

**The impact of information technology on supply chain management: A case of Century
Bottling Company**

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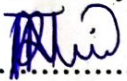


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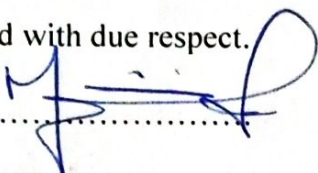
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APPROVAL

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MR. KABANDA MARTIN.

LIST OF ACRONYMS

IT	Information Technology
SCM	Supply chain management
EDI	Electronic data Interchange.
ERP	Enterprise resource planning
RFID	Radio frequency identification
SC	Supply chain
SCIT	Supply chain information technology
B2B	Business to Business
PO	Purchase Order

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ABSTRACT

Supply Chain Management (SCM) has been noted as an increasingly important management field to help enterprises improve supply chain operations (Graham2013). The exponential growth

of Information Technology (IT) in Supply Chain Management (SCM) is playing critical role in optimizing decisions of the supply chain network flow for achieving organizational competitiveness, improving higher service level, lowering inventory, supply chain costs and reducing electronic risks (Graham2013). In recent years, the development of the applications of IT in SCM has been seen by many parties and it is observed that innovations enabled by IT are creating new ways for firms to manage supply chain relationships (Waters 2009). The use of IT has received significant attention in the supply chain context, which involves the flows of material, information, and finance in a network consisting of customers, suppliers, manufacturers, and distributors (Lee 2014). However, the relationship between the two notions in term of the roles of IT in SCM remains still as an area that requires more researches. Therefore, this study assessed the impact of information technology (IT) on the SCM at century bottling company. The study also sought to investigate various IT applications used in supply chain operations. The nature of the research was descriptive and analytical. This involved quantifying data, tabulating findings and understanding treatment of information on respectively. The sample size is composed of 52 respondent from IT department, marketing, logistics, finance department and procurement department. Data was obtained from the field using questionnaires and later analyzed using SPSS. Findings show that IT has improved the processes of transactions across the various functions and also it is integrated in such a way that information flows along the various functions between procurement, logistics and marketing (TechFunne, 2020). The various technologies used have reduced costs of operations in the supply chain and a lot of savings have been achieved (Williamson 2015). It is also noted that lead time for orders have reduced due to effective sharing of information. There has an improved customer services where both internal and external customers are happy in due to faster response from the supply chain as supported by (Lim and Palvia 2011). The study recommends that manufacturing organizations should implement IT in their supply chain operations to improve efficiencies. Furthermore, the study recommends manufacturing firms in Uganda to incorporate all the information technology (IT) components into the system Evans et al. (1993) and this will enable the organization to improve the overall supply chain performance.

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CHAPTER ONE

INTRODUCTION

Introduction

This chapter presents the background of the study, statement of problem, purpose of the study, research objectives, research questions, the scope of the study, significance of the study and the conceptual framework.

Background of the study.

The use of IT is considered as a prerequisite for the effective control of today's complex supply chains. Information Technology (IT) is where an organization uses technology to acquire, store, process and organize data (Raja Raman, 2014). As states, IT involves software, hardware, firmware and middleware as well as network infrastructures, platforms, operating systems and the worldwide web. Indeed, most recent study researches conducted such as in Forrester Research indicates that manufacturers are increasingly dependent on the benefits brought about by IT to: improve supply chain agility, reduce cycle time, achieve higher efficiency and deliver products to customers in a timely manner ((Bailey Farmer, 2020) The increasing competitive pressures have forced most of the manufacturing firms to rely upon supply chain information technology (SCIT) to satisfy customer demands. Glenn Murphy, Chairman and CEO of GAP Inc., recently said that GAP is expanding its industry-leading Omni-channel capability by leveraging information technology (Murphy, 2014).

The adoption of a particular information technology is easily duplicated by other firms and it often does not provide a sustained competitive advantage for the adopting firms (Dao, Langella & Carbo, 2011). And thus, information technology investment in the supply chain process does not guarantee a stronger organizational performance (Marangunic&Granic, 2015). bur rather, the implementation of information technology (IT) in the supply chain management SCM of a manufacturing firm such as Century bottling company can enable a firm to develop and accumulate knowledge stores about its customers, suppliers and market demands, which in turn influences firm performance (Wamba, 2017).

Due to continuous increasing consumer's expectations in terms of added features & demand in products have made Century bottling company supply chains become more complex than ever.

The business demand today is to practice unconventional and innovative ways to achieve competitiveness and efficiency in day to day supply chain operations which could be achieved by a proper management of supply chains (D. Elmuti, 2008). Efficient & effective supply chain management ensures that the right data is in place, for right forecast, at right resources, to produce right product, in the right quantity, in the right condition, are delivered to the right place, at the right time, and the right cost. In supply chain management, these rights can be called the nine rights (9Rs) (Jagdeep Singh, 2019).

1.2 Problem Statement

Modern supply chains are very complex, with many parallel physical and information flows occurring in order to ensure that products are delivered in the right quantities, to the right place in a cost-effective manner. IT offers powerful advanced technology solutions to support and enhance nearly every facet of a business (Klein and Rai, 2009). In the dynamically competitive environment, many manufacturing companies have adopted IT in emerging supply chain trends in improving business performance. Considering the need for competitive advantage and global competition, many producing firms are adopting the latest IT solutions in their operations (Evangelista & Sweeney, 2016). Asabere, Oppong & Sarpong (2012) conducted a review of the role of IT in supply chain operation for companies. In the study, it was noted that e-SCM has become the common language in reference to the electronic processes that should characterize modern supply chain operations. Sweeney (2015) evaluated the usage of “Point”, “Best of Breed”, “Enterprise” and “Extended Enterprise” solutions as approaches towards achieving business competitiveness in SCM. From their results, the ensuing challenge is the fact that use of IT applications in SCM do not necessarily translate into efficiency and greater performance of the process.

Century bottling company have strived to implement various IT applications in their supply chain processes. Magutu (2013) carried out a study on supply chain strategies, technology and performance of large-scale manufacturing firms in Uganda which established that when IT tools are well implemented, the company will benefit from them and as a result, the organization will be able to save on costs and eventually make high profits. Efficiency and reliability in the manufacturing industry through various modalities such as adoption of IT solutions has seen improvements in customs management systems, security (tracking and tracing shipments) and

information sharing. However, many sectors in Century bottling company still run on traditional or manual systems and this could be attributed to their ineffective and inefficient performance and this has created a gap in the adoption of IT in century bottling company.

1.3 Main objective.

To find out the impact of information and communication technology on supply chain performance.

1.4 Specific objective.

- i. To find out the impact of enterprise resource planning on supply chain management at century bottling company.
- ii. To analyze the impact of electronic data interchange on supply chain management at century bottling company
- iii. To find out the impact of Radio Frequency Identification on supply chain management of century bottling company.

1.4. Research questions.

What is the impact of electronic data interchange on the supply management of century bottling company?

What is the effect of material resource planning on the supply chain management of the century bottling company?

How does enterprise resource planning influence supply chain management of century bottling company?

1.5 Scope of the study

1.5.1 Geographical scope

The area to be covered geographically is Century bottling company, one of the manufacturing industry in Uganda located in Namanve Uganda, Jinja Road, Kampala.

1.5.2 Content Scope

The scope of this study is to generally examine the effect of information technology (IT) tools such as electronic data interchange (EDI), radio frequency identification (RFID), electronic resource planning (ERP) on supply chain performance of century bottling company.

1.6 Significance of the study

This study will enable stakeholders to gain knowledge on importance of using information technology in driving businesses. The findings in this study will provide to supply chain managers of century bottling company with critical information on the need for IT in enhancing the efficiency of their functional processes.

