THE INFLUENCE OF VENDOR MANAGED INVENTORY ON INVENTORY CONTROL IN SUPERMARKETS; A CASE STUDY OF SELECTED SUPERMARKETS IN THE DIVISIONS OF KAMPALA DISTRICT.

BY

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DECLARATION

I **Atholere Janet,** to the best of my knowledge declare that this dissertation titled "The influence of Vender Managed Inventory on inventory control in Supermarkets" is my original work except where cited, and it has never been submitted to any academic institution for any academic award.

Signature:…… Date:……..……

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APPROVAL

This is to confirm that this dissertation on “The Influence of Vendor Managed inventory on inventory control in supermarkets” has been written under our supervision and is now ready to be submitted to the Kyambogo University Graduate School.

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DEDICATION

This dissertation is dedicated to my beloved family who have continuously supported my academics throughout. It is also dedicated to the Almighty Most High God for His undeserved love, kindness and grace that have enabled me to complete this research.

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LIST OF ABBREVIATIONS AND CRONYMS

CBL	:	Crown Beverages Limited
CVI	:	Content Validity Index
EDI	:	Electronic Data Interchange
EPOS	:	Electronic Point of Sale
ICT	:	Information Communication Technology
SPSS	:	Statistical Package for Social Scientists
VMI	:	Vendor Managed Inventory

ABSTRACT

The overall goal of this research study was to examine the influence of Vendor Managed Inventory on Inventory control focusing mainly on the products of Crown Beverage Limited in selected supermarkets in Kampala district. The study was conducted objectively by assessing the effect of inventory planning, information systems application, and Supplier- Customer collaborations on inventory control of Supermarkets in Kampala district. A cross sectional survey design was implemented in the research which included using both qualitative approach and quantitative qualitative approach. The study population involved staff members from selected supermarkets within the divisions of Kampala. The size for the sample of the research was 144 respondents. For response selection, the study employed purposive sampling technique and simple random and technique. The analysis involved using frequency tables, descriptive statistics, correlation analysis, regression analysis, and thematic analysis for qualitative. The regression analysis indicated that inventory planning had a significant and positive effect on inventory control of supermarkets in the divisions of Kampala ($p<0.05$). The findings of the study indicated that information systems application had a significant positive effect on inventory control at a significance level of 5%. The research study results also revealed that Supplier- Customer collaborations positively and significantly affect inventory control of the supermarkets in the divisions of Kampala ($p<0.05$). The study concluded that Vendor managed inventory is an integral aspect for improving Inventory control of supermarkets in the divisions of Kampala. In recommendation, it is suggested that there should be more efforts in demand forecasting to determine the estimated sales and supplies required, supermarkets are recommended to continue with the best practice of positioning inventory where the products can easily be accessed by customers since it was found to be crucial, and there is need to ensure that there is electronic supply of information sharing between Crown Beverages Limited and all the supermarket customers in all the divisions of Kampala among others.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This research chapter focused on the study background of Vendor Managed Inventory (VMI), problem statement, objectives, research hypothesis, scope, significance of the research and justification, and finally conceptualizing the variables of the study.

1.1 Background to the study

The back ground of the study is elaborated in various perceptions (four), reflecting the historical perspective, theoretical perspective, conceptual perspective, and contextual perspective as presented below;

Vendor managed inventory's influence on inventory control in supermarkets around the world is still a major issue for debate that many researchers have ignored in their research studies. Toomey (2000) stated that the main objective of VMI is to effectively serve customers and satisfy their needs on time. Karanja, Kipkogei, Manyura and Karanja (2017) and Disney and Towill (2008) in their research stated that USA and Canada's retail outlets for example Wall-mart, Foodex and Safeways experienced 12% cost addition on managing inventory, the outcome was more than 13% profit margin reduction because of the challenges that come as a result of implementing the practices of VMI. Jeffrey (2009) concluded in his research that in South Africa, Shoprite supermarket experienced 18% loss as a result of increased inventory management costs. He further stated that Kenya's Uchumi supermarket lost about Kshs. 250 million due to stock-outs.

Supermarkets are formalized retail shops that sell goods and services to final consumers. The largest asset in supermarkets is inventory, and without it, the supermarket owners would not have anything to sell (Dedeke & Watson, 2008). Africa's retail business was previously

dominated by small retail shops located within villages, however, there has been a recent growth of large supermarkets in urban areas (Mutoni & Kwasira, 2016). The growth of formalized supermarkets is based on effective inventory control from a wide range of suppliers and the increase of the population in the middle class. Kampala district has experienced a flux of major supermarkets for example Mega Standard, Urban, Shoprite, Capital Shoppers, Best and Buy and Kenjoy Supermarkets (Crown Beverages Limited, 2020). This has triggered competition among them. To attain a competitive advantage, effective inventory control is necessary, and this has influenced them to carry out Vendor managed inventory with their suppliers. This study focuses on VMI and Inventory control in the products of Crown Beverages Limited in selected supermarkets in Kampala, thus making Crown Beverages Limited the vendor and the supermarkets the customers.

Crown Beverages Limited (CBL) produces soft drinks in Uganda, the company is in an industry that has a number of competitors producing similar or related products for example Century Bottling Company (Coca Cola), NC Beverages Limited, Britania Allied Industries Limited, Wave Beverages Limited and House of Eden (U) Limited implying that it ought to better the game if it's to have a competitive edge over the others through effective management of the finished products in the market, however, the years 2018 and 2019 have shown that the consumption rate reduced due to limited access of the products in some parts of the country, stock-outs in the markets due to delay in distribution, distorted information about the actual demand, expiry among others which was attributed to inadequate management of the finished products from the production plant to the market (Crown Beverages Limited, 2019).

