TOPIC: INFORMATION SHARING, INVENTORY MANAGEMENT AND CUSTOMER SATISFACTION IN

THE DOWNSTREAM CHAIN OF MANUFACTURING FIRMS IN UGANDA.

BY

NAMAGEMBE SHEILA

REG NO. 2007/HD10/11460U

A RESEARCH REPORT SUBMITTED TO MAKERERE UNIVERSITY BUSINESS SCHOOL IN PARTIAL

FULFILLMENT OF THE REQUIREMENTS OF A MASTER OF SCIENCE IN PROCUREMENT AND SUPPLIES

MANAGEMENT OF MAKERERE UNIVERSITY.

OCTOBER, 2010.

DECLARATION

I Namagembe Sheila declare that the research report is my original work and has not been submitted for any other degree to any university or higher institution.

Signature Namagembe Sheila 2007/HD10/11460u

Date:....

APPROVAL

This report has been submitted for examination with our approval as university supervisors

.....

Signature

Supervisor: Professor John Munene

Date:....

.....

Signature

Supervisor Dr. Muhwezi Moses

Date:....

DEDICATION

I dedicate this work to my parents, supervisors and friends for the over whelming support, advice and encouragement that they gave to me during the research process.

ACKNOWLEDGEMENT

I would like to take this opportunity to thank the business school for the opportunity granted to me, my supervisors who gave me guidance as far as research was concerned, my parents, sisters, brothers and friends who gave me the support when I was in need.

Table of contents

.

Declaration	I
Approval	
Dedication	
Acknowledgement	IV
Table of contents	V
List of tables and figures	VI
Abstract	IX
CHAPTER ONE: Introduction	
1.1 Background of the problem	1
1.2 Statement of the problem	2
1.3 Purpose of the study	2-4
1.4 Research Objectives. 1.5 Research questions	2-3
1.6 Scope of the study	4
1.7 Significance of the Study	2-4
1.8 Conceptual framework	5-6
CHAPTER TWO: Literature review 2.0 Introduction	7
2.1 Information sharing and inventory management	7
, 2.1.1 Information sharing and inventory levels: .	8
1.2 Information sharing and inventory accuracy	8-9
2.1.3 Information sharing and inventory costs	
2.1.4 Information sharing and order lead time	

2.2 Inventory management and customer satisfaction	12
2.2.1 Inventory management and flexibility	13-14
2.2.2 Inventory management and customer loyalty	14-15
2.2.3 Inventory management and inventory returns	15
2.2.4 Inventory management and quality	15-16
2.2.5 Inventory management and on time deli every	15
2.2.6 Inventory management and repeat purchases	15
2.3 Information sharing and customer loyalty	17-18
2.3.2 Information sharing and inventory returns	18
2.3.4. Information sharing and qualit	18-19
2.3.5 Information sharing and repeat purchases	19
2.3.6 Information sharing and flexibility~	19-20
2.3.7 Information sharing and on time deli every Conclusion	20

CHAPTER THREE: Methodology

3.1 Research design	21
	21
3.2 Sample design	
3.3 Measurement of variables	122
3.4 Target population and study area	22
35 Sample size	23
3.6 Instruments and data collection	23
3.7 Sources of data	23
3.8 Data analysis	23

CHAPTER FOUR: Analysis and presentation of findings

5.4 Suggested areas for further research	43
5.4 Limitations of the study	
5 3 Recommendations	41-47
5.2 Conclusions	41
5.1 Discussion of findings	
5.0. Introduction	
CHAPTER FIVE: Discussion of findings, conclusions and recon	nmendations
4.5 T-test	
4.4Anova	
4.3 Regression analysis	
4.2 Correlation analysis	
4.1 Descriptlyestatistics	

List of tables and figures

TABLE: I: SAMPLE SIZE. POPULATION SIZE AND RESPONSE RATE	23
TABLE: 2 TYPE OF BUSINESS	26
TABLE: 3 THE TYPE OF BUSINESS WITH HIGHEST QUALIFICATIONS OF RESPONDENTS	27
TABLE: 4 THE TYPE OF BUSINESS WITH AGE OF RESPONDENTS	28
TABLE: 5 ZERO ORDER .CORRELATION	29
TABLE: 6 REGRESSION ANALYSES	31
TABLE: 7 HIGHEST QUALIFICATIONS OF RESPONDENTS WITH STUDY	VARIABLE 32
TABLE 8: AGE OF RESPONDENTS WITH THE STUDY VARIABLE	34
TABLE 9: T-TEST .SEX OF RESPONDENTS WITH THE STUDY VARIABLES.	
TABLE 10: THE STUDY VARIABLES WITH THE TYPE OF BUSINESS	36
FIGURE I: CONCEPTUAL FRAME WORK	5

ABSTRACT

The purpose of the study was to investigate the relationship between information sharing, inventory management and customer satisfaction in the down stream chain of manufacturing firms in Uganda. A quantitative cross sectional survey research design was used to establish the relationship between information sharing inventory management and customer satisfaction in the down stream chain of manufacturing firms in Uganda. A sample size of 523 respondents consisting of retailers and distributors was taken. The research findings indicated that there was a significant positive relationship between information sharing inventor sharing, inventory management and customer satisfaction.

Information sharing and customer satisfaction had Pearson correlation coefficient of 0.471 ** Information sharing and inventory management had Pearson correlation Coefficient=0.350** and Inventory management and customer satisfaction had Pearson Correlation coefficient of 0.394** Information sharing and inventory management significantly influenced customer satisfaction and this was supported by the value of R square which showed that they predicted the dependent variable by 25%. In conclusion Channel partners required the installation of information systems and customer collaboration in order to ensure better information sharing and inventory management hence leading to high levels of customer satisfaction.

CHAPTER ONE

1.0 BACK GROUND TO THE PROBLEM.

Manufacturing firms in Uganda are characterized by elongated or overextended chains of middlemen which include distributors and retailers (buyers/agents) which, in turn, mean long chains of transactions between chain members and consumers (Bibangambah, 2002).These chains are referred to as the downstream chains (Handfield , BarnHardt and Powel,2004).These in turn have led to poor access to appropriate market information (UNACTAD, 2006).This has been caused by lack of information networks within their downstream chain (Ministry of Tourism and Trade, 2005).

Limited or no access to timely information regarding both domestic and export markets especially with respect to such matters as supply volumes and quantities has led to supply shortages because players are never aware of how many orders a customer has placed and how much should be ordered from suppliers (Kaijuka, 1994-1999; Yorst, etal,2007). Okello (2007) showed that leading manufacturers in Uganda, such as Coca-Cola, Pepsi, Mukwano, Uganda Breweries, Nile Breweries, Britannia, Rafiki, Bata Uganda Ltd, British American Tobacco (BAT), Royal Foam and Vita Foam are faced with problems of wrong forecasting due to an availability of enough customer demand information. This has caused erratic deliveries in these firms, late deliveries and inflexibility hence affecting customer satisfaction with in their downstream chain (USAID, 2001: UNIDO, 2005).

Customers are concerned with the availability of the product and the ability of the firms to meet

their needs timely (Gunasekaran and Patel; 2001). They make repeat purchases based on the service provided by the chain partner.

Unavailability of inventory has affected customer satisfaction with in the downstream chain hence leading to loss of chain profits among the channel members (Verwijmeren, 1996).

In addition access to information in manufacturing firms and the down stream chain has been hampered by technological impediments such as lack of an information technology that has a greater orientation towards customer service (US AID, 1996). Individuals are unable to make contacts with the appropriate information providers due to some technological problems as well as ineffective collaboration (lack of market information net works) which has affected the better use and sharing of information to reduce uncertainty about future demand, encouraging more responsive manufacturing (Mayoni 2005;Okell, 2007)

1.2 Statement of the problem

Information sharing and inventory management are key important factors for the down stream chain. They enable firms in the chain match demand with supply. How ever firms in the down stream of manufacturing firms in Uganda face problems of lack of information sharing and poor inventory management which has affected their ability to satisfy their customers.

1.3 Purpose of the study

The study sought to investigate the relationship between information sharing, inventory management and customer satisfaction in downstream chains of manufacturing firms.

2

1.4 Research objectives

The research objectives were;

i). Establish the relationship between information sharing and inventory management in downstream chain of manufacturing firms

ii). Establish the relationship between inventory management and customer satisfaction in downstream chain of manufacturing firms

iii). Establish the relationship between information sharing and customer satisfaction in downstream chain of manufacturing firms.

iv). Establish the relationship between information sharing, inventory management and customer satisfaction in downstream chain of manufacturing firms.

1.5 Research questions.

The research questions were;

i). What is the relationship between information sharing and inventory management in downstream chain of manufacturing firms?

ii). What is the relationship between inventory management and customer satisfaction in downstream chain of manufacturing firms?

iii). What is the relationship between information sharing and customer satisfaction in downstream chain of manufacturing firms?

3

iv). What is the relationship between information sharing, inventory management and customer satisfaction in downstream chain of manufacturing firms?

1.6 Scope of the study

1.6.1 Content Scope

The research focused on information sharing, inventory management and customer satisfaction in the downstream chain of manufacturing firms.

1.6.2 Geographical Scope

The study concentrated on the down stream chain of manufacturing firms in Uganda with specific reference to Kampala.

1.7 Significance of the study

i). The research findings would help current and future firm owners and customers in designing mechanisms that ensure that information is shared hence leading to better inventory management that will improve customer satisfaction.

ii). The study adds to the existing literature on information sharing, inventory management and customer satisfaction in downstream chain of manufacturing firm.

iii). Creates knowledge and provide more information to future researchers and academicians.

iv). The findings avail information that will be useful to academicians in this field

v). It is useful to UMA, USSIA in designing policies.

Figure: 1

1.8 Conceptual model



Source: Cheung and Lee, 2002, Kwon and Suh 2004, Ratinasingam, Hau Tan and Pavlou 2002; Warketin etal, 2000 and Cachon and Fisher, 2000.

Description of the model

The essence of the research framework for this study is that successful customer satisfaction requires information sharing among the downstream chain partners' of manufacturing firms. Information sharing is required for better inventory management. Information sharing involves

sharing information about customer and inventory decisions made by different chain members. Better inventory management reduces excess inventory, better product forecasts, sufficient capacities and good customer service due to availability of products, certainty in production planning (Cheung and Lee, 2002).

Due to better inventory management, channel partners can satisfy customers' orders in better way

with increased responsiveness and flexibility which lead to customer satisfaction (Kwon and suh 2004; Ratinasingam, Hau Tan and Pavlou 2002; Warketin et al, 2000). Information sharing among the channel partners leads to better inventory management which leads to customer satisfaction. It enables channel partners to match supply with the customer's demand requirements. Through the use of information technology and customer collaborations, channel partners are able to achieve a high degree of flexibility and responsiveness in meeting customer needs (Cachon and Fisher, 2000).

1.9 Structure of the report

Chapter one looks at the back ground, statement of the problem, research objectives, research questions, scope of the study, purpose of the study and conceptual model.

Chapter two reviews literature concerning the study. Literature on information sharing and inventory management, inventory management and customer satisfaction, information sharing and customer satisfaction and information sharing, inventory management and customer satisfaction was reviewed.

Chapter three looks at the methodology. The chapter looks at the research design, sample design, target population, sample size, and measurement of variables, researches, research instruments and anticipated problems.

