be considered in the further studies in this organization. “The observed rare use

of return management practice in TDL can either because of the underprivileged application of principles of accounting and auditing or political interference in the supply system of TDL."

Nevertheless researcher what TDL and other manufacturing organization in Tanzania to know that in the current economic climate, it's hard enough to manage the forward flow of products to customers only, let alone having to think about the reverse flow or return. But not thinking about the reverse flow of products could mean missing important opportunities for guiding an organization/firm through tough times. Effective returns management can provide additional means of positively impacting firm's financial performance as well as building stronger relationships with key customers.

4.3.2 Effectiveness of Supply Chain management

The second objective of the present study called for assessing of effectiveness of supply chain management at TDL. Increasingly, many organizations have begun to embrace the concept of integrated supply chain management for better efficacy of supply system. Integrated supply chain management gives organizations the ability to alter the flow of resources and value throughout the entire supply chain. The integration of disparate supply chain partners into one smoothly operating, seamless whole results in an agile competitive system- one that can rapidly, effectively, and efficiently provide unique product/service bundles to each customer on demand (IMA, 1999). Therefore the researcher wanted to know if there was integrated decision in: selection of supplier(s), purchasing, transporting, manufacturing, stocks, warehousing and distribution in management of supply chain. The seven instruments were prepared in the Likert scale ranged from strongly disagree to strongly agree and submitted to the respondents to rate their opinions rendered.

The mean scores and Chi-square values were employed to compute for the effectiveness of supply chain management. The analysis based on the mean scores and Chi-squire reflected the degree of integration of the said instruments in terms integrated supply chain management. To interpret the obtained data, the following numerical values and interpretations were used to measure their effectiveness of supply chain management in TDL.

Mean Range	**Response Mode**	**Interpretation**
3.26-4.00	Strongly Agree	Strongly effective
2.51-3.25	Agree	Effective
1.76-2.50	Disagree	Ineffective
1.00-1.75	Strongly Disagree	Strongly ineffective

Table 4.6: Effectiveness of Supply Chain Management-*ANOVA's Summary*

Items	Frequency	Mean Score	Sig.	Interpretation
Selection of supplier(s)	50	3.46	0.763	Strongly effective
Purchasing	50	3.66	0.040	Strongly effective
Transporting	50	3.80	0.000	Strongly effective
Manufacturing	50	3.22	0.043	Effective
Stocks	49	3.67	0.065	Strongly effective
Warehousing	48	3.23	0.223	Effective
Distribution	50	3.60	0.000	Strongly effective
AVERAGE MEAN SCORE		**3.52**		**Strongly effective**

Source: Field Data

All seven items for determining effectiveness of supply chain management at TDL show interesting results. Wherein five items: Selection of supplier(s), purchasing, transporting, stocking, and distribution were rated very high at means of 3.46, 3.66, 3.80, 3.67 and 3.60 respectively, which implies strongly effectiveness. While theremain two items manufacturing and warehousing were rated 3.22 and 3.23 respectively, this implies effective in management of supply chain. The average mean of 3.52 signifies respondents had agreed supply chain management in TDL was strongly effectively used.

Therefore from the above effects, it can be concluded that there were integrated decisions in all seven studied instruments: selection of supplier(s), purchasing, transporting, manufacturing, stocking, warehousing and distribution. For that reason it can be, however, concluded that supply chain management in TDL was very effective and well performing. Congratulation TDL!

Discussion regard this observed integrated decision in TDL started by congratulating management of TDL for good adoption of integrated concept in the organization. In deed now day different industries and different organizations all over the world within each industry develop diverse supply chain management integration strategies, based on the customer segments to be served, the products and services offered, and the geographic locations involved.

Actually establishment of integrated concept in the supply chain or in the organization in general is very hard process. Since it requires not only the close synchronization of all daily and planning processes, but also the removal of departmental biases and the establishment of strategic congruence and consensus. However, the advantages of integrated supply chain had been evident in a study conducted by the Global Procurement at Michigan State. The study showed that organizations that involved suppliers earlier on in the product-design and development process consistently outperformed those that did not.