The answer to the above shortfalls, is the application of VMI that enables stock management optimization (Harsono, 2013) and this has prompted the study to examine how VMI can be implemented effectively among supermarkets that stock CBL's products in order to improve

on the service levels and increase customer satisfaction while reducing the risks. The independent variable is VMI and the dependent variable is Inventory control in the study.

1.1.1 Historical background

Globally, VMI gained popularity in early 1980s where by it was seen as a tool aiming at increasing the efficiency of firms in relation to the supply chain (Sazani, 2004). VMI came to be known by Gamble, Procter and Wal-Mart and finally became an essential programme in the industry of grocery for efficient and effective response of the consumers and the industry of the garments for easy and fast response (Waller, 2009). Hewlett Packard implemented VMI with her vendors (Walter, Johnson & Davis, 1999), Campbell Soup (Cachon & Fisher, 1997) and Ericsson Mobile Communication (Persson & Olhager, 2002). Vendor Managed Inventory (VMI) is among the emerging trends in managing the supply chain, through which suppliers and their customers can achieve a win-win situation (Campbell, Kleywegt & Savelsbergh, 1998) and is being embraced by many automotive soft drinks industries.

In Africa, VMI is relatively a new phenomenon that gained initial recognition in the early 2000s, and is still rising (Benson, 2011). Though several countries such as Nigeria, South Africa and Kenya have hailed VMI, it has several drawbacks in regard to trust, supplier turnover and suppliers who operate at a small scale without the requisite financial resources to facilitate implementation of its concepts in a sustainable manner which lowers customer satisfaction due to high supplier turnover (Benson, 2011).

In Uganda, the implementation of VMI is relatively at a low pace because of increased costs in performing inventory management functions (Ntayi & Eyaa, 2010). Vendor Managed Inventory requires supplier-customer collaborations, Information Communications Technology (ICT) systems and management of inventory (Benson, 2011). It is worth noting that the ICT is very essential in facilitating information sharing among VMI is implemented

within the chain of supply (Watson, 2007). The concept of VMI is a perfect solution in soft drink companies since they have to rely on timely market information and establishment of a closer relationship between CBL and the immediate customers who are the supermarkets for high level of customer satisfaction, lower inventory costs and transportation costs.

1.1.2 Theoretical background

This study was based on by Relationship Marketing theory developed by Berry (1983). Relationship marketing refers to the activities of marketing which aim at initiating, developing, and successfully maintaining exchange relations (Morgan and Hunt, 1994). The theory emphasizes dedication and alliances between buyers and suppliers (Wilson, 1995).

Morgan and Hunt (1994) asserted the forms of relationship marketing which include partnering between manufacturers and respective vendors, procurement through Just In Time and total quality management, finally the relational exchanges of distribution channels.

Relationship marketing involves the buyer and seller aiming at a mutual satisfaction. The theory looks further than the immediate post purchase-exchange process and tries to use experience and more personal ties to provide a more personalized purchase for the customer (Wilson, 1995). In line with Alvey (2003)'s argument' cited by Nabyama (2018), customer relationship management software has facilitated relationship marketing by analyzing and tracking these customer tastes and preferences. The concept of relationship marketing applies to a situation where there are competitive product options that customers can choose from with continued desire for those products or services (Morgan & Hunt, 1994).

The Relationship Marketing Theory concludes that through interaction, transaction analysis, observation, information sharing and use, the experience with customers of the soft drinks firms and fast customers (supermarkets) are able to create stronger connections, personalize and customize preferences of their products, inventory policies, plans, systems and stores layouts

to meet the customer's needs and hence lead to improved performance. The theory related to the research study because the main constructs of relationship management, information systems and use of just in time as a mode of inventory distribution have been the basis of conceptualization of this research.

1.1.3 Conceptual background

This study has two major concepts that is VMI and Inventory control as discussed below;

VMI refers is a practice of inventory management which involves a collaborative arrangement between the suppliers and first customers who are the supermarkets where the management of finished stock shifts from the suppliers to the first customers basically hiring space at the customers' premises (Watson, 2007). VMI enables the vendor's organization to manage stock, have visibility of the supply chain through information sharing hence reducing bullwhip effect and improving customer service.

Vendor Managed Inventory also requires that management of inventory be a responsibility of the vendor. Whether it's a manufacturer managing the distributor's inventory, or customer's inventory being managed by distributors, the vendor influences the management, and the supplier is in charge of replenishing stock basing on a contract (Ngugi, Aiyabei, Maroko & Ngugi, 2012).

Vendor Managed Inventory is defined as performance optimization in the chain of supply where the supplier accesses the data for inventory of the customer and is in charge of maintaining the level of inventory as per customers' requirement (Flavin, 2002) as cited by Sazani (2004). The VMI approach is collaborative and aims at ensuring optimization of products at a minimum cost. In this case, the responsibility for operational management of the inventory rests on the supplier, within a framework agreed upon by the two parties.

Vendor Managed Inventory implementation includes a supplier monitoring the level of inventory her customer's warehouses while being responsible of inventory replenishment in order to obtain the set goals by using highly automated electronic messaging systems (Bernardin, 2003).

Vendor Managed Inventory under this study was conceptualized as supplier-customer collaborations, information system application and inventory planning. Inventory planning involves making decisions on replenishment of inventory, inventory location and demand forecasting which is enhanced by systems which enable the vendors to easily access the inventory data for their customers (Halldorsson, 2003).

Kuk (2004) asserted that supplier- customer collaborations are a type of partnership in which the supplier initiates orders from customers on the basis of actual ware-house withdrawal. The success of VMI is hinged on a favorable buyer-supplier relationship, which enables the supplier to access information on consumption patterns, in an effort to forecast better and have enhanced to the inventory needs of customers, such as quantities to be shipped and locations that need to be replenished. The supplier's decisions to replenish stand higher chances of registering accuracy and customer orders are more likely to meet the market demand. This parameter will be measured using trust and commitment of both parties, risk sharing as a result of the operations and reliability of both parties.