Chapter four looks at analysis, discussion and interpretation of findings.

Chapter five looks at the summary, conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter focuses on the literature of the study. The section was divided into three parts. Literature was reviewed while basing on the conceptual frame work.

2.1 Information sharing and inventory management

Information sharing has been shown to be the key to successful downstream chains (Aviv, 2003). According to Lee and Wang (2000), it provides information regarding inventory levels and position, sales data and forecasts, order status, production and delivery schedules and capacity. It is considered as the most reliable "real time" tool to decrease uncertainty in the chain which leads to the bullwhip effect (Lewis, 2003). This refers to variations in demand and supply which are caused by information uncertainties in the chain (Taylor, 2000). This helps to reduce safety stock at each stage which leads to a reduction in inventory carrying costs (Yao, Evers and Dresner, 2000).

Product and delivery lead times are shortened making products available on time to customers (Tachizawa and Ginemez, 2005). Access to information enables channel members to plan how much to stock for a given period of time (Fasanghari, Roudsari and Kamal, 2008). In order for information sharing to take place, chain partners should have a collaborative potential and IT infrastructure (Shore and Venkatachalam, 2003).

2.1.1 Information sharing and Inventory levels

Information sharing plays an important role in inventory management (Sabbath, 2008). This enables chain partners to plan properly, avoid inventory bottlenecks in the chain and avoid safety stocks both for all the channel members (Chandra, 2000; Patel, 2001).Normally, when a buyer needs a product, he places an order to a supplier. With information, chain partners are able to know when and how much to order and what to put in the inventory plan (Elvander, Sarpola and Mattson, 2007). In order to share information, a partnership is formed between the supplier and buyer in which the supplier takes care of the-orders and replenishing (Ahmed 2004).To accomplish this, the supplier (retailer or distributor) gets regularly information on the inventory level and sales data of the buyer via the web or Electronic Data Interchange (EDI) (Homburg and Grozdanovic & Klarmann, M, 2007). Thus, when inventory drops below a certain level, orders are generated automatically on behalf of the buyer. In this case, it is the supplier who creates and manages the inventory plan. Continuous replenishment (CR) and vendor managed systems are used to share information that is used to manage inventory levels (Skjoett et al., 2003; Cooke, 1998; Bernstein et al., 2005).

2.1.2 Information sharing and inventory accuracy

According to Fisher (1997), inventory accuracy is the ability to predict the true demand of a product. Trying to control inventory with bad information is futile (Taylor, 2000). All replenishment decisions are based on the status of your inventory (Sahay, 2003). Information sharing enables chain partners to make reliable delivery promises, keep inventory levels low and

.inventory records 98 percent accurate every day. Information systems provide -real time information which enables chain partners forecast accurately (Cross, 2000).

Use of systems like electronic data interchange, point of sale systems, enterprise resource planning systems enable inventory accuracy through the provision of accurate information (Weber and kantamneni, 2002). According to Kang and Gershwin (2005), chain partners experience inaccurate inventory records as a result of lack of collaboration while Raman et al. (2001) says that inventory records do not match with physical stock in chain partners' stores due to lack of collaboration.

2.1.3 Information sharing and Inventory costs

Silver et al. (1998) suggest, a partner's fate depends on how it manages its inventory. Much of the chain partners' costs are attributed to the amount it invests in inventory and associated holding, transportation, and management costs (Silver et al, 1998). According to Larry, Mulky and Harrington (1996), inventory has the biggest cost hidden in most chain partners' businesses. In addition, Fleisch and Tellkamp (2005) found out that inadequate information sharing results into inventory inaccuracies which increases the chain partners' holding costs and increases the out-of stock situations. The significant monetary investment in inventory only enhances the importance of better inventory management (Brewer and Speke, 2000).

In response, chain partners seek cost improvements by enhancing the efficiency of their inventory management systems (Verwijmeren, 1996). The use of systems like point of sale systems and collaboration helps chain partners to acquire information which reduces losses from

obsolescence, damaged inventory, handling costs, stock outs costs, enables proper demand planning and replenishment (Verwijmeren, 1996; Parks, 1999).Safety stocks are reduced through vendor managed inventory, just in time and consignment inventory (Simatupang and Sridharan, 2008; Keong, 2005). All those can be operated through the use of integrated systems like vendor managed systems and just in time systems (Keong, 2005). The reduction in safety tocks leads to reduced obsolescence and storage (Ahmed et al, 2005). Stock out costs are reduced has a result of parties in the chain sharing information which reduces demand variability (Simatupang and Sridharan, 2008).

2.1.4 Information sharing and inventory turns

Inventory turns refer to the number of times inventory is converted into cash (Koumanakos, 2008). Chain partners boost earnings by addressing our stock issues (Corsen and Gruen, 2003). High levels of inventories mean that there are low levels of inventory turns (Koumanakos, 2008). Non availability of stocks results into losses to all chain partners because customers may decide to buy another brand, buy items from another store or delay purchase. This comes as a result of information inefficiencies where the order information sent up the chain does not reflect the true consumer demand (Corsen and Gruen, 2003). A lack of inventory record accuracy clearly reduces chain profits due to lost sales and inventory carrying costs, which may run as high as 10 percent of existing profits (Raman et al., 2001).

According to Rogers et al. (1992), chain partners utilizing information systems get information which enables them to accommodate selected customer request and provide a greater number of services to customers which will in turn improve chain members' profits. Systems like automatic purchase ordering systems enable chain partners not to evaluate inventories by moving down the stores and making orders based on intuition and also improve inventory turns of component stocks, and uniform the deviation between components (Corsen and Gruen, 2003). Information sharing enables the chain partners to achieve revenue enhancements (Broersox, 1990; Lee et al., 1997). Information sharing through collaborative efforts enables chain partners focus on co-managed inventory by considering different levels of demand uncertainty which enables them to improve fill rate, increase inventory turnover and enhance sales (Parks, 1999).

They improve fill rates ensuring that all customer orders are delivered on time. This leads to sales enhancement through repeat purchases and increased number of customers (Gunasekeran and Tirtiroglu, 2001). It also leads to increased responsiveness to market demands, customer service and increases market share (Anderson and Lee, 1999; Corbett et al 1999; Mentzer et al, 2000; Mc Laren et al, 2002).customer service and responsiveness are increased through increased flexibility. Information sharing enables chain partners to make products or services available to meet individual demand of customers and also making changes in products or services or deli every dates based on the customer's requirement (Gunasekeran and Tirtiroglu, 2001).

Market share is increased through chain partners being able to have the best service level compared to competitors. To be competitive, chain partners must compare their service to those of their competitors (Gunasekeran and Tirtiroglu, 2001).

2.1.5 Information sharing and order lead time

Information sharing enables the chain partner to compress lead times, improve faster product to market cycle times, higher flexibility in dealing with supply and demand uncertainties (Bowersox, 1990; Lee et al., 1997; Anderson and Lee, 1999; Corbett et al., 1999; Mentzer et al., 2000; McLaren et al, 2002).With collaboration, customers are able to specify the kind of product they want and in what quantities (McLaren et al, 2002).Information sharing enables chain partners to compress lead times know how much they should have in stocks to meet customer demands. These stocks will enable chain partners to provide deliveries on time to their customers (keong et al, 2005). In case of non standardized products, chain partners will be flexible when the amount of time taken to fulfill customer orders is less than the amount of time the customer is willing to wait when the order is placed (Wallin, 2006).

Product to market cycles times are reduced when manufacturing firms collaborate closely with the downstream partners to obtain customer information and seize new market opportunities (Holmstrom, 2006). Information technology systems are used to encourage close collaboration and intensive information exchange between the down stream partners, thus creating a flexible and efficient down stream net work (Omara, 2004).

2.2 Inventory management and customer satisfaction

Better inventory management enables better customer satisfaction (Eckert, 2007). Customers are satisfied when suppliers fulfill their orders on time (Wilding ,2003). This makes channel partners keep buffer stocks to fulfill customer orders or enter into long term relationships which require commitment and trust (Wang,2002). Commitment is the desire to continue a relation ship and

may be defined in three dimensions; inputs to it, its durability and its on going consistency (Wilson,1995,p.337;Mowen and Minor,1998).Trust is the belief that a party's word or promise is reliable and a party will fulfill its obligations in an exchange relation ship. High levels of trust lead to high levels of customer satisfaction (Andaleeb, 1996).

Trust and commitment can be achieved through the use of vendor managed inventory, consignment inventory and just in time inventory management (Centikaya and Lee,2000).these enable channel partners to satisfy their customers' needs through providing on time deliveries which result into repeat purchases, positive word of mouth and reduced inventory carrying costs on the customers' side (Wang,2000).Malz, Arnold and Elliot (2008) point out that customer satisfaction is obtained through reducing order cycle time which leads to on time deliveries to the customer through reducing the manufacturer's production lead time. Customers are satisfied when suppliers are flexible and responsive (Verwijmeren, Vander and Donselaar, 1996).

2.2.1 Inventory management and flexibility

Flexibility is the extent to which the supplier is willing to make changes to accommodate the customer's changing or unforeseen needs and to making available the products/ services to meet the individual demand of customers (Humphrey and Tucker, 2003; Gunasekaran, 2001). It is particularly valued in case of unforeseen problems or short-term changes in the needs of the customer. Suppliers displaying flexibility will make quick responses to the buying firm's needs (Tachizawa and Ginemezi, 2005). There is need for willingness to modify inventory policies or procedures when this helps a customer (Cheung and Lee, 2002). Being flexible allows a supplier to demonstrate a general readiness to respond to customer needs and this is supported by the use

of information technology which enables integration and information flow within the chain (Romano, 2003).

Such technologies as flexible manufacturing systems (FMS), group technology (GT), and computer-integrated manufacturing (CIM) (Ndubisi et al, 2005). The flexibility of downstream chain is crucial in satisfying customers' changing needs in today's competitive and uncertain environments (Ndubisi et al, 2005). Chain partners keep excess stock in order to be flexible. They want to meet customer orders immediately the customer releases it, that is shortens the lead time (Ayad, 2008). These enable them meet the delivery dates and fill customer orders (Cetinkaya and lee, 2000). Customers may not return after experiencing many negative experiences and this means many lost sales to chain partners (Gruen and Corsten, 2006). Firms with advanced technology as their competitive edge can overcome stiff competition by introducing wide range of products to meet the different market segments and able to deliver quickly to the hands of customers before any of its competitors can do so (Ndubisi et al, 2005).

2.2.2 Inventory management and customer loyalty

Chain partners have got to be as efficient as possible (Introna, 1991). Customers have information concerning all products and services provided by chain partners in the market (Blather wick, 1996). They can very easily make a decision of taking their business elsewhere if a retailer, distributor or manufacturer cannot provide first class service in terms of availability of product (Blatherwick, 1996). Similarly, if retailers, distributors and manufacturers cannot compete on price, customers will very quickly be aware of this failing and transfer their loyalty. Customer expectations in terms of service, range, new products and promotions require chain partners to be flexible indeed (Howgego, 2002).

,They have to provide pre and post purchase satisfaction to a customer which results into brand loyalty of the customers (Agarwal, 2007).1n order to realize fully the benefits of downstream chain, chain partners have to develop end-to-end integration of systems which will reduce costs, improve distribution and inventory management and thus customer loyalty (Howgego, 2002).Such systems include the digital loyalty network (DLN) which enables chain partners to continuously collect and monitor their customer, product and downstream chain data and more precisely adjust engineering, production, distribution and sales/marketing activities to meet current, future demand and enhance their partnership with suppliers (Introna, 1991).