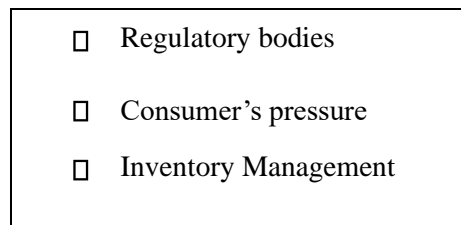
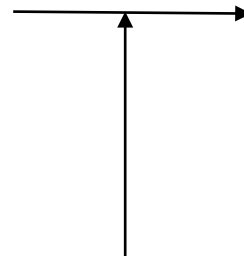
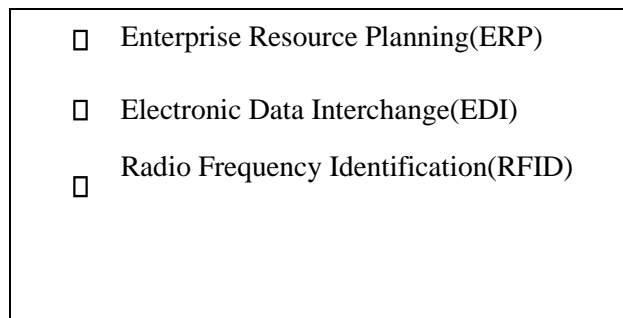
Century bottling company might use the study findings as an input to adjust its 'policy and procedures on its IT Practices and supply chain management. The study will enable to evaluate the benefits of implementing IT solutions and the challenges arising thereof. The company will benefit from the improved efficiency in operations due to the deployment of IT and also might contribute to the existing literature through identifying the significance relationship between IT and supply chain management. Other researchers might use it as an input for further study and to investigate more in the area.

1.7 Conceptual framework

Independent variable

Dependent variable

Information Communication technology



Fasanghari, R. and Kamal, C. (2018), assessing the impact of information technology on supply chain management.

1.8 Operational definitions of terms and concepts

Information technology

The term “information technology (IT)” means" the use of inter organizational systems for information sharing and/or processing across organizational boundaries" (Fasanghari & Kamali, 2008). Also, Attaran (2013) defined (IT) as the capabilities offered to organizations by computers, software applications, and telecommunications to deliver data, information, and knowledge to individuals and processes”. IT includes the application of hardware, software and networks to enhance information flow and facilitate the decision-making.

Supply chain management

According to Blanchard (2010) defines supply chain management as streamlining the processes towards flow of goods from its conversion from raw material into final products. Organization’s which provide products to end users represent the cumulative effort due to which these organizations are referred to as the supply chain and when the supply chain exists for a long period, most organizations only pay attention to what happens within their organizations. There are other areas such as logistics, procurement, information technology as well as logistics that are considered under the supply chain management. In the views of Wilhelm, Blome, Bhakoo and Paulraj (2016) supply chain management is a concept that is applied within the organization to manage the flow of goods and services, which includes the storage of raw materials and of work-in-progress inventory. At the same time, Wong, Wong and Boon (2015) opine that supply chain management is the essential part for every organization whether it is small or large. It is the dynamic management of the activities of the supply chain to increase the customer values and to achieve maintainable competitive advantages. Supply chain management signifies a conscious attempt through supply chain organizations for developing and running supply chain with the most effectual ways probable.

CHAPTER TWO

LITETATURE REVIEW

2.0 Introduction

The main objective of this chapter is to critically review the existing literature related to information technology and supply chain management. This chapter presents detailed explanation of the objectives of this research.

2.1. The impact of electronic data interchange (EDI) on supply chain performance of century bottling company.

Electronic Data Interchange (EDI) is the electronic interchange of business information using a standardized format; a process which allows one company to send information to another company electronically rather than with paper.

These include all the levels of management, top level management, middle level management and low level management. Electronic Data Interchange (EDI) is the new frontier of communication technology that facilitates information exchange. While Electronic Data Interchange (EDI) has been in use since the 21st century, there are still many departments in century bottling company that use their existing legacy systems for processing B2B transactions. Traditional B2B transactions like Purchase Order (PO), Sales Order, Invoice, Advance Ship Notice, and Functional Acknowledgement often involve a series of steps to process. And processing these transactions involves many paper documents and a great deal of human intervention, which makes them prone to mistakes and human errors. But with the use of EDI, paper documents are eliminated and human intervention is minimized.

Field supervisor of the central region Kakuru (2010)_—says in his report that EDI enables organizations to automate the exchange of data between applications across a supply chain. This process ensures that business-critical data is sent on time thus improving business cycle speeds. This is because, “Time is of the essence when it comes to order processing. EDI speeds up business cycles by 61% because it allows for process automation that significantly reduce, if not eliminate, time delays associated with manual processing that requires you to enter, file, and compare data. Inventories management is streamlined and made more efficient with real-time data updates”. The incorporation of EDI in supply chain activities such as purchasing of raw materials has proved a dramatic change especially in the post installation period (Njoroge, 2009). Enhanced transaction security. EDI has enhanced the security of transactions by securely sharing data across a wide variety of communications protocols and security standards. This has increased trust between the organization and the suppliers.

EDI require robust data backups of systems according to a distributor of coca cola and Rwenzori water in Masaka city, in his report in new vision which is expensive to small scale businesses, he says, “EDI needs constant maintenance since the business depends on it. Robust data backups must be in place in the event of a system crash. But again, if a cloud solution is chosen then this responsibility lies mostly with the provider.” Also, EDI requires Investing in system protection. EDI may also require a heavy investment in computer networks. It will need protection from viruses, hacking, malware and other cyber security threats if an on-premises system is chosen. However, many providers offer a cloud solution which includes system protection. This makes it more expensive for small scale businesses.

EDI is defined as the direct computer-to-computer transfer of translation information contained in standard business documents such as invoice and purchase orders in a standard form. EDI replaces paper documents with digital records exchanged between trading partner's computer and it is used to support the purchase of direct materials.

EDI is the transfer of data from one computer to another by electronic means and was an early application of electronic commerce. It is a set of standard and hardware and software that permits computers in separate organization to transfer documents electronically. The data transferred is typically purchase orders, invoice, account balance or price listings but any document can potentially be exchanged in EDI (Martin, Delayas, Hoffer, Perkins, 2019).

Electronic data interchange (EDI) technology is widely used by firms in supply chains to facilitate transactions and information exchanges. EDI is computer to computer exchange of structured data for automatic processing ((Nair, 2004). EDI main advantages are: enter informative needs on the computer system once, speed transaction, reduce cost and error rates. Other benefits of EDI are quick process to information, better customer service, reduced paper work, increased productivity, improved tracing and expediting, cost efficiency and improved billing.

Through the use of EDI, century bottling company supply chains can overcome the distortions and exaggeration in supply and demand information by improving technologies to facilitate real time sharing of actual demand and supply information. It is set up in any way which can be interpreted by the receiving computer. Electronic data interchange links between the sender and receiver supplemented by temporary data storage facilities are required in addition to the software which sets tip or format messages. ((Bailey Farmer, 2020)

In conclusion, EDI is used by Century bottling company supply chain partners to exchange essential information necessary for the effective running of the business. These structural links are usually set up between organization and suppliers that have a long-term trading relationships. For instance some multiple shops/ retailers, which in turn triggers replenishment of the item sold. The supplier will be able to build a historical sales pattern that will aid their own demand forecasting activities. In this context, EDI has many benefits that is improving timely information about its customer sales, it is highly accurate and it is very efficient because it does not require staff to collect information manually. It is used to send invoices, bills of lading, confirmation of dispatch and any information that the linked organizations choose to exchange. Through the use of EDI, manufacturing companies are able to communicate effectively with all organization stakeholders resulting to increase in efficiency, responsiveness and high level of customer satisfaction.

2.2 The impact of Enterprise Resource Planning (ERP) on supply chain performance of century bottling company.

Enterprise resource planning (ERP) refers to a type of software that organizations use to manage day-to-day business activities such as accounting, procurement, project management, risk management and compliance, and supply chain operations. A complete ERP suite also includes enterprise performance management, software that helps plan, budget, predict, and report on an organization's financial results.

ERP projects involve both internal and external stakeholders who play different roles in project planning, business management and company management. In most ERP projects, the stakeholders include; the project manager, the management team, the finance department, the vendor, the system users and the procurement manager. Each stakeholder plays a role in the choice and implementation of the ERP system.

According to Daily monitor, 07th September 2020, Mr. John Rwakifarii the assistant production manager reported that, information technology has been integrated and incorporated within the supply chain activities of century Bottling Company, “mainly, the installation of electronic resource planning has created a significant change in business process especially in the period of Covid 19”. There is effective sharing of information, Strategic decision making, better planning and forecasting, improved productivity and also Trend identification. Reports allow employees to

better understand the data and identify trends that could be opportunities or threats. They will accurately reflect the scenario and the reasons behind it. These insights enable both the employees and management to respond quickly to situations.

