INFORMATION SYSTEMS MANAGED INVENTORY AND CUSTOMER SATISFACTION IN THE SOFT DRINK INDUSTRY

CASE STUDY: CENTURY BOTTLING COMPANY LTD

BY

BAKO IRENE

12/U/409/GMSC/PE

DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL FOR PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF A MASTER OF SCIENCE IN SUPPLY CHAIN MANAGEMENT OF KYAMBOGO UNIVERSITY

DECEMBER 2014

DECLARATION

I **BAKO IRENE** hereby declare that this is my original work and has never been submitted to any other university or any other institution for any award.

Signature ..... Date ....29/12/2014...

BAKO IRENE

Reg no: **12/U/409/GMSC/PE**

APPROVAL

This is to certify that this research under the topic "information systems managed inventory and customer satisfaction in a soft drink industry" has been under my supervision and is now ready for submission.

Signature ..... Date 30/12/2014

DR: OBANDA PETER

Signature ..... Date 30/12/2014

MR. WUMA ALFRED SAMUEL

DEDICATION

I dedicate this work to my beloved brothers Dr Asea Godfrey, Toko Patrick Tom, my sisters, all my friends like Jennifer, Fiona, Zaidi and others who contributed to the success of my research work.

May God richly bless you all!

ACKNOWLEDGMENT

Special thanks goes to GOD who gave the strengths, resources, encouragement, and determination, focus, resilience, knowledge and light to make me pave through this difficult time.

I would like to express my sincere appreciation to my supervisors **DR: OBANDA PETER** and **MR: WUMA SAMUEL ALFRED** For their tireless support, constructive ideas and corrections in the research. I thank them for being available any time wherever I needed assistance. I would like to appreciate the efforts of all my friends in the **Master of Science in Supply Chain Management** for their encouragement and support towards this report.

Thank lord for being a good parent, provider of my needs and guiding me in all kinds of difficulties during the course support of my parents, Mrs, Hella Driwaru and Adripio Justus and special thanks goes to my brother Dr. Asea Godfrey for his support financially and academically may the almighty continue blessing the work of their hands.

TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

The purpose of study was to assess the effect of information systems managed inventory on customer satisfaction in an organization. The research was guided by the following objectives, to investigate the effects of information systems infrastructure on customer satisfaction, to establish the influence of information systems knowledge and skills on customer satisfaction and to analyze the effects of information support system on customer satisfaction.

A relationship study was done to help the researcher examine the effectiveness of the information systems managed inventory; both qualitative and quantitative approaches were employed. This design was adopted to help the researcher gather data from a sample of a wider population at a particular time and make interference to a wider population. During this process and the sample size of the study was selected using stratified sampling method. An interview was used as data collection instrument.

The findings in the study show that information systems managed inventory techniques like, computers, internet, Electronic Data Interchange, Electronic Funds Transfer, are instrumental in the proper management of an organizations inventory system and they in turn lead to customer satisfaction in an organization.

The study concludes that the effect of information systems managed inventory is beneficial to an organization like Century Bottling Company as it enables Century Bottling Company to , share information with its supplies in that note creating reliability of products customers, enabling timely and efficient delivery of the century bottling company products in the market.

The study recommends the administration of Century Bottling Company to improve on information systems managed inventory by advancing in various methods like internet, Electronic Data Interchange, satellite, smart cards, which help an organization in satisfying customers.

From the above analysis more studies need to be done in the following areas, Effect of technological advancement in implementation of reverse logistics, the relevance of procurement staff in the attainment of procurement effectiveness, Factors that promote the efficiency of reverse logistics.

CHAPTER ONE

1.0 Introduction

This chapter presents the background of the study, statement of the problem, main objective of the study, the specific objectives, research questions, scope of the study, significance of the study, the limitations to the study and definition of key terms.

1.1 Background to the study

Information systems utilization started far back in 1930 as electro-mechanic accounting machine that used to sort computer cards into bins and calculate totals then print reports for decision making, (Laudon & Laudon, 2007).

Since then information system has progressed through personal computer era to client server era and currently to enterprise internet. Computing era of communications environment on Transmission control protocol/ Internet protocol (TCP/ IP) all aimed at information generation, information sharing and information Application (French, 2001). Information systems are changing business processes and in the management of the inventory in different organizations giving rise to new terms such as vendor managed inventory, (Sewanyama and Busier, (2007), accordingly an efficient information systems is a requirement for many organization to understand their customers' needs quickly and respondent to it efficiently solely for the provision of customers satisfaction by meeting their needs in more timely and cost effective manner, (Parasuraman, 2004).

Globally, in the year 2000,539 million computers were being used with 410 million in U.S.A European Union and Asia, leaving 129 million in developing countries (NPA, 2010).Similarly the internet users were 315 million in 2000 and the number was estimate to grow to 716 million

users by 2005, with the majority of these users in the developed countries (Ngplains, 2003), more to that most countries especially in the developed world were the rate of computer systems usage has been high and at its best most private companies have recorded high levels of sales and a considerable level of customer satisfaction with the company's products, Smith (2005).

The internet usage rate in the developed world was 8 times that of the developing countries and there was 22 million users in Africa by 2004 (ITU, 2004). Information systems have introduced what is known as a net worked economy were successful business link up with their customers and suppliers, (Lysons, 2006), most companies in the developed have employed the use of information systems to communicate on one to one basis with customers, mostly through the use of internet in order to make sure that the customer is aware of the presence of the products in the market, The use of internet and other computer systems has a got a profound effect on the level of information transfer from the manufacturers to the customers and consequently determining their level of satisfaction with the goods and services given to them by the suppliers, (Fornel, 2009).

Information systems managed inventory is one of the many initiatives that strive towards closer cooperation between the members of supply chains in the area of inventory and demand management (Daughtery, 2004). Information systems managed inventory is an inventory management process that falls under the 'push' stock management processes, (Lysons et al, 2006).

Information systems cover vast areas of technologies such as mobile and wireless technology, telecommunications, software development, security. Intelligent systems among many others and has had a huge impact on industries, the community in general and our daily lives, (Kwok Hung

Lau and Haibo Huang 2012), globally companies across the globe rely on information systems techniques to communicate to their customers and be in position to provide customers with products that suit their needs. Information systems is fast becoming one of the main drivers of change, posing new strategic challenges (Somuyiwa, 2010). Lysons and Gillingham, (2003) noted that Information Systems Managed Inventory advantages included improved customer service, reduced demand uncertainty, reduced inventory requirements and reduced cost based on a case study at Johnson and Johnson, With the reduced stock-outs, suppliers not only saved, but they also received more information on the customers' demand patterns that aided the supplier in planning better on their own inventories. The ability to plan better on inventories and deliveries are often cited as major advantages to the upstream member using Information Systems Managed Inventory (Lysons, 2006). Chaouch (2007) developed an analytical model to calculate inventory levels and delivery rates to minimize costs for small suppliers forced to use Information Systems Managed Inventory by larger clients. One important finding of the study was that reducing variability in the amount and timing of the demand increased the benefits of lowered prices.

An efficient information systems is a requirement to achieve customer satisfaction with an organization' products consequently Lysons noted that customer satisfaction is imperative to achieve customer satisfaction, (Lysons, 2006).

In addition, Lysons, (2006)) noted that Information Systems Managed Inventory was an excellent tool when ordering the policies of the downstream supply chain members were less sophisticated and erratic, or when the distributor was selling to a large number of buyers with erratic buying patterns.

According to Zanetti (2003), service needs to be professional and of high quality ensure that customers are satisfied. In her study Katuramu, (2005) observed that:

> *"Public service organization existed to provide public goods and services to their customers and therefore, it was imperative that they endeavour to meet customer needs. Customers will be satisfied if they perceive that the overall services quality meets their expectations".* (p.17).

Customers allow an organization to exist in order for an organization to operate efficiently and effectively in most focus on its customers' needs. Smith (2005) observed that an organization with very poor levels of customers satisfaction is on seriously dangerous ground and if this is coupled with general conviction within the organization that they are doing well and do not need to do better, it is either an arrogant monopoly or an organization on the edge of failure. There is no room for complacency in customers facing an organization.

Most Ugandan customers complain of the lengthy lead time and unreliable delivery (Ntayi, et al. 2009). Leading soft drinks manufacturers in Uganda; crown beverages and coco-cola, face delivery inefficiencies in the downstream chain due to wrong forecasts based on inadequate customer demand information this also increases the level of inventory piled in such organizations were houses, (Okello, et al. 2007).

Kyamutetera, (April 2009), emphasizes on the need by the organization to create an efficient information systems managed inventory so as the organization's products reach the new existing customers,

1.2 Statement of the problem

Information Systems Managed Inventory is of great importance to an organization as it helps organizations in many ways like reduction of total cost of operation, reduced cycle time, and increased organizational competitiveness, (Lysons and Brian Farrington, 2006).

According to Century Bottling managing director Norton king will, Coca-Cola invested 26.7 million on plastic bottle production line in 2013 in order to boost production, lower production cost and increase and increase customer satisfaction and also stay competitive in highly competitive soft drinks industry in Uganda which comprises of Fizzy, Riham, Azam, but despite the numerous efforts century bottling company to invest in information systems managed inventory has continued to face customer satisfaction challenges coupled by the rise of its competitors like , Riham, Azam, and fizzy. (Daily monitor, Friday, 22 2014), this has puzzled management as to what could be the problem. This study therefore intends to investigate into the effect of information systems managed inventory into customer satisfaction.

1.3 Purpose of the study

The purpose of study was to assess the effect of information systems managed inventory on customer satisfaction in an organization.

1.4 Research objectives

(i) To investigate the effects of information systems infrastructure on customer satisfaction.

(ii) To establish the influence of information systems knowledge and skills on customer satisfaction.

(iii) To analyse the effects of information support system on customer satisfaction.

1.5 Research questions

(i) What is the effect of information systems infrastructure on customer satisfaction?

(ii) What is the influence of knowledge and skills on customer satisfaction?

(iii) What are the effects of information support systems on customer satisfaction?

1.6 Significance of the study

The study will assist future researchers with abundant information on the Relationship between information systems managed inventory and customer satisfaction.

I. The study will assist the policy makers with information on the influence of information systems infrastructure on customer satisfaction.

II. The research will also assist the management of Century Bottling Company with information on the relationship between components of information systems and customer satisfaction.

III. The study will also provide other researchers with knowledge on the effect of use of knowledge and skills on customer satisfaction

1.7 Scope of the study

This included the content, geographical and time scope

1.7.1 Content scope

The study covered information systems managed inventory and customer satisfaction in an organization.

1.7.2 Geographical scope

The study was carried out at century bottling company located at Century Bottling Company located at Namave Kampala Uganda.

This is because this is the place where Century Bottling plant is located and the place also is conducive for the study due the organizations good record keeping systems above all the place is also located near to the university so the researcher was able save on the transport costs.

1.7.3 Time scope

The period of data to be considered in the organization was from 2012-2014 and period of body of knowledge in reviewing literature was from 2000-2014, while the study was carried out from January to September 31st 2014.

1.8 Definition of key terms

1.8.0 Information systems

Information system (IS) is the study of complementary networks of hardware and software that people and organizations use to collect, filters, process, create and distribute data. Information Systems encompasses a variety of disciplines such as: the analysis and design of systems, computer networking, information security, database management, and decision support systems, (Jessup, and Valacich, 2008).

information systems, Is an organized combination of people, hard ware, soft ware, communication net work, and data resources , policies and procedures to form the activities that stores retrieves, transform data resources into information.

1.8.1 Customer satisfaction

Customer satisfaction is defined as a result of comparison between what one customer expects about services provided by a service provider and what customer receives as actual services by a service provider, (Carvanna,2003).

Customer satisfaction is customer evaluation of service provider whether it has met their needs and expectations (Zeithaml & Bitner 1998). Anderson &Fornnel, (1995) suggested they were two concepts of customer satisfaction.

Diffusion is a communication process by which new idea or a new product is accepted by a market while rate of diffusion is the speed that new idea spreads from one customer to the next.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews available literature on information systems managed inventory, and customer satisfaction.

2.1 Theoretical frame work:

Systems theory by Berthalany and Bouldingas cited by Kerzner, (1987), applied to organization , considers the organizations to be made of different sub-systems which are intergraded into whole , for example sub-systems in an information systems to meet set organizational goals in order to fulfil customer expectations and requirement. Korzner, (1997) and Borciejet al, (2006) advance that information systems operate as an open systems it further asserts that if information systems are properly implemented in an organization meeting of customers needs in timely and efficient manner is realised by an organization.

2.1.2 The unified theory of acceptance and use of technology.

Venkatesh & Davis, (2000) unified theory of acceptance and use of technology state that four elements play significant role as a direct determinant of user acceptance and usage behaviour, and customer satisfaction.

Borciejet al, (2006) further asserts that with better implementation of information systems in an organization an there is timely and effective management of commodities leading to customer satisfaction in an organization. According to Lysons, (2006), an information system creates reliability of products in the market, timelines of information, and this ultimately creates customer satisfaction.

This concept is pegged on a hypothesis that there is relationship between information systems and customer satisfaction.

The UTAUT suggests that Informational systems acceptance can be explained by the factors pertaining to the information systems influence on customer satisfaction mechanism in an organization. The perceived usefulness of information systems crucial to acceptance of the information systems automation is not seen as strategic resource, it will hamper its acceptance, information systems acceptance is hampered by a fundamental lack of usability. The use of technology since time is very scarce resource and learning takes time. In addition to this, the acceptance of information systems automation is hampered by the lack of information systems infrastructure in the organization.

This lack of information systems infrastructure makes the use of technology combined with annoyance and anxiety. This provides a firm foundation for adopting this theory in this study based on these research works and due to its firm roots in information systems resource inform of organizational support systems, information systems infrastructure and acceptance.

2.1.3 The Diffusion of innovation theory

This theory suits the study of information systems. The diffusion of innovation theory adds that diffusion is innovation of an organization in order to determine the success of an organization its crucial for the effective implementation of information systems in an organization so that customer satisfaction is realised by an organization in its goal of satisfying customers, (Haung $kapur, 2007). Rogers, (2009) asserts that there are different forms of information systems in an organization like computers, internet which require organizational support in order for an organizational to provide satisfaction to its customers in terms of reliability, and timelines.