2. 2.3 Inventory management and inventory returns

Having the desired products on hand when the customer wants them is critical to satisfy customer needs. More and more chain partners are using inventory-management information to improve their ability to fulfill key customer demand and having the right product at the right time (Anonymous, 1998).Understanding consumer behaviors and market trends can help chain partners to satisfy customer needs and to manage inventory information efficiently (Lee and Kleiner, 2001).Customers will return the product if it does not meet their requirements (Stuart et al, 2005). Products are returned on the sequential consideration of product condition, obsolescence, back-order status and when products are not environmentally compliant (Stuart et al, 2005; Blengini, 2008).

2.2.4 Inventory management and quality

Customers are interested in getting defect free products (Davidson et al, 200I). This means that chain partners have to be flexible and responsive, so that they can be adapted to meet rapidly changing customer expectations (Davidson et al, 2001). There is need for commitment, co operation and integration among manufacturer, distributors and retailers to meet the changing customer expectations (Neave, 1995; Chelsom, 1998). In order to satisfy customers, it is crucial to meet their moment of value which means delivering the right product at the right time and in the right place (Haag et al, 1998). Chain partners ensure timely delivery of a product that the customer really wants through the use of systems like just in time systems.

2.2.5 Inventory management and on time delivery

Customers are satisfied when suppliers (retailers, distributors and manufacturers) are able to deli ever products or services as and when required. Chain partners maintain high levels of inventories at their stock point (Koumanakos, 2007). These reduce the amount of time it takes to deliver the product to the consumer (David et al, 2001). However having these high levels of inventories only works for standardardised products ((David et al, 2001). They would actually be counter –productive to meeting customers' needs for non standardized products (Newman and Sridharan, 1995; Johnson and Mattson, 2003; Vollmann et al, 2005)

Efforts would be directed to sell what they have rather than what they have rather than what the customer wants in an attempt to use up inventory. Incase of non standardized products, customers are satisfied when the amount of time it would take to satisfy the customers is less than the amount he customer is willing to wait, once an order has been placed (Wallin,2006). Chain partners have to be flexible in order to satisfy customers' needs immediately (Gunasekaran,2001). In order to be flexible, chain partners may be required to maintain high stock levels or using information technology which helps chain partners to be

flexible through providing timely information which leads to better customer service and inventory management (Ellram, 1999).

2.2.6 Inventory management and repeat purchases

Chain partners are facing a challenge of retaining loyal customers (Agarwal, 2007) .They have to provide pre and post purchase satisfaction to a customer resulting in repeat purchases. Prepurchase satisfaction takes into consideration quality, provision of transport, fair prices and flexibility while post purchase satisfaction looks at service management activities such as repair services which depend heavily on reverse logistics operations (Amini et al, 2005; Howgego, 2002).

Safety stocks are maintained to reduce the fear chain partners have of loosing a customer due to un availability of a product (Anonymous,1998).Understanding consumer behaviors and market trends can help chain partners to satisfy customer needs and to manage inventory information efficiently (Lee and Kleiner,2001).Customers will return the product if it does not meet their requirements (Stuart et al,2005).Products are returned on the sequential consideration of product condition,obsolelecence,bark order status and when products are not environmentally compliant (Stuart,2005;Blengini,2008).

2.3 Information sharing and customer satisfaction

Chain partners look at information as being power in the downstream chain. This information enables chain partners gain competitive advantages through increased customer loyalty, repeat purchases, improved quality products and increased flexibility (Fawcett et al, 2007). Connectivity and collaboration enable chain partners to share such information. As a result, chain partners are willing to share information that they perceive may place their organizations at a competitive advantage. A company's willingness to share information that is, its openness to sharing relevant information honestly and frequently ultimately determines the extent of sharing that takes place (Lee et al., 2000; Mendelson, 2000). Huge investments in technology can be negated by an unwillingness to share needed information.

2.3.1 Information sharing and customer loyalty

Information sharing is conceptualized as the willingness of chain partners to voluntarily provide focused chain-specific information that can be used to help build and maintain customer relationships. Using focused individual customer relationships systems enables chain partners to position their firms toward realizing strategic advantage (Campbell, 2003). Focused customer information can help support the development of customized products and services that is products that meet customer demand (Spekman and Carraway, 2006).Customers are considered as the firm's most valuable asset (Blattberg and Deighton, 1996; Bolton et al., 2004; Peppers and Rogers, 2004).

Firms increase customer lifetime value (CL V) by building and maintaining relationships with its customers. Through information sharing, firms are able to get information on customer behaviors and activities that affect firm profitability from each customer. In order to maintain customer loyalty, chain partners employ business-to-business (B2B) loyalty programs (Capizzi, 2002). Loyalty programs are coordinated, membership-based, marketing activities designed to enhance closer, more cooperative relationships among pre-identified customers toward specific products

and services offered by the program sponsor (Lacey and Sneath, 2006). Through targeted communications and customized delivery of goods and services, B2B loyalty programs attempt to build stronger bonds with the customers.

2.3.2 Information sharing and inventory returns

Having the desired products on hand when the customer wants them is critical to satisfy customer needs. More and more chain partners are using inventory-management information to improve their ability to fulfill key customer demand and having the right product at the right time (Anonymous, 1998). Having information on consumer behaviors and market trends can help chain partners to satisfy customer needs and to manage inventory information efficiently (Lee and Kleiner, 2001). Customers will return the product if it does not meet their requirements (Stuart et al, 2005).

2.3.3 Information sharing and quality

Information sharing can lead to improved product quality (Menon et al., 1997).Modern consumers are more demanding than ever and have come to expect to pay the lowest possible cost for the highest possible quality (Avery, 1998; Cole, 1998; Reed et al, 1996; Scully and Fawcett, 1997).Customers are interested in getting defect tree products (Davidson et al, 2001). This means that chain partners have to ensure that they get information as far as the customer requirements are concerned, so that they can adapt their products to meet rapidly changing customer expectations (Davidson et al, 2001).There is need for commitment, co-operation and integration among manufacturer, distributors and retailers to meet the changing customer expectations (Neave, 1995; Chelsom, 1998).

2.3.4 Information sharing and repeat purchases.

Customers are concerned when chain partners do not deliver products that meet their specifications (Agarwal, 2007). Chain partners employ strategies that enable customers disclose their product information (Fritiche and Kim, 2003). The chain partner will then be able to provide a product that meets the customers' product specifications and the customer will then feel obligated to buy the product presented to him. In order to ensure that customers purchase more, chain partners have to be committed and consistent with what they have already done (Fritiche and Kim, 2003). Chain partners employ information systems and collaborate with their customers in order to offer the best services to them. These enable chain partners reduce purchase prices, save time and ensure on time availability of the products (Carter et al, 2004; Dai and Kauffman, 2002; Emiliani, 2004; Pinker et al , 2003; Presutti, 2003; Smart and Harrison, 2003; Smeltzer and Carr, 2002, 2003).

2.3.5 Information sharing and flexibility

Flexibility is the extent to which the supplier is willing to make changes to accommodate the Customer's changing or unforeseen needs and to making available the products or services to meet the individual demand of customers (Humphrey and Tucker, 2003; Gunasekaran, 2001).Frequent communication enables chain partners to react to demand changes (Kaipia et al 2002). This provides information on the changing customers' tastes and preferences. Chain partners will respond to such changes through the use of information technology which enables information flow within the chain and customer collaboration which shows the willingness of chain partners to release the information (Romano, 2003). The flexibility of downstream chain is

crucial in satisfying customers' changing needs in today's competitive and uncertain environments (Ndubisi et al, 2005).

2.3.6 Information sharing and on time delivery

Chain partners require information in order to make on time deliveries to their customers (Koumanakos, 2007).Customers are satisfied when suppliers (retailers and distributors) are able to deli ever products or services as and when required. Chain partners maintain high levels of collaboration and information technology in order to receive information concerning their customer needs .This reduces the amount of time it takes to deliver the product to the consumers (Davidson et al, 2001). Customers are satisfied when the amount of time taken to satisfy them is less than the amount of time they willing to wait, once an order has been placed (Wallin, 2006).Chain partners have to be flexible in order to beat the customer deli every dead lines (Gunasekara, 2001). In order to be flexible, chain partners may be required to share information which helps them deli ever with the customers specified deli every dates (Ellram, 1999).

Conclusion

As the foregoing indicates, information sharing is one of the downstream chain problems that affect inventory management. Whereas information sharing is the focus for all chain partners, there is need for establishment of customer collaborations and implementation of information technology infrastructures. Information technology cannot work in isolation; there is need for collaboration among chain partners. Information technology, customer collaboration and inventory management have a signifinicant influence on customer satisfaction.

CHAPTER THREE

Methodology

3.0 Introduction

The chapter presents methods that were used in the study. It includes research design, sample design, target population, sample size, and measurement of variables, research instruments, measurement of reliability of research instruments, data analysis and limitations encountered during the study.

3.1 Research design

The study used a quantitative and cross sectional correlational survey research design.

3.2 Sample design

The researcher used a disproportionate stratified sampling design. The researcher used a disproportionate sample design because the number of the people in the strata was different. Convenience sampling was used to select respondents who provided the required information during the study. All respondents from the different strata were chosen using convenience sampling.

3.3 Measurement of variables

Information sharing was measured using Morgan and Hunt (1994), Doney and cannon (1997) for trust, Morgan and Hunt (1994) and McDonald and Gandz (1992) for commitment and Sabbath (1998) for technology. The measurements looked at the retailer and vendor's benevolence, vendor and retailer's long term orientation, vendor and retailer's credibility. Measures for

information technology basically looked at the systems used in information sharing. Information sharing retailer had a reliability coefficient of 0. 73 and Information sharing -distributor had a reliability coefficient of 0.70

Customer satisfaction was measured using Vazquez et al (2004), Walter, Mentzer and Croxton (2002) and Berry and Parasuraman (1991) .The measures included Customer loyalty, repeated purchases, inventory returns, quality and flexibility. Customer satisfaction -retailer had a reliability coefficient of 0. 76 and customer satisfaction -distributor had a reliability coefficient of 0.77.

Inventory management was measured using Gunasekaran and Patel (2001) .Inventory management measures included order lead time, inventory accuracy, inventory turns, inventory costs and inventory levels. Inventory management -retailer had a reliability coefficient of 0.80 and inventory management -distributor had a reliability coefficient of 0.60.

3.4 Target population and Study Area

The researcher focused on an indirect chain consisting of registered distributors and retailers of manufacturing firms both on large and small scale. Managers of the distribution centers and retail businesses were interviewed regardless of whether they were owners or not owners of the businesses. The target respondents included 504 distributors and 1544 retailers. The total population was 2048. The researcher limited herself to Kampala because most of the manufacturing firms have agents in Kampala and it's a strategic business area where information technology is more developed compared to other area.

3.5 Sample size

The sample size was arrived at basing on Morgan and Krejecie (1970). The sample was drawn from a population size of 2043. The sample was 523 composed of 306 retailers and 217 distributors. 523 questionnaires were sent to respondent and 36I were received. A responsive rate of 69 %.