4.3.3 Factors Affecting Supply Chain Strategies

Although it has been shown from sections above-supply chain in this organization was effectively but there must be some stressors somewhere stressing supply chain

management in this organization. There is the proverb which says that "there is no good without bad" just like no "winner without looser." Therefore, the third objective of this study aimed at identifying factors affecting implementations of supply chain management strategies at TDL. Again nine instruments aspired to indentify the said issue were prepared and submitted to the respondent to give their opinions concern with matter. Questions were in the Likert scale ranging from strongly I disagree with the factor to strongly I agree with the factor in disturbing supply chain strategies.

The nine items/variables analysed were general management incapability, employees' incapability, high management cost, low product quality performance, process and technology incapability, improper production scheduling, policies and regulatory appliance, improper distribution time management and supplier(s) misbehave. The mean scores and Chi-squire values were employed to compute for the factors affecting implementations of supply chain strategies. The following numerical value and interpretation were used in this regard.

Mean Range	Response Mode	Interpretation
3.26-4.00	Strongly Agree	A great challenge
2.51-3.25	Agree	Some
1.76-2.50	Disagree	Not so much
1.00-1.75	Strongly Disagree	None

Table 4.7: Factors Affecting Supply Chain Strategies-*ANOVA's Summary*

Items	Frequency	Mean	Sig.	Interpretation
General management incapability	50	1.68	0.339	None
Employees incapability	50	2.06	0.224	Not so much
High management cost	50	3.00	0.635	Some
Low product quality performance	50	1.90	0.046	Not so much
Process and technology incapability	48	2.33	0.008	Not so much

Improper production scheduling	48	2.69	0.007	Some
Policies and regulatory appliance	47	2.47	0.118	Not so much
Improper distribution time management	48	2.15	0.099	Not so much
Supplier(s) misbehave	48	1.98	0.751	Not so much
Average Mean Score	**2.25**			**Not so much**

Source: Field Data

Table 4.7 presents factors causing challenges in implementation of supply chain management in TDL. High management cost ranked highest with mean (3.00) which is *some*-how challenged. Improper production scheduling was also rated *some* with a mean of (2.69). The following 6 items were also rated *not so much*: employees' incapability (2.06), low product quality performance (1.90), process and technology incapability (2.33), policies and regulatory appliance (2.47), improper distribution time (2.15), and supplier(s) misbehave (1.98). Generally, average mean was (2.25) which is *not so much*. These items give an implication that challenges in implementation of supply chain management in TDL is at lower level. However, it was shown that general management was effectively in ensuring planed supply chain strategies were implemented-this is why associated challenges have been rated low (not so much).

From interviews with respondents, the study also found that supply chain management at TDL is also affected by factors related to suppliers of raw materials. These factors include; late delivery of raw materials, delivery of poor quality raw materials and delivery of raw materials in a lower quantity that the order one. All these factors disrupt the production process and may result in low production. If you will go back in the table (Table 4.7) you will see that supplier misbehavior was rated as the challenger in TDL supply chain-indeed it was but not so much challenging the chain. Therefore researcher tried his best to found out which measures were taken to reduce or to

eliminate challenges from suppliers, and discussion with procurement officer on the issue of quality of raw materials supplied to TDL, the procurement manager said;

> *"In order to protect TDL from the risk of being supplied low quality raw materials, TDL has appointed an independent superintendent company to inspect raw materials supplied by suppliers. The inspection is carried out at TDL's expense. TDL reserves the right to reject raw materials if the inspection indicates that the raw materials do not conforming to the required standards".*

In the interview process some other challenges were revealed some were outside and other inside of TDL control. It was frequently mentioned that poor road infrastructure in the country was among the major factor affecting distribution of finished products by TDL through it's wide network of dealers scattered throughout the country. Since the main method of distributing finished products by the company is through road, poor road infrastructure deeply affects the logistical planning of distribution of products to consumers by making the process more expensive. This can be the reason why high management cost was ranked as a high challenge in the implementation of supply chain strategies. One of manager he said that

> *Due to poor condition of roads, sometimes it takes longer for TDL's distribution trucks to reach their intended destinations. As a result transportation costs become higher. …….poor road infrastructure also causes losses to the company due to breakage of some bottles while on transit. Due to these breakages, the company has been incurring huge losses to the company (One of Manager).*

At the same time, due to breakage of bottles while on transit, consumers who were supposed to receive that consignment of goods are faced with a temporary shortage which created an opportunity for unfaithful dealers and traders to raise the price of the products due to higher demand for the products. In the end, this affects to final consumer paints a negative image of the company among consumers.