Rogers (2003), asserts that there are different levels of adopters of information systems managed inventory systems in an organization which require organizational support as they interact with new innovations to be able to change their different perceptions, according to Rogers (2003), a social systems denotes the bound community in which the innovation diffuses, it involves bad group of interrelated units with a common goal.

Rogers, (2003), as cited by Ahummuza, (2003), describes as information systems as an idea practice or object that is perceived as new by an individual or other unit of adoption. In specific reference to technological innovation, technology is a demise that helps to solve an individual perceived problem however it may create uncertainty when little is known about its consequences (Abirim, 2006).

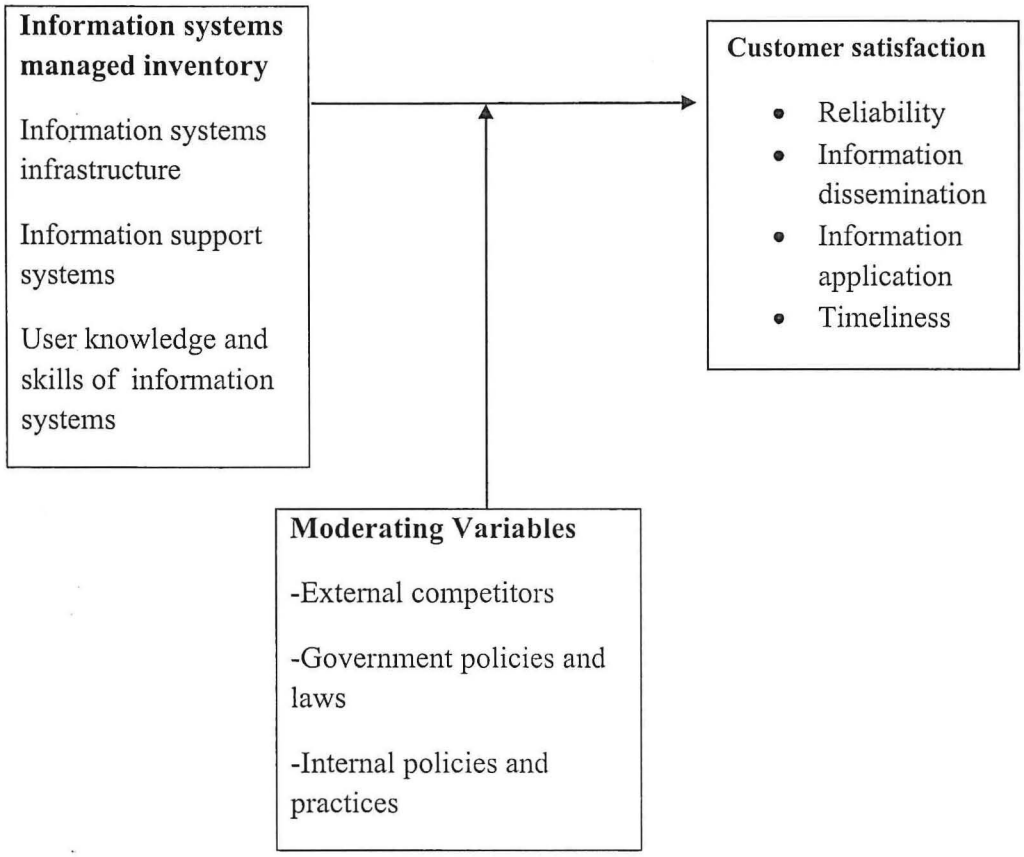
The diffusion of innovation theory predicts that information systems managed inventory has got great influence on the timeliness of information and reliability of products in the market.

The diffusion of innovation theory predicts that media as well as interpersonal contacts provide information and influence opinions in judgment leading to reliability of products in the market. The theory further asserts that customer satisfaction is derived from having products in the market in timely manner and communication channels and the roles of opinion leaders play in them, will determine the likelihood that the innovation will be adopted, (Catwright $ Hummond, 2007).

2.2 Conceptual frame work

Figure 1 conceptual frame work for information systems managed inventory on customer satisfaction at crown beverages.

Independent variable (information system) Dependent variable (customer satisfaction)



Adopted and modified from the systems theory of Bertalanffy, (1951), Rogers, (2003), theory of diffusion of innovation and the unified theory of acceptance and the use of technology, (Venkatesh, et al, 2003).

This study conceptualizes the relationship between information systems managed inventory (the independent variable) and customer satisfaction, (dependent variable).

Information systems indices are information systems infrastructure and know-how which are predictors of customer satisfaction indices; reliability, timeliness, (Mosleh and Shannak, 2009), Pearlson and Saunders ,(2006), however it is conceptualized that the impact of information

systems managed inventory like , user knowledge and skills, information systems, Infrastructure which are critical to the function of customer satisfaction.

2.3 TYPES OF INVENTORY MANAGEMENT SYSTEMS

According to McLaren et al., (2004) there are basically two types of inventory management which include manual and automatic inventory management system.

2.3.1 Automatic inventory management systems

During the growth of a competitive global environment, there is considerable pressure on most organizations to make their operations, tactical, and strategic processes more efficient and effective. An automatic inventory management system is a group of components which can increase competitiveness and gain better information for decision making. Therefore various organizations have chosen to apply this group of components to their associations (Spalding, 1998). Consequently, the organizations decide to implement IS in order to improve the effectiveness and efficiency of the organizations. Automatic inventory management systems have become a major function area of business administration. The systems, nowadays, plays a vital role in the e-business and e-commerce operations, enterprise collaboration and management, and strategic success of the business (Hevner et al., 2004).

According to McLaren et al., (2004), Organizations operating automatic inventory management system, but provide highly efficient and effective product availability to customers at minimal operation costs, is one of the key factors that determine the success of their businesses, institute different mechanisms to achieve efficiency and effective within their operating systems, as result many organization have adopted automatic information systems managed inventory management

systems as one of the mechanisms managers can use to achieve efficient and effective organizational performance.

World over, automatic inventory systems are known to be one of those key factors in determining the success of organizations. Mustaffa & Potter, (2009) as cited by Mogore et al., (2013) points out that, automatic inventory management systems within organizations operations leads to high customer service levels and improvements in key supply chain variables such as decreasing stock outs and elimination of the bullwhip effect. Wal-mart for instance, through its automatic inventory management system has eliminated the need for purchase orders, while Ford's automated accounts payable function has eliminated the need for 300 staff positions.

According to, Gaines et al., (2011), automatic inventory management systems has helped many organization across the globe cut on their total operational costs this has thus helped such organizations to improve on their overall organizational performance and remain competitive and above all achieve maximum customer satisfaction

The adoption of Automatic inventory management systems among global companies like Tesco, wall mart, has led to the growth of such multinational organization , Scholars like Mogore, et al., (2013), Kurbel (2013 , Neely et al, (2001),) explore the benefits of automatic inventory management systems, but one common factor such scholars agree on, is that, such systems aid in the effective and efficient data collection, assessment, and dissemination within and out an organization, which makes it a valuable resource in the achievement of improved organization performance, thus competitive advantage, (Gaines, et al., 2011).

Automatic inventory management system has standard system for calculating the quantities of components, subassemblies and materials required to carry out a production programme for

complex products (Rushton, et. al, (2011). Mogore, et al, (2011). It is a formal, mechanical method of supply scheduling whereby the timing of purchase or production output is synchronized to meet period-by-period operating requirements by offsetting the request for supply from the requirements by the length of the lead time, (Ballou, 2004), while Mogore, et al, (2011) contends that, such systems are computer-based and are used in production planning or inventory control, such as production scheduling and management.

Automatic inventory management systems helps an organization in forecasting or projecting requirements for finished products at the point of demand, (Lysons & Farrington, 2006), The system translates the sophisticated inventory management techniques in an organization system by realizing planned orders from the various distribution centers to become inputs to the material plan of the central supply, (Arnold & Chapman, 2004). According to, (Ballou, 2004). Automatic inventory management systems has helped different organizations to be able to management multiple supplies in among all to forecast future demand for a given products and plan effectively. while, Monczka, (2002) contends that automatic inventory management systems performs more functions other than helping regulate stock levels, which include among others, transport planning, vehicle loading and scheduling. These components are crucial in ensuring that customers order are fulfilled appropriately in the most efficient and effective manner, hence improved customer satisfaction.

2.3.2 MANUAL INVENTORY MANAGEMENT SYSTEM

Manual inventory management system is essential, for a very small business that carries a limited amount of inventory or that turns over inventory slowly, a mechanized inventory system is unnecessary. The business owner can easily keep track of how much merchandise is on hand with a manual system, or simply by applying the "eyeball test" to see if it is time to order more.

The owner won't need to spend money on inventory software or take the time to learn how to operate it, (Lysons, 2006).Farrington and Lysons (2006) further assert that, a manual system gives a small business owner a greater sense of control. Rather than relying on a computer to indicate when it's time to reorder, the owner can manage the process on his own. The need to view his merchandise on a regular basis, such as when counting stock before placing an order, gives him the opportunity to assess the condition of his merchandise, reducing the chance of a customer receiving damaged goods.

Bailey, (2004) contends that, a disadvantage of manual inventory systems is that they can be highly labor-intensive to operate. They require continuous monitoring to ensure that each transaction is accounted for and that products are maintained at the appropriate stocking levels. It is also more difficult to share inventory information throughout the business, because the lack of computerization makes accessing inventory records a more cumbersome process. The time spent monitoring inventory levels could be used on more productive activities for the business.

A manual inventory system relies heavily on the actions of people, which increases the possibility of human error. People might forget to record a transaction or simply miscount the number of goods. This results in needless additional orders that increase the company's inventory carrying costs and use up precious storage space. Inaccurate physical counts could also result in not ordering enough of a product, meaning the business could run out of a crucial item at the wrong time. (Thai, 2004).

2.3.3 COMPONENTS OF INFORMATION SYSTEMS MANAGED INVENTORY

Electronic Data Interchange, This is an exciting development in the 1980s. EDI is a technique based on agreed standards which facilitates business transactions in a standardized electronic

form in an automated manner directly from a computer application in one organization to an application in another organization. The growth of microcomputer usage in logistics is to direct electronic transmission of data and standard business forms between the buying organization and its suppliers. This helps the customer to obtain more timely and accurate information about a good or a service from a manufacture so as to be able to make quick decisions to save them from costly expenses. According to Monczka and Trent, 75% of the business units they studied have EDI capability with their various suppliers. The real growth of EDI comes in the increasing volume of transaction handled electronically. In the same study, Monczka and Trent reveal that respondents reported that most businesses would be connected to 60% of their suppliers by 1997 even though by 1995 only 18% were connected to their suppliers. Electronic Data Interchange and the internet have made flow and exchange of information once an EDI system is in place and functioning properly, it produces a number of clear-cut operating benefits for the buying firm. An obvious reduction in paperwork and related administrative contributes noticeably to increased productivity. Because data is transmitted directly between computers, accuracy of the data throughout the process typically increased. For the same reason, more complete and faster feedback of order status information is possible.

According to Bialy et al, technological progression necessitates that organizations should have formulated plans to handle development for example in the development of EDI as one of the information systems used in supporting customer satisfaction, (bailey et al, 2004).

In addition to the above, there has been different views concerning the integration of materials and information flows, both internally and externally for example; MRP, MRP II and integrated information systems such as EDI and supply chain concepts such as value streams and pipeline or logistics management systems in order to improve on the level of customer satisfaction.

According to Christopher (2005:180), organizations with quite different internal information systems can now access data from customers on sales or product usage and can use that information to manage replenishment and to alert their suppliers of forth coming requirements. This can be achieved by use of extranets.

At the same time, organizations can successfully run a home shopping and delivery systems for consumers over the internet. Within these businesses, intranets are put in place to enable information be shared between stores and this facilitates communication across the business making the internal operations become much more efficient as a result. For example, by capturing customer demand data sooner, better utilization of production and transport capacity achieved through proper planning and scheduling, Wit and Van (2006).

According to Preben Koch, head of ICT development at vital, Forsaking USA, explains "We needed to ensure cost-effective growth of the business by making our processes fast and accurate, using technology to save duplication of effort. Our administration system was outdated. The long and complex forms required several steps of validation and this slowed up the process of handling cases."

Koch still explains that by use of TIBCOS BPM suite that TIBCO software inc developed for vital paper mark and staff have been reduced by 25% and 35% while maintaining its level of service and also that case handlers now have instant access to client data on screen including all contact details and the current status of applications and claims. As a result, customers can be kept well informed about their affairs and human mistakes can be avoided.

Bar codes and scanners, this system of Bar code and scanners represents a series of alphanumerical characters, bar code readers to interpret bar code zymology, and bar code

printers to reliably and accurately print bar codes on labels, cartons, and/or picking /shipping documents. The review is included here because bar code systems are the foundation for many paperless warehousing systems, but the review is meant only as a brief introduction to bar code system. In business bar coding is useful in receiving inbound materials. This helps in quick and accurate data entry, faster checking and clearing of shipments, automatic tracking of the shipments throughout the business process this helps in the creation of customer satisfaction, (Somuyiwa, 2009 & Oyesiku, 2010).

Satellite, this is a technology that allows communication across a very wide geographical area. Satellite communication provides a fast and high volume channel for information movements. Satellite technology facilitates real time interaction which provides up to date information about location and delivery information about the products in transit. The satellite devices can also be used in tracking and tracing the materials in transit this helps to ensure that customers are served the right products an also promotes trust between the supplier and the customer hence promoting customer satisfaction, (Pokharel, 2005; Azevedo, Evangelista and Sweeney, 2006).

Image processing, this uses fax and optical scanning technology to transmit and store freight bill information and supporting documents such as POD or BOL. Through image processing, the buying company is in position to get timely customer shipment information which is transmitted through the central Data base therefore, providing improved customer service in the form of more timely and accurate delivery, quick shipments, tracing and quicker transfer of sales and inventory information which promotes customer satisfaction, this is specifically due to the increased certainty of the supply of the product to the customer, (Aberdeen group 2005).