Kavuma Mathew muwonge fleet manager at century bottling company in his monthly report dated 02nd December 2021, he narrated that, ERP systems tie together a multitude of business processes and enable the flow of data between them. By collecting an organization's shared transactional data from multiple sources, ERP systems eliminate data duplication and provide data integrity with a single source of truth.

Given the considerable investment of time, money and resources in ERP projects, there is an increase in the external stakeholder's performance due to adoption of ERP systems. According to Ochora victor a business man who has a distribution center of coca cola products in his report, he claims positive empirical relationship between the strategic intent behind the adoption of ERP and organizational performance. Furthermore, "Antony Daira" the manager of Oxfam company supplier of some of ingredients to coca cola argues that, Manufacturers need to interact with various suppliers and partners to obtain the raw materials and resources at the right time and at the right amount to bring finished goods to market. Businesses are actively focusing on several supply chain strategies to boost plant productivity, enhance product quality, and cut down on manufacturing costs. As the operations become more extensive and globalized, the integration of SCM becomes all the more important. ERP solution can support multiple modes, such as maketo-order, engineer-to-order and configure-to-order and provide operations support across multiple sites in real time. ERP solution streamlines the path their products go through from supplier to warehouse and finally to store for customer. As a result, businesses can avoid supply chain disruption.

The term ERP was first coined in 1990 by Gartner however, its roots date to the 1960s (Spano & Bello, 2010). Back then, the concept applied to inventory management and control in the manufacturing sector. Software engineers created programs to monitor inventory, reconcile balances, and report on status. By the 1970s, this had evolved into Material Requirements Planning (MRP) systems for scheduling production processes. In the 1980s, MRP grew to encompass more manufacturing processes, prompting many to call it MRP-II or Manufacturing Resource Planning (Abugabah & Sanzogni, 2019). By 1990, these systems had expanded beyond inventory control and other operational processes to other back-office functions like accounting

and human resources, setting the stage for ERP. Today, ERP has expanded to encompass business intelligence (BI) while also handling "front-office" functions such as sales force automation (SFA), marketing automation and ecommerce. With these product advancements and the success stories coming out of these systems, companies in a broad range of industries—from wholesale distribution to ecommerce—use ERP solutions. Nevertheless, what is an ERP system?

Enterprise Resource Planning (ERP) system has been defined as software packages composed of several modules, such as human resources, sales, finance and production, providing crossorganization integration of data through embedded business processes (Dedrick, 2013.). These software packages can be customized to cater for the specific needs of an organization. During the 1990s ERP systems became the de-facto standard for replacement of legacy systems in large and particularly multinational companies (Shanks, 2016).

Given that suppliers are located all over the world, it is important to incorporate various activities of the organization within and outside. To achieve this, a wide enterprise information system is needed for information sharing on a range of value adding activities along the supply chain. ERP is a business management system made up from a collection of applications or modules that integrates company functions such as marketing, finance, manufacturing and logistics. ERP uses database technology to control and integrate information related to a company's business including data related to customers, suppliers, employees and finance. Ideally, all business transactions, such as inventory management, consumer order management, production planning and distribution are entered, recorded, processed, monitored and reported.

ERP system is an enterprise management model which is modern. ERP system makes supply chain activities be a network system by using the modern information technology. Activities such as logistics, capital flow, and information flow are effectively integrated to achieve the target of optimal allocation and sharing of capital resources. ERP is a comprehensive transaction management system that combines many kinds of information processing abilities and places data into a single database (Angeles, 2005)

In conclusion, ERP is a system that incorporates all information required by the operating functions effectively together with finance, marketing, procurement, accounting, human resources, production, material handling, value addition, maintenance of quality, allocation and distribution of raw materials and finished products by process reengineering and information technology. ERP will incorporate supply chain management (SCM) to provide the organization

with more accurate and reliable information and therefore it will enable Century bottling company to efficiently and effectively manage the use of resources such as materials, human resources and finance by providing a total integrated solution for the organizations information processing needs. When supply chain applications are linked with other business systems, users can slash cycle times and reduce inventory. The users are able to reach beyond their own corporate walls to connect better with suppliers, distributors and customers to engage in e-business.

2.3 The impact of Radio Frequency Identification (RFID) on supply chain performance of Century bottling company.

Lysons and Farrington (2006), advised that RFID is a generic term for technologies that use radio wave to automatically identify individual items. RFID is a technology that allows data transfer between tags and readers without the necessity of line of light over a distance of up to a couple of 10 meters depending on the type of tag used. For RFID system, the information is being transferred via radio wave, and multiple tags can be read or written simultaneously.

Radio frequency identification (RFID), has the potential to revolutionize the way business is conducted. Consisting of three parts, a chip, a reader, and a database, RFID can automatically identify people and objects by a 100-digit tag and track them through the supply chain. As they move through the process, RFID readers collect information on the products and match their tag numbers to a central database, which provides access to all information regarding the product. "Because of those abilities, RFID technology can provide unprecedented speed and accuracy in a supply chain, says, "Mr. Abdul Karim" the store's manager on the main warehouse in his quarterly report.

Radio Frequency Identification (RFID) was originally used by the military to identify friend or foe aircraft (IFF) during the Second World War. (Robertson and Jalaly, 2002). Commercially, the technology was applied from the 1980s onwards with increased acceptance by the mid-1990s for use with keyless entry and smart tickets, document information and smart stamps, badge readers, automatic highway and bridge toll collection, and offender tags, tracing livestock movements, tracking and control of nuclear inventories, tracking air freight and automobile manufacturing through assembly lines, railroad and military asset tracking, law enforcement, libraries and health care.

According to report of the production manager Mr. Aselle martin, RFID has greatly proven an improvement in supply chain management and performance. RFID also assists in managing cargo that travel by air especially the exports (finished product) and the raw materials that are imported. Freighters are able to know where their cargo due to the tags attached to the pallets and containers and a logistic manager can easily monitor and control cargo movement. There is also less delay and avoidance of misplacing items thus providing efficient and high quality service.

By adopting the RFID will lead the organization toward the improvement of the organizational performance and the performance of the supply chain as well, as it provides benefit to internal customer and being efficient and effective with the supplier and helps to reduce the production cost that will lead toward the low prices (New vision 04th January 2017-Business news). If we see it from the supply chain ends, the utilization of this technology results to improve the partner satisfaction, actuating the logistics and by reducing the physical requirements and providing the facility of just in time order system and by reducing the uncertainty of flow of material. (Samuel kakubagye, new vision reporter)

According to (Daira, 2016), RFID is promising greater efficiency in supply chain. New advancements in this technology gives it a great prominence and the adaptation at high level, tags not required anything like bar code and this help to eliminate the additional cost of scanners. Broad range of tags makes the communication easier and it helps to good decision making, it can also be attached with the sensor so that the temperature and movement in other conditions of movement can be recorded tags are more durable and can be used in any kind of environment, it also helps the organization that where the assets are and in how much quantity is available. Because the superior quality and great features most of the companies are adopting this system, the results benefited are as follows, automation of process, security of assets, monitoring of the environment, reduction in labor cost, managing the inventory smartly, automatic arrangements of docks, automatically replenish the inventory, automatic payment authorization and automatic control of goods returned from the customers.

RFID is a product tracking technology that will soon become nearly universally applied. A radio frequency identification devices often called a tag can be attached to a piece of merchandise and in form of a reader about the nature and location of what it is attached to. This helps the manufacturers to understand when the product is in the store but not in the shelf (a source of loss of sales that manufacturers cannot control and reducing the opportunities for theft, ability to track

products in the pipeline against delivery schedules, automation of the check-out process and ability to expand customer information on buying patterns. (Barata, 2018)

Radio Frequency Identification (RFID) is an IT technology that is used in manufacturing, logistics, supply chain management and inventory control. They are used for automatic object identification. The RFID systems have radio frequency tags that are used for transmitting resident data; the tags have a unique serial number to identify each product. The data transmitted in the RFID can be read automatically. RFID assists in providing operational efficiencies and improved stock level transparency in short, shelf-life products distribution (Frieden, 2015). A RFID readers mounted on display shelves in stores can survey item tags and send inventory data to back-end systems rather than relying on point of sales data or manual count. There is also less delay and avoidance of misplacing items thus providing efficient and high quality service (Frieden, 2015). This signifies improved inventory management and replenishment practices, which in turn results in reduction of interrupted production or lost sales due to items being out of stock.