On the other hand, inventory planning was conceptualized by looking at inventory location, replenishment decisions and demand forecasting (Kumar & Kumar, 2003). Lastly information systems application was conceptualized by focusing on application of Electronic Point ofSale (EPOS), Electronic Data Interchange (EDI), and material requirement planning.

Effective management of Inventory enables the identification of the balance between high inventory and low inventory in order to maximize benefits while minimizing risk. The

company will experience high holding and obsolescence costs with excess inventory whereas with low inventory there is inadequate service levels and stocks (Shen, Govindan, Borade, Diabat & Kannan, 2013).

Inventory control means storing the optimal levels of stock. This has therefore been conceptualized as lower inventory costs, reduced transportation costs and availability of the product in the market.

Inventory and transportation costs can be saved by deciding where the customers should be replenished, when the replenishment should be made and how many shipments should be delivered (Chan, Federgruen & Simchi-Levi, 1998; Centinkaya & Lee, 2000; Kleywegt, Nori & Savelsbergh, 2002). Customers can significantly reduce the frequency of stock outs (Cetinkaya & Lee, 2000) and hence increase service levels by increasing the reliability of product availability (Kleywegt, Nori & Savelsbergh, 2002). Timely and accurate demand forecast and inventory level information from the customers helps suppliers to accurately carry out production and delivery plans in order to prevent out of stock while improving stock visibility while reducing the costs of inventory (Croson & Donahue, 2005; Leung, Yadav & Gallien, 2016).

Vendor Managed Inventory implementation therefore discards one level of demand forecast while deepening the bullwhip effects and avoiding dis ordering while making decisions in the chain of supply (Surdarakani & Hosie, 2010).

1.1.4 Contextual background

In Uganda, there is a rise of the industry sector through the establishment of many manufacturing firms in all aspects like in beverages, steel and tube, plastics, construction and many others. This has boosted the country's economy. These firms use materials either as Semi finished goods, raw materials and finished products that they store to continue production.

Managing these materials is very key because some of these manufacturing firms' stock more than the consumption hence tying up capital and others run out of stock limiting consumption, hence need for VMI practice (Ministry of Trade, Industry and Cooperatives, 2019).

Crown Beverages Limited is among the leading beverage companies in Uganda that produces soft drink products such as Pepsi, Miranda fruity, Mountain dew being the first moving brands while other brands are Tonic Evervess, Mirinda orange, Mirinda Pineapple, Mirinda Green Apple and Sting energy drink. The success of the upstream suppliers of CBL depends largely on how finished products are distributed and managed in the market. CBL currently has different channels of distribution. It works with region distributors (depots), selected supermarkets and selected bars in distribution of the final products to the final consumers. This research mainly focuses at selected supermarkets. However, Crown Beverages Limited Sales Annual Reports of 2018 – 2019 have shown that the consumption rate reduced due to limited access of the products in some parts of the country, stock outs in the markets due to delay in distribution, distorted information about the actual demand, expiry among others which was attributed to inadequate management of the finished products from the production plant to the market (Crown Beverages Limited, 2019). Therefore, implementation of VMI between CBL and selected supermarkets in the five divisions of Kampala district may eliminate the above-mentioned problems, this study therefore intended to examine the effect of Vendor Managed Inventory on inventory control in selected supermarkets in the divisions of Kampala district while focusing on the products of crown Beverages Limited.

1.2 Problem statement

In Uganda, Crown Beverages Limited a company that produces soft drinks (soda) deals with a chain of distributers including supermarkets to supply its products to the customers.

Supermarkets are challenged with costs of stock-outs, expiries, increased transportation costs, distorted information about demand due to pressure from the company which all affect service levels (Crown Beverages Limited, 2018) and this makes their performance in inventory control still wanting. For example, Shoprite financial report, 2018 indicate that purchases for beverages were excess by 8%, Mega Standard Supermarket in Kampala indicated an excess purchase of beverage drinks by 6% (Mega Standard Supermarket, 2017). Kenjoy Supermarket (2017) indicated low annual profits made on beverage products by 4% of the expected profits due to stock-outs. Jazz, Best and Buy and Urban Supermarkets reported a huge stock of expired soda supplied by CBL by 7%, 5%, 5% respectively of the total annual supplies in 2017 (Crown Beverages Limited, 2017). Therefore, it is from this perspective that CBL supplies directly to the shelves of selected supermarkets in Kampala.

However, despite the efforts in place, there is still a challenge of product stock outs in supermarkets. This could be due to communication challenges between the Vendor and the selected supermarkets, product expiries, poor planning which are assumed to be as a result of poor inventory control. If this situation is ignored, it will greatly affect the profit margin of the selected supermarkets and CBL as a vendor. Furthermore, many studies about inventory management have been carried out by many researchers, previous studies include Nabyama (2018) who did a study about VMI in retail supermarkets, Yerpude and Tarun (2017) did a study about VMI in operations with internet of things data, Kaligirwa (2018) did VMI and general performance of an organization, and Tanskanen, Holmstrom, Elfving, and Talvitie (2009) did a study about VMI in construction industry. There is evidence that no study has been done on VMI and Inventory control focusing on the products of Crown Beverage in supermarkets, it was therefore from this setting that an investigation was intended on examining the effect of Vendor Managed Inventory on inventory control of Crown Beverage's products in selected supermarkets in the divisions of Kampala district.

1.3 General objective

To examine the influence of Vendor Managed Inventory on Inventory control on selected Supermarkets in Kampala district.