Internet, The strategic importance of information is recognized by most people and organizations. The internet thus far is primarily a tool for information sharing between the buying company and the selling company with the potential for electronic commerce being explored. Some companies are setting up private internet used to share data with workers and provide access to the larger internet. In business, the internet is used in order to enhance efficient, effective and timely communication between the buying and selling organization, tracking and tracing of the cargo during the actual process of conducting business between one organization and another this therefore increases customer satisfaction, Nair, (2006),

Enterprise resource planning, Enterprises Resource Planning is the English term for a business system. Again, another term that is used for business system is Enterprises System (ES). To describe an ES in a simple way one could say that ES is an information system that manages all the resources available in a company. It is a common term for a co-operating software that manages and co-ordinates much of a company's resources, assets and activities (Boyle, 2004). Gartner Group developed the ERP concept under the 90's. The term ERP is defined by them as: "ERP is a planning and communication system that affects all the resources of a company." Boyle (2004) defines it as: "not a system, but a framework that includes administrative (finance, accounting), human resources (payroll, benefits), and Manufacturing Resources Planning (MRP) (procurement production planning). ERP units' major business processes- order processing general ledger, payroll, and production within a single family of software modules." There can be numerous benefits of using enterprises systems and according to Davenport (2002.) the most significant.

Include':

- Cycle time reduction

Faster information transactions

Better financial management

Laying the groundwork for electronic commerce and making tacit process knowledge explicit (transferring knowledge from an aging workforce into the ES).

But there are not just benefits with enterprises; there are also both technical and business perspectives that are negative:

Inflexibility. One of the greatest difficulties in any ES project is to match the system to the preferred ways of accomplishing a business process or activity. It is just too difficult to fit an ES to a business-both for the first time and for subsequent changes.

Long implementation periods. 3 to 5 year project duration is fairly common for implementing an ES in a large company, and for companies in the rapidly changing business world these projects are insupportable.

Overly hierarchical organizations. A third criticism of ES's is that they impose a hierarchical, "command and control: perspective on organizations.

Antiquated technology. A final criticism of ES's is that most are based on obsolete technology; that is, that they are thinly disguised main frame programme ported into the client/server world.

Customer order cycle: The customer order cycle: occurs at the customer/retailer interface and includes all process directly involved in receiving and filling the customer's order. Typically, the customer initiates this cycle at a retailer site, and the cycle primarily involves filling customer

demand. The retailer's interaction with the customer starts when the customer arrives or contact is initiated and ends when the customer receives the order, this therefore ensures that, despite the numerous demerits form enterprise resources planning it directly leads to customer satisfaction .

2.4 RELATION BETWEEN INFORMATION SYSTEMS INFRASTRUCTURE ON CUSTOMER SATISFACTION

Since the introduction of computers in the middle of the twentieth century, the potential of Information Technology (IT) to transform organizations has been a constant subject of analysis for both organization studies and information systems research. Each new generation of technology and every major technological innovation has been followed by strong claims that organizations, businesses, and society in general, would have to be radically and fundamentally transformed to take into account the new opportunities offered by the innovations in technological capabilities. The changes brought about by technologies in organizations have been discussed examining how technology can help to reorganize work activities or improve their management. A very similar debate characterizes the dispute on the role of information infrastructures in supporting economic activities in contemporary society. As a result of the increased diffusion of information technologies in organizations and in society, the level of interdependence among single information systems is escalating such that today, it is very difficult to think about independent information systems as opposed to Information Infrastructures, (Hanseth, 2004).

An information infrastructure is defined by Hanseth (2002) asa shared, evolving, open, standardized and heterogeneous installed base and by Pironti (2006) as all of the people,

processes, procedures, tools, facilities, and technology which supports the creation, use, transport, storage, and destruction of information.

In quality perspective customer satisfaction is defined as a result of comparison between what one customer expects about services provided by a service provider and what customer receives as actual services by a service provider, (carvanna 2003).

Organizational management must demonstrate a willingness to create an efficient inventory management technique so as to be able to allow information exchange between customers and buyers this will create an efficient certainty of the availability of products in the market to the customers this will create customer satisfaction, (Chwen, et al. 2006).

According to Nakatani, (2003), efficient in formation systems infrastructure creates reliability between the different parties in the demand chain, reliability is a relative concept that grows following the development of trust between parties in the demand chain and customers are certain of their demand being meant in time thus a premise needed for the establishment of a strong inventory management to create customer satisfaction. Simatupang and Sridaharn, (2004) on the other hand agree that reliability is the most essential feature for the success of customer satisfaction in the demand chain.

Katrina, (2003) on the other hand reveals that efficient information systems infrastructure creates commitment which is an essential component in the creation of customer satisfaction. For example, there is greater commitment in collaboration to allow companies share a vision and employ sophisticated processes such as joint planning and operation in the service of that vision. Parties are able to develop demand chain collaborations if they invest a great deal of resources, cultivate trust -and commitment, and share long-term strategic goals; this creates customer

satisfaction in the sense that manufacturers are able to integrate their plans with customer's perspective.

The sharing of inventory data precludes information distortion thus minimizing the bull whip effect whose implications include: excess costs, excess inventories, slow response and lost profit, this increases customer satisfaction, (Ntayi, et al. 2009; Vereercke et al, 2006). The elimination of the bull whip effect that creates uncertainties in production and distribution in the demand chain given its effect on demand forecasting, order batching, and rationing inventory, allows demand chains to create reliable and timely customer service, (Zhenxin, et al. 2004). It was observed that, among the means to reduce delivery costs, is through application of better inventory management techniques, (Gunasekarana, et al. 2004).

A high degree of web-based inventory management creates faster customer service and integration between manufacturers' and customers that can lead to the high levels of operational performance for manufacturers in terms of; faster delivery times, reduced transaction costs, greater profitability, and enhanced inventory turnover, (Vereercke and Muylle. 2006), identified increased quality, variety, customer service, speed and responsiveness (Ntayi, et al. 2009) as some of the benefits accruing to demand chains as a result of faster response to customer service.

2.5.0 RELATIONSHIP BETWEEN KNOWLEDGE AND SKILLS AND CUSTOMER SATISFACTION

Knowledge has huge effect on customer satisfaction the following are some of the ways it affect customer satisfaction according to different scholars;

The concept of Knowledge Management (KM) has attracted the attention of researchers over the last decade since it is considered an important tool to achieve innovation and sustainable

competitive advantages (Cooper, 2006; Marques and Simon, 2006). Nonaka (1998) noted that in highly uncertain economies the only sure source of lasting competitive advantage is knowledge. Several studies found that firms that adopt knowledge management practices perform better than competing firms that do not (Pathirage*et al.*, 2007; Marques and Simon, 2006). Knowledge management practices have been implemented in a wide range of industries including manufacturing, consulting, tourism, and call centers (Koh*et al.*, 2005).

Extensive research has demonstrated the importance of customer-employee interactions in customers' evaluation of overall quality and/or satisfaction with services (Bitner *et al.*, 1990; Dolen*et al.*, 2004).

Management theory researchers view knowledge as individual and organizational competencies such as skills, knowhow and know what , (Nonaka &Takeidi 1995; Davenport & Pruska 1998), While management information systems researchers and practitioners regard knowledge as an object that can be controlled and recognized in a computer based information system, (Hoon, 2003). Knowledge is considered a specific strategic resource that does not depreciate in the way traditional economic productive factors do but appreciate with use, (Curado & Bontis, 2006).

Knowledge researchers argue that firms exists because they have unique often historically dependable abilities to accumulate specific resources that lead to different levels of firm performance, (Reed &Defillipp, 2000), whereas barney, (1991), regarded knowledge as separate resources on equal footing with other resources. He again argued that firms gain competitive advantage if they have the capability to transform other resources. Capabilities and resources have three distinct features which make them different to imitate, they are historically determined, and socially embedded, (Barney, 1991).

As the firms capabilities are knowledge based, this makes knowledge a resource that forms the foundation of the firm's capabilities that transform into core competencies when they present a domain in which a firm excels, (Marr & Neely, (2004). At an employee level it includes personal knowledge, skills and talents while at a firm level it includes infrastructure, networking relations, technologies, routine, trade secrets, procedures and organizational culture, Individuals with their intellectuals abilities, the knowledge they poses and their capability to learn and acquire more knowledge at all hierarchical levels constantly contribute to the firms competitiveness by creating customer satisfaction, (Marr & Neely, 2004).

Mac GregorBinker and Vrazaloe (2006) highlights that small business tend to avoid information systems into their business, it is seen as complex to use, This is not surprising because SMES always lack skills amongst work force to use information systems, (Spectrum, 1997). Paul and Pascal (2003) finings dearly indicate that information systems adoption is positively related to user knowledge and skills.

Syed and Mohand (2009) suggest that it is very important for an organization to determine employee's knowledge or skills of information systems because those knowledge or previous experiences may influence organizations decisions in adopting and utilizing of manager or the owner in information systems knowledge or skills is definitely likely to increase the opportunity of information systems utilization.

Kaynolds, savage and Wilthans (1994) found that small business owners, managers are likely to adopt more sophisticated technologies if they are not familiar with the basic ones, Rittat (2007)

one of the most critical issues in information systems research is whether and how information creates value for the organizations and institutions that implement them many studies have

offered empirical evidence of the business value of the business value of the information system (e.g. Brynjolfisson and HiH 2003) but these studies usually show that the value appears with lag. one potential explanations for the lagged effects is that, due to the complexity and novelty of information system some experience may be required for firms and individuals users to capture value from the, (Brynjofsson, 2003).

Knowledge Management 3 processes to meet customer goals (Salomann*et al.*, 2005). Initiatives emerging from this effort have been labeled as 'customer knowledge management' (CKM) or 'knowledge-enabled CRM' (Gibbert*et al.*, 2002; Gebert*et al.*, 2003). Croteau and Li (2003) note that an organization's KM capabilities are an important factor affecting CRM effect. However, recent studies indicate an underutilization of KM practices in the hospitality/tourism industry (Cooper, 2006; Sigala and Chalkiti, 2007; Hallin and Marnburg, 2007).

There is substantial evidence of the effect of knowledge management practices in building strong relationships with customers, and enhancing customer satisfaction and organizational performance (Marques and Simon, 2006; Pathirage*et al.*, 2007). However, no prior studies have investigated the influence of KM practices in a service encounter context. KM begins with an understanding that knowledge is broadly classified as explicit knowledge and tacit knowledge. Each has very particular characteristics, discussed more fully later in this paper, that influence KM. This paper commences analysis at this foundational level to ask how consumer reactions differ when service providers use one or the other form of knowledge. More specifically, this study examines the influence of KM practices on consumer satisfaction and consumers' repurchase intentions. This study focuses strictly on the dyadic interaction between service provider and customer – the service exchange. KM practices outside these bounds are not within the scope of this study. Therefore, the focus of this paper is on the influence of two fundamental

knowledge management components, namely tacit and explicit knowledge, on consumer reactions. The next section reviews relevant literature and provides a discussion of CRM and the service product to establish the conceptual basis of this study.

Price and Value, Values are ideas and beliefs which individuals hold of what is right and wrong, what is good and bad. What satisfies and what does not satisfy, what is preferable and what is not, what is of importance and what is not important. Valued product or services are those of higher preferences to customers of importance in use/available and affordable. (Anderson, 2013).

(Fornell, 1992) argue that price is the way in which value is transferred and it could be major determinants in the position and value of the product or services in the market. If the product or services does not meet the expectation, the customer feels unhappy, disappointed and perhaps even cheated. The benefit you provide and the needs should be directly related to the cost and how it compares with the customer's perception of its value. To be able to do this, the organization should identify customer feelings of the value or acceptability of your products or service. When you have a well-designed inventory management system, you are able to reduce the amount of time that products sit on your shelves. When you don't carry extra inventory for extended periods of time, your inventory costs decrease. This is a savings that you can pass on to clients in the form of lower pricing.

In good time delivery, according to (Wallim, 2006) customers are more satisfied if the time taken to deliver their products is less than the time they are willing to wait once they have placed an order , flexibility is dominant in meeting the delivery deadlines(Gunasekara, 2010) and therefore information shared is required.

Sharing is required to enable the members of the supply chain to meet specified delivery dates by the customers (Ellram, 1999). A study carried out by (Yin-mei, 2013) shows that effective customer delivery influences customer satisfaction and service quality. Customers are said to be more satisfied if their suppliers are able to meet and fulfil their orders within the required time (Widing, 2003).

Knowledge and skills helps in the improvement of quality of the products,Quality is defined as meeting the customer's requirements and expectations. Quality of product and service of are those with unique characteristics or attributes, having advantage over those alternatives and are more suitable for the anticipated use. Suitability of a product or service depends on its capacity to function satisfactorily and continue to meet customer's requirements over a period of time or its reliability (Oakland, 1993).

Quality has to be managed since it cannot just happen. (Smith, 1994) asserts that quality is the output of the standard agreed which implies that quality is designed or planned and to among others the reputation of a firm is built on.

The level of customer satisfaction varies depending on the operating environment scarcity of the commodity and other factors. If a firm is operating in a market where quality appears to be a minor or a non-existent issue, its management may feel that it is possible to disregard quality

The quality of tangible product is usually straightforward. Forward determination for customers to make comparison between physical products is a matter of feature to feature analysis. The

Challenge for customers and for organization lies in evaluating service quality which may be the only way customers truly differentiate between one complete product offering, and another. For this reason organization and their marketers live or die by understanding how consumers judge service quality.

Based upon the nature of customer viewpoints and behavior quality service is typically measured by the customer in terms of products the customer expects to receive. Thus it is important for every organization especially service organizations to determine what customers expect and then develop service products that meet or exceed their expectations (Lornergman, 2001).