In conclusion, RFID technologies may improve the expected results of supply chain management by ensuring that inventory is kept at its minimal level and as a result, increases efficiency and effectiveness of the processes to as to get accurate information. Different RFID systems can be gotten by putting together various labels, readers, correct frequencies and level of labeling.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methodology, which will be used in carrying out the study, which includes the research design, study population, sample size determination, sample selection, sources of data, data collection instruments, validity & reliability and ethical consideration.

3.1 Research design

This study will employ a descriptive research design in order to collect data required to answer the research questions. This will provide a researcher with a clear picture about how IT impact on SCM in Century bottling company. The basic reason for using descriptive study design is because not so much is known about the situation at hand to comprehend the nature of and describe the characteristics of variables of interest in situations thus fit for such kind of study given that little empirical research has been carried out on IT (McLeod, 2008).

3.2 Study Population

The survey population will consist of respondents from Century bottling company's staff members concerned with IT and supply chain management and other user departments such as marketing, logistics, stores, Accounting, distributors, and finance. These will sum up to 60 employees.

3.3 Sample Size Determination.

Century bottling company is too wide so there is a need to choose a few manageable respondents to participate in the study. $n = \frac{N}{1 + N(e)^2}$

Where N=Targeted population e=level of significance (standard error),

N=60 e=5%

n=

$\frac{60}{1 + 60(0$

$.05)^2}$ n=

$\frac{60}{1 + 60 * 0.$

0025 n=

60/1.15 n=5

2.1739 n=

52

Respondent

s

3.4 Sampling Design and procedure

Stratified proportionate random sampling technique will be used to select the sample. According to Cooper et al (2008), stratified proportionate random sampling technique produce estimate of overall population parameters with great precision and ensures a more representative sample derived from a relative homogeneous population. The method aims to reduce standard error by providing some control over variance. From each stratum the study will use simple random sampling so select 52 respondents. According to Cooper and Schindler (2008), random sampling frequently minimizes the sampling error in the population. The study will take 26% of the population to select a sample size of 52 of the study population.

3.5 Sources of Data

The data will be collected from both primary and secondary sources. The primary data will be collected from the sample population derived in table I above using questionnaires to be designed. The secondary data is also gotten from maintained organization's internal records as supplemented by data extracted from books of procurements, magazines, newspapers, internet, and other sources available in libraries.

3.6 Data Collection Instruments

According to Khotari (2009) data collection instruments are tools used to collect data and record during research. The researcher will use a questionnaire guide to collect necessary information for the study.

3.6.1. Questionnaire guide

The research will use both closed and open ended questionnaires as a basic tool of collecting research. Closed and open ended questionnaire are the tools used due to the fact that they may cover a wide geographical area range since researchers can approach respondents more easily through questionnaires than any other methods.

3.7 Data Analysis

The data collected will be summarized and edited using descriptive statistics because it enables the researcher to meaningfully describe measurements using few indices and it ensures accuracy, completeness, adequacy and reliability.

3.7.1 Measurement of levels

The variables in the study are IT (Independent variable) and Supply Chain Management (dependent variables). The sound measurement levels should meet the test validity and reliability. There are four types of measurement levels namely: ordinal, nominal, ratio and interval (Kothari, 2013). The ordinal scale refers to ranking of the measure in order of importance. Nominal scales measure only terms of names or designation of discrete units or categories. Ordinal scales measure in terms of such values as more or less or larger or smaller but without specifying the size of intervals (McMillan & Schumacher 2006). Interval scales measures in terms of equal intervals or degrees of differences, but with arbitrary established zero point that does not represent nothing of something. Ratio scales measures in terms of equal intervals and an absolute zero point. The nominal scale was used for gender and education level. The interval scale will be used for the period one has spent in the organization. It is recognizable when you are asked to indicate your strength of feeling about a particular issue on a 5-1 rating scale. The 5 point scale will be included. The following kinds of answers will be used in data collection, 5=strongly agree, 4=Agree, 3=Not sure, 2=Disagree, 1=strongly dis agree and the respondents were asked to indicate their degree of agreements of statements.

3.7.2 Validity and reliability

Mugenda (2003) defined reliability as a measure of the degree to which a research instrument yields consistent results or data after repeated trials. To establish the validity of the research instrument, the researcher will acquire opinions of experts in the field of study especially the researchers' supervisor. This will facilitate the necessary revision and modification of the research instrument thereby enhancing validity. The clarity of the instrument items to the respondents will be established so as to enhance the instrument validity and reliability.

3.8 Ethical consideration

The researcher will carry out the study with full knowledge and authorization of the management of century bottling company.

The researcher will acquire an introductory letter from the university to eliminate suspicion, the researcher will thereafter continue to select respondents, and arrange for dates upon which to deliver questionnaires as well as pick them in addition to making appointments for interviews. The researcher will provide assurance to the respondents of their confidentiality of the information given and shall not disclose it to third parties.

CHAPTER FOUR
PRESENTATIONS, INTERPRETATIONS AND DISCUSSION OF FINDINGS.

4.0. INTRODUCTION

This chapter presents the analysis and interpretation of the research findings; the findings were based on the primary data collected from the field with the aid of the self-administered questionnaires. It also presents the demographic characteristics of respondents who participated in the study. The data was analyzed with the aid of computer software known as statistical package for social sciences (SPSS) and summarized in the frequency tables where the pie charts and bar graphs were used to illustrate the level of responses.

4.1 Findings on bio data of the respondents

The background information of the respondents solicited data on the samples and this has been presented below categorized into; gender, age, level of education, departments and period spent in the organization.

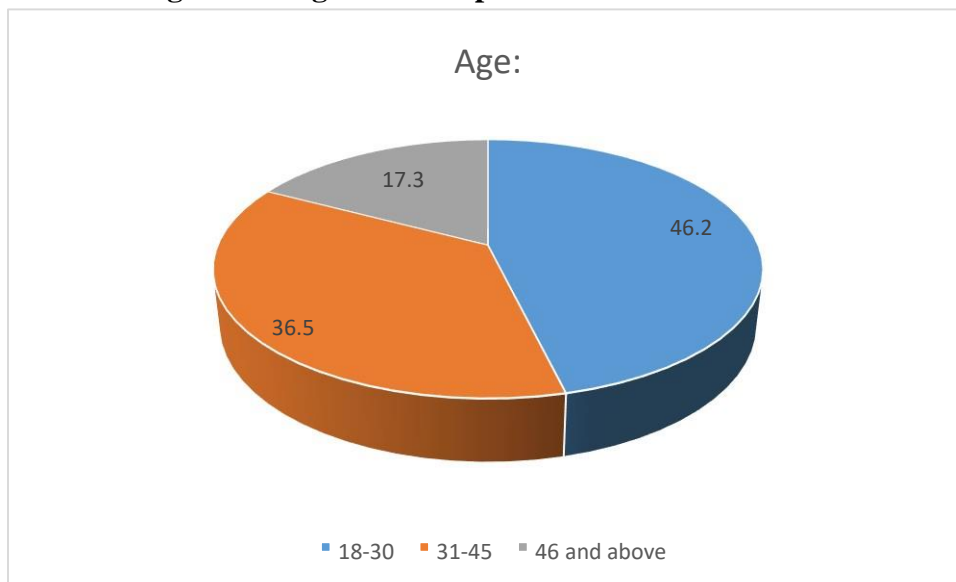
Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	33	63.5	63.5	63.5
Valid Female	19	36.5	36.5	100.0
Total	52	100.0	100.0	

Source: Primary data

The data from the figure highlights a noticeable gender imbalance among the respondents employed at Century Bottling Company, with 33 individuals (63.5%) being male and 19

individuals (36.5%) being female because of the stereotype that males are considered to be stronger and hardworking than females. While it's true that a majority of respondents are male, it's crucial to exercise caution when drawing conclusions about productivity based solely on gender stereotypes. The assertion that this gender disparity implies higher output due to perceived male physical strength and work ethic oversimplifies the complex factors influencing workplace productivity. Productivity is shaped by various elements, such as skills, experience, training, and job roles, and these factors transcend gender boundaries. The inclusion of both male and female respondents in the study aims to foster a balanced and comprehensive discussion, recognizing the value of diverse perspectives and experiences in understanding the dynamics of the workforce at Century Bottling Company. Additional research and analysis are necessary to gain a more nuanced insight into the productivity factors within the organization.