Other factors which affect supply chain management at TDL include are caused by poor management and poor communication between the management. It was researcher opinion that the management of TDL should strive to establish clear lines of communication between it's staff members and between it's various departments. In order to overcome supply management challenges arising from poor management and communication between staff members in various departments of TDL.

4.3.4 Measures to Improve Supply Chain Management

The last specific objective of the present study needed to identify measures to be taken to improve supply chain management at TDL. The results were analyzed using thematic analysis. The results present the common themes that emerged from the interviews as they support this objective. It should be noted that the themes do not indicate the number of respondents who identified a specific theme, and in many instances the respondents mentioned the same theme. In certain instances researcher asked respondents probing questions in order to confirm the common themes. The themes emerging from the discussion regarding measures to improve supply chain management: improve team working and management, to expand market, employee more professional people, new machines, increase of employees' awareness, deliver at

right time and increase production. The above proposition was explained one by one wherein both primary data and secondary data were used to support the arguments.

4.3.4.1 Improve team working and management

Actually it has been reported that supply chain is all about integrated approach, a team work and about collaboration. So in simple, team working is about motivated team working towards success with a common goal. Researcher argued that success of any supply chain largely depends upon collaboration and team work; because supply chain has many facets which are integrated and an independent approach would defeat the very objective of supply chain.

Harland felt that supply chain is about management of network of activities involved in delivering a product or service, "*Supply chain management (SCM) is the management of a network of interconnected businesses involved in the ultimate provision of product and service packages required by end customers*" (The words are Italic because were taken directly from the source*:* Harland, 1996).

Supply Chain is a process/system that manages customer order from receipt to delivery through its network of related activities that have primary focus to manage seamless/faultless flow of information, product and also cash flows. Apart from managing product, information, and cash flows supply chain would target maximization of return on investment to the shareholders. In order to maximize profitability of the organization, all functions/activities within supply chain should have common goal and work as a team collaborating with other functions within the business.

4.3.4.2 To Expand Market

It was said by some respondent that TDL need to craft it marketing plan and strategize an expansion implementation plan. Since geographical expansion of business is another way to achieve growth it was suggested that in order to win today business competition and grab big market share TDL have to increase outposts/satiations for it products, to have more argents outside Dar es Salaam and even outside the country.

During this study researcher used to tall to different people concern with the issues which were frequently arose and the whole study in general. In the discussion with one professional marketer researcher noted her saying that

> *Market expansion can consist of opening an office in a new location or simply putting a salesman in a new market, or even using the benefits of the internet to expand your company.*

Researcher of present study advice management of TDL to open more sales point all over the country as the idea has been supported by interviewee and other supporting secondary materials. Moreover there is the need to conduct another study examining applicability of TDL's products and customer satisfaction, in view of the fact that this study did not cover this part.

4.3.4.3 Employee more Professional People

It is clear to the manufacturers that developing countries especial African countries are the nations at risk when it comes to preparing their young people for real life and real jobs. The timing could not be worse. As competition intensifies in the global marketplace, developing countries' manufacturers are having a tough time finding qualified people to replace the retiring baby boom generation in increasingly high-tech and sophisticated jobs. Furthermore Tanzania's public school system is failing to make

education relevant to today's career opportunities; this has been reported in various local media and in parliament debates.

Therefore the issue of lack of professional employee in TDL is beyond TDL scope-it is the nation scandal with depth roots directly from education system used in the country which does not prepare student to 21st century production. All most all manufacturers in this country report shortages of qualified workers. While manufacturing provides good, family-supporting jobs with the highest average salary among all business sectors, young people, the education programs do not offer manufacturing's promising career opportunities. The education and business communities must work more closely together to align educational programs with the academic and occupational skills necessary for 21st century manufacturing careers.

4.3.4.4 New Machines

Without a doubt during the time of this study TDL was using outdated machine. Almost every respondent who participated in this objective wanted TDL to adopt new technologies and migrate from use of old machine to modern machine. They said trucks used were very old which in turn mechanical break down every time. Some time organization incurred more costs by hiring trucks when most of its trucks were down for mechanical problems. Additionally there were also suggestions from these interviews for management of TDL to buy new production machines.