It helps in the creation of customer loyalty, Customer loyalty is the willingness of customers buying existing brands frequently as opposed to choosing those of competitors (Wyse, 2012). A study carried out by (Mitchell, 2004) illustrates that customer satisfaction results to customer retention which in turn creates a loyal customer stand in an organization. Customer loyalty requires that companies convey on their customers' expectations fully in a predictable and an ongoing relationship (Campton, 2004). Customers frequently judge the quality of the services that they receive using their perceived expectations which often lead to customer satisfaction and loyalty (Colburn, 2013). According to (Cacioappo, 2000), an increase in customer loyalty by five percent can lead to an increase in a company's profits by 25 to 85 percent.

Loyal customers according to Eckert (2005) are six times more likely to purchase or to recommend the purchase of a company's products and services to someone else. Various studies have also shown that dissatisfied customers are likely to tell nine others while satisfied customers are likely to tell five other people about the good service and treatment that they have received

(Cacioappo, 2000). Manufacturers need to provide customer purchase satisfaction before and after a purchase since this is likely to lead to customer brand loyalty (Agarwal, 2007).

Customer service is the provision of service to customers before, during and after a purchase. According to (Turban et al, 2002) "Customer service is a series of activities designed to enhance the level of customer satisfaction that is, the feeling that a product or service has met the customer expectation."

The importance of customer service may vary by product or service, industry and customer. The perception of success of such interactions will be dependent on employees "who can adjust themselves to the personality of the guest. Customer service can also refer to the culture of the organization, the priority the organization assigns to customer service relative to other components, such as product innovation or low price. In this sense, an organization that values good customer service may spend more money in training employees than average organization, or proactively interview customers for feedback. From the point of view of an overall sales process effort, customer service plays an important role in an organization's ability to generate income and revenue. From that perspective, customer service should be included as part of an overall approach to systematic improvement. A customer service experience can change the entire perception a customer has of the organization and is an extremely important part of maintaining ongoing client relationships that are key to continuing revenue. For this reason, many companies have worked hard to increase their customer satisfaction levels. Often there are many more people working behind the scenes at a company than there are customer service representatives, yet it is primarily the personnel that interact directly with customers that form customers' perceptions of the company as a whole, from the above discussion it shows that customer satisfaction can be observed

In stock, a good inventory management system means that you have an up to date inventory count at all times. Part of giving good customer service is giving accurate information even if the customer does not plan on making a purchase that day. By being able to give clients accurate inventory information, you improve the image of your company and add one more element to customer retention.

Repeated buying, Customer loyalty is often shows in repeat purchases (Allen & Wilburn, 2002). (Tuli&Bharadwaj, 2009) observes that satisfied customers are likely to adapt a behavior of increase in purchase as well as a continuous purchase from the firm. (Agarwal, 2007) asserts that provision of customer purchase satisfaction before and after a purchase results in repeat purchases. Provision of satisfaction before the actual purchase by the customer would include aspects such as provision of quality products, fair pricing of products as well as flexibility (Amini et al, 2005). Post purchase customer satisfaction on the other hand would include activities such as provision of repair services and efficient operations of reverse logistics (Howgego, 2002).

2.5.1 CHALLENGES FACED IN INFORMATION SYSTEMS MANAGED INVENTORY

Information Fragmentation, Information fragmentation is a core difficulty for information systems managed inventory, practices and a direct consequence of the availability of a wide range of tools and technologies to the end-user (Jones, 2007, p. 453). System integration is an important issue, leading to the fragmentation of information sources such as paper documents, email, office productivity software, storage supports, mobile devices and Web pages. The lack of interoperability between different formats of documents or software versions is also increasing the challenges pertaining to this fragmentation (Bondarenko et al., 2010). In the workplace, the challenges related to information fragmentation entail labor-intensive information search, task

interruptions, complicated data backup procedures and continuous switching between paper and digital information (Ravasio et al., 2004; Jones, 2007; Bondarenko et al., 2010). The separation between information systems also leads to unwanted redundancy in the various storage locations (Ravasio et al., 2004, p. 168) and confusion caused by the presence of different passwords and access methods (Barreau, 2007, p. 314). For Boardman and Sasse (2004), synergies between tools should better be leveraged to facilitate not only the integration of different information pieces, but also to better support individual users in their specific tasks.

Task management is a core challenge in many studies related to personal information management in an organizational setting, as employees do not use a system to perform information practices but rather to accomplish work-related tasks. Several studies have examined the problems arising when employees try to accomplish their work with systems having poorly adapted functions to the requirements of the job (Boardman &Sasse, 2004; Dabbish& Kraut, 2006; Barreau, 2008; Bondarenko et al., 2010; Karr-Wisniewski & Lu, 2010). For Jones (2007), information management and task management are simply "two sides of the same coin".

Email overload is a phenomenon documented in numerous studies (Whittaker &Sidner, 1996; Venolia et al., 2001; Bellotti et al., 2003; Whittaker, Bellotti&Gwizdka, 2006; Sumecki et al., 2011). In the organizational context, email overload is commonly defined as the act of receiving a large number of messages daily, overwhelming the employees and affecting their overall productivity. In the recent years, email management has become a daunting and time-consuming task and an important source of stress for the employees.

2.6.0 INFORMATION SYSTEMS SUPPORT SYSTEM

ZangMcAllough and support system (2004) asserts that organizational support system with in the organizational literature. They instutionalize how people interact with each other how power relationships are defined (Hall, 1987). The structure of an organization and support to organizational members reflects the value base choices made by that organization (Quinn, 1988) it refers to how obs and tasks are formally divided group and coordinated.

Researchers have conceptualized organizational structures and groups from different perspectives. According to Khadwalla (1977), organizations structure and information systems support system can take many forms, ranging from highly mechanistic to highly organic mechanistic structures are highly formalized, non-participative, hicrachial, tightly controlled and flexible and offer little support to the organizational members, organize structures on the other hand are characterized by informality, decentralization of authority, channels of communication, high support systems to organizational members.

Organic structures on the other hand are characterized by informality, decentralization of authority, open channels of communication, high support systems to organizational members and flexibility.

2.6.1 Top management support and customer satisfaction

Pinto and Millet (1999) asserts that top management needs to establish willingness on the part of the organizational members by creating a climate of cooperation, demonstrating the efficiency of a new system of doing things. They argue that the degree of acceptance or resistance to the information systems projects will be due to the degree of the management support for the project.

Phelps (2002) argues that engaging leaders information system trading enables them to reach greater understanding of potential technology in challenges and encouraging performance.

Harris and development (2005) argue that information system is some of the most important tools available to achieve customer satisfaction. In order to excel and are widely used in different organizations world wide citing an example of the finance industry which has been the most progressive in this regard as evidenced by wide spread usage of ATMs in transforming business.

Moreover, Fuilan (2005) contends that no successful, large scale change on information system has advanced without support of the top management.

Hope, Kelly and Guyden (2000) noted that leaders should use technology and modeling the practice to the staff.

2.6.2. Peer support and customer satisfaction

Dean supprs and walker (2005) assert that innovation diffusion needs a sharing and learning organizational environment among peer members.

They add that learning and sharing Knowledge amongst staff is important for innovation diffusion. Rogers (1996) argues that learning is a key factor in innovation development. He suggests that training and development should be shifted to experimental style learning.

Grantian and Nicholas (1993), state that organizational learning occurs when people in an organization collaborate to share their different visions, knowledge and skills.

Organisational learning is a key information system strategy when ICT application strategy is subjected to change (Attewel, 1992; Fichman and Moses, 1999). Gibson and similar (1991) asserts that sharing tacit information system knowledge among peers built from users'

experience cam improve information systems automation within organizations, Carlopio(1998) explains that personal change may be the best influenced by co workers, friends family and peers within an organization.

2.7.0. Information system infrastructure

Pearson and Saunders (2006) defined information system infrastructure as everything that supports the flow and processing of information in an organization, including hard ware, live wire, software, data and network competent.

Kim and Lee (2006) specifically reported a positive significant effect between employee information system usage at I.T application and levels of employer knowledge sharing capabilities for public sector employees. This finding is amplified by Syed-Ikhsan and knowland (2004) who reported that information system infrastructure allow individuals to create and share knowledge effectively and contribute to customer satisfaction.

Information systems support systems and customs performance Zong, MiCullough and Ren (2004) assert that organizational support systems with in the organizational structure are most investigated organizational, Characteristics in organizational literature, they initialize how people interact with each other, how communication flows and how power relationships are defined (Hon, 1987) the structure of organizational and support to organizational members reflects the value based choice made by that organization (Quinin, 1988); it refers to how abs are formally divided and coordinated.

Researchers have conceptual and organizational structures and groups from different perspectives. According to Khondwalla,(1977) organizations structure and from different

information systems support viewed as facilitating interactions and communication for coordination and count of the organizational duties.

2.7.1 Top management support and customer satisfaction;

Pinto and Millet,(1999) argue that top most need to establish willingness to be part of the organizational members by creating a climate of cooperation, demonstrating the efficiency of the system and its benefits over the old ways of doing things. They add that the degree of acceptance or resistance of information system projects will be due to the degree of top management support from the project.

Phelps, (2002) argues that engaging leaders in information system translating enables them to reach greater understanding of potential challenges of customer satisfaction.

Harris and Devon Port (2005) argue that automated information systems are some of the most important tools available to improve customer satisfaction in order to excel and if order to excel and are widely used by many firms worldwide, citing an example of the finance of industry which has been the most progressive in those regard as evidenced by wide spread usage of automated teller machines (ATM) in transforming business.

Moreover, Fullam (2009) contends that no successful large scale change or information system adoption effort has enhanced without the support of top management, Hope, KellysGuyden (2000) noted that leaders should use technology and modeling the practice to the staff.

2.7.2 MEASURE TO IMPROVE CUSTOMER SATISFACTION

Information system (IS) is the study of complementary networks of hardware and software that people and organizations use to collect, filters, process, create and distribute data. Information Systems encompasses a variety of disciplines such as: the analysis and design of systems,

computer networking, information security, database management, and decision support systems, (Jessup, and Valacich, 2008).

In quality perspective customer satisfaction is defined as a result of comparison between what one customer expects about services provided by a service provider and what customer receives as actual services by a service provider, (Carvanna, 2003). If services provided by an organization meet customer's needs, this may lead to high customer satisfaction, (Wakeret al, 2006).

Customer Satisfaction is defined as an "evaluation of the perceived discrepancy between prior expectations and the actual performance of the product" (Tse and Wilton, 1988, Oliver 1999). Satisfaction of customers with products and services of a company is considered as most important factor leading toward competitiveness and success (Hennig-Thurau and Klee, 1997). Customer satisfaction is actually how customer evaluates the ongoing performance (Gustafsson, Johnson and Roos, 2005). According to Kim, Park and Jeong (2004) customer satisfaction is customer's reaction to the state of satisfaction, and customer's judgment of satisfaction level. Customer satisfaction is very important in today's business world as according to Deng et al., (2009) the ability of a service provider to create high degree of satisfaction is crucial for product differentiation and developing strong relationship with customers.

Customer satisfaction makes the customers loyal to one organization. Previous researchers have found that satisfaction of the customers can help the brands to build long and profitable relationships with their customers (Eshghi, Haughton and Topi, 2007). Though it is costly to generate satisfied and loyal customers but that would prove profitable in a long run for a firm (Anderson, Fornell and Mazvancheryl, 2004). Therefore a firm should concentrate on the

improvement of information system so that customers time is saved and charge appropriate fair price in order to satisfy their customers which would ultimately help the firm to retain its customers (Gustafsson, Johnson and Roos, 2005).

It is a common phenomenon that the level of inventory management in an organization actually determines the level of satisfaction among its customers, than any other measure (Turel et al. 2006). Customer's involvement is also important as when buyer consider the product important and invests time to seek information then it ultimately enhances the satisfaction level (Russell-Bennett, McCollKennedy and Coote, 2007). This satisfaction may influence the concerned company by repurchase, purchase of more products, positive word of mouth and willingness of customer to pay more for the particular brand. Any business is likely to lose market share, customers and investors if it fails to satisfy customers as effectively and efficiently as its competitors is doing (Anderson, Fornell, and Mazvancheryl, 2004).

The Customer service is a system of activities that comprises customer support systems, complaint processing, speed of complaint processing, ease of reporting complaint and friendliness when reporting complaint (Kim, Park and Jeong, 2004). Customer services are the opportunities for telecom service providers that are added to mobile network other than voice services in which contents are either self produced by service provider or provided through strategic compliance with service provider (Kuo, Wu and Deng, 2009). The improved customer services are the focal point of the telecom service providers for social as well as for economic reasons. From a social point of view, services should be available to the customers on reasonable terms. As far as economic factor is concerned, services should satisfy the needs of the customers (Turel and Serenko, 2006; Melody, 1997).

For developing satisfaction among customers, the telecom service providers need to be extra careful for the customer services they provide. Satisfaction of customer is determined by his evaluation of service provided by a brand (Gustafsson, Johnson and Roos, 2005). The study of Ahn, Han and Lee (2006) shows that when the customers, do not get their complaints considered properly, they start looking for other brands. It happens because either the customer service centers do not handle the complaints or the customers are not able to address them properly. Sometimes, telecom service providers take considerably longer time to resolve the problems like network coverage or call quality, the customers do not wait for long and hence they lose satisfaction with that particular brand (Ahn, Han and Lee, 2006).

Furthermore, the friendly attitude and courteous behavior of the service workers at service firms leaves a positive impression on the customer which lead towards customer satisfaction (Soderlund and Rosengren, 2008). On the other hand, if a telecom service provider lacks in providing services (call drops) to its customers it experiences customer churn. Kim, Park and Jeong (2004) argued that service provider should provide customer oriented services in order to heighten up customer satisfaction. It was also found that the customers get satisfied to a brand more if they get all the needed services accumulated in that very brand (Ahn, Han and Lee, 2006).

Information systems link two or more organizations to achieve results that they cannot achieve by working in isolation this linkage helps organizations to share ideas and knowledge on the best ways to provide quality goods and services and therefore ensuring customer satisfaction is achieved, Chwen, et al. (2006), Sandberg (2007) and this creates a link between the inventory department, the administrative department the distributors and the entire supply chain which work together hand in hand to satisfy customers needs.

Information systems managed inventory creates interdependence, openness and trust where there is risk, rewards and cost sharing as other dynamics demand chain through technologically managed inventory to reduce costs and to improve service levels in order to achieve customer satisfaction, (Mason, et al. 2007).

