TOPIC: INFORMATION SHARING, INVENTORY MANAGEMENT AND CUSTOMER SATISFACTION IN THE DOWNSTREAM CHAIN OF MANUFACTURING FIRMS IN UGANDA.

BY

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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.

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APPROVAL

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

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DEDICATION

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

The purpose of the study was to investigate the relationship between information sharing, inventory management and customer satisfaction in the downstream 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 downstream 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, 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 downstream 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 downstream chain. They enable firms in the chain match demand with supply. However firms in the downstream 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.
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?
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 downstream 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.
1.8 Conceptual model

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 background, 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 Kandamneni, 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) say 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 stocks 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, 200I). 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,
200I).

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 ongoing 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 relationship. 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 (Blatherwick, 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). In 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, 2001). 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 standardised products ((David et al, 2001). They would actually be
counter –productive to meeting customers’ needs for non standardised 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 standardised 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. Pre-purchase 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 unavailability 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, back 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 to 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 to 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 deliver 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 delivery deadlines (Gunasekara, 2001). In order to be flexible, chain partners may be required to share information which helps them deliver with the customers specified delivery 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 significant 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 Krejcie (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 361 were received. A responsive rate of 69 %.

Table: 1 Population, sample size and number of respondents

<table>
<thead>
<tr>
<th>Category</th>
<th>Population</th>
<th>Sample size</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributors</td>
<td>504</td>
<td>217</td>
<td>129</td>
</tr>
<tr>
<td>Retailers</td>
<td>1544</td>
<td>306</td>
<td>232</td>
</tr>
<tr>
<td>Total</td>
<td>2048</td>
<td>523</td>
<td>361</td>
</tr>
</tbody>
</table>

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.
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**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Type of business</th>
<th>Retailer</th>
<th>Distributor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>133</td>
<td>66</td>
<td>199</td>
</tr>
<tr>
<td>Male</td>
<td>Row%</td>
<td>66.80%</td>
<td>33.20%</td>
<td>100.00%</td>
</tr>
<tr>
<td></td>
<td>Column%</td>
<td>57.30%</td>
<td>51.20%</td>
<td>55.10%</td>
</tr>
<tr>
<td></td>
<td>Total%</td>
<td>36.80%</td>
<td>18.30%</td>
<td>55.10%</td>
</tr>
<tr>
<td>Female</td>
<td>Count</td>
<td>99</td>
<td>63</td>
<td>162</td>
</tr>
<tr>
<td></td>
<td>Row%</td>
<td>61.10%</td>
<td>38.90%</td>
<td>100.00%</td>
</tr>
<tr>
<td></td>
<td>Column%</td>
<td>42.70%</td>
<td>48.80%</td>
<td>44.90%</td>
</tr>
<tr>
<td></td>
<td>Total%</td>
<td>27.40%</td>
<td>17.50%</td>
<td>44.90%</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>232</td>
<td>129</td>
<td>361</td>
</tr>
<tr>
<td></td>
<td>Row%</td>
<td>64.30%</td>
<td>35.70%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
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 with highest qualification of respondent

<table>
<thead>
<tr>
<th>Type of business</th>
<th>Qualification of respondents</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High school</td>
<td>Diploma</td>
<td>Degree</td>
<td>Masters</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Retailer</td>
<td>count</td>
<td>34</td>
<td>52</td>
<td>86</td>
<td>63</td>
<td>235</td>
</tr>
<tr>
<td></td>
<td>row%</td>
<td>14.50%</td>
<td>22.10%</td>
<td>36.60%</td>
<td>26.80%</td>
<td>100.00%</td>
</tr>
<tr>
<td></td>
<td>column%</td>
<td>69.40%</td>
<td>64.20%</td>
<td>68.80%</td>
<td>59.40%</td>
<td>65.10%</td>
</tr>
<tr>
<td></td>
<td>total%</td>
<td>9.40%</td>
<td>14.40%</td>
<td>23.80%</td>
<td>17.50%</td>
<td>65.10%</td>
</tr>
<tr>
<td>Distributor</td>
<td>count</td>
<td>15</td>
<td>29</td>
<td>39</td>
<td>43</td>
<td>126</td>
</tr>
<tr>
<td></td>
<td>row%</td>
<td>11.90%</td>
<td>23.00%</td>
<td>31.10%</td>
<td>34.10%</td>
<td>100.00%</td>
</tr>
<tr>
<td></td>
<td>column%</td>
<td>30.60%</td>
<td>35.80%</td>
<td>31.20%</td>
<td>40.60%</td>
<td>34.90%</td>
</tr>
<tr>
<td></td>
<td>total%</td>
<td>4.20%</td>
<td>8.00%</td>
<td>10.80%</td>
<td>11.90%</td>
<td>34.90%</td>
</tr>
</tbody>
</table>
Source: Primary Data

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, therefore there is no significant difference in the proportion of retailers and distributors having the different qualifications in the down stream chain.