4.1.2 Findings on the age of the respondents



Source: Primary data

From the above pie chart, it has been revealed that the vast majority were ranging from (18-30) years of age represented by 24 (46.2%). This manifests that these are mature, energetic and active age worth for employment since they are viewed to be much stronger and century bottling company has more of manual work. The other category was that of (31-45) years represented by

19 (36.5%). The researcher discovered that 9 respondents were in the age bracket of 46 years and above which was the least number of respondents represented by 9 (17.3%). This implies that the company employs more youth than elderly people. Supporting a study done by Hwang (2011) in South Africa stating that most young people aged 25 years to 48 years have taken management of most of the international firms, however, it contradicts study by Jaeger 2008 who found older people heading most of manufacturing firms in Uganda

4.1.3 Findings on the Educational level

Table 2: Showing the findings on the educational level of respondents.

Level of education	Frequency	Percent	Valid Percent	Cumulative Percent
Secondary	5	9.6	9.6	9.6
Diploma	16	30.8	30.8	40.4
Valid Degree	22	42.3	42.3	82.7
Others	9	17.3	17.3	100.0
Total	52	100.0	100.0	

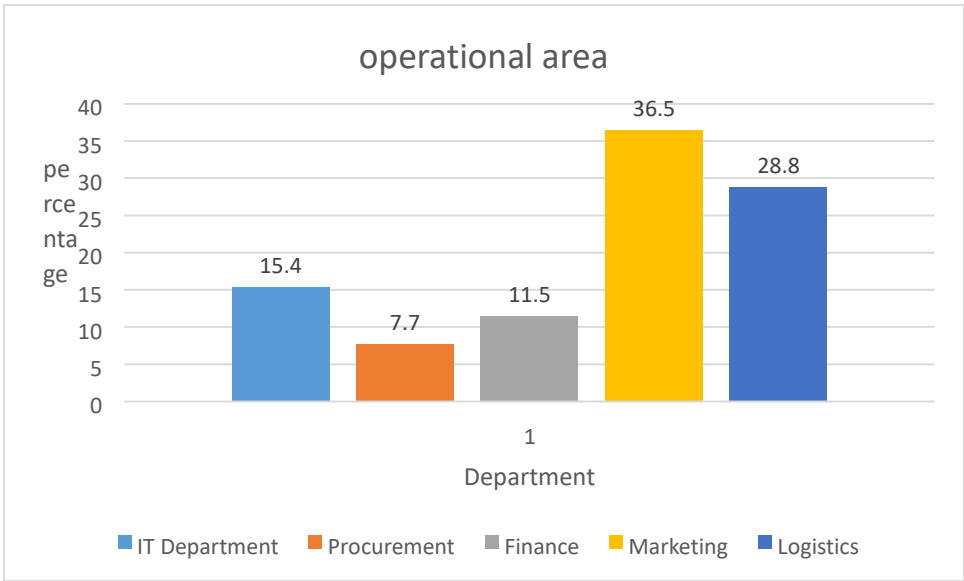
Source: Primary data

The data from the table reveals important insights into the educational qualifications of the respondents at Century Bottling Company. Notably, the largest proportion of respondents, comprising 22 individuals (42.3%), possessed bachelor's degrees. It's worth noting that a significant portion of these individuals hailed from the marketing department, suggesting that this department may attract employees with higher educational qualifications. Additionally, 16 respondents (30.8%) held diplomas, followed by 9 respondents (17.3%) who had other education levels such as certificates and postgraduate degrees. This diverse educational background suggests a well-rounded pool of respondents capable of providing informed responses to the questionnaires. Finally, 5 respondents (9.6%) held secondary certificates, with a concentration in the marketing and logistics departments. Overall, this data indicates that the majority of Century Bottling

Company's workforce possesses a reasonable level of education, which likely enables them to engage with the research process effectively and provide meaningful insights.

4.1.3 Findings on departments

Chart 2: Showing the findings on departments



Source: Primary data 2022

The graph provides a clear breakdown of the distribution of respondents across different departments within the organization. Remarkably, the marketing department stands out with the highest number of respondents, totaling 19 individuals (36.5%). This suggests that marketing is a prominent and active department within Century Bottling Company, possibly reflecting its strategic importance in the organization's operations. Following closely, the logistics department is the secondlargest, comprising 15 respondents (28.8%), indicating its significant role in ensuring the smooth flow of products and resources. The IT department ranks third with 8 respondents (15.4%), highlighting the importance of technology and digital infrastructure in the company's operations. Meanwhile, the finance department and procurement department have 7.7% and 4 respondents (7.7%) respectively, suggesting smaller but still vital roles in the

organization. These findings provide valuable insights into the internal structure and composition of Century Bottling Company's workforce, which can inform decisions related to resource allocation and department-specific strategies.

4.1.3 Findings on the number of years of service

Table 3

Years of service

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than one year	10	19.2	19.2	19.2
1-5 Years	21	40.4	40.4	59.6
Valid 6-10 Years	17	32.7	32.7	92.3
Over 10 years	4	7.7	7.7	100.0
Total	52	100.0	100.0	

Source: Primary data

From the above table, the researcher discovered that the most respondents had spent a period of 15 years in an organization represented by 21(40.4%) and this implies that they were conversant with the idea of information technology and supply chain management. It was followed by 17 (34.6%) respondents who had stayed for 6-10 years in the organization, followed by 10 (19.2%) of the respondents who had stayed from 0-1 year and lastly 4(7.7%) of the respondents had stayed in the organization for 10 years and above.

This is a contradiction to the findings by Baraswaj (2000) who found high employee turnover among manufacturing organizations who are embracing the use of technology. He stated that the rate of employee turnover is alarming within manufacturing industry attributed by lack of job satisfaction among employees and poor management of innovation.

4.2. Inferential findings The study was mainly guided by the following research objectives;

- To find out the impact of enterprise resource planning on supply chain management of an Organization
- To find out the impact of Electronic data interchange on the supply chain management of century bottling company.
- To find out the impact of Radio Frequency Identification on supply chain performance of century bottling company.

Objectives 1, 2 and 3 were achieved by calculating descriptive statistics mainly the percentages.

4.2 One of the objectives of the study was to find out the impact of enterprise resource planning on supply chain management in an Organization. The result are recorded in the table 4 below.

Table 4:

	Q1	Q2	Q3	Q4	Q5	Q6
SA	28(53.8)	25(48.1)	22(42.3)	19(36.5)	21(40.4)	13(25.0)
A	19(36.5)	19(36.5)	21(40.4)	20(38.5)	20(38.5)	23(44.2)
Valid N	5(9.6)	7(13.5)	8(15.4)	12(23.1)	9(17.3)	14(26.9)
D		1(1.9)	1(1.9)		2(3.8)	2(3.8)
SD				1(1.9)		

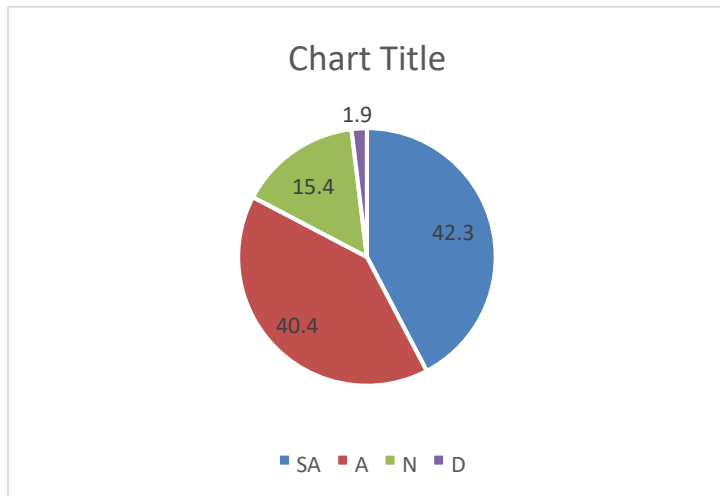
Total	52(100.0)	52(100.0)	52(100.0)	52(100.0)	52(100.0)	52(100.0)
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Source: Primary data

From the above table, it was revealed that over half of the respondents (53.8%) strongly agreed that enterprise resource planning systems are used to assist departments in performing their daily activities, 36.5% of the respondents also agreed the use of ERP systems in executing departmental activities whereas 9.6% were not sure whether ERP systems were even used to do their daily activities. The researcher further found out that almost half of the respondents (48.1%) strongly agreed that ERP systems have reduced on human labor in century bottling company and also 36.5% of the respondents also agreed labor reduction due to installation of the ERP systems. However, 13.5% & 1.9% of the respondents were not sure and disagreed that ERP has reduced on human labor respectively.