According to Lysons,(2006) the existence of trust in the supply chain caused by a well managed information systems directly effects on the customer satisfaction since customers are certain of suppliers ability to meet their needs.

The involved parties share information, synchronize decision making and align incentives (Simatupang and Sridharan, 2005) with the help of information systems, such as Electronic Data Interchange (EDI), Radio Frequency Identification (RFID), Electronic Point of Sale (EPOS), Enterprise Resource Planning (ERP) to facilitate a smooth flow of information exchange necessary for improved information systems managed inventory in the demand chain for the purpose of ensuring customer satisfaction is achieved, (Chwen, et al. 2006; Soonhong. et al, 2005;)

Accurate and frequent information systems acquired through efficient communication technologies is essential to reduce inventory management risks and build high level of trust in manufacturer – distributor alliances. Communication in an organization using information systems fosters confidence in management and reduces on poor managerial decision making, ensure continuity of sharing organization information among different departments this reduces dysfunctional conflict which will lead to higher levels of quality decision made in management and therefore reduce the inventory management risks and achieve customer satisfaction, (Ghijsen et al, 2005).

The cause of poor management in inventory among members in the demand chain downstream is mostly because of the barriers of information systems that have not been successfully tackled; those related to communication technologies and human beings, (Sandberg. 2007).

Proper management of inventory require information systems like; EDI, Bar coding, EPOS, ERP, RFID, in their information structures to allow a seamless flow of information exchange among the members especially in management and inventory management department, (Chwen, et al. 2006). Information systems have lead to better inventory management ways, that is; better demand planning, inventory visibility, reduced inventory and cost saving and increased responsiveness, requires information sharing through EPOS data, (Soonhong. et al, 2005).

Information systems managed inventory ensures proper management of inventory in an organization, Warehousing or storage of goods should also be paid attention. There are products that are easily broken or run out over time, there are also products that demands a level of temperature in order for it to last long and do not end up useful. There are products that don't need any of these kinds of treatment because they can go long-term. However, companies must consider that information systems managed inventory must always keep their products safe and still efficient for use until they meet their buyers. As this will be able to meet the customer's requirement and ensure customer satisfaction. (zeithaml et el, 2003),

From the discussion, studies on relationship between information systems managed inventory and customer satisfaction have not been given much attention in crown beverages in Uganda and therefore presenting a gap to be filled by this study.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This section presents the research methods that were used to carry out the study. It covers the research design, target population, sample design, sample size, measurement of variables, research instrument, administration, data analysis and anticipated problems of the study.

3.2 Research Design

The study used relationship research design, According to Amin, (2005) relationship research design is used to describe characteristics of a population.

In this study data was collected from a sample population of century bottling company staff as representative of the population and was used to answer the research questions, (Sekaran, 2008, p.135).

Amin, (2005, p. 218) stated that correlation method involves collection method involves collecting data in order to determine whether and to what degree a relationship exists between variables, in this study correlation was used to establish a relationship between information systems managed inventory on customer satisfaction at century bottling company.

Quantitative data enabled the variables to be described in terms of statistical distributions. The quantitative data was used to ascertain and describe the characteristics of the variables in the study, (Sekaran, 2008).

3.3 Target Population

The researcher was limited to Kampala since it's were the largest plant of Century Bottling Company is located, and its where the large customers and distributors are located: The study targeted, Century Bottling Company administrators, stores personnel, ware house staff, accountants, and procurement staffs of Century Bottling Company and a sample size of 80 respondents was selected from a total population of 100 respondents using Kracie and Morgan techniques.

3.4 Sample Design

The researcher used a probabilistic sampling design given that respondents were falling in different categories. Then, simple random sampling was used to select respondents from the different strata to allow an equal probability for the all the members to be represented, (Oso and Onen, 2008).

3.5 Sample Size and composition

Century Bottling Company records provided the total population of the staff and some of its registered wholesalers, and using the Krejice and Morgan (1970) table (Appendix III), a total of 80 (forty three) respondents were selected to constitute the sample size.

Using Krejcie and Morgan's (1970) table for sample size determination approach, a sample size of 80 employees was selected from the total population of 100 employees.

Table 3.1: Showing the sample size and sampling techniques

Distribution of the Sample Size CATEGORY	POPULATION	SAMPLE SIZE	Sampling technique
Administrators	20	20	Probability sampling
Stores and warehouse staff	20	15	probability sampling
Customers	30	25	probability sampling
Accountants	20	10	probability sampling
Procurement staff	10	10	Probability sampling
TOTAL	100	80	

Source: primary data

3.6 Measurement of Variables

A self administered questionnaire was provided to the respondents to select a suitable number on the Likert scale ranging from Strongly Disagree (SD) = 1 to Strongly Agree (SA) = 5, as response to measure their perception on the given variables, this was due to the fact that questionnaire provided the respondents with enough time to fill in the questionnaire and the likert scale also provided them with enough time to comprehend all the questions provided. The structured questionnaire was measured using the following variables.

i). Information systems was measured using different technologies used in mainly sending and receiving of information: speed, reliability, Information sharing, scholars like, chaffey, (2007), Somuyiwa, (2010). Oyesiku et al, (2010), have used the above metrics in their studies.

ii). Managed inventory; reliability of inventory, ability to meet the demand, ability to continuously meet the needs of the customers, inventory planning.

(Lysonset al, 2006). Scholars like: Kennedy et al. (2003), Macibi (2003) have used the above metrics in their studies.

iii). customer satisfaction was measured using, the level of repeat purchases, the level of complaints about the company's products, (Zineldin and Jonsson, 2000). Scholars like: Abu Saleh and Yunus, (2007); Thomas, et al. (2003), have used the above metrics in their studies.

Sources of data

3.7 Validity and Reliability

The two terminologies emphasis data quality control

3.7.1. Validity

This refers to the extent to which results can be accurately interpreted and generalized to other populations (Oso and Onen, 2008). These writers further define validity as the extent to which instruments measure what they are intended to measure.

Table: 3.2 showing content validity index

Number of respondents	Total number of Items	CVI
36	44	0.82

If the overall content validity index of the instrument is equal to the average accepted index of 0.7 and above then the instrument will be accepted as valid,(Amin, 2005)

The researcher gave the instruments to the two experts who made an assessment of whether what the researcher is trying to bring out actually does come out. The instrument was then tried out on selected individuals of the same characteristics as those that were in the study to assist in identifying deficiencies in the instruments such as insufficient space to write responses, wrong numbering, vague questions, (Muganda and Mugenda 1999).

The researcher analyzed the data collected and there was need to adjust; the instrument was be re-adjusted and re-designs to improve reliability and validity.

3.7.2. Reliability

Crobach's coefficient alpha (a) as recommended by Amin, (2005, P.302) was used to test the reliability of the research instrument. The instrument is deemed reliable if reliable of 0.7 and above is obtained and therefore, it was adopted for use in the data collection.

Table: 3.3 showing reliability of the variables

Variables	Achor	Cronbach's alpha
Information systems infrastructure	5 point	0.763
User knowledge and skills	5point	0.773
Information systems support systems	5 point	0.751

3.8 Data Collection methods

Two methods were used to collect data, namely questionnaires study and face to face interview.

3.8.1. Questionnaire study

Accordance to Peil (1995), questionnaire study are large – scale study involving literate people. The purpose of using this data collection method is that the targeted respondents are literate people when often prefers privacy and anonymity. Milne (1999) adds that responses are standardized and hence more objective. He identifies some disadvantages as possibility of participants forgetting important issues due to occurrence of the questionnaire study after the event and difficulty of findings in interpretation of some questions by participants (for close ended questionnaire). Milne (ibid) also suggests.

Respective mitigation measures as involvement of knowledgeable people and piloting questions.

3.8.2. Interviewing

Kumar (2005) defines interviewing as the persons to person interaction among two or more people with specific purposes. Using face to face interviews for collecting information is preferred when social cue of the interviewee is needed. (Such as voice, intonation, body language) are important information source for interviewer, when the interviewer has enough budget and time for travelling or when the interviewee live near the interviewer and standardization of the interview situation is important (Op denakker, 2006) some short fall of interviewing method (Include requirements for training and practice for the interview and confidentiality for the exercise.

The interviewer also has a potential to influence, due or distort the interviewee's responses (Hidayah, 2011). The researcher will use this method to collect data from managers, division heads and regional heads because of its ability to clarify questions and even explore further into some issues being studied.

3.9 Data Sources

Source of data were from both primary and secondary sources.

3.9.1 Primary Data

Primary data were obtained from well-designed questionnaires structured which helped obtain relevant data and to gain opinions and practices on Information systems managed inventory and customer satisfaction at Century Bottling Company.

3.9.2 Secondary Data

Secondary data is data which has been collected by individuals or agencies for purposes other than those of a particular research study. It is data developed for some purpose other than for helping to solve the research problem at hand (Bell, 1997).Secondary data shall be obtained from text books, News paper, and journals.

3.10 Data analysis

Techniques for analysing data were both qualitative and quantitative.

3.10.1 Analysis

Under quantitative analysis, process included editing, classification, coding and presentation. Data was summarized in frequency tables, percentage; data was analysed with the use of statistical package for social scientist (SPSS). Quantitative data was collected through questionnaires and it was cantered into a computer, tabulated and analysed.

The formula was used for this study because it is compatible with SPSS program in addition to being applicable in analysing data under which the data will be arranged.

3.10.2. Qualitative techniques for data analysis

The quantitative data were collected through interviews with key informants; this was due to the fact that interviews help in the getting of first hand information Amin, (2005).

The code category was written in the margins and assembled accordingly; these approaches enable the researcher to easily depict the findings of the study and interpret them in depth and are an appropriate manner so as to come up with vulnerable conclusions from the data gathered.

3.11 Limitations

The researcher faced the following limitations in the process of conducting the study;

- The researcher faced a challenge of convincing the respondents to fill in their questionnaires faster since some respondents wanted to fill in the questionnaires and return after 2 months.
- The researcher faced the challenge of language since some respondents wanted to express themselves in their local languages like luganda.
- Limited financial support to the study this was solved through borrowing from fellow students.

CHAPTER FOUR

PRESENTATION, ANALYSIS, INTERPRETATION OF FINDINGS

4.0 Introduction

This chapter presents the results in reference to objectives in chapter one. Gender of respondents, Age of respondents, education level of respondents, Number of years respondents have spent,

4.1 The gender of respondents

Table 4.1 showing the gender of the respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	50	62.5	62.5	62.5
	Female	30	37.5	37.5	100.0
	Total	80	100.0	100.0	

Source: primary data

The table 4.1 above shows that majority of the respondents have were male and this therefore that the male gender dominates the respondents rates at century bottling company, this due to the fact 62.5% , while the female percentage is at 37.5% of the respondents.

The table 4.2 showing the age of the respondents
Age of the respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-25	16	20.0	20.0	20.0
	26-30	20	25.0	25.0	45.0
	31-35	17	21.2	21.2	66.2
	36-40	14	17.5	17.5	83.8
	41 and above	13	16.2	16.2	100.0
	Total	80	100.0	100.0	

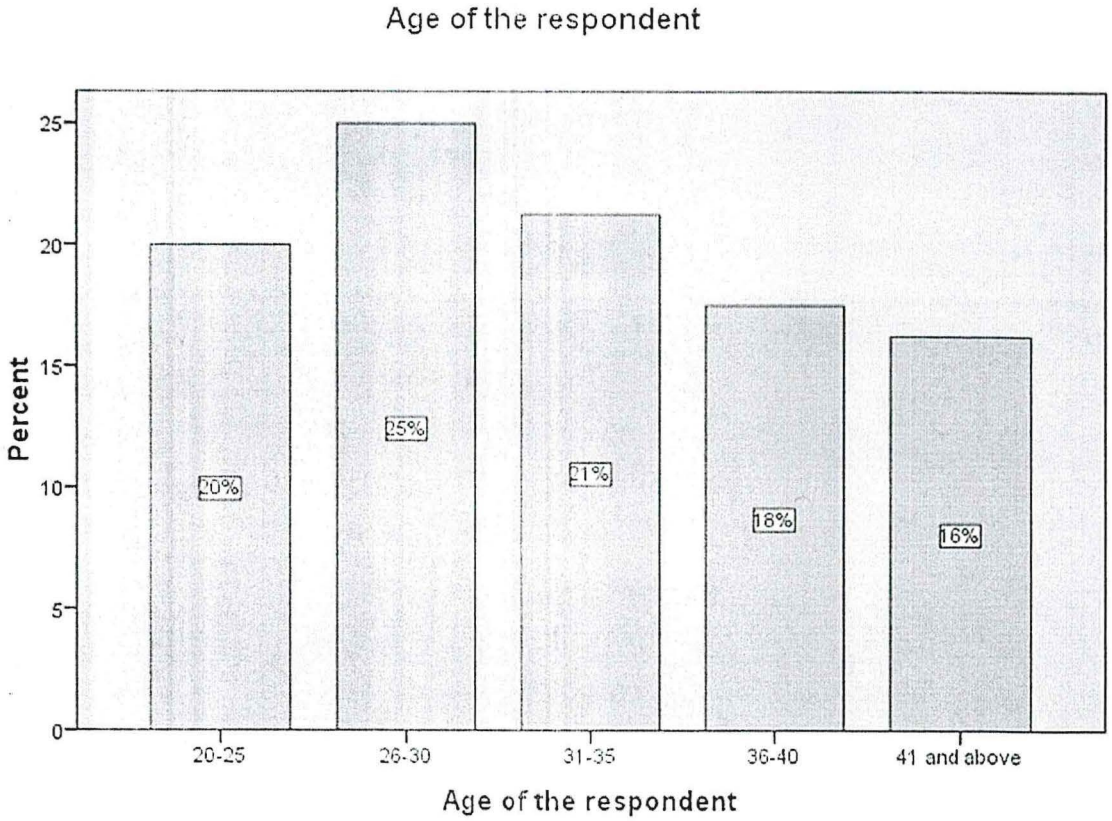
Source: primary data

4.2 The Age of the respondents

The table 4.2 above shows that majority of the respondents are in the ages of 26-30 and their percentage is 25%, while the second largest percentage of the respondents are in the ages of 31-35 of the respondents, this therefore shows that the respondents are mature and were able to give correct information from the informed point of view and their percentage is 21.2% of the respondents, while 20% of the respondents are in the ages 20-25, the table further shows that 17% of the respondents are in the ages of 36-40, while 16.2% of the respondents are in the ages

of 41 above this therefore shows that the researcher was able to get information from well experienced number of the respondents in the study.