Table 4; Type of business with age of respondents

<table>
<thead>
<tr>
<th>Type of business</th>
<th>Age of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Below 25 yrs</td>
</tr>
<tr>
<td>Retailer</td>
<td>Count</td>
</tr>
</tbody>
</table>
Source: Primary Data

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

<table>
<thead>
<tr>
<th>Variables</th>
<th>Information sharing</th>
<th>Inventory management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information sharing</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Inventory management</td>
<td>0.35**</td>
<td>1.00</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>0.471**</td>
<td>0.394**</td>
</tr>
</tbody>
</table>

**Correlation Significant at 0.001 level 1-tailed test

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 = 0.01. 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 $P \leq 0.01$ 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 $P \leq 0.01$. 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 $P \leq 0.01$ 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 $P \leq 0.01$. 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.

**Table 6; Regression analysis**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>R-square</th>
<th>Adjusted R-square</th>
<th>df</th>
<th>Mean square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.248</td>
<td>0.24</td>
<td>2</td>
<td>2.934</td>
</tr>
<tr>
<td>Standardized coefficients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Un standardized coefficients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std Error</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.555</td>
<td>0.299</td>
<td>5.198</td>
<td>0.000</td>
</tr>
<tr>
<td>Information sharing</td>
<td>0.444</td>
<td>0.075</td>
<td>0.387</td>
<td>5.931</td>
</tr>
<tr>
<td>Inventory management</td>
<td>0.138</td>
<td>0.039</td>
<td>0.211</td>
<td>3.236</td>
</tr>
</tbody>
</table>

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

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**
### Variables

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

**Source: Primary Data**

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

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>T</th>
<th>df</th>
<th>Sig (2-tailed test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information sharing</td>
<td>Male</td>
<td>153</td>
<td>4.2238</td>
<td>0.3443</td>
<td>2.768</td>
<td>280</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>129</td>
<td>4.1066</td>
<td>0.3657</td>
<td>2.754</td>
<td></td>
</tr>
<tr>
<td>Inventory management</td>
<td>Male</td>
<td>176</td>
<td>4.2981</td>
<td>0.44449</td>
<td>0.214</td>
<td>322</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>148</td>
<td>4.31</td>
<td>0.55904</td>
<td>0.209</td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>Male</td>
<td>165</td>
<td>3.9785</td>
<td>0.34567</td>
<td>1.42</td>
<td>299</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>136</td>
<td>3.9225</td>
<td>0.32992</td>
<td>1.426</td>
<td></td>
</tr>
</tbody>
</table>

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.

Table 10: The type of business with the study variables

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

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 et al, 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
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 et al., 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 relationship 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 downstream 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
- Relationship between qualifications and inventory management in the down stream chain
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5. 3


Questionnaire

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

**Highest qualification of respondent**

<table>
<thead>
<tr>
<th>High school</th>
<th>Diploma</th>
<th>Degree</th>
<th>Masters</th>
<th>Others (specify)</th>
</tr>
</thead>
</table>

**Age of respondent**

<table>
<thead>
<tr>
<th>Below 25 yrs</th>
<th>25/35yrs</th>
<th>36-45yrs</th>
<th>46+yrs</th>
</tr>
</thead>
</table>

**Sex of respondent**

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
</table>

**Type of business**

<table>
<thead>
<tr>
<th>Retailer</th>
<th>Distributor</th>
</tr>
</thead>
</table>
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

<table>
<thead>
<tr>
<th></th>
<th>I strongly disagree</th>
<th>I disagree</th>
<th>I am not sure</th>
<th>I agree</th>
<th>I strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