Table: 1 Population, sample size and number of respondents

Category	Population	Sample size	Respondents
Distributors	504	217	129
Retailers	1544	306	232
Total	2048	523	361

3.6 Instruments and data collection.

Self administered questionnaires were used to collect data. These were distributed to respondents and collected after they had been filled. A five point Likert scale was used with 1= strongly disagree to 5= strongly agree.

3.7 Sources of data

3.7.1 Primary sources of data
Primary data was obtained from respondents using self administered questionnaires to get data on the study variables.

3.7.2 Secondary data sources

Secondary data about the study variables was got from reports to strengthen the findings got the primary data.

3.8 Data analysis

Editing and coding of data was done when questionnaires were collected and there after data was analyzed. Data was analyzed using the Statistical Package for Social Scientists Software to find the correlation between the variables. The relationship between information sharing, inventory management and customer satisfaction was analyzed using Pearson correlation coefficient (establishes the significance and direction of the relationships between variables being studied), multiple regression (which determines the predictive strength of the independent variable on the dependent variable) ,reliability tests were also carried out , cross tabulations which describe sample characteristics and analysis of variance ANOVA tests and T-tests (which determine the difference in perception about the variables in relation to the sample characteristics).

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF FINDINGS

4.0 Introduction

This chapter is comprised of the presentation and analysis of findings. It includes descriptive statistics, correlation analysis, regression analysis, analysis of variance test and T tests. These show the results as tested by the objective of the study which were to;

i). Establish the relationship between information sharing and inventory management downstream chain of manufacturing firms

ii). Establish the relationship between inventory management and customer satisfaction in downstream chain of manufacturing firms

iii). Establish the relationship between information sharing and customer satisfaction downstream chain of manufacturing firms.

28

iv). Establish the relationship between information sharing, inventory management and customer satisfaction in downstream chain of manufacturing firms.

4.1 Descriptive Statistics

This section presents the general characteristics of respondents. Cross tabulations were used to indicate variations in the respondents' characteristics.

Table 2: Type of business

Gender	Type of business							
		Retailer	Distributor	Total				
Male	Count	133	66	199				
	Row%	66.80%	33.20%	100.00%				
	Column%	57.30%	51.20%	55.10%				
	Total%	36.80%	18.30%	55.10%				
Female	Count	99	63	162				
	Row%	61.10%	38.90%	100.00%				
	Column%	42.70%	48.80%	44.90%				
	Total%	27.40%	17.50%	44.90%				
Total	Count	232	129	361				
	Row%	64.30%	35.70%	100.00%				

Column%	100.00%	100.00%	100.00%
Total%	64.30%	35.70%	100.00%
P= 0.259,	df =1, Chi s	quare=1.274	

The results showed that 64.35% were retailers with 36.8% being male while 27.4% being females. There were 35.7% distributors with 18.3% being male while 17.5% being female. According to the results, there was no significant difference in the proportion of the male and female distributors and retailers.

Table 3: Type of business v	with highest q	Jualification of	respondent
-----------------------------	----------------	-------------------------	------------

Type of	Qualification of respondents							
ousiness		High	Diploma	Degree	Masters	Total		
		school						
Retailer	count	34	52	86	63	235		
	row%	14.50%	22.10%	36.60%	26.80%	100.00%		
	column%	69.40%	64.20%	68.80%	59.40%	65.10%		
	total%	9.40%	14.40%	23.80%	17.50%	65.10%		
Distributor	count	15	29	39	43	126		
	row%	11.90%	23.00%	31.10%	34.10%	100.00%		
	column%	30.60%	35.80%	31.20%	40.60%	34.90%		
	total%	4.20%	8.00%	10.80%	11.90%	34.90%		

Total	count	49	81	125	104	361
	row%	13.60%	22.40%	34.60%	29.40%	100.00%
	column%	100.00%	100.00%	100.00%	100.00%	100.00%
	total%	13.60%	22.40%	34.60%	29.40%	100.00%
	I	P=0.444, df=3	3, Chi squar	re=2.676		

The results showed that 13.6% of the respondents were of high school with 9.4% being retailers while 4.2% were distributors. There were 22.4% of the respondents who had diplomas with 14.4% being retailers while 8% were distributors, 34.6 had a degree with 23.8% being retailers while 10.8% were distributors and 24.9% had masters with 17.5% being retailers while 11.9% were distributors. According to the results, the proportion of retailers having the different qualifications was not significantly different from those of the distributors with the different qualifications. This means that the proportion of the retailers and distributors was equally distributed.

In the above results p= 0.444 a value that is greater than 0.05, there fore there is no significant difference in the proportion of retailers and distributors having the different qualifications in the down stream chain.

Type of business		1	Age of resp	ondents		
business		Below 25 yrs	25-35 yrs	36-45yrs	46yr+	Total
Retailer	Count	47	55	63	63	233

 Table 4; Type of business with age of respondents

	Row%	20.20%	23.60%	29.20%	27.00%	100.00%					
	Column%	75.80%	59.10%	70.80%	61.80%	66.00%					
	Total%	13.30%	15.60%	19.30%	17.80%	66.00%					
Distributor	Count	15	38	28	39	120					
	Row%	12.50%	31.70%	23.30%		100.00%					
	Column%	24.20%	40.90%	29.20%	38.20%	34.00%					
	Total%	4.20%	10.80%	7.90%	11.00%	34.00%					
Total	Count	62	93	96	102	353					
	Row%	17.60%	26.30%	27.20%	28.90%	100.00%					
	Column%	100.00%	100.00%	100.00%	100.00%	100.00%					
	Total%	17.60%	26.30%	27.20%	28.90%	100.00%					
	P= 0.093, df=3, Chi square 6.423										

The results showed that 17.6% of the respondents were below 25 years of age with 13.3% being retailers while 4.2% were distributors, 26.3 were between 25-35 years of age with 15.6% being retailers and distributors were 10.8%.27.2% were between 36-45 years of age with 19.3% being retailers 7.9% were distributors, 28.9% were 46+ years with 17.8% being retailers and 11% were distributors

According to the results, the proportion of the retailers and distributors falling in the different age groups was not significantly different. In the above results P=0.093 a value that is greater than 0.05 therefore there was no significant difference in the proportion of retailers and distributors and their age.

Variables	Information sharing	Inventory				
		management				
Information sharing	1.00					
Inventory management	0.35**	1.00				
Customer satisfaction	0.471**	0.394**				
**Correlation Significant at 0.001 level 1-tailed test						

Table 5; Zero Correlation (N= 216-328)

Objective one: The relationship between information sharing and inventory management

There is a significant positive relationship between information sharing and inventory management. Information sharing and inventory management have Pearson correlation coefficient= 0.350^{**} and P< or = 0.0I. This means that high levels of information sharing lead to better inventory management.

Objective two; The relationship between inventory management and customer satisfaction

There is a significant positive relationship between inventory management and customer satisfaction. Inventory management and customer satisfaction have Pearson correlation coefficient of 0.394**and P< or = 0.01 meaning that better inventory management leads to high levels of customer satisfaction.

Objective three; The relationship between information sharing and customer satisfaction

•

There is a significant positive relationship between information sharing and customer satisfaction. Information sharing and customer satisfaction have Pearson correlation coefficient of 0.471 ** and P< or = 0.01 meaning that high levels of information sharing leads to high levels of customer satisfaction.

Objective four; The relationship between information sharing, inventory management and customer satisfaction

There is a significant strong positive relationship between information sharing and inventory management. Information sharing and inventory management have Pearson correlation, coefficient= 0.350^{**} and P< or = 0.01. This means that high levels of information sharing lead to better inventory management. There is a significant strong positive relationship between inventory management and customer satisfaction. Inventory management and customer satisfaction have Pearson correlation coefficient of 0.394^{**} and P< or = 0.01 meaning that better inventory management leads to high levels of customer satisfaction.

There is a significant strong positive relationship between information sharing and inventory management. Information sharing and inventory management have Pearson correlation coefficient= 0.350^{**} and P< or = 0.01. This means that high levels of information sharing lead to better inventory management.

There is a significant positive relationship between information sharing and customer satisfaction. Information sharing and customer satisfaction have Pearson correlation coefficient

of 0.471 ** and P< or = 0.01 meaning that high levels of information sharing leads to high levels of customer satisfaction.

	-	D	•	
i shie	h.	Rear	PCCIUM	analysis
Lanc	υ,	INUSI	COSTOR	anarysis

Predictor	R-square	Adjusted R-	df	Mean	
		square		square	
	0.248	0.24	2	2.934	
	Standardized coefficients		Un standardized coefficients	Т	
	В	Std Error	Beta		Sig
Constant	1.555	0.299		5.198	0.000
Information sharing	0.444	0.075	0.387	5.931	0.000
Inventory management	0.138	0.039	0.211	3.236	0.001

Source: primary data

The independent variables explain the dependent variable by 24.8%. Information sharing and inventory management predict customer satisfaction. This is showed by the level of significance for both being 0.000 for information sharing and 0.001 for inventory management. The beta coefficient for information sharing was 0.387 and inventory management being 0.211. The remaining 75.2 is the influence of other factors other than those studied in customer satisfaction for example company policy, the supply chain environment and the people providing the service, top management support.

ANOVA

Table 7; The qualification of respondents with the study variables

Variables		Ν	Mean	Std Deviation	df	Mean Square	F	Sig
Information sharing	High school	39	4.2971	0.30342	3	0.874	7.18	0.000
	Diploma	61	4.1925	0.32789				
	Degree	98	4.2148	0.37571				
	Masters	84	4.0248	0.35033				
	Total	282	4.1648	0.36016				
Inventory management	High school	44	4.3409	0.43192	3	0.717	2.94	0.033
	Diploma	73	4.3927	0.40895				
	Degree	111	4.3303	0.46458				
	Masters	96	4.1814	0.60117				
	Total	324	4.3017	0.44985				
Customer satisfaction	High school	42	4.0643	0.29945	3	0.951	8.9	0.000
	Diploma	66	3.9409	0.34872				
	Degree	104	4.0298	0.32535				
	Masters	88	3.8136	0.32428				
	Total	300	3.9517	0.33961				

Source: Primary Data

The table above showed that there was a significant difference in the mean scores of information sharing among the distributors and retailers with the qualifications of high school, diploma, degrees and masters with P=0.000. Under information sharing the respondents with high school qualifications scored higher mean than the rest. They had a mean of 4.2971, followed by those

with degrees with a mean of 4.2148, then diploma with a 4.1925 mean, followed by those with masters with a mean of 4.0248. The respondents of high school have a high mean in information sharing because there no collaboration with in the Uganda environment but where there is collaboration, the highly learnt will share more information compared to those of high school.

There was a significant difference in the mean scores of inventory management among the distributors and retailers with the qualifications of high school, diploma, degrees and masters with P = 0.033 which is less than 0.05. The respondents of diploma scored the highest with a 4.3927, followed by the respondents with high school with a mean score of 4.3409, then degrees school with a mean score of 0.46458 and lastly masters with a mean score of 4.1814.

There was a significant difference in the mean scores of customer satisfaction among the distributors and retailers with the qualifications of high school, diploma, degrees, masters and professional with p=0.000. the respondents of high school had the highest mean score which was 4.0643 ,followed by the respondents with degrees with a mean score of 4.0298 ,followed by respondents with diplomas with a mean score of 3.9409 and lastly by the respondents who had masters with a mean score of 3.9409

This means that distributors and retailers having the different qualifications had different perceptions on information sharing, inventory management and customer satisfaction. This means that having the different qualifications had an effect on the channel partners' perception of the study variables.