1.4 Specific objectives

1. To assess the effect of inventory planning on inventory control of selected Supermarkets in Kampala district.
2. To assess the effect of information systems application on inventory control of selected Supermarkets in Kampala district.
3. To assess the effect of Supplier-Customer collaborations on inventory control of selected Supermarkets in Kampala district.
4. To assess the effect of inventory planning, information systems application and supplier-customer collaborations on inventory control in selected supermarkets in Kampala district.

1.5 Research hypothesis

H_1: Inventory planning has a significant effect on inventory control of selected Supermarkets in Kampala district

H_2: Information systems application has a significant effect on inventory control of selected Supermarkets in Kampala district

H_3: Supplier-Customer collaborations have a significant effect on inventory control of selected Supermarkets in Kampala district

H_4: Inventory planning, information systems application and supplier-customer collaborations have a significant effect on inventory control in selected supermarkets in Kampala district.

1.6 Scope of the study

1.6.1 Content scope

The survey focused on VMI and inventory control of the products of Crown Beverages Limited in selected supermarkets in Kampala district. The independent variable was measured using Inventory planning, information systems application and Supplier-Customer collaborations, while the dependent variable was measured using reduced transportation costs, lower inventory costs and product availability in the market. The researcher focused on this content scope because it provided enough evidence concerning VMI and stock control.

1.6.2 Geographical scope

The survey was carried out in selected supermarkets with in the divisions of Kampala district which include Makindye Division, Kawempe Division, Rubaga Division, Nakawa Division and Kampala central Division which sell products of CBL, the list of supermarkets selected in respective divisions is in Figure 2 in chapter 3. The target population included supermarket employees who included the supermarket general managers, Purchasing officers, administrative assistants, supermarket attendants, cashiers and accountants. The researcher targeted the above categories of employees because these are the immediate customers to CBL who are handling the largest percentage of the soft drinks before they reach the final customers which makes them have relevant information of the topic under research.

1.6.3 Time scope

For the case of data collection, the researcher considered a period of 2020 since primary data was required. However, the study considered a period ranging from 1990s to date for the case of document review and literature review. The researcher considered this time for document and literature review reason being that some of the practices were invented long time ago and

the researcher assumed that the information within that time frame was relevant to build on the problem case.

1.7 Study significance

The investigation may be used by the investors and company management team in identifying the challenges of VMI in terms of inventory management and suggest possible answers to overcome them.

This study is planned to add literature, and provide reference to other future researchers and academicians to do more investigation in about VMI and the control of Inventory.

The investigation findings may be used to explore mechanisms through which the different industries can enhance their relationships with the retailers and distributors and also formulate strategies for development of their businesses.

The study may facilitate the government policy makers while formulating policies of improving the inventory management system in the supply chain in the business world. Furthermore, the study findings may help to highlight challenges and weaknesses of VMI currently experienced in supermarkets and suggest solutions to overcome them through appropriate decisions.

1.8 Justification of the study

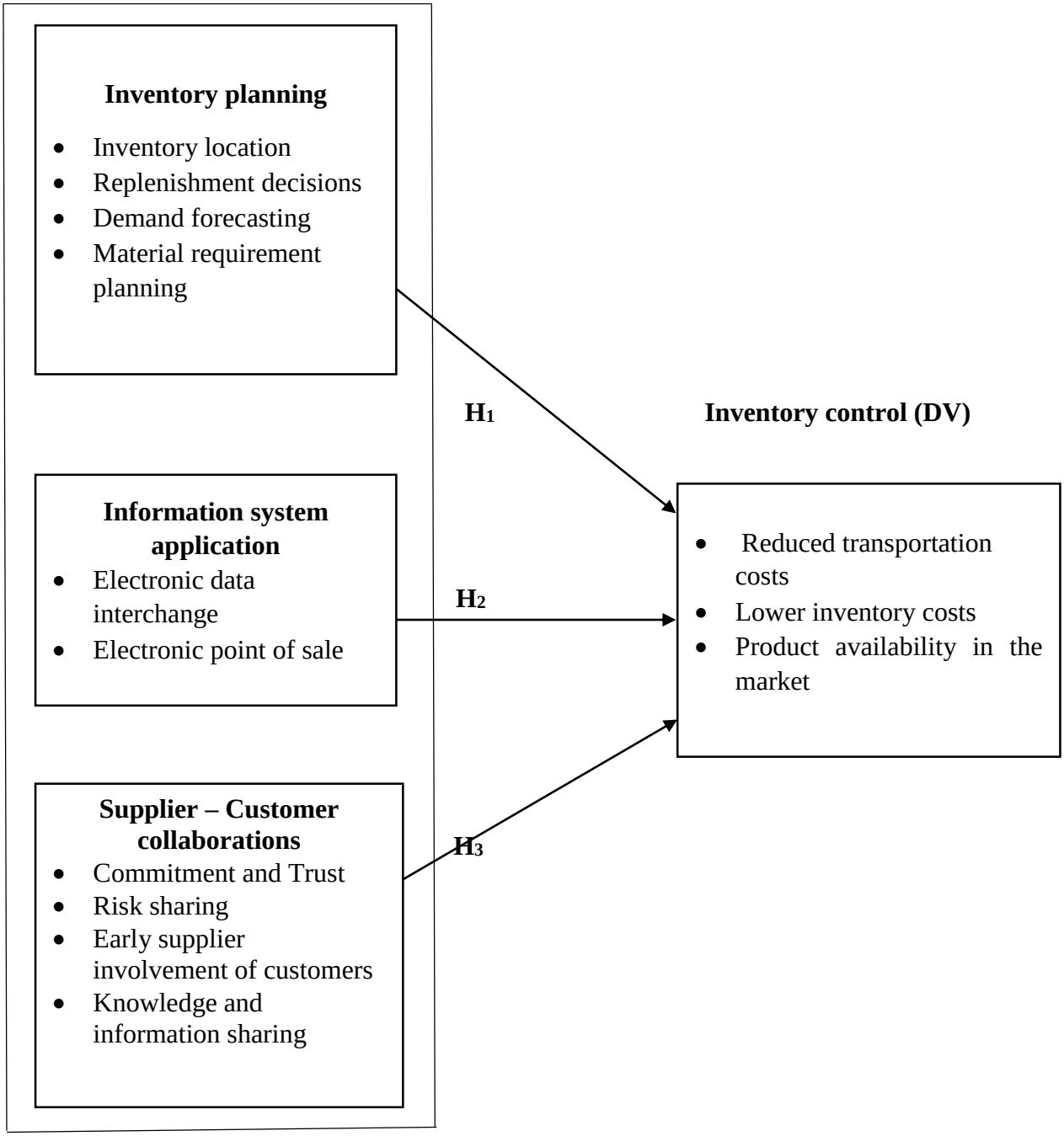
Vendor Managed Inventory ensures proper management of inventory to eliminate problems of the supply chain. These problems are stock-outs, inflexibility of the supply chain partners, bullwhip, expiry of stock and absence of the products on the market. These similar problems are experienced in Crown Beverages Limited with her supermarket customers who keep and sale her products giving the study a strong stand to be undertaken to ascertain how the implementation of VMI can influence inventory control of the company.