Figure 4.2: Bar graph showing the age of the respondents



4.3 The job category of the respondents

Table 4.3: showing the job category of the respondents

Job category of the respondent

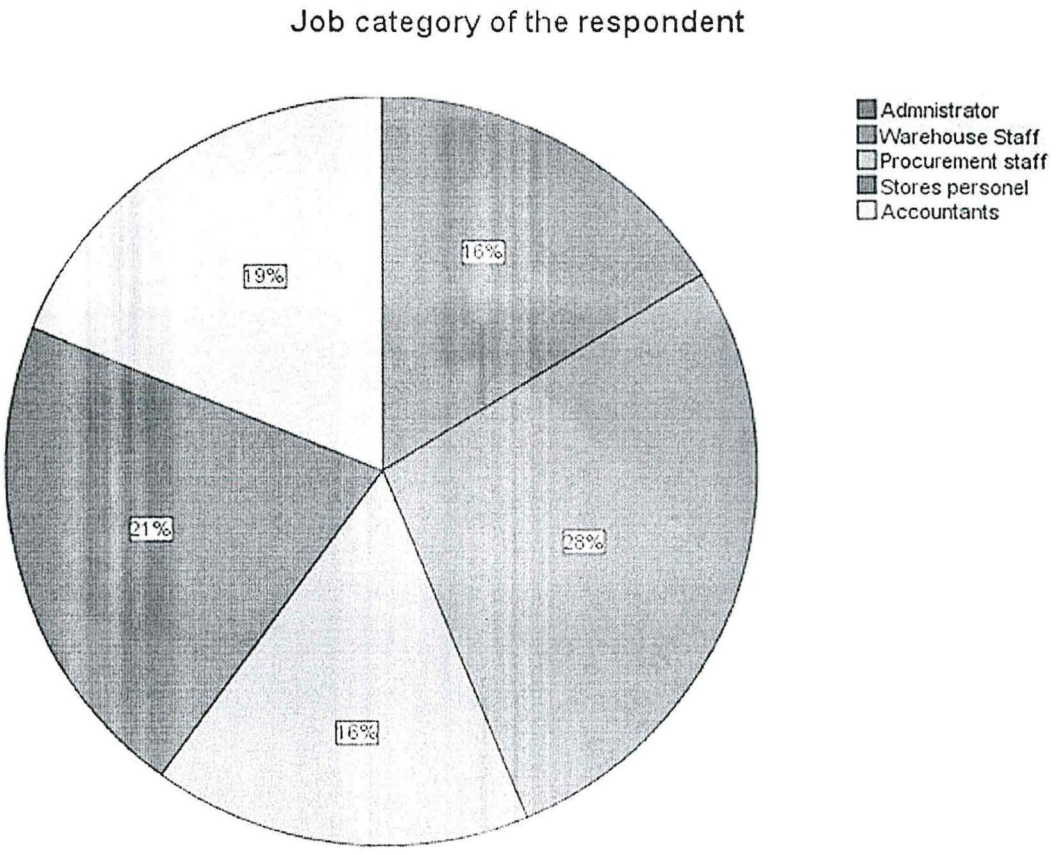
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Administrator	13	16.2	16.2	16.2
	Customers	22	27.5	27.5	43.8
	Procurement staff	13	16.2	16.2	60.0
	Stores and warehouse staff	17	21.2	21.2	81.2
	Accountants	15	18.8	18.8	100.0
	Total	80	100.0	100.0	

Source: primary data

The table 4.3 above shows that majority of the respondents work in the ware house and their percentage is 27%, this therefore shows that the information regarding the subject topic of the study was got from the right respondents since the ware house directly handles inventory, findings further reveal that stores personnel are the second largest majority of the respondents and their percentage is 18.8%, while 16.6% of the respondents are administrators.

Pie chart showing the job category of the respondents

Figure 4.3 Showing Findings on the job category of the respondents.



The findings in the study reveals that majority of the respondents are ware house staff, this also shows that the ware house were the majority of the staff during the study period, the findings also further reveal that majority of the respondents are in the stores personnel and the procurement staff are have the lowest percentage of the respondents in the study.

4.4 The employment period of respondents

Table 4.4 showing the employment period of the respondents

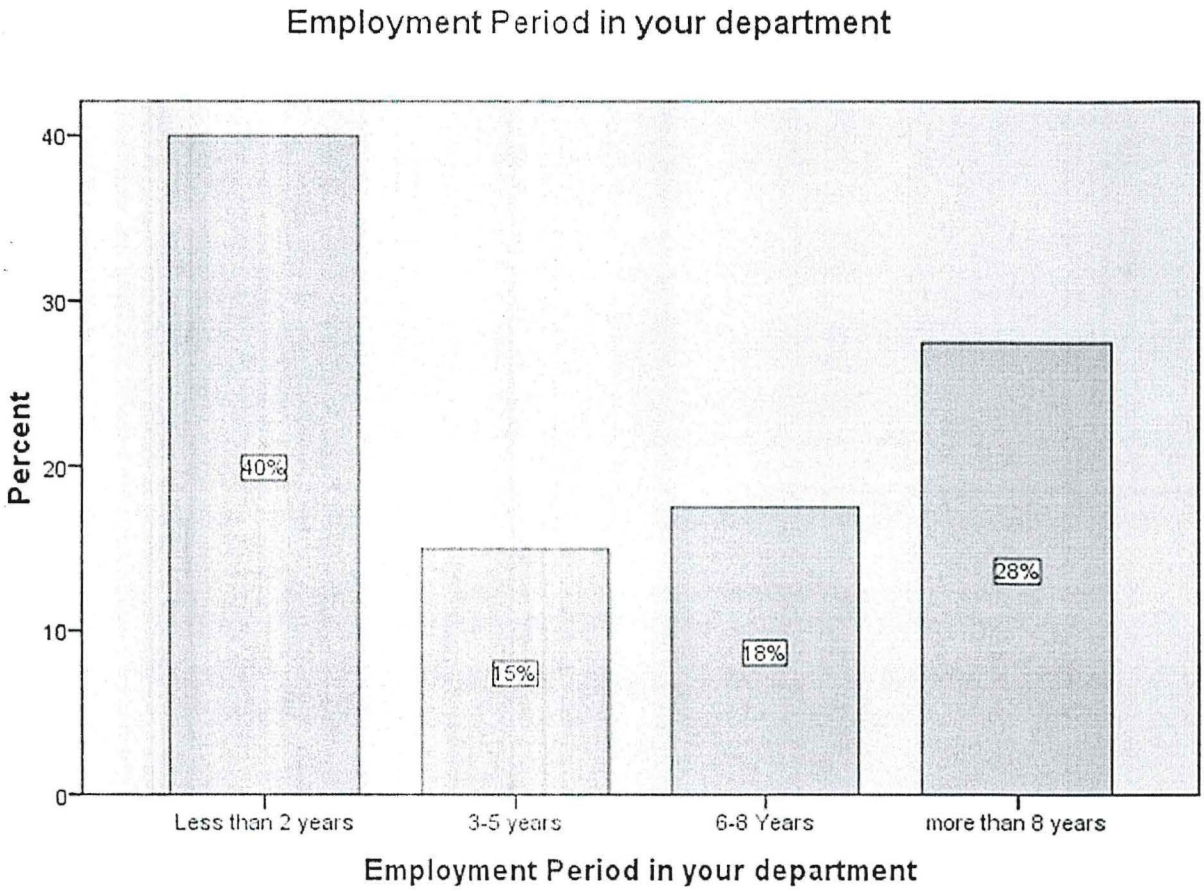
Employment Period in your department

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 2 years	32	40.0	40.0	40.0
	3-5 years	12	15.0	15.0	55.0
	6-8 Years	14	17.5	17.5	72.5
	more than 8 years	22	27.5	27.5	100.0
	Total	80	100.0	100.0	

Source: primary data

The table 4.4 further shows that 40% of the respondents have spent less than 2 years at Century Bottling Company, while 15% of the respondents have spend at least 3-5 years, and 17.5% of the respondents have spent 6-8 years, while 27.5% of the respondents have spend more than 8 years.

Figure 4.4 showing the employment period of the respondents



Source: primary data

4.5 Education level of the respondents

Table 4.5 showing the education level of the respondents

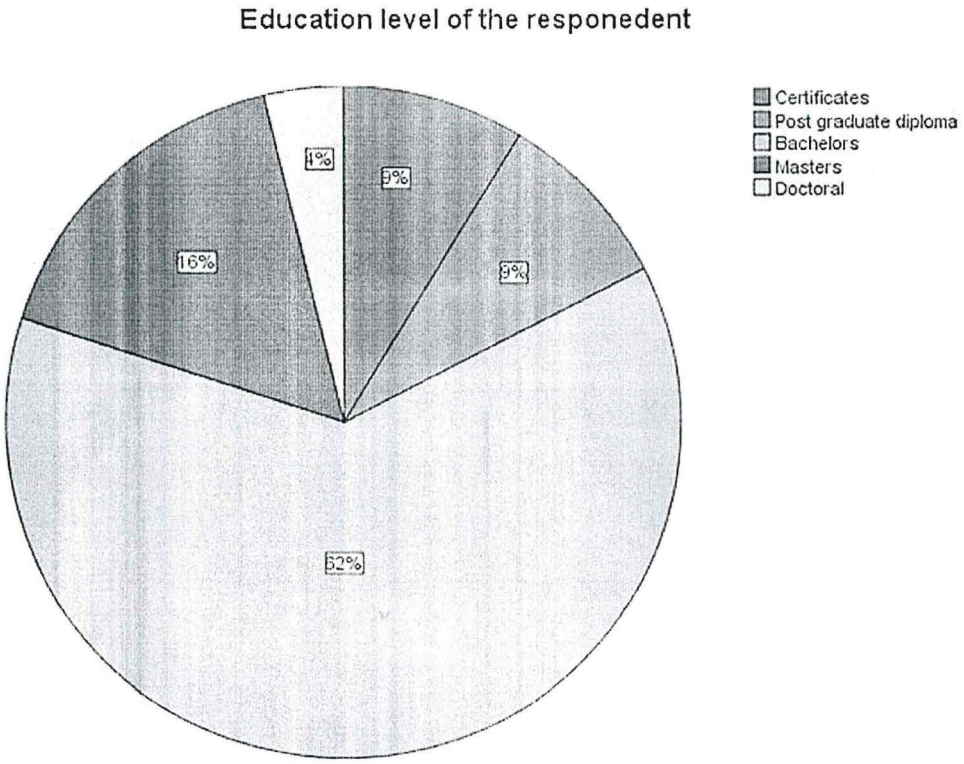
Education level of the respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certificates	7	8.8	8.8	8.8
	Post graduate diploma	7	8.8	8.8	17.5
	Bachelors	50	62.5	62.5	80.0
	Masters	13	16.2	16.2	96.2
	Doctoral	3	3.8	3.8	100.0
	Total	80	100.0	100.0	

Source: primary data

From table 4.5 above its evident that majority of the respondents are degree holders this therefore shows that the researcher was able to get information from the right qualified respondents and their percentage is 62.5% of the respondents, while 16.2% of the respondents are master degree holders, this therefore shows that century bottling company has very qualified staff who are able to give correct information regarding the subject of the study.

Figure 4.5 showing the education level of the respondents.



Source: primary data

From the pie chart above its evident that majority of the respondents are degree holders, while the second largest percentages of the respondents are masters' degree holders, this therefore shows that century bottling company has well qualified staff and they were able to give accurate information.

4.6 Influence of information systems infrastructure on customer satisfaction

Table 4.6 showing influence of information systems infrastructure on customer satisfaction

Descriptive Statistics

	Mean	Std. Deviation	N
The internet links one organisation to another	3.72	1.190	80
Information Technology	4.14	.938	80
Electronic Data interchange	4.21	.774	80
Computers Save time	4.29	.750	80
Soft wares ensure reliability to Customers	4.16	.787	80
Hard wares enable information dissemination	4.28	.795	80
Electronic Mail ensures timeliness of information	4.02	1.006	80
Software enables information dissemination	3.88	1.095	80
Internet enables information application by customers	4.01	.987	80
Hardware Creates the possibility of information sharing	3.96	1.130	80
Information technology Creates reliability of products	4.01	1.025	80
Information Technology Creates Timeliness of products	3.98	1.091	80

Source: primary data

From the above table the findings reveal that majority of the respondent assert that the internet links one organization , due to a strong majority of the respondents with the same belief this therefore proves the fact that the internet links one organization to the other.

The table also shows that majority of the respondent assert that information technology is essential in information systems managed inventory.

The results also show that majority of the respondents assert that electronic data interchange is instrumental in an organization in order to facilitate information transfer inn an organization.

The findings also show that majority of the respondent assert that a computer saves time at century bottling company, this analysis also shows that the computers is widely used also frequently used at century bottling company.

The findings in the study also show that soft ware ensure reliability of consumers to the organization this is supported by a strong percentage of the respondent strongly agreeing and also agreeing.

The findings in the study also show the majority of the respondents assert that hard ware enable information dissemination , this is supported a strong percentage of agreeing and also others strongly agreeing , this findings also show that indeed hard ware's are instrumental in the information systems managed inventory.

The table also show majority of the respondents assert that electronic mail ensures timeliness of information in an organization.

The findings indicate that majority of the respondents assert that soft ware enables an organization in information dissemination.

The findings in the study also show that majority of the respondents assert that internet enables an organization in the information application by customer this is supported by a strong percentage of respondents agreeing and others strongly agreeing.