Table 8: Age of respondents with the study variables

37

Variables		Ν	Mean	Std Deviation	df	Mean Square	F	Sig
Information sharing	Below 25 yrs	44	4.3239	0.34207	3	1.118	3.548	0.015
	25-35 yrs	71	3.994	0.34841				
	36-45 yrs	77	4.2076	0.32455				
	46 yrs+	83	4.1837	0.36344				
	Total	275	4.1639	0.36106				
Inventory management	Below 25 yrs	59	4.3708	0.41965	3	0.422	1.711	0.165
	25-35 yrs	88	4.215	0.46838				
	36-45 yrs	83	4.3012	0.43269				
	46 yrs+	89	4.3628	0.61251				
	Total	319	4.3075	0.49821				
Customer satisfaction	Below 25 yrs	53	4.0708	0.28914	3	0.345	3.030	0.030
	25-35 yrs	75	3.9553	0.33808				
	36-45 yrs	83	3.894	0.34433				
	46 yrs+	85	3.9418	0.35681				
	Total	296	3.9549	0.34076				

The results showed that there was a significant difference in the mean scores of the different distributors and retailers falling in the different age groups in information sharing. The respondents below 25 years scored more in information sharing having the highest mean score of 4.3239, followed by those between 36-45 years of age with a mean score of 4.2076, then followed by those who were 46+ years with a mean score of 4.1837 and lastly those with 25 -35

years of age with a mean score of 3.994. The respondents below 25 years shared information more than the others due to lack of collaboration with in the environment.

The was a significant difference of the respondents in customer satisfaction with p= 0.030 for customer satisfaction between retailers and distributors. The respondents below the age of 25 years had the highest mean score of 4.0708, followed by those with the age of 25-35 years with a mean score of 3.9553, then followed by those with the ages of 46+ years with a mean score of 3.9418 and lastly those with the age of 36-45 years with a mean score of 3.894. The young were more satisfied because it was easy for them to change their decisions to purchase a different product than that they had come to purchase which could serve the same purpose unlike the old.

There was no significant difference in the mean scores of the respondents in inventory management. P=0.165 for inventory management which was greater than 0.05.

Table 9: The sex of the respondents with the study variables

T-test

Variables		N	Mean	Std	Т	df	Sig (2-tailed
				Deviation			test)
Information sharing	Male	153	4.2238	0.3443	2.768	280	0.06
	Female	129	4.1066	0.3657	2.754		
Inventory management	Male	176	4.2981	0.44449	0.214	322	0.831
	Female	148	4.31	0.55904	0.209		
Customer satisfaction	Male	165	3.9785	0.34567	1.42	299	0.157
	Female	136	3.9225	0.32992	1.426		

Source: Primary Data

The table shows the mean scores for the male and female respondents in the different variables.

There was no significant difference in the mean scores of the male and female respondents in

information sharing, inventory management and customer satisfaction. The P value for inventory management was 0.831, customer satisfaction was 0.157 and information sharing was 0.06 which were all greater than 0.05. This meant that the sex of the respondents did not affect the way these people perceived the study variables.

Variables		N	Mean	Std	Т	df	Sig (2-tailed
				Deviation			test)
Information sharing	Retailer	177	4.2284	0.34723	1.62	282	0.000
	Distributor	107	4.0644	0.35794	1.62		
Inventory management	Retailer	220	4.3682	0.41202	2.39	324	0.001
	Distributor	106	4.1698	0.62134	2.45		
Customer satisfaction	Retailer	201	3.9677	0.35602	1.05	300	0.263
	Distributor	101	3.9213	0.30252			

Table 10: The type of business with the study variables

Source: Primary Data

There was a significant difference in the mean scores of the distributors and retailers in information sharing with P=0.000 for information sharing. The retailers had a higher mean score in information sharing. They had a mean score of 4.2284 while distributors had the lowest mean score of 4.0644.

The was a significant difference in the mean scores of respondents in information sharing with P= 0.001. The retailers had a higher mean score in inventory management. They had a mean score of 4.3682 while distributors had the lowest mean score of 4.1698.

There was no significant difference in the mean scores of retailers and distributors in customer satisfaction with p=0.263 a value greater than 0.05.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS OF FINDINGS

5.0 Introduction

The study focused on the relationship between information sharing, inventory management and customer satisfaction. The study was carried out to find out whether customer satisfaction in the downstream chain could be attributed to information sharing and inventory management levels.

This chapter is divided into four sections, .discussion of findings, conclusions, recommendations and areas for further research. These sections are guided by the study objectives.

5.1 Discussion of findings

The discussion of the findings is in relation with the objectives of the study.

5.1.1 Objective one; The relationship between information sharing and inventory management.

The Pearson correlation coefficient showed that there was a significant positive relationship between information sharing and inventory management. This means that high levels of information sharing lead to better inventory management. Findings were supported by (Fasanghari, Roudsari and Kamal, 2008) who said that for better inventory management, chain partners were required to share information among themselves. High levels of information sharing were enhanced by high levels of information technology and customer collaboration (Shore and Venkatachalam, 2003). These led to better inventory management. They enabled chain partners to get information as far as the inventory status was concerned, lead to inventory accuracy through better forecasting, reduced order time and reduced inventory costs (Lee and Wang, 2000).

This is attributed to the fact that the chain partners are willing to give out the required information to each other, implementation of information technologies like electronic data interchange (EDI),point of sell systems (POS) ,mobile phones and many others as well as collaboration among chain partners.

Objective two: The relationship between inventory management and customer satisfaction

The Pearson correlation coefficient showed that there was a significant positive relationship between inventory management and customer satisfaction. This implies that better inventory management within the downstream chain would lead to high levels of customer satisfaction. Findings were supported by Eckert (2007) who asserts that better inventory management leads to high levels of customer satisfaction. Customers were satisfied when suppliers fulfilled their orders on time.

This made channel partners to keep buffer stocks to full fill customer orders or enter into long term relationships which require commitment and trust (Wang, 2002).Better inventory management enhanced chain partner flexibility, repeat purchases, customer loyalty, reduced inventory returns due to improved quality (Wang, 2002). Without better inventory management customer requirements cannot be met on time. Implementation of information technologies and

existence of collaboration among chain partners led to better inventory management which enhanced customer satisfaction through on time availability of information concerning customer need. This is showed by the significant positive relationship between inventory management and customer satisfaction.

Objective three; The relationship between information sharing and customer satisfaction.

Pearson correlation coefficients indicated that there was a significant positive relationship between information sharing and customer satisfaction. This means that if information sharing increases, customer satisfaction is improved. According to Fawcett etal, 2007 information sharing enables chain partners gain competitive advantages through increased customer loyalty, repeat purchases, improved quality products and increased flexibility.

This enables them get information on the kind and type of products required by customers and hence they will transfer that information up the chain such that manufacturers produce such items.

Objective four; The relationship between information sharing, inventory management and customer satisfaction

Pearson correlation coefficients indicated that there was a significant positive relationship between information sharing and inventory management. This means that if information sharing increases, inventory management is improved. Similarly there was a significant positive relationship between inventory management and customer satisfaction. This means that high levels of inventory management lead to high levels of customer satisfaction. This is attributed to

44

existence of high levels of information technology and collaborations among chain partners (Shore and Venkatachalam, 2003).

Pearson correlation coefficients indicated that there was a significant positive relationship between information sharing and customer satisfaction. This means that if information sharing increases, customer satisfaction is improved. According to Fawcett eta!, 2007 information sharing enables chain partners' gain competitive advantages through increased customer loyalty, repeat purchases, improved quality products and increased flexibility.

Over all the findings showed significant relation ships among the variables and cases of ANOVA and T-TESTS, the findings showed that the young gave out more information more than the old because a collaborative environment was lacking in the Ugandan setting. Further still the respondents with qualifications of high school shared more information in a non collaborative environment than a collaborative environment. This meant that in order for old to share information there was need for a collaborative environment.

Also the significance difference among retailers and distributors in the T-TEST, meant that the retailers are smaller than the distributors so they old adopted the simple means to sharing information and managing their inventory management compared to the distributors who could afford to put the best systems in place and these could enable them share information and manage their inventories well.

The findings found out that there was no relation ship between sex and the study variables that is the sex of respondents did not affect their information sharing, inventory management and customer satisfaction in the down stream chain.

Lastly the regression value showed that information sharing had the highest beta coefficient which meant that more emphasis should be put on information sharing and then inventory management.

5.2 Conclusion

It was established from the study that there was a significant positive relationship between information sharing and inventory management, a significant strong positive relationship between inventory management and customer satisfaction, a significant strong positive relationship between information sharing and customer satisfaction and a significant strong positive relationship between information sharing, inventory management and customer satisfaction.

The study findings revealed that a significant positive relationship between information sharing and inventory management meant that if chain partners implement information technologies and collaborate among each other, then inventory management could improve. The research findings also revealed a significant positive relationship between inventory management and customer satisfaction. This implies that in order to obtain high levels of customer satisfaction, there is need for better inventory management. The research findings further showed significant positive relationship between information sharing and customer satisfaction. This implies that increased levels of information sharing among chain partners lead to improved levels in customer satisfaction.

5.3 Recommendations

The study focused on information sharing, inventory management and customer satisfaction in the downstream chain. since there were significant positive relationships between information sharing and inventory management, inventory management and customer satisfaction, information sharing and customer satisfaction and information sharing ,inventory management and customer satisfaction; the following recommendations were made,

It is recommended that chain partners should implement information systems. systems like EDI (electronic data interchange),ERP systems (enterprise resource planning systems),POS (point of sale systems and many others should be installed to provide information that will then be used to manage inventories very well among chain partners hence leading to customer satisfaction. These systems will be used to manage inventory levels, reduce inventory costs, lead time, increase inventory turns and customer service. They will promote flexibility, on time delivery hence leading to customer satisfaction.

Chain partners should collaborate amongst themselves which will facilitate information sharing, lead to better inventory management hence leading to high levels of customer satisfaction. This enables chain partners to develop willingness amongst them which will increase the level of information sharing.

The ministry of trade should give loans to USSIA and PSFI which will be given to the retailers and distributors to invest more in information technology which will then lead to improved information sharing and inventory management.

5.4 Limitations of the study

i). The researcher incurred high costs when conducting the study. The researcher tried to utilize the little money she had in order to finish her research.

ii). Since little research on information sharing, inventory management and customer satisfaction in downstream chains of manufacturing firms had been carried out here in Uganda, there was limited literature and scarcity of local secondary data hence foreign data was used in lieu. The researcher tried to carry out an internet search on all web sites to find out if there was any research in the area and she managed to get articles from the World Bank website, Google and Yahoo. She also went to UMA library and UBOS library where she managed to secure some information.

iii) Some respondents showed unwillingness and low cooperation in filling question. The researcher secured willingness from them through buying them lunch and meeting them in their free time.

iv). The researcher had to use a longitudinal research design but due to the time constraint, she decided to use the quantitative and cross sectional correctional survey research design.

5.5 Areas for further research

The study concentrated on information sharing, inventory management and customer Satisfaction. There is need for research in the following areas.