4.2.1 Findings on the reduction of Paper work in the supply chain of century bottling due to installation of ERP systems

Chart 3



Source: Primary data

The pie chart presents compelling evidence of a significant reduction in paper-based work within the supply chain management of Century Bottling Company due to the adoption of ERP

(Enterprise Resource Planning) systems. Impressively, a vast majority of respondents, constituting 82.7%, acknowledged this positive impact, affirming that ERP systems have successfully reduced the reliance on traditional paperwork. This overwhelming agreement highlights the effectiveness of these systems in streamlining and modernizing supply chain processes. However, it's noteworthy that a small portion of respondents, 15.4%, expressed uncertainty about the extent of this reduction, suggesting potential areas for further communication and training to enhance their understanding of the system's benefits. Only a minimal fraction, 1.9%, disagreed that ERP systems have reduced paperwork, which may represent a minority opinion or potentially reflect specific challenges or nuances in certain aspects of the supply chain that require attention. Overall, the data underscores the transformative role of ERP systems in reducing paperwork and enhancing efficiency in Century Bottling Company's supply chain management.

4.3 One of the objectives of the study was to establish the Impact of Electronic data interchange on the supply chain management of century bottling company. The result are recorded in the table 5 below Table 5:

	Q1	Q2	Q2	Q3	Q4	Q5
SA	15(28.8)	12(23.1)	12(23.1)	16(30.8)	11(21.2)	26(50.0)
A	27(51.9)	30(57.7)	30(57.7)	24(46.2)	29(55.8)	19(36.5)
N	8(15.4)	9(17.3)	9(17.3)	12(23.1)	10(19.2)	7(13.5)
Valid D	1(1.9)	1(1.9)	1(1.9)		2(3.8)	
SD	1(1.9)					52(100.0)
Total	52(100.0)	52(100.0)	52(100.0)	52(100.0)	52(100.0)	

Source: primary data

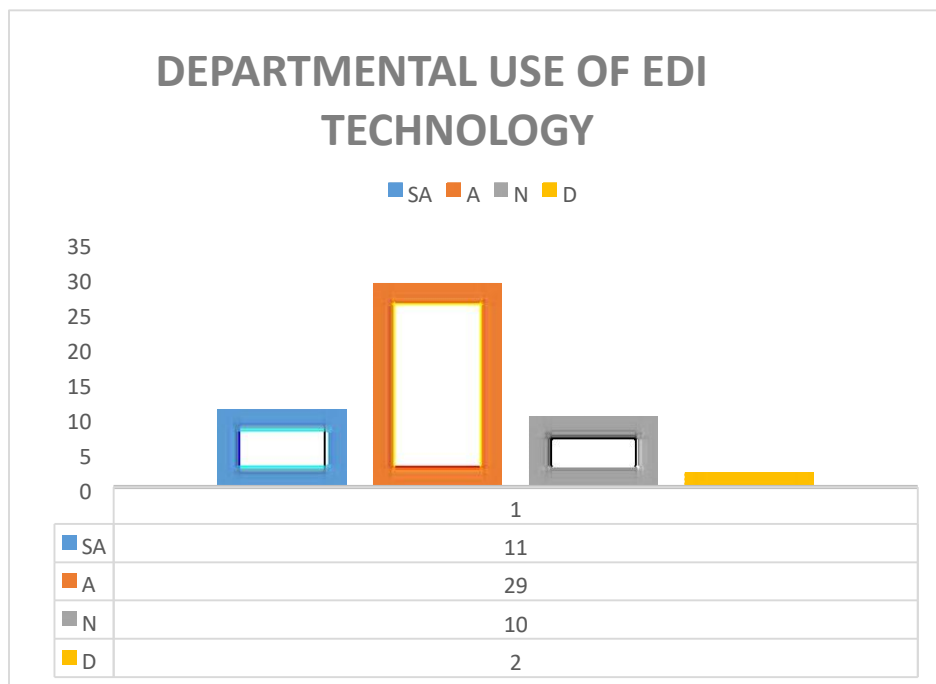
From the table above, the findings showed that Electronic data interchange technology was widely used in the century bottling company represented by 27(51.9%) and 15 (28.8%) of the

respondents agreed and strongly agreed that EDI technology has been fully adopted in the company operations respectively, 8(15.4%) of the respondents were not sure whether EDI technology was fully adopted in the organization whereas 1(1.9%) disagreed of having adopted EDI technology within the organization. Furthermore, the researcher found out that 57.7% of the respondents agreed that EDI has equipped the managers with information about changing customer needs though, 17.3% of the respondents were not sure whether EDI has equipped managers with necessary information on the changing customer needs.

The researcher found out that half of the respondents (50%) strongly agreed that with the use of EDI technology, it is easy to communicate and collaborate with suppliers involved in the supply chain, also 36.5% of the respondents also agreed however 13.5% of the respondents were not sure whether EDI technology can ease the communication and collaboration between stakeholders involved in the supply chain.

4.3.2 Findings on how Electronic data interchange (EDI) IT has been frequently used in departmental activities.

Chart 4



Source: Primary data

The graph conveys significant insights into the utilization of Electronic Data Interchange (EDI) technology within department activities. Impressively, the majority of respondents, totaling 29 individuals, confirmed that EDI technology is indeed frequently employed in their department's activities. This strong agreement reflects a widespread and effective use of EDI, suggesting that it plays a pivotal role in enhancing communication and data exchange within the organization. However, it's worth noting that a smaller portion of respondents, 11 individuals, also acknowledged the frequent use of EDI, though to a lesser extent. The 10 respondents who expressed uncertainty about the technology's usage might benefit from further training or clarification on its applications, potentially indicating an area for improvement in communication. Lastly, one respondent disagreed that EDI technology is frequently used in department activities, representing a minority perspective that could warrant investigation into the reasons behind this dissenting opinion. Overall, the data underscores the significant role of EDI technology in facilitating departmental activities, with room for potential improvements in communication and understanding for a small segment of respondents.

4.4 One of the objectives the study was to establish Impact of Radio Frequency Identification on supply chain performance of century bottling company. The result are recorded in the table 6 below Table6.

	Q1	Q2	Q3	Q4	Q5
SA	22(42.3)	12(23.1)	15(28.8)	13(25.0)	19(36.5)
A	24(46.2)	33(63.5)	25(48.1)	26(50.0)	18(34.6)
Valid N	6(11.5)	5(9.6)	11(21.2)	12(23.1)	12(23.1)
D		1(1.9)	1(1.9)	1(1.9)	3(5.8)
SD		1(1.9)			

Total	52(100.0)	52(100.0)	52(100.0)	52(100.0)	52(100.0)
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Source: Primary data

The researcher found out that, the majority of respondents 88.5% agreed that RFID is being used in the company and the remaining respondents 11.5% were not sure about RFID usage within the company. In addition, most of the respondents 63.5% agreed that RFID technology is frequently used in department activities, 23.1% of the respondents also strongly agreed whereas 9.6% and 1.9% of the respondents were not sure and disagreed on the RFID usage in departments respectively. The findings support the findings by Caldeira & Ward, 2002 that observed that management are always leading in ensuring efficient inventory management hence supports RFID technology innovation and use in the manufacturing industry.