This problem of using outdated machine is not only in Tanzania-it is the problem of Africa or all developing countries in general. From informal source of data researcher found clue that in developing countries enterprises have a slower technology adoption

rate and more difficulties realizing the technology's benefit than those in developed countries. Findings from the study by Faisal (2012) shown that African companies online sales is virtually nil. According to research conducted by Mensah and Marfo (2009) in Ghana revealed that about 65% manufacturing companies uses lower technologies in production. Although poor technology had been shown to be epidemic disease of manufacturing industries in African countries but researcher advised TDL to start adopting new technologies so that it can hit at least east Africa market.

4.3.4.5 Increase of Employees' Awareness

From interviews with respondents, the researcher also found that lack of awareness on supply chain management among some staff members at TDL also affects supply chain management effectiveness. Lack of awareness on supply chain management issues often results in poor planning of transportation logistics such as; calculation of transportation costs and optimization of distribution routes.

4.3.4.6 Increase Production

The study argued that productivity growth is important to the any firm (either manufacturing, service, or sales farms) because more real income means that the firm can meet its (perhaps growing) obligations to customers, suppliers, workers, shareholders, and governments (taxes and regulation), and still remain competitive or even improve its competitiveness in the market place. Interviewed officers had noticed low productivity in TDL and put forward that there was need to increase output while minimizing input in manufacturing activities in Tanzania Distillers Limited. It is better to know that productivity is the ratio of output to inputs in production; it is a measure of the efficiency of production.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter presents the conclusions of the study and recommendations from the researcher to the officers of TDL and general management on what to be done to improve on supply chain management.

5.2 Summary of the Findings

The study was carried out to examine factors affecting supply chain management in manufacturing companies by focusing on Tanzania Distilleries Limited (TDL) as a cases study. Four specific research questions were imposed and these were: what are

supply chain management practices used by TDL? How effective is supply chain management at TDL? What are the challenges faced by TDL in implementing supply chain strategies? What measures should be taken to improve supply chain management at TDL?

Concern with supply chain management practices used by TDL, there were nine constructs to be studies and the results obtained from analysis shown that the seven constructs which are planning for supply chain, supplier(s) relationship management, manufacturing flow management, product development management, customer service management, order fulfilment, and audit performance of supply chain were rated high at means of 3.74, 3.52, 3.65, 3.61, 3.57, 3.48, and 3.72 respectively. While the two constructs demand management and return management were rated low at means of 3.23 and 2.16 respectively, and the average mean was 3.4.

On the other hand there were seven items for determining effectiveness of supply chain management at TDL. The result were showing that selection of supplier(s), purchasing, transporting, stocking, and distribution were rated very high at means of 3.46, 3.66, 3.80, 3.67 and 3.60 respectively. While the remaining two items manufacturing and warehousing were rated 3.22 and 3.23 respectively. The average mean was 3.52 signifies respondents had agreed supply chain management in TDL was strongly effectively used.

The results of the challenges faced by TDL in implementing supply chain strategies were as follow: high management cost of supply chain and improper production scheduling were ranked high with mean of 3.00 and 2.69 respectively. While

employees' incapability (2.06), low product quality performance (1.90), process and technology incapability (2.33), policies and regulatory appliance (2.47), improper distribution time (2.15), and supplier(s) misbehave (1.98) were rated low. Generally, average mean was (2.25) which imply challenges were not so much.

Lastly it was measures to be taken to improve supply chain management at TDL. And the themes emerging from the discussion regarding measures to improve supply chain management: improve team working and management, to expand market, employee more professional people, new machines, increase of employees' awareness, deliver at right time and increase production

5.3 Conclusion of the Findings

Using mean score methods of interpreting data the study concluded that supply chain management in TDL was effectively practised. The average means score obtained was 3.4 which was interpreted as frequently use of studied constructs of supply chain. The constructs ranked high or identified to be frequently used in supply chain practised were: planning for supply chain, supplier(s) relationship management, manufacturing flow management, product development management, customer service management, order fulfilment, and audit performance of supply chain.

However, the study concluded that supply chain management in TDL was very effective and well performing. All seven studied instruments for measuring effectiveness of the said management. The instruments were selection of supplier(s), purchasing, transporting, manufacturing, stocking, warehousing and distribution. These were positive and significant at the 5% level of significance. The third question was

asking for the challenges faced by TDL in implementation of supply chain strategies. In general the study concluded that the challenges were not so big, mean score method was applied to intemperate the results of this objective and the average mean score was 2.25 which was interpreted as the challenges was not so much. Areas which shown to be somehow challenge implementation of the supply chain strategies were management cost (mean 3.00) and improper production scheduling (mean 2.69). While challenges from other remained 6 items were rated *not so much*.