Heikilla (2002) also asserts that the main bottleneck among most organizations in Uganda is the desire for increased efficiency while at the same time registering the desired service to the customer. There have been several accusations of poor inventory management techniques in a number of organizations in Uganda, which has hindered their ability to meet customer expectations (Namagembe, Munene, Muhwezi & Eyaa, 2012). The observations made by different scholars as indicated herein has encouraged the study.

1.9 Conceptual framework

The conceptual framework displays the relationship between the survey variables thus the independent and dependent while using the approach of many to one.

Vendor managed Inventory (IV)



Source: Modified from: (Cooper, Lambert and Pagh 1997; Obura, 2015)

Figure 1. 1: Conceptual framework

The conceptual framework is an illustration of the conceptualised relationship between Vendor Managed Inventory as the independent variable and inventory control in soft drinks industry as the dependent variable. The independent variable is conceptualised as Supplier-Customer collaborations, information systems application and inventory planning while the dependent variable is conceptualised as product availability in the market, lower inventory costs and reduced transportation costs.

The conceptual framework is based on an assumption that with better inventory planning, having in place suitable information systems application and enhancing supplier-customer collaborations would positively contribute to managing inventory of soft drinks industry particularly CBL, in terms of lower inventory costs, reduced transportation costs, and product availability in the market. The assumption expressed in the conceptual framework echoes well with the Relationship Marketing Theory since it is based on the main assumption that the inventory control of super markets lies largely with how the VMI system is managed in terms of building relationships, sharing information and proper inventory planning (Nabyama, 2018). This has formed the foundation of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This survey chapter dispenses the literature about VMI together with inventory control among the supermarkets in Kampala district. This section presents the related literature on empirical and theoretical studies. The literature in this study will be reviewed basing on empirical works and studies by other research scholars regarding VMI and inventory control.

2.1 Theoretical review

This study will be informed by Relationship Marketing Theory developed by Berry (1983). Relationship marketing refers to the activities of marketing which initiates, develops, and maintains exchange relations successfully (Morgan and Hunt, 1994).

The theory features commitment and alliances that are imperative in the study of the various relationships existing between different phenomenon which are related to buyer-supplier relationship especially in the aspect of information study (Wilson, 1995). Toften and Oslen (2003) noted that Relationship marketing theory explains a relationship plus information existing between various buyers and sellers.

Morgan and Hunt (1994) asserted the forms of relationship marketing which include partnering between manufacturers and respective vendors, procurement through Just in Time and total quality management, finally the relational exchanges of distribution channels.

Long-term relationships that are successful tend to have a strong record and as an outcome, the present or former behaviors of the partners can affect interactions at a later stage (Jraisat, 2010). In relationship marketing, the buyer and seller are both interested in provision of a satisfying exchange. The theory looks further than the immediate post purchase-exchange process and

tries to use experience and more personal ties to provide a more personalized purchase for the customer. (Wilson, 1995). In line with Alvey (2003)'s argument cited by Nabyama (2018) customer relationship management software has facilitated relationship marketing by analyzing and tracking these customer tastes and preferences. The concept of relationship marketing applies to a situation where there are competitive product options that customers can choose from with continued desire for those products or services (Morgan & Hunt, 1994).

The Relationship Marketing Theory concludes that through interaction, transaction analysis, observation, information sharing and use the experience with customers, the soft drinks firms and immediate customers who are the depots, wholesalers, supermarkets and retail shops are able to create stronger connections, personalize and customize preferences of their products, inventory policies, plans, systems and stores layouts to meet the needs of the customer and hence result into improved performance. The Relationship Marketing Theory was therefore applicable to the survey because the main constructs of relationship management, information systems and use of just in time as a mode of inventory distribution was the basis of conceptualization of this research.

2.2 Conceptual review

2.2.1 Vendor Managed Inventory

VMI is a modernized way of managing inventory and ensuring satisfaction through allowing suppliers to completely become in charge of restocking inventory while accessing the inventory data of the retailers. This activity enables the client to receive items required at the time when required. The clients therefore must share their requirements on time for effective and proper planning. (Atnafu & Balda, 2018).

VMI is defined as the optimization of the supply chain execution where the supplier freely accesses the inventory data of the customers while in charge of maintaining the inventory levels required by different customers (Flavin, 2002).