The study also that hard ware creates possibility of information sharing among the individuals in an organization this is supported by a strong percentage of respondents agreeing and also the rest of the respondents strongly agreeing.

The findings in the study also show that majority of the respondents agreeing that information technology create reliability of products to customers in the market, while the rest of the respondents strongly agreed. The findings in the study also show that majority of the respondents assert that information technology creates timeliness of products; this is supported by a strong percentage of respondents strongly agreeing and most of them agreed.

4.7 Influence of knowledge and skills on customer satisfaction

Table 4.7 showing influence of knowledge and skills on customer satisfaction

Descriptive Statistics

	Mean	Std. Deviation	N
I can search most of the websites for information	3.06	1.461	80
I am conversant with most computer Programmes	3.62	1.277	80

Information Systems knowledge helps in controlling amount of inventory in store	3.45	1.440	80
Information systems in charged inventory helps in offering faster service	3.70	1.306	80
Users can classify goods using information systems	3.77	1.339	79
Users have trained how to use information systems managed inventory	3.75	1.258	80
Users always use information systems managed inventories	3.59	1.402	80
Users have positive attitudes towards information systems	3.59	1.438	80
Users always use information systems to obtain inventory	3.86	1.280	80

Source: primary data

The table also shows that majority of the respondents assert that they can search for information from the internet, this is supported by a strong percentage of majority of the respondents strongly agreeing and also others agreed , with the fact that they can search for information on most of the websites.

The findings in the table also show that majority of the respondents assert that they are conversant with most computer programmes; this is strongly supported by a strong percentage of the respondents agreeing.

The findings in the table also show that majority of the respondents assert that information systems charged inventory helps in offering faster service, this is supported by a majority of the respondents strongly agreeing and also others agreeing.

The table also shows that majority of the respondents assert that they can classify goods using information systems; this is supported by a strong majority of the respondents strongly agreeing and also most of the respondents agreeing to the fact.

The study also shows that majority of the respondents assert that information systems managed inventory helps an organization in managing its inventory systems, this is supported by a strong percentage of majority of the respondents strongly agreeing.

The findings in the table also show that majority of the respondents assert that they always use information systems managed inventory in their organization to manage inventory.

The findings in the study also shows that majority of the respondents assert that users have positive attitudes towards information systems managed inventory this is supported by a strong percentage of respondents strongly agreeing and also most of the respondents agreed.

The findings in the study also show that majority of respondents assert that users obtain information using information systems; this is supported by a majority of the respondents strongly agreeing and agreeing.

4.8 Influence of information support systems on customer satisfaction

Table 4.8 showing the influence of information systems on customer satisfaction

Descriptive Statistics

	Mean	Std. Deviation	N
There is top management support for information systems capacity building projects	3.50	1.467	80
Management supports guidance regarding staff career development	4.01	1.345	80
Management is corporative with users when implementing new ICT automation projects	3.69	1.365	80
Management offers timely communication when there are new ICT innovations	4.15	.995	80
Management provides supervisory support for team work to develop information systems	4.24	1.082	80
Management ensures all users are trained how to use information inventory systems	4.18	1.041	80
Staff members share information on systems experience	4.09	1.116	80

Staff members share information on systems knowledge	4.00	1.169	80
There are peer departmental trainings when there is new staff	4.09	.996	80
Management Supports information systems peer group activities	3.70	1.453	80
There are information systems sharing among individuals	4.00	1.293	80
iam able to complete my work easily using the computer	4.04	1.152	80
I feel comfortable using the computer	4.21	1.015	80
Iam conversant using the email	4.08	1.145	80
We share information using the mail	4.16	1.130	80

Source: primary data

The findings in the study also show that majority of the respondents assert that there is top management support for information systems managed inventory this is supported by a strong percentage of respondents strongly agreeing and agreed.

The table also shows that majority of the respondents assert that majority of the respondents assert that management supports guidance regarding staff career development, this also supported by a strong percentage of the respondents strongly agreeing and also most of the respondents agreeing , this therefore shows that management supports guidance and staff career development at century bottling company.

The findings in the study also shows that majority of the respondents assert that management is cooperative when implementing new ICT automation projects this is supported by a strong percentage of the respondents holding the same view and also agreeing to the fact, this therefore shows that management is cooperative at century bottling company.

The findings in the study also shows that majority of the respondents strongly agreed that management offers timely communication when there are new ICT innovations, this is supported by a strong percentage of respondents agreeing to this fact and also the rest of the respondents strongly agreeing, this findings also indicate that majority of the respondents hold the view that management offers timely communication when there are new ICT innovations.

The findings in the table also show that majority of the respondents assert that management provides supervisory support for team work to develop information systems, this is supported by a strong percentage of respondents strongly agreeing and also others agreeing to the fact, from the above analysis its therefore evident that management supports team work to develop information systems at century bottling company.

The study also shows that majority of the respondents assert that management ensures that all users are trained how to use information systems this is supported by a strong percentage of respondents strongly agreeing and also others agreeing to the fact.

The study also shows that majority of the respondents assert that staff members share information systems experience , this is supported by a strong percentage of respondents agreeing to the fact while , most of the respondents hold the same view.

The findings in the table also show that there are peer departmental trainings for new staff this is supported by a strong percentage of the respondents agreeing and also majority of the respondents also strongly agreed.

The table also shows that majority of the respondents assert that management supports information systems peer group activities, this is also supported by a strong percentage of respondents and also some of the respondents also hold the same view.

The table also shows that most of the respondents assert that information systems sharing among individuals is done at century bottling company and other respondents also hold the same view, this findings also show that management supports information at century bottling company.

The table above also shows that most of the respondents assert that they are able to complete their work in time; this is supported by a strong percentage of strongly agreeing.

The findings in the table above also indicates that most of the respondents assert that they feel comfortable using computers this is also supported by a strong percentage of the value and also the other respondents still agreeing to the fact above.

From the above findings its therefore evident that most of the respondents assert that they are conversant with using email while rest of the respondents also hold the same view.

In order to establish whether there is a relationship between the impact of information systems managed inventory at Century Bottling Company Ltd and customer care satisfaction, Pearson correlation and regression analyses were performed, and the results are indicated .

4.9 Correlations on information systems managed inventory at Century Bottling Company Ltd and customer care satisfaction:

Table 4.9 showing the correlation between information systems managed inventory and customer satisfaction

		Information systems managed inventory at century bottling company	Customer care satisfaction
Information systems managed inventory at century bottling company	Pearson Correlation	1	.667 **
	Sig. (2-tailed)		.000
	N	114	114
Customer care satisfaction	Pearson Correlation	.667 **	1
	Sig. (2-tailed)	.000	
	N	114	114

**. Correlation is significant at the 0.01 level (2-tailed).

Results of the correlation analysis revealed that there is a significant and positive relationship between impact of information systems managed inventory at Century Bottling Company Ltd and customer care satisfaction ($r=0.667$ $P<0.000$). This analysis is summarized in the table above. This implies that Century Bottling Company Ltd uses of information systems management to satisfy customers.

4.10 Anova on information systems managed inventory at Century Bottling Company Ltd and customer care satisfaction:

Table 4.10 showing the level of influence between information systems and customer satisfaction at CBC

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.769	1	27.769	89.813	.000 [a]
	Residual	34.629	112	.309		
	Total	62.398	113			

a. Predictors: (Constant), Customer care satisfaction

b. Dependent Variable: information systems managed inventory at Century Bottling Company

According to the ANOVA results in the table above, it is revealed that information systems managed inventory at Century Bottling Company Ltd (independent variable) have a significant influence on the customer care ($F=89.813$, $P<0.000$). This implies that, effective use of information systems managed inventory positively influence their performance.

Coefficients on information systems managed inventory at Century Bottling Company Ltd and customer care satisfaction:

Coefficient **estimates** displays Regression coefficients **B**, standard error of **B**, standardized coefficient beta, **t** value for **B**, and two-tailed significance level of **t**. **Confidence intervals** displays 95%-confidence intervals for each regression coefficients, or a covariance matrix. **Covariance matrix** displays a variance-covariance matrix of regression coefficients with covariance off the diagonal and variances on the diagonal. A correlation matrix is also displayed, and the results are summarized below.

4.11 Influence of information support systems on customer satisfaction

Table 4.11 showing the influence of information support systems on customer satisfaction

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.197	.284		.693	.490
	Information systems managed inventory at century bottling company	.842	.089	.667	9.477	.000

a. Dependent Variable: Information systems managed inventory at century bottling company

Information systems managed inventory at Century Bottling Company Ltd, (independent variable) has a significant influence on the customer satisfaction (dependent variable). According to the table above, the Information systems managed inventory at Century Bottling Company, is established that, (ß=0.842, t=9.477, P<0.000) customer care satisfaction. This implies that, effective Information systems managed inventory like Use of information technology to create reliability and searching the websites for information will increase customer satisfaction.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION OF FINDINGS, CONCLUSION, RECOMMENDATION AND AREAS OF FURTHER STUDY

5.0 Introduction

The study aimed at establishing the effect of information systems managed inventory on customer satisfaction the study was guided by research objectives and the researcher summarized the findings in consistence to the research objectives.

5.1 Summary of findings.

The findings in the study assert that internet links one organization to the other organizations and therefore they asserted that century bottling company is able to connect to other organizations due to the internet the study further shows that , information technology creates reliability of products in the market , the findings in the study also show that , Electronic data interchange enables an organization to share information with customers, the findings in the study also show that , Computers saves time, according to the findings in the study also show that, Soft ware ensure reliability of products to customers, the study also show that Hard ware enables information dissemination, the study also shows that electronic mail ensures timeliness of information to customers in an organization, the findings in the study also show that Software enables information dissemination at century bottling company, The table further shows that majority of the respondents assert that the Internet enables information sharing by customers, this is due to the fact that majority of the respondents strongly agreed and the majority of the respondents agreed, the findings also shows that respondents contend that Hardware creates the possibility of information exchange, this therefore shows that Indeed hard ware enables an organization to exchange information from one organization to the other, the findings in the

study also show that Information technology creates reliability of products, in an organization, The table further shows that majority of the respondents strongly agreed that Information technology creates timeliness of products at century bottling company.

The findings show that majority of the respondents are conversant with most computer programs, the findings also shows that majority of the respondent's assert that they can search most of the websites for information; this therefore shows that respondents are conversant with most computer programmes , respondents also assert that Information system knowledge helps in controlling amount of inventory in store, the findings in the study also show that majority of the respondents can capture and classify goods using information systems, The results further shows that Users have trained how to use information systems managed inventory systems, the findings also show that Users always use information systems managed inventory, The results also show that Users have positive attitude towards information systems, the findings in the study also show that majority of the respondents assert that Users always use information systems to obtain inventory.

The findings in the study shows that top management supports information systems capacity building projects at century bottling company, the findings in the study also show that Management supports guidance regarding staff career development, The findings also show that Management is cooperative with users when implementing new ICT automation projects at century bottling company, The result in the study also show that Management offers timely communication when there are new ICT innovations, the findings in the study also show that management offers timely communication in case of new innovations in the organization, The findings also show that Management provides supervisory support for team work to develop information systems, the results also show that Management ensures all users are taught how to

use the inventory information systems, the results in the study also show that majority of the respondents assert that Staff members share information on system experience; the results in the study also show that Staff members share information on systems knowledge; the findings further also show that there are peer departmental trainings when there is new staff at century bottling company the findings in the study also shows that Management supports information systems peer group activities on a regular basis, the findings in the study also show that there is information systems sharing among individuals the findings in the study also show that respondents assert that they are able to complete their work easily using a computer the results also show further that respondents assert that they feel comfortable using computers ,The findings in the table also show that majority of the respondents assert that they share information using e-mail.

5.2 Discussions of findings

5.2.1 Impact of information systems infrastructure on customer satisfaction

The findings shows that majority of the respondents strongly Agreed the internet links one organization to the other organizations and therefore they asserted that century bottling company is able to connect to other organizations this contention is also shared by (Pokharel, 2005: Azevedo, Evangelista And Sweeney, 2006), who assert that satellite is a technology that allows communication across a very wide geographical area, there by connecting pone organization to the other.

The study asserts shows that information technology creates reliability of products in an organization this is due to the fact majority of the respondents strongly agreed and the rest of the respondents agreed and some of the respondents disagreed and the rest strongly disagreed, this

findings also show that information technology enables an organization to create reliability of information about a companies' products in the market therefore with the help of information technology consumers are able to have information about an organizations products in the market.

The findings reveals that majority of the respondents strongly agreed that Electronic data interchange enables an organization to share information with customers, this is due to the fact that half of the respondents strongly agreed and the rest agreed this therefore shows that in deed electronic data interchange enables an century bottling company to share information with other organization across the globe, this contention is also shared by (Bailey et al, 2004), who asserts that technological progression necessitates that organization should have formulated plans to handle development also create the sharing of information easy.

The findings shows that majority of the respondents assert that Computers saves time, this is due to the fact that most of the respondents strongly agreed and also a large percentage of the respondents agreed this therefore shows that indeed computers saves time, this findings in the study also show that when an employee is using computers is able to save more time than the one not using the computer perhaps the manual system.

The findings in the study also show that majority of the respondents strongly agreed that Soft ware ensure reliability of products to customers this is due to the facts most of the respondents strongly agreed, this also shows that soft ware are instrumental in inventory management an organization.

The findings in the study also shows that Hard ware enables information dissemination, this is due to the fact that majority of the respondents strongly agreed and most of the respondents

agreed due to a strong positive response of majority respondents and agreeing that hard ware enables information dissemination, its therefore evident that hard ware are instrumental in an organizations inventory management system.

The findings also reveal that majority of the respondents strongly agreed that electronic mail ensures timeliness of information at century bottling company this therefore shows that e-mail is very important in inventory management in an organization.

5.2.2 Influence of knowledge and skills on customer satisfaction

The findings show that majority of the respondents are conversant with most computer programs, this is due to the fact that most of the respondents strongly agreed and the rest of the respondents agreed, this shows that century bottling company employees use computers and therefore information systems managed inventory systems is implemented in the company.

The results in the study also show that majority of the respondent's assert that they can search most of the websites for information; this therefore shows that employees at century bottling company employees use technology in most of their inventory management techniques.