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

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

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

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

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The buyer representing this retailer has been frank in dealing with us</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Promises made by the buyer representing this retailer are reliable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The buyer representing this retailer is knowledgeable about the product</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The buyer representing this retailer is has problems understanding our position</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>This resource’s representative has made for sacrifices for us in the past</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>This resource’s representative cares about us</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In times of shortages, this resource representative has gone out of limb for us</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We feel the this resource’s representative has been on our side</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This resource’s representative is like a friend</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Morgan and Hunt (1994), Doney and Cannon (1997)
Vendor's trust in the retailer (retailer's benevolence)

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The buyer representing the retailer has made sacrifices for us in the past</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>The buyer representing this retailer cares for my welfare</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>In times of deli every problems, the buyer representing this retailer has been very understanding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Relationship commitment

The relationship that my firm has with the vendor

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is something we are very committed to</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Is something my firm intends to maintain indefinitely</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Deserves our firm’s maximum effort to maintain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Is very important to my firm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Is of very little significance to my firm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Is very much like being a family</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Is some thing my firm really cares about</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Retailer's long term orientation

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

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

Vendor's long term orientation

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

<table>
<thead>
<tr>
<th>I strongly disagree</th>
<th>I disagree</th>
<th>I am not sure</th>
<th>I agree</th>
<th>I strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**To be filled by the distributor**

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

<p>| | | | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>We keep inventory buffers in order to meet our customers’ needs</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>We always have high inventory turns because customers are satisfied with our products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>We deliver according to the delivery lead times of our customers</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>We face stock out periods which affect our ability to meet customer needs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>We offer high service levels to our customers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>We use inventory management systems to manage our inventories</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7</td>
<td>Collaboration with our customers enables us to make accurate forecasts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>We make accurate forecasts for our inventories which match with our customer demand</td>
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</tbody>
</table>

*Adapted from Gunasekaran and Patel (2001)*

**To be filled by the retailer**

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<table>
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<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>We always have inventory buffers to cater for uncertainties</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>We always have high inventory turns because customers are satisfied with our products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Our vendors deliver according to the delivery lead times</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td>We face stock out periods due to delays in delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>We get high service levels from our suppliers</td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>We manage our inventories through the use of information systems which enable us to manage the inventory levels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>We always make accurate forecasts for our inventories due to our collaboration with suppliers</td>
<td></td>
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</tr>
</tbody>
</table>

*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.

<table>
<thead>
<tr>
<th>I strongly disagree</th>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

To be filled by the Retailer

| 1 | Over all we are satisfied with this supplier |
| 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 |
| 11 | A large number of profits has been obtained which would not have other wise occurred working in isolation |
| 12 | 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 individually |
| 13 | Both parties have obtained performances that allow them to compete more efficiently in the market place as a consequence of cooperation |
| 14 | This supplier’s 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 unforeseen 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 |


To be filled by the distributor
<table>
<thead>
<tr>
<th></th>
<th>Over all our customers are satisfied with this supplier</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Our customers are completely happy with this supplier</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td>If we had to do it all over again, they would still choose our firm</td>
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<td></td>
<td></td>
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<tr>
<td>4</td>
<td>Our customers are very pleased with what we do for them</td>
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<tr>
<td>5</td>
<td>Our experience with this customer has not been good</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>Our customers are very pleased with what we do for them</td>
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</tr>
<tr>
<td>7</td>
<td>Our customer are pleased with our services</td>
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</tr>
<tr>
<td>8</td>
<td>Our customers are satisfied with our day to day dealings with them</td>
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<tr>
<td>9</td>
<td>Our customers are satisfied with the personal relationships with us</td>
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<tr>
<td>10</td>
<td>Over all our customers are satisfied with the relationship they have with us</td>
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<td></td>
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</tr>
<tr>
<td>11</td>
<td>A large number of profits has been obtained which would not have other wise occurred working in isolation</td>
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<tr>
<td>14</td>
<td>Our products are of high quality</td>
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<tr>
<td>15</td>
<td>We meet quality requirements of our customer</td>
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<tr>
<td>16</td>
<td>Our customer often complain about this supplier’s products</td>
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<tr>
<td>17</td>
<td>We exceed our customer’s expectation</td>
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<tr>
<td>18</td>
<td>We are flexible enough to handle unforeseen problems</td>
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<tr>
<td>19</td>
<td>We handle changes well</td>
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<tr>
<td>20</td>
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<tr>
<td>21</td>
<td>We are flexible in response to requests we make</td>
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</tr>
</tbody>
</table>

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