VMI replenishment model highlights that the manufacturer freely accesses the customer's stock level and point of sale data. For supply chain preface optimization, the supplier maintains the inventory plans of the customers through reviewing the schedules regularly (including reviewing the level of inventory desired, replenishment time and the replenishment product quantity) and also generates the order accordingly (Leung et al., 2016)

The supplier initiates and generates the transactions of the order which are normally initiated by the buying firm. In addition, the company relinquishes the domination of her decision of re-supplying while transferring to the supplier the stock financial responsibilities (Waller, Johnson & Davis, 1999).2.3

Cetinkaya and Lee (2000) stated that in VMI, the effect of bullwhip in the supply chain which results from information transaction distortion between downstream and upstream is minimized, and both suppliers and customers benefit from this. Suppliers can obtain their customer's information such as product consumption patterns and inventory levels and locations so that they can estimate their ability to fulfil market demand effectively and arrange efficient vehicle scheduling (Chan, Federgruen & Simchi-Levi, 1998).

Inventory and transportation costs can be saved by deciding where the customers should be replenished, when the replenishment should be made and how many shipments should be delivered (Chan et al., 1998; Centinkaya & Lee, 2000; Kleywegt, Nori & Savelsbergh, 2002). Customers can significantly reduce the frequency of stock outs (Cetinkaya & Lee, 2000) and hence increase service levels by increasing the reliability of product availability (Kleywegt et al., 2002).

Kilonzo, Memba and Njeru (2016) stated that poor inventory control results into inventory obsolete, and this is a charge which negatively affects the firm's operational performance. Aviv and Federgruen (1998) in their survey "The Operational benefit of Information Sharing and VMI programs" concluded that |Managing inventory by the Vendor is significant in reducing the costs of operation of affirm through sharing information with the supplier.

2.3 Empirical Literature

2.3.1 The effect inventory planning on inventory control

Do Rego and de Mesquita (2015) conducted an investigation on automotive spare parts to discover the influence of inventory planning on inventory control. Study findings indicated that inventory planning had a positive and significant effect on inventory control. This indicated inventory planning through demand forecasting was crucial in the improvement in inventory control. Do Rego and de Mesquita (2015) further noted that management of the automotive spare parts made demand forecast to determine the estimated sales and supplies required.

In Vendor Managed Inventory, customer will give the demand forecast to the manufacturer, which will be used in the determination of stock up level at the customer's premises. Furthermore, the information shall be applied to use through determining the frequencies of inventory delivery shipments from the warehouse of the supplier to the warehouse of the client (Irungu & Wanjau, 2011)

Demand forecasting refers to the process of estimating future expected sales. Most organizations experience increased customer expectations due to changes in the market dynamics for example change in demand and technology. As a result, organizations find ways of refining their forecasting in order to manage demand so as to ensure effective inventory management and satisfy their customers (Mann, Head & Yuan, 2014). Kang and Gershwin (2005) concluded in their investigation highlighting the lack of collaboration with in the

members of the supply chain partners usually result into inaccurate inventory records and poor demand forecast. Raman, Tachizawa and Ginemez (2001) argue that lack of collaboration in the supply chain results into the mismatch between inventory records and physical stock.

Eckert (2007) concluded in his study that demand forecasting is a key determinant of effective inventory planning and flow, better inventory flow facilitates accurate demand forecast and better inventory management in retail supermarkets, through meeting customer satisfaction. Wilding (2003) argues that customers are satisfied when orders for suppliers are delivered on time which results from accurately forecasting demand. Demand forecasting requires flexibility, implying the extent of the supplier's willingness to make changes in response to change in consumer needs. Wilding (2003) also concluded that sellers had inventory located where the products could easily be accessed by customers and this helped to save time of the customers whenever they would purchase goods.

Chairul, Mokh and Rifiqi (2017) conducted a study about management of raw materials in oil production companies, and he noted that lot for lot technique is an essential aspect in inventory control. It determines the amount of raw materials required for a respective quantity planned for production. Heizer (2014) defines lot for lot as a technique that produces the right quantities of inventory to meet prevailing demand plans made. This enables effective inventory control, demand satisfaction and reduced inventory holding costs because there is scheduling the delivery of raw materials in certain intervals depending on the demand of those materials in a certain period of time. Heizer (2014) established in his study that companies were ensuring that enough stock is available on time as planned to meet the customer needs.

Leung et al. (2016) in their research determined the influence of managing inventory on essential items' stock-outs in Sub-Saharan Africa by using simulation. Leung et al. (2016) highlighted that there were inventory plans of the drugs and this limited stock outs drugs that

were essential. The study also indicated that various investigations showed similar outcomes and related them to the use of poor monthly issued and not capturing the variability in lead time in the current policies of inventory management. Order replenishment policy is a main element in VMI (Gronalt & Rauch, 2008)

Through VMI, the supplier is able to make the decisions of replenishment in relation to the operating needs and highlights the demand trends. VMI enables efficient administration in the process of stock (Holmstrom, 1998; Waller, Johnson & Davis, 1999). Hurdogan (2010) also concluded in his research that vendors replenish their distributors' inventory on appropriate levels as agreed by their customers and ensures that timely stock is available as planned in order to meet the market demand of the products. Furthermore, Yoa, Evers and Desner (2007); Vigtil (2007) and Sari (2008) all concluded in their studies that replenishment decision is a full responsibility of the supplier according to the operational needs of the customer in VMI.

VMI is an approach in procurement which involves stock management being a responsibility of the by the manufacturer or supplier Vendor Managed and updating stock and providing relevant inventory information for effective stock control. This approach opposes the pull scheduling principle because the previous is concerned with the quantity to produce and transfer to the retailer's store. (Horrison, Alan & Hoek, 2008).