- Collaborative Inventory management and customer satisfaction.
- Information accessibility, Customer responsiveness and enhanced performance
- .Supply chain environment and customer satisfaction
- Relationship between qualifications and customer satisfaction in the down stream chain
- Relation ship between qualifications and inventory management in the down stream chain

References

Agarwal.V (2007). Contemporary Issues in Supply Chain Management: A case study of

Marico Industries, Supply Chain Management, New Century Publications, New Delhi, p. 152-165

Amini etal (2005) Quality in Supply Chain Management and Logistics

International Journal of Production Economics Volume 96, Issue 3, 18 June 2005, Pages 367-380

Anderson, D.L. and Lee, H.L. (199~), "Synchronized supply chains: the new IT frontier", in

Anderson, D. (Ed.), Achieving Supply Chain Excellence through Technology,

Montgomery Research, San Francisco, CA.

- Angulo, A., Watchman, H. and Waller, M.A. (2004), "Supply chain information sharing in a VMIpartnership", *Journal of Business Logistics*, Vol. 25 No.1, pp. 101-20.
- Anthony, DR (2000), "A two-phased approach to the supply network reconfiguration problem", *European Journal of Operational Research*, Vol. 122 No.1, pp. 18-30.

Anonymous. (1998). "Discount Stores ". Chain Store Age, pp.10A-11A.

Arnold, Maltz & Elliot (2008) Customer service in the distributor channel empirical findings Journal of Business Logistics

Ansari, A. and Modaress, B. (1990), Just in Time Purchasing, Free Press, New York, NY.

- Aviv (2001) The effect of collaborative forecasting on supply chain *performance Journal of management science* 47, pages: 1326 1343
- Ayad.A,(2008) Optimizing inventory and store results in big box retail environment International Journal of Retail & Distribution Management Vol. 36 No.3, 2008 pp. 180-191
- Baganha, M.P. and Cohen, M.A. (1998), "The stabilizing effect of inventory in supply chains", Operations Research, Vol. 46 No.3, pp. 72-83.

Baker, U. and Boyd, G.F. (1997), "Activity based costing in the operating room at Valley View

Hospital", Journal of Health Care Finance, Vol. 24 No.1, pp. 1

- Baker, P. (2004), "Aligning distribution center operations to supply chain strategy", International Journal of Logistics Management, Vol. IS No. I, pp. 111-23.
- Barratt, M. and Oliveira, A. (2001), "Exploring the experiences of collaborative planning initiatives", *International Journal of Physical Distribution & Logistics Management*, Vol. 31 No, pp. 266-89.
- Basioglu (2004) upstream information flow in the supply chain: The case of Finnish. manufacturers. Research dissertation
- Bermudez, J. (2003), Future Collaboration. AMR Research.
- Bernstein, F., Chen, F. and Federg1en, A. (2005), Supply Chains with Simple Pricing Schemes: The Role of Vendor Managed Inventories, The Fuqua School of Business, Duke University,Durham, NC.

Bibangambah (2002) Review of information on marketing, processing and storage of Uganda's agricultural commodities http://www.foodnet.cgiar.org/SCRIP / docs&databaseslifpri studies- U G-nonScri p/pdfslmore-reportslmarket %20review%20consultancy"1020report%20PMA%20subcommittee, %20 May"102020. pdf

- Blattberg, R.C. and Deighton, 1. (1996), "Managing marketing by the customer equity test", Harvard BusinessReview, Vol. 75 No.4, pp. 136-44.
- Blatherwick.A (1996) The supply chain balancing act stock and service at a profit Logistics *Journal of Information Management* Volume 9. Number 6. 1996. pp. 24-26
- Bolton, R.N., Lemon, K.N. and Verhoef, P.C. (2004),"The theoretical underpinnings of customer asset management: a framework and propositions for future research", Journal of Academy of Marketing Science, Vol. 32No. 3, pp. 271-92

Borade and Bansod (2007) Domain of supply chain management-a "State of art journal of

technology and research innovations volume 2

- Bowersox, DJ. (1990), "The strategic benefits of logistics alliances", Harvard Business Review, Vol. 68 No, pp. 36-43.
- Cachon.P and Fisher.M (2000) Supply chain inventory management and the value of shared information *Journal of management science* volume 46, pages: 1032
- Campbell, AJ. (2003), "Creating customer knowledge competence: managing customer relationship management programs strategically", Industrial Marketing

Management, Vol. 32 No, pp. 375-83.

- Cate and Staten (2006) The value of information sharing http://www.bbbonline.orgl Understanding privacy/library/white paper value of information sharing
- Carter, C., Kaufmann, 1, Bill, S., Carter, P., Hendrick, T. and Petersen, K. (2004), "Reverse auctions - grounded theory from the buyer and supplier perspective", Transportation . Research Part E, Vol. 40.No. 3, pp. 229-54

Capizzi, M. (2002), "Small business, big pdtential", Colloquy White Paper

- Cetinkaya.S and Lee (2000) Stock replenishment and shipment scheduling for vendor managed inventory systems *Journal of management science* volume 46, pages: 217-232
 - Chandra (2000) Supply chain management, in theory and practice a passing fad or fundamental change http://filebox.vt.edu/r/rvasu/Supply chain/Supply-Fundamental

Cheung. and Lee.H (2002) The inventory benefit of shipment coordination and stock rebalancing in a supply chain *Journal of management science* 48, pages: 300-306

Clark, T. and Hammond, J. (1997), "Reengineering channel reordering processes to improve total supply chain performance", Production & Operations Management, Vol. 6 No.3, pp. 248-65.

- Closs .J and Xu (2000) Logistics information technology practice in manufacturing and merchandising firms: An international benchmarking study versus world class logistics firms *International Journal of Physical Distribution & Logistics Management*, Vol. 30 No. 10, 2000, pp. 869-886.
- Cooke, I.A. (1998), "VMI: very mixed impact?", Logistics Management Distribution Report, Vol. 37No. 12.
- Corbett, C.I., Blackburn, J.D. and Wassen, 1.N.V. (1999), "Case study partnerships to improve supply chains", Sloan Management Review, Vol. 40 No.4, pp. 71-82.
- Corsten.D and Gruen.T (2003) Desperately seeking shelf availability: an examination of the extent, the causes, and the efforts to address retail out of stock. *International journal of retail and distribution management* vol .31, pp 605-617.
- Cross, G. J. 2000. Howe-business is transforming supply chain management. *Journal of Business Strategy*. 21 (2), 36-39
- Dai and Kauffman (2006) To be or not to b2b: evaluating managerial choices for e procurement channel adoption *Journal of information technology and management* 7, pages: 1385-951.
- Dai, Q. and Kauffman, R. (2002), "Business models for internet-based B2B electronic markets", International Journal of Electronic Commerce, Vol. 6 No, pp. 41-72.
- Daugherty, P.1., Myers, M.B. and Audrey, C.W. (1999), "Automatic replenishment programs: an empirical examination", *Journal of Business Logistics*, Vol. 20 No.2, pp. 63-82.
- Davidson .A etal (2004) A quality self-assessment model *Managerial Auditing Journal* Vol. 19 No. 7,pp. 859-868
- Eckert (2007) Inventory management and its effects on Customer satisfaction *Journal of Business and Public Policy* I, page 3
- Ellram.etal. (1999), Retail logistics, International Journal of Physical Distribution & Logistics

Management, Vol. 29 No. 7/8, pp. 477-49

Emiliani, M. (2004a), "Sourcing in the global aerospace supply chain using online reverse auctions", Industrial Marketing Management, Vol. 33 No. I, pp. 65-73.

Fasanghari, Roudsari and. Kamal Chaharsooghi (2008) Assessing the impact of

information technology on supply chain management world applied sciences

journal 4(1): 87-93

Forslund.H and Jonsson.P (2007) The impact of forecast information quality on supply chain performance *International Journal of Operations & Production Management*

Vol. 27 No. 1,2007 pp. 90-107

. Fleisch, E. and Tellkamp, C. (2005), "Inventory inaccuracy and supply chain performance: a simulation study of a retail supply chain", *International Journal of Production*

Economics, Vol. 95 No.3, pp. 373-85.

- FMI (2003), Efficient Consumer Response, http://www.fmi.orglmedialbglecrl.htm Last Accessed on November 20, 2003
- Fritiche.L and Kim.J, (2003). Personal selling approaches used in television shopping journal of fashion marketing and management Vol 7 No 3 pp 249-258

Gao, T., Sirgy, M. J. & Bird, M. M. (2005) Reducing buyer decision-making uncertainty

in organizational purchasing: can supplier trust, commitment, and dependence help? *Journal of Business Research.* 58,397-405.

Ghosh.A and Fedorowicz.J (2008). Desrgn for supply chain collaboration *Business Process* Management Journal Vol. 14 No, 2008 pp. 401-418

Grout, J.R. (1998), "Influencing a supplier using delivery windows: its effect on the variance of flow time and on-time delivery", Decision Science, Vol. 29 No, pp. 747-64.

Gruen and corsen (2008) A Comprehensive Guide To Retail Out-of-Stock Reduction In TheFast-MovingConsumerGoodIndustry http://www.gmaonline.orglpublications /docs/007 /OOS-execsummary. pdf

- Gruen, T.W., Corsten, D. and Bharadwaj, S. (2002), Retail Out of Stocks: A Worldwide Examination of Causes, Rates, and Consumer Responses, Grocery Manufacturers of America, Washington, DC.
- Gunasekaran.A and Ngai .E.W.T (2004) Virtual supply chain management *Journal of Operations Management*, Vol. 11, pp. 289-311.
- Gunasekaran.A, Patel .C and Tirtiroglu.E, (2001) Performance measures and metrics in a supply

chain environment International Journal of Operations & Production Manageme 111

Vol. 21, pp: 71-87

Hammer, M. (1990), "Reengineering work: don't automate, obliterate", Harvard Business

Review, Vol. 68 No. 4, pp. 104-13.

Heng.l and Zang.z (2007) Design and analysis of web-based inventory control system for e-commerce *Journal oj inventory control and production planning:*

pages 1258-1261

- Holmstrom, 1. (1998), "Implementing vendor-managed inventory the efficient way: a case study of partnership in the supply chain", *Production and Inventory Management Journal*, 3rd Quarter, pp. 1-5.
- Holweg, M., Disney, S., Holmstrom, 1. and Smaros, 1. (2005), "Supply chain collaboration: making sense of the strategy .continuum", *European Management Journal*, Vol. 23

No. 2,pp. 170-81.

Holstrom.F.etal (2002) collaborative planning an, forecasting and replenishment new solutions needed for mass collaboration. Supply chain management an international journal vol7

pp136-145

- Homburg, C., Grozdanovic, M. & Klarmann, M. (2007) Responsiveness to Customers and Competitors: The Role of Affective and Cognitive Organizational Systems. *Journal oj Marketing.* volume71, 18-38.
- Hult, G.T.M., Ketchen, DJ. Jr and Slater, S.F. (2004), "Information processing, knowledge development, and strategic supply chain performance", *Academy oj Management Journal*. Vol. 47 No.2, pp. 241-54
- Introna.D (1991) The Impact of information Technology on Logistics International journal of

physical distribution and logistics journal. Vol 21 pp 32-37

- Kang, Y. and Gershwin, S.B. (2005), "Information inaccuracy in inventory systems: stock loss and stockout", IIE Transactions, Vol. 37, pp. 843-59.
- Kaipia, R., Holmstrom, J. and Tanskanen, K. (2002), "VMI: What are you losing if you let your customer place orders?", Production Planning & Control, Vol. 13 No. 13, pp. 17-25.
- Keong.etal, (2005) Proposing a non-traditional ordering methodology in achieving optimal

flexibility with minimal inventory risk, Asia Pacific Journal ()f Market link and

Logistics vol 17 pp31-43

Krausse, DR, Handfield, R.B. and Scannel, T.v. (1998), "An empirical investigation of supplier development: reactive and strategic processes", *Journal of Operations*

Management, Vol. 17, pp. 39-58.