The researcher revealed that a total number of 40 respondents agreed that RFID tags depend on the nature of the business that you are running. The remaining 12 respondents, 11 of them were not sure especially those that had finished secondary level and also from marketing department where they revealed that RFID technology is not widely used in that department, and one of the respondents also dis agreed that RFID tags do not depend on the nature of the business.

Qualitative data analysis.

Enterprise Resource Planning (ERP)

Here is an analysis that explores the impact of Enterprise Resource Planning (ERP) on the supply chain management of Century Bottling Company in the context of the broader topic, The Impact of Information Technology on Supply Chain Management at Century Bottling Company.

The integration of ERP into the supply chain management processes has been transformational for Century Bottling Company. It's not just a technological upgrade, it has redefined operations and managed the supply chain.

Enterprise Resource Planning has improved Visibility. One of the most significant impacts has been the enhanced visibility across the entire supply chain. ERP has provided a real-time view of inventory levels, production schedules, and customer demands. This visibility allows in making informed decisions promptly. For instance, fluctuations in demand can be foreseen and

adjustments in production can be made accordingly, reducing the risk of overstocking or stock outs.

Enterprise Resource Planning has Streamlined Operations. ERP has also streamlined operations. There has been a significant reduction in manual processes and paperwork. Everything, from order processing to inventory management, is now automated. This not only saves time but also reduces the likelihood of errors in the supply chain processes.

Enterprise Resource Planning has Enhanced Collaboration. Collaboration across departments and with suppliers has improved significantly. ERP acts as a central hub where various teams can access and share information. For instance, the procurement team can easily communicate with production and sales teams to align their efforts with demand forecasts. This has led to better coordination and overall efficiency.

Enterprise Resource Planning enables Data-Driven Decision Making. With ERP, there is access to a wealth of data related to supply chain. This data enables to perform in-depth analysis and make data-driven decisions. For example, it enables identification of trends in customer preferences, optimize supply routes, and negotiate better terms with suppliers based on historical or already recorded data.

Enterprise Resource Planning enhances Customer Satisfaction. Ultimately, the impact of ERP on supply chain has translated into improved customer satisfaction. This is through the ability to fulfill orders accurately and quickly, leading to happier customers. This, in turn, has had a positive impact on the organization brand reputation and customer loyalty.

In conclusion, the implementation of Enterprise Resource Planning (ERP) at Century Bottling Company has had a profound impact on supply chain management. It has improved visibility, streamlined operations, enhanced collaboration, promoted data-driven decision making, and boosted customer satisfaction. ERP has become an indispensable tool in our efforts to optimize and modernize the supply chain processes.

Electronic Data Interchange (EDI)

Here is an analysis that explores the impact of Electronic Data Interchange (EDI) on the supply chain management of Century Bottling Company in the context of the, The Impact of Information Technology on Supply Chain Management in the case of Century Bottling Company. The adoption of Electronic Data Interchange (EDI) has brought about significant improvements in how we manage our supply chain processes at Century Bottling Company. It has revolutionized our interactions with suppliers, customers, and partners.

Electronic Data Interchange (EDI) has improved Efficiency in Order Processing. One of the most notable impacts of EDI is the efficiency it has brought to order processing. The organization no longer relies on paper-based purchase orders and invoices. Instead, orders and invoices are transmitted electronically in standardized formats. This has reduced manual data entry errors, accelerated order processing times, and improved overall accuracy.

Electronic Data Interchange (EDI) has enhanced Real-time Inventory Management. EDI has also had a direct impact on inventory management. The organization now receives real-time updates on inventory levels from suppliers. This real-time visibility allows to maintain optimal stock levels and avoid costly overstock or stock outs. It has greatly improved the supply chain's responsiveness to changes in demand.

Electronic Data Interchange (EDI) has enhanced Collaboration with Suppliers. Collaboration with suppliers has become more seamless with EDI. There is easy sharing of production forecasts, demand projections, and quality control information electronically. This has led to better supplier relationships, reduced lead times, and improved reliability in the supply chain.

Electronic Data Interchange (EDI) has enhanced Data Accuracy and Compliance. Another important impact of EDI is the enhancement of data accuracy and compliance. By using standardized EDI formats, it ensures that all data exchanged with partners is consistent and error-free. This not only reduces disputes but also helps the organization comply with industry regulations more effectively.

Electronic Data Interchange (EDI) has enabled Cost Reduction. From a cost perspective, EDI has helped to achieve significant savings. It has reduced the need for manual data entry, paperwork, and the associated labor costs. Moreover, the reduction in errors and faster order processing has minimized costly disruptions in our supply chain.

Electronic Data Interchange (EDI) has Improved Customer Service. The impact of EDI on supply chain management has extended to the customers. It can provide more accurate and timely information on order status and delivery times, leading to improved customer satisfaction. This enhanced service has strengthened customer relationships and contributed to repeat business.

In conclusion, Electronic Data Interchange (EDI) has had a profound and positive impact on supply chain management at Century Bottling Company. It has improved order processing efficiency, enhanced inventory management, fostered collaboration with suppliers, ensured data accuracy and compliance, reduced costs, and ultimately enhanced customer service. EDI has become a cornerstone of modernized and efficient supply chain operations.

Radio Frequency Identification (RFID)

Here is an analysis that explores the impact of Radio Frequency Identification (RFID) on the supply chain management of Century Bottling Company in the context of the Impact of Information Technology on Supply Chain Management in Century Bottling Company. The implementation of Radio Frequency Identification (RFID) technology has had a profound impact on our supply chain management processes at Century Bottling Company. It has ushered in a new era of efficiency and visibility.

Radio Frequency Identification (RFID) technology has Enhanced Inventory Accuracy. RFID technology has significantly improved inventory accuracy. Most coke product now carry an RFID tag, which allows to track its movement within supply chain in real-time. This has virtually eliminated manual counting errors, reduced shrinkage, and ensured that the inventory records are always up to date.

Radio Frequency Identification (RFID) technology has Streamlined Warehouse Operations. RFID has streamlined the organization warehouse operations. With RFID tags on most of the

products, warehouse staff can quickly locate and pick items, reducing the time it takes to fulfill orders. This efficiency has a direct impact on the order turnaround times and customer satisfaction.

Radio Frequency Identification (RFID) technology has enhanced real-time Shipment Tracking. The real-time tracking capability of RFID has transformed how shipments are managed. Monitoring the movement of products from the moment they leave our facilities until they reach their destination has been made easier. This visibility allows proactively addressing any delays or issues and keeping customers informed about their orders.

In conclusion, Radio Frequency Identification (RFID) technology has had a transformative impact on supply chain management at Century Bottling Company. It has improved inventory accuracy, streamlined warehouse operations, enabled real-time shipment tracking, enhanced traceability and quality control, reduced losses and theft, and facilitated better integration with suppliers and partners. RFID has become an indispensable tool for optimizing our supply chain processes and ensuring customer satisfaction.

5.0 CHAPTER FIVE: SUMMARY, DISCUSSION AND CONCLUSIONS

5.1 Introduction

This is the final chapter in this study which gives the summary of the findings, the discussion, conclusions, recommendations of the study based on the objectives of the study

5.2 Summary of Findings and Discussions

The study found out that the manufacturing firms have adopted IT in supply chain that affects supply chain performance significantly. From the results, IT is used in sharing of information, support planning and execution of operations and coordination of manufacturing flows to moderate extents. These findings concur with the findings by Daniels et al. (2008) that manufacturing firm's needs' can be enhanced by connecting the regional stakeholders with an IT system. The study realized that a successful IT system must be implemented in phases beginning with the sharing of information on the benefits of the system. It emerged that an IT-based system in manufacturing operations greatly reduces costs, helps in planning and effective information sharing.

The study went ahead to find out the use of IT tools in supply chain management such as Radio frequency Identification Devices (RFID, Electronic Data interchange (EDI) that exchange essential information necessary for affective running of the business. Enterprise Resource Planning as an IT tool used at century bottling company helps people in different departments to communicate with each other for instance connects the logistics (stores) department with

procurement and marketing departments that flow of information enables better supply chain management. Research finding also shows that the improvement in technology for instance in Mobile phones, emails have enabled information technology on supply chain management. This is because supply chain needs are now communicated using the global media enabled by the growth of technology which increases the number of suppliers, increases speed of service delivery, reduces procurement costs and also reduces the errors in supply chain.