VMI element is mainly about the kind of information about demand given to the supplier for proper control of the inventory for the customer. Many researchers investigated about different forms of demand information that is commonly communicated and these include among others; production schedule, sales data, inventory level, stock withdrawal, in transit goods, return and incoming order (Vigtil, 2007; De Toni & Zamolo, 2005).

Sharing the information about demand gives enough time to the supplier to plan for replenishment. (Kaipia, Holmstrom &Tanskanen, 2002) through effective and improved

production schedules, as a result, there are stable production plans (De Toni & Zamolo, 2005). Sharing information between the manufacture and the seller increases the process of replenishment, enables easy flow of materials and finished goods, increases forecast accuracy and high level of customer service by ensuring the products are available (Irunu & Wanjau, 2011).

Vendor Management Inventory approach discusses the level at which the supplier is allowed to make decisions about replenishment and also decide on the time of delivery. The decision of replenishment can fully be made by the supplier (Yoa, Evers & Dresner, 2007; Vigtil, 2007; Sari, 2008) in this case they decide both on delivery time and the quantity to be delivered and also the item location (Elvander, Sarpola & Mattsson, 2007; Kuk; 2004). This enables the supplier to become flexible and free while I the process of controlling inventory. Yao et al. (2007) in their investigation concluded that suppliers have the authority to hold orders until the dispatch time reaches as per agreement. The agreed quantity for dispatch will accumulate even before the placed order is dispatched, as a result, this enables the supplier to improve the optimization of both his distribution and manufacturing (Cetinkaya & Lee, 2000) while minimizing expenses that come as a result of stock outs through customer order prioritization (Waller, Johnson & Davis, 1999).

Elvander et al. (2007) refers Location of inventory as a place where inventory is physically stored, which is controlled by the supplier in the practice of VMI. The location of inventory can be either at the premises of the customers or the suppliers (Danielsson & Lundqvist, 2005; Shapiro, 2007; Elvander et al., 2007)). Inventory can be at the premises of the customer or at the production line of the manufacture or at the premises of the retailer (Hines, Lamming, Jones, Cousins & Rich, 2000) or the warehouse of the customer (Shapiro, 2007; Elvander et

al., 2007), For a high level of responsiveness to be a achieved while using inventory however, large a mounts of inventory should be located close to the customers.

2.3.2 The effect of information systems application on inventory control.

Ruankaew and Williams (2013) investigated the effect of information system application on inventory control of food manufacturing industry in Pennsylvania, United States and established that information system application had a significant positive effect on inventory control. It was established that inventory inaccuracy has a negative effect on the performance and the resources of the organization in terms of cost, time and risk. Oballah, Waiganjo and Wachiiuri (2015) concluded in their study that the impact of the practices of inventory management on the performance of an organization in the government health facility in Kenyatta National Hospital and established that inventory shrinkage has a negative effect which could be reduced by inventory accuracy through application of Information systems.

Kithinji (2015) examined the influence of information technology on management of inventory of supermarkets in the city Nairobi City and indicated that Supermarkets need to put more investment in modern technologies like ICT in order to minimize operational costs like costs of communication, enabling integration, and for improved and efficient general performance of the organization while enhancing sharing of information and communication among the partners of the supply chain partners, this results into improvement in performance.

Kazim (2008) stated that the most important element in VMI is exchanging information between supplies and customers for example information about the current levels of inventory. Barcoding refers to the automated technique of managing inventory where series of vertical lines which are parallel are used to allocate a distinctive code to the items. A bar code is a combination of many sequences which create distinctive characters or numbers that are used in identifying the item (Encarta, 2009).

Bar coding technology enables effective inventory management at the level of a warehouse through enabling stock movements within the warehouse limits (Kenneth, 2002) for example the Electronic Point of Sale (EPOs). Bar code electronic system I mainly to automatically truck the inventory. In addition, it accelerates information and product flow throughout the entire organization (Wanjoi, Mugo & Wagoki, 2013).

Electronic Data Interchange (EDI) refers to essential tool in management of supply chain which gives a way to transfer information between the members of the supply chain (Janssens, 2011). The data in EDI is sent from an organization's computer to another organization's computer in an organized and fixed way.

Direct communication between organizations and information sharing is enabled through the EDI, which is the transmission of receiving of structured data by the technology systems of the supply chain members devoid of individual mediation through EDI, the transference of organized data by accepted information between systems of computers is executed by means of electronic (Jessop, 1999) as cited by Nabyama (2018).

As the system of EDI connects the customer's organization with its manufactures, information on delivery schedules is easily communicated to the vendor can, and there is instant conveyance of message from the maiden destination without additional decomposition in the course of transmission. Electronic point of sales is also applied in inventory management. The main objective of EFDI is to survey and become in charge of the information resulting from the stocks sold through the EPS, checking and providing immediate report on sells, confirmation of items, verification, and identifying transaction changes while enabling the sending out intra-and-inter-stores messages is made possible (Horrison, Alan & Hoek, 2008).

This device enables storage f stock as per prevailing, obsolescence reduction and enhanced stock deterioration, limited theft chances and providing information to the buyers. As a result, this results into improved customer service and a better organizational financial performance (Lysons, Adeyemi & Arnold, 2006). VMI requires suppliers to monitor inventory and information is generated after completing the procurement process (Horrison, Alan & Hoek, 2008).

2.3.3 The influence of Supplier- Customer collaborations on inventory control

Guillaume and Rauch (2008) stated that the buyer-supplier trust and relationship trust, essence of Information Communication Technology (ICT) structure and sharing data positively affects VMI.