Krishnamurthy. A and Claudio (2005) Pull systems with advance demand information Journal of logistics, transportation, and distribution: inventory control iii pages: 1733 - 1742

Koumanakos.P (2008) The effect of inventory management on firm performance *International Journal of Productivity Performance Management* Vol. 57 No.5, pp. 355-369

- Kulp, S.C., Lee, H.L. and Ofek, E. (2004), "Manufacturer benefits from information integration with retail customers", *Journal of Management Science*, Vol. 50 No, pp. 431-44.
- Kurt Salmon Associates Inc. (1993), Efficient Consumer Response: Enhancing Consumer Value in the Grocery Industry, Food Marketing Institute, Washington, DC.

- K wan etal (200 I) Planning enterprise resources by use of an engineering approach to build a global logistics management system *Journal of industrial management and data systems* Vol 101/9 pp 483-491
- Kwon.G and suh .T (2004) Factors affecting the level of trust and commitment in supply chain relationships *journal of supply chain management:* global review of purchasing and supply
- Laxmidhar.M (2006) exploratory investigation of sales forecasting process and sales fore casting system a case study of three companies Research dissertation
- Lacey, R. and Sneath, 1.Z. (2006), "Customer loyalty programs: are they fair to consumers?", Journal of Consumer Marketing, Vol. 23 No.7, pp. 464-70..
- Lee and Tang (2000) The value of information sharing in a two-level supply chain Journal of management science volume 46, pages: 626 - 643
- Lee and Kleiner (2001) Inventory management in the women's retail and clothing industry. Volume 24
- Lee, H.L., Padmanabhan, V. and Whang, S. (1997), "The bullwhip effect in supply chains", Sloan Management Review, Vol. 38 No, pp. 93-102.
- Lee. H, and Whang, S (2001). "E-Business and Supply Chain Integration," Stanford Global Supply Chain Management Forum, Stanford University Report SGSCMF-W2 2001, Stanford, CA, November 2001.
- Lee (2003) Demand chain optimization pitfalls and key principles http://www.stanford.edulgroup/scforum/welcome/white%20papers/demand %20chain%0 Optimisation~20-%20Evant%20white%

Lewis (2006) Effects of information sharing;, organization capability and relationship characteristics on out sourcing performance in the supply chain: an empirical study http://www.ohiolink.eduletd/send-pdf.cgi?osuI154620550

Lieberman etal (2004) Factors affecting the level of trust and commitment in supply chain relationships *journal of supply chain management*

Lieberman etal (1996) Imperical determinants of inventory levels in high volume

manufacturing http://imvp. mit.edulpapers/96/lieber2. pdf.

Liu&kumar (2003) leveraging information sharing to increase supply chain.

configurability http://www.personal.psu.edulaxk41/icis03Jeprint.pdf

Mascarenhas.A, Kesavan.R and Bernacchi.M, (2004). Customer value-chain involvement for co-

creating customer delight Journal of Consumer Marketing Volume 21 . Number 7 2004. pp. 486-496

- Mattsson, S-A. (2007), "Inventory control in environments with short lead times", *International Journal of Physical Distribution & Logistics Management*, Vol. 37 No.2, pp. 115-30.
- Menon, A.B., Jaworski, 1. and Kohli, A.K. (1997), "Product quality: impact of interdepartmental interactions", Journal of the Academy of Marketing Science, Vol. 25 No.3, pp. 187-200.
- Mentzer, J.T., Foggin, J.H and Golicic, S.L. (2000a), "Collaboration: the enablers, impediments, and benefits", Supply Chain Management Review, September/October.
- Mentzer, J.T., Min, S. and Zacharia, Z.G. (2000b), "The nature of inter-firm partnering in suppl~' chain management", *Journal of Retailing*, Vol. 76 No.4, pp. 549-68.
- McCarthy, T. M. and Golicic, S. L (2002). Implementing Collaborative Forecasting to Improve Supply Chain Performance, International *Journal of Physical Distribution and Logistics Management*, 32(6), 431-454.
- McLaren, T., Head, M. and Yuan, Y. (2002), "Supply chain collaboration alternatives: understanding the expected costs and benefits", *Journal of Internet Research*, Vol. 12 No.4, pp. *348-6j*.

Ministry of tourism and trade (2005) Thj: marketing & agro-processing strategy

http://www.pma.go.ug!pmauploadsIMAPS _final_. pdf

- Moyoni etal (2005) Policy analysis, improving markets for dry commodities in Uganda http://www. undp. Org. dry lands/ docslmarketaccesslmarketaccesspolicystudyUganda. doc
- Muckstadt.a, Murray.S and Collins. A (2001) Guideline for collaborative supply chain system design and operation *Journal of information systems frontiers*. 3, pages: 427 -453

- Ndubisi.N.etal (2005) Supplier selection and management strategies and manufacturing flexibility The Journal of Enterprise Information Management Vol. 18 No.3, pp. 330-349
- Noble, David, Buck and Diana (2000). Metrics for Evaluation of Cognitive Architecture Based Collaboration Tools. Phase 1 SBm Final Report. Evidence Based Research, Inc
- Okell, obura&majanja (2007) assessment of information business problems in Uganda http://gir.uoguelph. calindex. php/perjl article/view PDF lpterstitial/306/5 73.
- Parks, L. (1999), "CPFR programs facilitate inventory management", Drug Store News, Vol. 21, No.2, p. 27.
- Patel (2008) Inventory Management System maintains good relationship between supply and demand Frequency http://www\customer satisfaction\Inventory Management System maintains good relationship between supply and demand - Free-Press-Release com.htm
- Peppers, D. and Rogers, M. (2004), Managing Customer Relationship. A Strategic Framework, Wiley, Hoboken.
- Pinker, E., Seidmann, A. and Vakrat, Y. (2003), "Managing online auctions: current business and research issues", Management Science, Vol. 49 No. II, pp. 1457-85.
 Pramatari .K, (2007) Collaborative supply chain practices and evolving technological approaches

Supply Chain Management: An International Journal 12/3 (2007) 210-220

- Presutti, W. (2003), "Supply management and e-procurement: creating value added in the supply chain", Industrial Marketing MaRagement, Vol. 32 No, pp. 219-27.
- Raman, A., DeHoratius, N. and Ton, Z. (2001), "Execution, the missing link in retail operations", California Management Review, Vol. 43 No, pp. 136-52.
- Ratinasingam.P, Pavlou.p and Hau Tan.y (2002) Importance of technology trust for b2b commerce electronic http://www.bledconference.orglproceedings.nsf/0/3eddOcb3

dfa76aa6cl56e9f0037a3da \$FILE/ratnasingam. pdf

Reichheld, F.F. (1996), The Loyalty Effect, Harvard Business School Press, Boston, MA.

Rogers .etal (1994) Information accessibility: Customer responsiveness and enhanced

performance International Journal of Physical Distribution & Logistics Management, Vol. 25 No. I, pp. 4-17.

- Romano (2003) Co-ordination and integration mechanisms to manage logistics processes across supply networks Received 4 June 2001; revised 9 July 2002; accepted 14 February 2003. ; Available online 15 April 2003.
- Sahn.H and Lee.H (2004) An agent-based dynamic information network for supply chain *Management technology Journal* 22, pages: 18 -27 year of publication: 2004
- Sahin and, Mentzer (2005) supply chain coordination mechanism http://bus.utk.edu/ivc/supplychainlReadings/SCMCoord.pdf Samaranayake (2005), Supply Chain Management: An International Journal Volume pp.47-59
- Silver, E.A., Pyke, D.F. and Peterson, R (1998), Inventory Management and Production Planning& Scheduling, 3rd ed., John Wiley, New York, NY.
- Simatupang.M and Sridharan.R (2008). The role of trust in supply chain governance *Business Process Management Journal* Vol. 14 No, 2008 pp. 453-470
- Simatupang.M and Sridharan.R The collaboration index: a measure for supply chain collaboration International *Journal of Physical Distribution & Logistics Management* Vol. 35 No.1, 2005
- Skjoen-Larsen, T., Thernoe, C. and, Andresen, C. (2003), "Supply chain collaboration: theoretical perspectives and political evidence", *Interernational Journal of Physical Distribution & Logistics Management*, Vol. 33 No, pp. 531-49.
- Smaros, 1. (2003), "Collaborative forecasting: a selection of practical approaches", *International Journal of Logistics:* Research and Applications, Vol. 6 NO.4.
- Smart, A. and Harrison, A. (2003), "Online reverse auctions and their role in buyer-supplier relationships", Journal of Purchasing & Supply Management, Vol. 9 Nos 5/6, pp. 257-69.

- Smeltzer, 1. and Carr, A. (2002), "Reverse auctions in industrial marketing and buying", Business
- Smith.D (2008) A conceptual model of vendor retailer relationship best on commitment trust theory http://www.edamba.eu/userfileslSmith%20Web.pdf.
- Spekman, RE. and Carraway, R (2006), "Making the transition to collaborative buyer-seller relationships: an emerging framework", Industrial Marketing Management, Vol. 35 No.

1, pp. 10-19.

- Srinidhi.B and Tayi.K (2004) Just in time or just in case? An explanatory model with informational and incentive effects Journal of Manufacturing Technology Management Volume 15. Number 7, 2004. pp. 567-574
- Storer.E.etal (2006) Review of published information system research, 7th international Conference on agri business and food industry, Netherlands
- Stuart .J etal (2005) Reducing costs through improved returns processing. International. journal of Physical Distribution & Logistics Management Vol. 35 No.7, pp. 468-480
- Taylor.D (2000) Demand amplification: has it got us beat? International Journal of Physical Distribution & Logistics Management, Vol. 30 No.6, 2000, pp. 515-533.
- .Tachizawa and Ginemez (2005) Drivers and sources of supply flexibility: An exploratory study http://www.recercat.catlbitstream/2072/16 70/ 1/889.pdf.
- Theodre.H and Lee.G (2000) Performance, interdependence and coordination in Business-to-business electronic commerce and supply chain management *Journal of information technology and management*, pages: 85 - 105

UNIDO (2005) Can African manufacturing firms become successful exporter

. UNCT AD (2006) Best practices and policy options in the promotion of SME-- TNC business linkages http://www.unctad.orglenldocslc3em28d2_en.pdf

USAID (1996) Trip report Uganda September 21 to 27, 1996

http://www.USAIDAtTicaLinkReports.htm

USAID (2001) Agoa textiles and garments. What future for Uganda's exports? http://www.foodnet.cgiar.orglSCRIP/docs&databaseslifpristudies-UG-non Scrip/pdt7COMPLETE conference%20(February%202002)/ AGOA Textile cotton Export Prospects AlRD June 2001.pdf

Vigtil, A. (2007), "Information exchange in vendor managed inventory", *International Journal* of Physical Distribution & Logistics Management, Vol. 37 No.2, pp. 131-47.