The study also shows that Information system knowledge helps in controlling amount of inventory in store, this is due to the fact that half of the respondents strongly agreed and the rest of the respondents agreed, while none of the respondents was neutral, disagreed and strongly disagreed, this also shows that information systems knowledge helps in controlling the amount of inventory.

The findings further shows that majority of the respondents strongly and agreed that Users can capture and classify goods using information systems, this findings in the study show that there is considerable use of information systems managed inventory in century bottling company.

The findings in the study also shows that users are trained how to use information systems managed inventory systems, this evidenced by a strong percentage of majority of the respondents strongly agreeing and the rest agreeing with the fact, this therefore shows that employees at century bottling company are conversant with information systems.

5.2.3 Influence of information support systems on customer satisfaction

From the findings its evident that majority of the respondents assert that there is top management support for information systems, this findings is also in line with (Brynjolfsson, 2003), who asserts that information systems manage inventory system is applicable in an organization if there is top management support and commitment.

The findings in the study also assert that there is a capacity building project at century bottling company this helps to enables employees of century bottling company to be aware of the inventory management techniques available at century bottling company.

The findings also asserts that Management support guidance regarding staff career development, this is evidenced by a strong percentage of respondents strongly agreeing and most of them agreeing, basing on this its therefore evident that management supports guidance regarding staff career growth at century bottling company this also shows that century bottling company employees have skills regarding information systems due to support from its management team.

The findings also show that Management is cooperative with users when implementing new ICT automation projects, this is supported by the fact that most of the respondents agreed and the remaining percentage of most of them agreeing from the above analysis it's also therefore evident that management at century bottling company supports the systems of information systems managed inventory.

The findings also show that Management offers timely communication when there are new ICT innovations, this is supported by a strong percentage of respondents strongly agreeing and most of the respondents agreed , this specifically shows that indeed management at century bottling company offers timely communication in case of new innovations in the organization.

5.3 Conclusion

It is worthwhile concluding that there is a significant relationship between, Information systems managed inventory and customer satisfaction, this implies that, effective Information systems managed inventory like Use of information technology to create reliability and searching the websites for information will increase customer satisfaction.

It's also imperative to note that companies with well developed information systems infrastructure systems tend to provide timelines of information to customers in ways like enabling customers have access to information in any time and also increase on their chances of getting what they want at the time when they want it.

It is revealed that information systems managed inventory have a significant influence on the customer satisfaction, this implies that, effective use of information systems managed inventory positively improves on the timelines of information among customers and that instance increasing on customers satisfaction.

Results in the study further reveal that there is a correlation between information systems managed inventory and customer satisfaction and that, the results further ascertain that century bottling company employment of information systems managed inventory has enabled it in order to provide customer satisfaction in some ways especially in providing of efficient information dissemination.

The findings in the study further reveals that the administration of century bottling company should improve on its information systems managed inventory systems like computers, internet, electronic data interchange, electronic mail, hard ware, soft ware, in order to enable an organization ensure reliability, timelines of information, and saving time of the organization and therefore ensuring that an organization is able to satisfy customers.

The findings in the study further concludes that the administration of century bottling company should add on the training of its new work force on the different information systems techniques so that they are able to appreciate information systems and be able to satisfy customer satisfaction.

The study further concludes that the administration of century bottling company to increase on its support for information systems and also should continue involving its new staff of the company by installing it in the company, updating its systems following the changes in technological advancement, training workers how to use it, encouraging peer support of the information systems managed inventory.

5.4 Recommendations

Basing on the above findings the following recommendations are suggested;

The study recommends that since there is a significant relationship between, Information systems managed inventory and customer satisfaction therefore century bottling company should continue using Information systems managed inventory systems like Use of information technology to create reliability and searching the websites for information as this will increase customer satisfaction.

It's also imperative for century bottling company to increase on the usage of information systems in its inventory management ware houses so that it's able to create timely and reliability of products to its customers.

It is revealed that information systems managed inventory have a significant influence on the customer satisfaction, this implies that, effective use of information systems managed inventory positively improves on the timelines of information among customers and that instance increasing on customers satisfaction.

Results in the study further reveal that there is a correlation between information systems managed inventory and customer satisfaction and that, the results further ascertain that century bottling company employment of information systems managed inventory has enabled it in order to provide customer satisfaction in some ways especially in providing of efficient information dissemination.

There is need by century bottling company to find other ways of customer satisfaction since information systems managed inventory

The study recommends the administration of century bottling company to continue supporting and upgrading whenever necessary the information systems managed inventory systems like computers, internet, electronic data interchange, electronic mail, hard ware, soft ware, in order to enable an organization ensure reliability, timelines of information, and saving time of the organization and therefore ensuring that an organization is able to satisfy customers this findings therefore shows adoption of information systems managed inventory to century bottling company imperative in its operations.

The study further recommends the administration of century bottling company to train its work force on the different information systems techniques so that they are able to understand how to use information systems and be able to provide customer satisfaction this also further recommends that century bottling company is of great importance to the company.

The study further recommends the administration of century bottling company to continue supporting information systems in the company by installing it in the company and training new workers how to use it, encouraging peer support of the information systems managed inventory and also communication of the various benefits of information systems to

5.5 Areas for further research

From the above analysis more studies need to be done in the following areas;

- Impact of technological advancement in implementation of reverse logistics
- The relevance of procurement staff in the attainment of procurement effectiveness.
- Factors that promote the efficiency of reverse logistics.

REFERENCE

Actewell, p. (2002). *technology diffusion and organizational learning.* london: Edinburg gate.

Adarids, R. (2006). *technology and tax adminstration, the care of SUMA. European and mechterances conference on information systems.* Alticants, spain: Costa blanca.

Amin. E. (2005). *social science research.* kampala uganda: makerere university.

Baily. (2006). *purchasing principles and management, global supply chain benchmark report industries for visibility, B2B collaboration and trade complience and risk management 7th edition.* London: Endiburg gate.

Bernerjel, U. a. (2005). *management information systems.* london: Ediburg gate.

Biddle. (2009). *Business logistics management 4th edition* . london: Ronald bollon Prentice hall.

Bociji P, c. D. (2006). *Business information systems technology development and management for E-business, 3rd edition person education.* London: edinburg gate.

Booz, A. (2007). *customs automation and process reform lessons from kenya.* Nairobi: Eat african publishers.

Brynjolfsson, E. a. (2008). *Beyond computation : information technology organizational transformation and business performance* . London: prentice hall.

C, F. (2001). *Data processing and information technology* (10th Edition ed.). London: Prentice Hall.

C, H. (2007). *The performance management techniques.* London: Prentice Hall.

center, a. t. (2004). *Trade facilitation to fireterg rate Africa into the world Economy.* Newyork: United Nations Commision for africa, work in progress.

Corbbet, D. M. (2008). *Purchasing and supply chain management.* London: Prentice Hall.

Corbert, D. M. (2008). *Strategic purchasing and supply chain management.* London: Ediburg gate.

Cragg, P. B. (2008). *User acceptance of computer technology department of information systems* . London: London School of Economics.

Dobler, B. &. (2001). *world class supply management, 6th edition.* London: prentice Hall.

Dras, A. (2009). Management Team Commitment is key to successfull adminstration. *International net work of customs universities Volume 3 no 1* , 3.

E, A. (2005). *social science reserach conception methodolopgy and analysis.* Kampala: Makere university.

farrington, K. L. (2006). *Purchasing and supply chain management.* London: Prentice Hall.

farrington, l. a. (2006). *purchasing and supply chain management.* london: Cambridge university.

Gareth, L. (2009). *The impact opf ICT on customs world journals* . London: Prentice Hall.

Hoffman, D. N. (2004). *The gap instanances may impact electyronic commerce.* London: Prentice Hall.

Laundon, L. &. (2006). *Managing information systems* . New Jersey: Upper Sadllers Rivers.

Mabert, V. A. (2006). *Enterprise planning, managing the implememntation process.* New York: Mc Graw Hill.

Mackinon, W. G. (2008). *Enterprise information systems and strategic flexibility.* Hawaii: Hawaii publishers.

Merriam, S. B. (2009). *Qualitative research; a guide to desighn and implementation.* San Francisco.

Mosleh, F. A. (2009). *The effective uitilization of ICT and its effects on competetitive Advantage* . New york: Mc Graw Hill.

Motwani, j. s. *CRIRICAL FACTORS FOR SUCCESSFULL ERP* .

Motwani, J. S. (2005). *Critical factors for succeful ERP Implememtation* . New delhi.

Mugenda, O. M. (2005). *Research methods.* Nairobi: Nairobi Acts Press.

Muijis, D. (2004). *Doing quantitative research in education with SPSS.* London: SAGE.

Myer, .. D. (2004). *Qualitative research in information systems* . Ottawa: Maxi Technologies.

Newman, I. &. (2008). Qualitative-Quantitative research methodology: exploring the interactive continuum . *busines process management journal* , 285-295.

Obriene, J. A. (2004). *Managemenmt information systems , management information technology in the business enterprise.* New York: Mc Graw Hill.

Pinto, J. k. (2005). *Project management Hand book.* San Francisco: CA Jossey Bass.

Potter, W. J. (2006). *An analysisi of thinking and research about Qualitatqive methods.* London: Prentice Hall.

Shanks, G. P. (2000). *Taxonomy of ERP implementation approaches* . Hawaii: Rowman and Little field publishers.

T, L. (2005). *Management Information systems.* London: Thomson Learning.

T.H, D. p. (1993). Management in the new world of of process. *Public productivity and management review journal* , 18, 133-147.

APPENDIX II: QUESTIONNAIRE

KYAMBOGO UNIVERSITY

P.O. BOX 1, KYAMBOGO

School of Management & Entrepreneurships

Dear sir/ madam

I am a student of Kyambogo University currently collecting data for compilation of my dissertation as partial fulfilment for the award of master's of science in supply chain management, on the above stated topic.

You have been selected to take part in the study because of your unique expertise and experience as an employee of Century Bottling Company.

You are kindly requested to spare some time and give your honest opinion or judgment on the questions or statements in the questionnaire. Note that all response including your identity will be treated with utmost confidentiality and shall be used exclusively for the purpose of the study I wish to thank you in advance for your co-operation.

SECTION 1 BACK GROUND INFORMATION

1) Gender

Male ☐ female ☐

2) In what age group do you belong in?

☐ 8☐ ☐

a) 20-25 years b) 26-30years c) 31-35 years

b) 36-40 years ☐ e) 41 and above ☐

3) You job category?

Administrator ☐ ware house staff ☐ procurement staff ☐

Stores personnel ☐ Accountants ☐

4) How long have you served in this department?

a) Less than 2 years ☐ b) 3-5 years ☐

b) c) 6-8 years ☐ d) More than 9 years ☐

5) What is your highest level of education?

a) Post graduate diploma ☐ c) Masters ☐

b) Bachelors ☐ d) Certificate ☐

c) Doctoral ☐

Section B: Influence of information support systems on customer satisfaction. *Here you are requested to indicate the level at which you agree with the statement. The keys have been displayed below where:*

SA- Strongly Agree, A-Agree, NS- Not Sure, D- Disagree, SD-Strongly Disagree

Section B: Impact of information systems infrastructure on customer satisfaction. *Here you are requested to indicate the level at which you agree with the statement. The keys have been displayed below where:*

SA- Strongly Agree=5, A-Agree=4, NS- Not Sure=3, D- Disagree=2, SD-Strongly Disagree=1

	Impact of information systems infrastructure on customer satisfaction	SA	A	N	D	SD
1.	The internet links century bottling company to others					
2.	Use of information technology creates reliability					
3.	Electronic data interchange enables an organization to share information with customers					
4.	Computers saves time					
5.	Soft ware ensure reliability of customers					
6.	Hard ware enables information dissemination					
7.	Electronic mail ensures timeliness of information					
8.	Software enables information dissemination at century bottling company					
9.	Internet enables information application by customers					
10.	Hardware creates the possibility of information					
11.	Information technology creates reliability of products					
12.	Information technology creates timeliness of products of century bottling company					

Section C: Influence of knowledge and skills on customer satisfaction. *Here you are requested to indicate the level at which you agree with the statement. The keys have been displayed below where:*

SA- Strongly Agree=5, A-Agree=4, NS- Not Sure=3, D- Disagree=2, SD-Strongly Disagree=1

	Influence of knowledge and skills on customer satisfaction					
1.	**Information system know how**					
2.	I am conversant with most computer programs					
3.	I can search most of the websites for information					
4.	Information system knowledge helps in controlling amount inventory in store					
5.	Information system in charged inventory helps on offering faster service					
6.	User capture can classify goods using information systems					
7.	**User acceptance**					

8.	Users have trained how to use information systems managed inventory systems					
9.	Users always use information systems managed inventory					
10	Users have positive attitude towards information systems					
11	Users always use information systems to obtain inventory					

Section D: Influence of information support systems on customer satisfaction

. Here you are requested to indicate the level at which you agree with the statement. The keys have been displayed below where:

SA- Strongly Agree=5, A-Agree=4, NS- Not Sure=3, D- Disagree=2, SD-Strongly Disagree=1

No	Question	SA	A	NS	D	SD
	Influence of information support systems on customer satisfaction					
1	There is top management support for information systems capacity building projects.					

2	Management support guidance regarding staff career development.					
3	Management is cooperative with users when implimentary new ICT automation projects.					
4	Management offers timely communication when there are new ICT innovations					
5	Management provides supervisory support for team work to develop information systems.					
6	Management ensures all users are traveled how to use the inventory information systems					
7	Staff members share information on system experience.					
8	Staff members share information on systems knowledge					
10	There are peer departmental trainings when there is new staff.					
12	Management supports information systems peer group activities on a regular basis					
13	There are information systems sharing among individuals					
14	Colleagues heip each other t gain computer knowledge					
15	I am able to complete my work easily using the computer					
16	I feel comfortable using computer					

17	I am conversant in the use of internet					
19	We share information using e-mail					

Thank you for responding

TABLE 1

Table for Determining Sample Size from a Given Population

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size.
S is sample size.