Lastly it was concluded that in order for the TDL to improve supply chain management to better levels the following had to be carried out: improve team working and management, to expand market, employee more professional people, to adopt new production machines, increase of employees' awareness, deliver products at right time and to increase production.

5.4 Implication of the Findings

Since the study fund supply chain to be very effective in this TDL, therefore, it implies that there was integrated decision making (team working) in TDL. This was also affirmed by the results which showed that the challenges faced TDL in supply chain management was not so much. However it can be said that TDL was perfect in production and distribution of it products to the clients, for that reason other manufacturing industry can copy and adopt supply chain management of TDL.

5.5 Recommendation

To improve supply chain management practices at TDL, the researcher recommends the following measures to be taken by TDL; to avoid supply management challenges arising from the supplier side; in future supplier contracts, TDL should only consider suppliers who have demonstrated reliability by fulfilling its obligation of the contract despite any contingencies or emergencies that may arise. To overcome the challenge of lack of awareness on supply management practices among some of it's staff members, TDL should provide frequent training to staff members on the best practices of supply chain management in form of seminars and workshops. TDL and any organization intends to achieve operational efficiency and productivity must place great importance to the management of supply chain so as to reduce inventory, increase the speed of transactions, reduce cost and eliminate waste. TDL should invest more on the development and training of its employees through seminars, workshops and short study courses for effectiveness and efficiency in the performance of operations and the elimination of wastes.

The education and business communities must work more closely together to align educational programs with the academic and occupational skills necessary for 21st century manufacturing careers. Lastly researcher advised that effective logistics supply chain management is of great necessity for organizational efficiency. To ensure high quality of materials the organization must maintain a constant quality and process checks and a partnership relationship with suppliers.

5.6 Area for Further Study

It would also be interesting to expand this study to other industry in the region and in other manufacturing industries other than distillation industry. In addition, there is need to study additional factors in an organization culture that influence supply chain management. For example, it would be interesting to study the effect of workplace cooperation in management of supply chain.

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APPENDIX

Appendix: Supply Chain Management Practices

Table 4.7: Supply Chain Management Practices-*ANOVA*

		N	Mean	df	Sign	Interpretation
Planning for supply chain	Supplying officers	8	3.88			
	Store keepers	9	3.78			
	Marketing	10	3.7			

	officers					
	Transporting officers	5	3.4			
	Sales officers	15	3.8			
	Managers	3	3.67			
	Total	50	3.74	5	0.881	Used frequently
Supplier(s) relationship management	Supplying officers	8	3.38			
	Store keepers	9	3.33			
	Marketing officers	10	3.8			
	Transporting officers	5	3.6			
	Sales officers	15	3.47			
	Managers	3	3.67			
	Total	50	3.52	5	0.366	Used frequently
Manufacturing flow management	Supplying officers	8	4			
	Store keepers	9	3.67			
	Marketing officers	10	3.6			
	Transporting officers	4	3.25			
	Sales officers	15	3.6			
	Managers	3	3.67			
	Total	49	3.65	5	0.385	Used frequently
Product development management	Supplying officers	7	4			
	Store keepers	9	3.67			
	Marketing officers	10	4			
	Transporting officers	5	3.2			
	Sales officers	15	3.4			
	Managers	3	3			
	Total	49	3.61	5	0.097	Used frequently
Customer service management	Supplying officers	8	3.75			
	Store keepers	9	3.44			
	Marketing officers	10	3.9			
	Transporting officers	4	3			
	Sales officers	15	3.47			
	Managers	3	3.67			
	Total	49	3.57	5	0.317	Used frequently