Vazquez, R., Iglesias, V. & Alvarez-Gonzalez, L. I. (2005) Distribution Channel relationships: The Conditions and Strategic Outcomes of Cooperation between manufacturer and distributor. *Journal International Review of Retail, Distribution & Consumer Research*, 15,125-150

Verwijmeren, Vander Yoist and Donselaar,(1996) Networked inventory management information

systems: terializing supply chain management International Journal of Physical

Distribution & Logistics Management, Vol. 26 No.6,

- Yuliang .Y, Evers .P, Dresner (2007) Supply chain integration in vendor-managed inventory, *Journal of decision support systems*, v.43 no.2, p.663-674, March, 2007
- Wang (2007) Inventory management for Customers with alternative lead times http://www.asom.sjtu.edu.cn/upload/publish/img/I 07112514650. pdf
- Wang (2002) How to implement Customer Relationship Management system in third party logistics companies http://www.bschool.nus.edu.sg/staff/bizteocp/jonathan.doc
- Walter and Liu (2001) Consumer response to retail stock outs Journal of Business

Logistics

Warkentin etal (2000) Role of mass custpmization in enhancing supply chain relation

ships in B2B e-commerce markets Journal of electronic commerce research 1,.2

Weber and Kantmneni (2001) POS and EDI in retailing: An examination of underlying benefits
and barriers. vol 7 pp311-317

White.G.(2001) relationship life cycle and collaborative commerce

http://www.supplychaintoday.com/LogilityRelationship%20Life%20and%

20Collaborative%20Commerce%5B I %50. pdf

Wilding (2003) The 3ts of highly effective supply chains journal of Supply Chain Practice.

5.3

- Yorst etal (2007) Agro industrial supply chain management and concepts and applicationshttp://www.fao.orglAg/ags/publications/docslAGSF OccassionalPapers/ agsfop 17. pdf:
- Waller, M., Johnson, M.E. and Davis, T. (1999), "Vendor-managed inventory in the retail supply chain", *Journal of Business Logistics*, Vol. 20 No. I, pp. 183-203.

Waller.M, Nachtmann.H and Hunter.J (2006) Measuring the impact of inaccurate inventory information on a retail outlet The International Journal of Logistics ManagementVol. 17 No.3, 2006 pp. 355-376

Zhenxin .Y ,Yan.H and Cheng.E ,(2001) Beneifits of information sharing with supply chain partnerships *journal of industry management and data systems* vol 101/3 pp114-11

Questionnaire

Dear respondent your company has been selected to participate in a study <u>information</u> <u>sharing ,inventory management and customer satisfaction</u>. This is a MUBS sponsored study intended for academic purposes only.(confidentiality) guaranteed. Thank you for your cooperation.

Highest qualification of respondent

High school	Diploma	Degree	Masters	Others (specify)	

Age of respondent

<u> </u>			
Below 25 yrs	25/35yrs	36-45yrs	46+yrs

Sex of respondent

Male	Female

Type of business

Retailer	Distributor

Information sharing

The table below shows the alternative responses and the number assigned in each response .please evaluate the statement by ticking in the box with the number that best suits you.

Customer collaboration

Trust

				I strongly
I strongly disagree	l disagree	lam not sure	l agree	disagree
1	2	3	4	5

Retailer's trust in the vendor (vendor's credibility)

1	The resource representative has been frank in dealing with us	1	2	3	4	5
2	Promises made by the resource representative are reliable					
3	This resource representative is knowledgeable regarding his or her products					
4	This resource representative does not make false claims					
5	The resource representative is not open in dealing with us					
	If problems such as shipment delays arise, the resource representative is honest about the					
6	problems					
7	This resource representative has problems in answering our questions					

Adapted from Morgan and Hunt (1994), Doney and Cannon (1997)

Vendor's trust in the retailer (retailer's credibility)

1	The buyer representing this retailer has been frank in dealing with us	1	2	3	4	5
2	Promises made by the buyer representing this retailer are reliable					
3	The buyer representing this retailer is knowledgeable about the product					
	The buyer representing this retailer is has problems understanding our					
4	position					

Adapted from Morgan and Hunt (1994), Doney and Cannon (1997)

Retailer's trust in the vendor (vendor's benevolence)

1	This resource's representative has made for sacrifices for us in the past	1	2	3	4	5
2	This resource's representative cares about us	-		-	-	-
	In times of shortages ,this resource representative has gone out of limb for					
3	US					
4	We feel the this resource's representative has been on our side					
5	This resource's representative is like a friend					

Adapted from Morgan and Hunt (1994), Doney and Cannon (1997)

Vendor's trust in the retailer (retailer's benevolence)

1	The buyer representing the retailer has made sacrifices for us in the past	1	2	3	4	5
2	The buyer representing this retailer cares for my welfare					
3	In times of deli every problems, the buyer representing this retailer has been very understanding					

Adapted from Morgan and Hunt (1994), Doney and Cannon (1997)

Relationship commitment

The relationship that my firm has with the vendor

1	Is some thing we are very committed to	1	2	3	4	5
	Is something my firm intends to maintain					
2	indefinitely					
3	Deserves our firm's maximum effort to maintain					
4	Is very important to my firm					
5	Is of very little significance to my firm					
6	Is very much like being a family					
7	Is some thing my firm really cares about					

Adapted from Morgan and Hunt (1994), McDonald and Ganz (1997)

Retailer's long term orientation

1	We belief that over the long run our relationship with the vendor will be profitable	1	2	3	4	5
2	Maintaining along term relationship with this vendor is important to us					
3	We focus on long term goals in this relationship					
4	We are willing to make sacrifices to help this vendor from time to time					
5	We are only concerned with our out comes in the relationship					
6	We expect this resource to be working with us for along time					
	Any concessions we make to help out this resource will even help us out in the long					
7	run.					

Adapted from Morgan and Hunt (1994), McDonald and Ganz (1997)

Vendor's long term orientation

	We believe that over the long run our relationship with the retailer will be					
1	profitable	1	2	3	4	5
2	Maintaining along term relation ship with this retailer is important to us					
3	We focus on long term goals in this relationship					
4	We share our long term goals with this retailer					
5	We would like to develop along term relationship with this retailer					
6	We are willing to make sacrifices to help this retailer from time to time					

Information technology

I strongly disagree	I disagree	lam not sure	l agree	l strongly disagree
1	2	3	4	5

To be filled by the distributor

1	We use computer to computer communication with our customers	1	2	3	4	5
2	2 We use EDI (electronic data interchange) when dealing with our customers					
	We use EPOS(electronic point of sale systems) in our communication with					
3	our customers					
4	We bar coding systems when dealing with our customers					
5	Our customers communicate to us using mobile phones					

Adapted from Sabbath (1998)

To be filled by the retailer

1	1 We use computer to computer communication with our vendors		2	3	4	5
2	2 We use EDI (electronic data interchange) when dealing with our vendors					
	We use EPOS(electronic point of sale systems) in our communication with our					
3	vendors					
4	We bar coding systems when dealing with our vendors					
5	We communicate with our vendors using mobile phones					

Adapted from Sabbath (1998)

Inventory management

The table below shows the alternative responses and the number assigned in each response .please evaluate the statement by ticking in the box with the number that best suits you.

To be filled by distributor

1	We keep inventory buffers in order to meet our customers' needs		2	3	4	5
	We always have high inventory turns because customers are satisfied with our					
2	products					
3	We deli ever according to the deli every lead times of our customers					
4	We face stock out periods which affect our ability to meet customer needs					
5	We offer high service levels to our customers					
6	we use inventory management systems to manage our inventories					
7	7 collaboration with our customers enables us make accurate forecasts					
	we make accurate forecasts for our inventories which match with our					
8	customer demand					

Adapted from Gunasekaran and Patel (2001)

To be filled by the retailer

1	We always have inventory buffers to cater for uncertainties	1	2	3	4	5
	We always have high inventory turns because customers are satisfied with our					
2	products					
3	our vendors deli ever according to the deli every lead times					
4	We face stock out periods due to delays in deli every					
5	We get high service levels from our suppliers					
	we manage our inventories through the use of information systems which					
	enable us manage the inventory levels					
6						
	we always make accurate forecasts for our inventories due to our collaboration					
	with suppliers					
7						

Adapted from Gunasekaran and Patel (2001)

Customer satisfaction

The table below shows the alternative responses and the number assigned in each response .Please evaluate the statement by ticking in the box with the number that best suits you.

I strongly disagree	I disagree	lam not sure	l agree	l strongly disagree
1	2	3	4	5

To be filled by the Retailer

1	Orange 11 and a second infinite second in a second in a	1	2	2	4	5
1	Over all we are satisfied with this supplier	1	2	5	4	3
2	Our firm is not completely happy with this supplier					
3	If we had to do it all over again, we would still choose to use this supplier					
4	We are very pleased with what this supplier does for us					
5	Our experience with this supplier has not been good					
6	We are very pleased with what this supplier does for us					
7	We are pleased with the services of this distributor					
8	We are satisfied with our day to day dealings with this distributor					
9	We are satisfied with the personal relationships with this distributor					
10	We are satisfied over all with the relationship we have with this distributor					
	A large number of profits has been obtained which would not have other wise occurred					
11	working in isolation					
	Thanks to the cooperation between our company and this distributor ,both parties have					
	obtained strategic advantages over their competitors that would not have been realized					l
12	individually					
	Both parties have obtained performances that allow them to compete more efficiently in					
13	the market place as a consequence of cooperation					
14	This suppliers product are of high quality					
15	This supplier often fails to meet our quality requirements					
16	We often complain about this supplier's products					
17	This supplier exceeds our expectation					
18	This supplier is flexible enough to handle un foreseen problems					
19	This supplier handles changes well					
20	This supplier can readily adjust its inventories to meet changes in our needs					
21	This supplier is flexible in response to requests we make					
						_

Adapted from Vazquez etal (2004), Walter.Mentzer and Croxton (2002), and Berry and Parasuraman (1991)

To be filled by the distributor

1	Over all our customers are satisfied with this supplier	1	2	3	4	5
2	Our customers are completely happy with this supplier					
3	If we had to do it all over again, they would still choose our firm					
4	Our customers are very pleased with what we do for them					
5	Our experience with this customer has not been good					
6	Our customers are very pleased with what we do for them					
7	Our customer are pleased with our services					
8	Our customers are satisfied with our day to day dealings with them					
9	Our customers are satisfied with the personal relationships with us					
10	Over all our customers are satisfied with the relationship they have with us					
	A large number of profits has been obtained which would not have other wise occurred					
11	working in isolation					
	Both parties have obtained performances that allow them to compete more efficiently in					
12	the market place as a consequence of cooperation					
	Thanks to the cooperation between our company and this customer ,both parties have					
	obtained strategic advantages over their competitors that would not have been realized					
13	individually					
14	Our products are of high quality					
15	We meet quality requirements of our customer					
16	Our customer often complain about this supplier's products					
17	We exceed our customer's expectation					
18	We are flexible enough to handle un foreseen problems					
19	We handle changes well					
20	We readily adjust our inventories to meet changes in our needs					
21	We are flexible in response to requests we make					
		-				

Adapted from Vazquez etal (2004), Walter.Menter and Croxton (2002), and Berry and Parasuraman (1991