5.2.1 To find out the impact of Radio Frequency Identification on supply chain management of century bottling company.

Based on the primary finding, it was realized that most of the respondents are using IT tools to operate supply chain activities. It can be discussed that the use of RFID tools is used by the century bottling company departments in order to achieve efficient tracking of products by automatic identification and to help identify any issue related to inventory and logistic functions. As said by Ahuja et al., (2009), RFID plays a vital role in maintaining the inventory. This technology is also helping the manufacturing firms to capture data for real time processing.

5.2.3 To find out the impact of enterprise resource planning on supply chain management at century bottling company.

The study found that the use of enterprise resource planning increase on work efficiency, and reduces cost on the use of manual labor and paper work. This improves the performance of firms in terms of increased profitability and reduced labor. With the implementation of ERP system, the organization will be able to function as a single entity and caters to the needs of organization as a whole (Wei et al., 2005; Wei and Wang, 2004). The strength of an ERP system is integration and automation and that is why implementation of ERP will help in improving accuracy and in better decision making. For example resource management is one of the biggest problems often encountered by the managers and through the information systems, it is possible to address the problems and move the required resource with in shortest possible time. Therefore the process is not stopped and the time is also saved

5.2.4 To analyze the impact of Electronic data interchange on supply chain management of century bottling company

In the changing business environment the time available for organization to react to the change in market trend is very little (Fisher, Raman and McClelland, 2000). To stay stable with the changing trends an organization should be up on its toes. Electronic data interchange will help in sharing of information which will enhance the chances of organization to stay alive in the market. Organizations that are using EDI systems performs much better than the organizations that are that are not automated to EDI system (Fisher, Raman and McClelland, 2000).

The study findings shows that, electronic data interchange has enhanced communication and information exchange within century bottling company, with suppliers and other customers hence more efficient and effective. Electronic data interchange has hastened the time constrain in the sharing of information and purchase of goods table VII has clearly showed that 63.9% of the respondents strongly agreed while others agreed.

5.3 Conclusion

The aim of this study was to find out the impact of information technology on supply chain management. The study concludes that IT is valuable, offering an extensive menu of potential benefits ranging from flexibility and quality improvement to cost reduction and productivity enhancement. It was evident from the results that century bottling company has adopted IT in supply chain and it performs better in its supply chain.

On average, there is a strong positive impact between the variables (information technology and Supply Chain Management).

5.4 Recommendations

The researcher based his recommendations from the study findings and views from the respondents that participated in the study.

From the study outcomes, it was concluded that deployment of IT within the supply chain enables organizations to be more flexible in coping with uncertainties in the supply chain and meeting expectations customer demand. Manufacturing firms in Uganda need to incorporate all the information technology (IT) components into the system Evans et al. (1993). This will enable them to improve the overall organizational performance of their firms. The manufacturing firms

need to find out ways of encouraging employees to make use of IT systems. If employees are encouraged to use the information technology tools, adoption of the same will greatly improve.

It is therefore recommended that Enterprise resources planning (ERP) systems in particular should be concerned with trying to integrate and co-ordinate the various internal functional areas in order to break down those functional boundaries and ensure decisions for areas like marketing, operations and financial decisions are all made using the same data. Electronic data interchange can also be used to co-ordinate the supply chain as well as organizational performance by ensuring better sharing of information. In summary use of information technology in supply chain is considered to be a driver of innovation strategy action.

The study also recommends the adoption of technologies that assist in increasing the effectiveness of the supply chain for both the customers and the suppliers. These should be systems that enhance transparency which will in turn improve the goodwill in the organization

5.5 Limitations

Most of the respondents were a bit conservative with information. They feared that the information might be shared with competitors. This decreased the accuracy of the data collected. Delay resulting from postponement of most set appointments with the respondents. This meant that the researcher had to visit the premises more times than planned and also had to make changes on their schedule.

Biasness from the respondents since the researcher was a former employee of the organization that was being studied.

The increased visits to the organization and also the process of recording the responses collected, was costly to the researcher. The services involved in the analysis of the responses gathered were also an additional cost.

To analyze the impact of electronic data interchange on supply chain management at century bottling company supply chain performance.

5.6 Areas for further Study

From the recommendation, it is clear that adoption of IT system improves performance in terms of service delivery of manufacturing firms as the new findings of the study hence need for the producing firms to adopt information technology. The researcher suggests the following areas for

further are as follows. First, the Adoption of Information Technology by manufacturing firms; Secondly, IT Adoption and Impact on manufacturing Service Providers' Performance and Thirdly, Absorptive Capacity and IT Adoption Strategies for manufacturing firms.

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Appendices

Questionnaire

Dear Respondents, I am Twahirwa Naboth a student of Uganda Christian University pursuing a Bachelor's degree in Procurement and Logistics Management, the title of my study is "The Impact of Information Technology on Supply Chain Management". These questionnaires are designed to collect information purely for academic purposes. The information collected will enable me to assess the extent to which information contribute to organizational/company's supply chain management and this information will be treated with utmost confidentiality including your identity.

SECTION A

Please tick the most appropriate answer

1. 1) Gender: a) Male b) Female
2. 2) Age: a) 18-30 b) 31-45 c) 46 and above

3. Highest level of education

a) Primary

b) Secondary

c) Diploma

5. What operational area are you engaged in? (Tick as applicable)

Department	Tick
IT department	
Procurement	
Finance	
Marketing	
Logistics	

1.1 Years of service in the organization

Less than 1 year
6-10 years

1-5 years

Over 10 years

SECTION B

2.1 The impact of enterprise resource planning on supply chain management of an Organization

In this section please tick in the box that corresponds to your opinion/view according to a scale of 1 = strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, 5 = Strongly Agree

	STATEMENT	5	4	3	2	1
1	Enterprise resource planning (ERP) systems used to assist departments in performing their daily activities					

2	ERP system has reduced on human labor in century bottling company					
3	ERP systems have provided the organization with a competitive advantage					
4	ERP technology has reduced on some costs that have been incurred in the operations in the supply chain					
5	ERP has reduced on paper work involved in supply chain management					
6	ERP has improved flexibility and enabled work reduction for employees in the organization.					

SECTION C

2.2 Impact of Electronic data interchange on the supply chain management of century bottling company?

In this section please tick in the box that corresponds to your opinion/view according to a scale of 1 = strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, 5 = Strongly Agree

	STATEMENT	5	4	3	2	1
6	EDI technology has been fully adopted in the company operations					
7	Use of electronic data interchange has enabled effective information sharing within organization?					
8	EDI has equipped the managers with information about changing customer needs					

9	Electronic data interchange (EDI) IT has been frequently used in departmental activities.					
10	With use of EDI, It is easy to communicate and collaborate with suppliers involved in the supply chain.					

SECTION D

2.3 Impact of Radio Frequency Identification on supply chain performance of century bottling company.

In this section please tick in the box that corresponds to your opinion/view according to a scale of 1 = strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, 5 = Strongly Agree

	STATEMENT	5	4	3	2	1
11	Is Radio Frequency Identification used in the company					
12	Radio Frequency Identification (RFID) technology is frequently used in departmental activities.					
13	RFID tags depend on the nature of the business that you are running					
14	Implementing RFID tagging system will automate most of the tracking for your ease					
15	RFID tech provides interesting options that complements data collection as well as identification of the product relevant to the concerned supply-chain management and overall organizational operation.					

~Thank you~



UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

SCHOOL OF BUSINESS

1st Aug 2023

TO WHOM IT MAY CONCERN

Name: IWAHARA NABOTH Reg. No. S20B12/027

A bachelor's student who is seeking permission from your office to collect data for his/her dissertation titled

"THE IMPACT OF INFORMATION TECHNOLOGY ON SUPPLY CHAIN MANAGEMENT"

We shall be grateful if you could render assistance to him/her in collecting the necessary data for his/her dissertation

The Uganda Christian University School of Business thanks you in advance

Mukisa Simon Peter
Research coordinator