Demand management	Supplying officers	7	3.14			
	Store keepers	9	3.44			
	Marketing officers	10	3.1			
	Transporting officers	4	2.5			
	Sales officers	15	3.33			
	Managers	3	3.67			
	Total	48	3.23	5	0.291	Used occasionally
Order fulfilment	Supplying officers	8	3.62			
	Store keepers	9	3.44			
	Marketing officers	10	3.9			
	Transporting officers	5	2.4			
	Sales officers	15	3.53			
	Managers	3	3.33			
	Total	50	3.48	5	0.050	Used frequently
Return management	Supplying officers	8	2.12			
	Store keepers	9	2.11			
	Marketing officers	10	2.2			
	Transporting officers	5	2			
	Sales officers	14	2.36			
	Managers	3	1.67			
	Total	49	2.16	5	0.953	Used rarely
Audit performance of supply chain	Supplying officers	8	4			
	Store keepers	9	4			
	Marketing officers	10	3.7			
	Transporting officers	5	3			
	Sales officers	15	3.6			
	Managers	3	4			
	Total	50	3.72	5	0.318	Used frequently

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Appendix II: Questionnaire to Respondents

Introduction

Dear Entrepreneur, I am master student at Open University of Tanzania undertaken an academic study on the factors affecting supply chain management in manufacturing companies in Tanzania. Your responses will be treated confidential and used for only academic purpose. Please tick [√] the appropriate box for your answers.

SECTION A

1. What is your gender?

Male (1)	Female (2)

2. Select your age group.

Below 20 years (1)	20-29 years (2)	30-39 years (3)	40-49 years (4)	50 and above (5)

3. Select your highest academic or professional qualification? Select only one

Primary (1)	Sec/certificate (2)	diploma (3)	Bachelor (4)	Master/PGD (5)	PHD (6)

4. Your years of experience in GBT

>1 year	2-5 years	6-10 years	11-15 years	16-20 years	21-25 years	26-30 years	31< years

5. Professional status: _____

6. Position: _____

SECTION B

7. The followings are the variables of supply chain management practice. The study what to know if they are performed by TDL in supply chain management. Therefore rate your opinions on the given variables with regard to this theme. The survey scale range from **1= use frequently, 2= use occasionally, 3= use rarely and 4= does not use**

S/N	**VARIABLES (does TDL use the following variables of supply chain management?)**	**1**	**2**	**3**	**4**
i.	Planning for supply chain				

ii.	Supplier(s) relationship management				
iii.	Manufacturing flow Management				
iv.	Product development management				
v.	Customer service Management				
vi.	Demand Management				
vii.	Order Fulfillment				
viii.	Returns Management				
ix.	Audit performance of supply chain				

8. Is/are there any kind of management performed by TDL in it supply chain management which has/have not been mentioned on the table above?

   YES [ ] NO [ ] If YES mention-and comment on their use

   _____

   _____

9. What can you say about/comment on supply chain management practice conducted by TDL?

   _____

   _____

10. The study what to know effectiveness of supply chain management at TDL. Therefore rate your opinions showing if there is integrated decision in supply chain management practices of TDL in the Likert scale given below ranging from **1= Strongly YES, 2= YES, 3= NO and 4= Strongly NO.**

S/N	**VARIABLES (In supply chain management practice conducted by TDL; is there integrate decision related to the following variables)**	**1**	**2**	**3**	**4**

x.	Selection of supplier(s)				
xi.	Purchasing				
xii.	Transporting				
xiii.	Manufacturing				
xiv.	Stocks				
xv.	Warehousing				
xvi.	Distribution				

11. In general what can you say about decision making in supply chain management practices performed by TDL?

    _____

    _____

12. In general, how can you judge effectiveness of TDL in managing supply chain?

    _____

    _____

13. You have been given list of variables (questions in form of short statements) aimed at understanding factors affecting implementation of supply chain strategies at TDL. Please rate your opinion in the Likert scale ranging from **1= strongly Agree, 2= Agree, 3= Disagree and 4= Strongly Disagree**

S/N	**VARIABLE (How do you rate the following as the challenges in implementation of supply chain strategies in TDL)**	**1**	**2**	**3**	**4**
I	General management incapability				
II	Employees incapability				
III	High managements cost. (e.g customer service cost)				
IV	Low product quality performance				
V	Process and technology incapability				
VI	Improper production scheduling				
VII	Policies and regulation appliance				
VIII	Improper distribution time management				
IX	Supplier(s) misbehave				

14. What other factors challenging implementation of supply chain strategies at TDL.

    _____

    _____

15. Which measures do TDL has taken to try to reduce if not to eliminate challenges in implementation of supply chain strategies?

    _____

    _____

16. In your own opinions, what should TDL do in order to implement effective supply chain management strategies?

    _____

    _____

Thank For Your Time and Responses