An important aspect of VMI is strategic partnership or strategic alliance among the buying firms and the selling firms (Tyan & Wee, 2003). VMI requires a mutual understanding between the buyers and the sellers. VMI requires a firm transferring her inventory planning to the selling firm while the selling firm owns the firms' inventory and ensures efficient delivery to the final consumers as per demand. Information sharing is very important due to uncertainties from the final consumers due to the shortened life cycle and increased request for customized products buy the final consumers, this requires flexibility in supply chain hence making strategic partnership essential (Tyan & Wee, 2003).

Sazani (2004) asserts that commitment and trust between buyers and sellers are important aspects in any established business establishment. Trust enables business issues be solved between the buyers and suppliers in a good faith through coming up with a mutual agreement which results into achieving the same objective. With time, trust in business will change into deeper understanding levels between commercial partners resulting into a contract.8kl;

The aspect of strategic alliance in business is an important element which results into VMI. The members of the supply chain must operate in the same direction to attain a competitive advantage through meeting the final consumer' requirement and meet the prevailing demand. In strategic alliance, information sharing is very key between partners in order to provide a better service level. (Sazani, 2004).

Nabyama (2018) indicated in his study that having a strong collaboration between the supplier and the customer has a number of benefits, including among others inventory risk sharing, inventory cost reduction to the customer and improved customer service levels. According to Centinkaya and Lee (2000), a strong relationship between the buyer and the seller enables inventory risk sharing, reduces the costs of carrying and managing inventory, stock-out and enables inventory synchronization and decisions regarding stock transportation. In the same way, Radzuan, Udin, Othman, Anuar, and Osman (2015) asserted in their investigation that VMI contributes to better service to the customers through sharing inventory knowledge, just on time delivery of products when required in order to eliminate uncertainties related to demand.

Mukopi and Iravo (2015) surveyed the influence of the four components of inventory management; Supplier- Customer collaborations, strategic partnership, lean inventory management system, inventory management information system, and inventory control legal policies of sugar manufacturing companies in Kenya Sugar Belt. The investigation was by distributing 30 questionnaires to procurement professions selected from Kenya's companies that manufacture sugar. The inventory component were used as the independent variable while inventory control was the dependent variable in the study. The study results revealed that the components of inventory management have a positive significant on inventor control of the companies that manufacture sugar in Kenya having used descriptive statistics and regression

analysis while analyzing data. From the results therefore, it was concluded that VMI enables application of JIT inventory delivery technique, stock risk sharing between the vendor and the customer, reliability of the vendor in the supply chain and information sharing, these aspects closely relate to the study findings.

Johnsen (2009) stated in his study that early supplier involvement of customers gives the customers an opportunity to participate in the process of developing a new product at the initial stage. Allen and Wilburn (2002) concluded that transferring knowledge and sharing information enables firms to learn from each other which results into development of new processes encourages innovations of the products. This justifies the need for the current study.

2.4 Knowledge gap

Related literature concerning VMI and Inventory Control has been reviewed carefully and emphasis has been found on the generalization of findings in terms of the effect of VMI on organizational or operational performance. However, research specifically addressing the effect of VMI on inventory control in soft drink industry is limited and scanty. Nabyama (2018) recommended researchers to conduct further study beyond supermarket industry and this has promoted the researcher to undertake a study on the influence of VMI on inventory control of Crown Beverage's products focusing on supermarkets to understand how VMI can be implemented with the supermarket owners to manage stock of soft drinks. (Crown Beverages Limited, 2018; Crown Beverages Limited, 2019).

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter explains the methods that were followed while undertaking an investigation on influence of vendor managed inventory on inventory control of CBL's products in selected supermarkets in the five divisions of Kampala district. It specifically highlights the design of research design to be employed in the investigation, population of the study, sample size description and selection, the techniques of sampling that will be employed, data collection procedures, data collection methods, and analysis. In addition, this chapter addresses the study instruments' validity and reliability, the ethical considerations and finally the limitations of the study.

3.1 Research design

The research design indicates the research strategy choices, choices of the data collection methods, data analysis procedures and the scope of the study (Saunder, Lewis & Thornhill, 2009). Therefore, the study used a cross sectional survey design to enable data collection from a sizable population economically, the researcher has considered this type of design since the data is collected at one point in time and the research can be conducted without the need of follow-up thus making it less expensive to conduct research and time saving (Di Girolamo & Mans, 2019). Using this design, the study employed both quantitative and qualitative approaches of collecting data Quantitative approaches involved use of numeric data and is sought to quantify and establish the influence of VMI on Inventory control of CBL's products in selected Supermarkets in the five divisions of Kampala district whereas qualitative approaches were used to collect non-numeric data.

3.2 Study population.

Kampala as a district has very many supermarkets that sell the products of CBL, however, very few of them carry out VMI with CBL as the vendor. The study therefore targeted a study population of 230 staff members from 19 selected supermarkets with in the divisions of Kampala district (Crown Beverages Limited, 2020). These categories of respondents were selected because they had a direct contact with the vendor and also control the inventory. The study considered all the five divisions in Kampala district where the supermarkets are located and these divisions include; Nakawa, Kampala central, Lubaga, Kawempe and Makindye divisions.

3.3 Sample size determination

Sample size is described as the number of samples of individuals measured or observations used in an investigation or experiment or survey (Zamboni, 2018). The researcher used Krejice and Morgan (1970) formula as indicated below to determine the sample size of the survey.

$$S = \frac{X^2 NP(1-P)}{d^2(N-1) + X^2 P(1-P)}$$

`Where: S denotes the study sample size; X^2 represents the table value of chi-square for 1 degree of freedom at the desired confidence level, N represents the target population size, P represents the population proportion (p=0.50), and d represents the degree of accuracy (d=0.05).

$$S = \frac{3.841*230*0.5*0.5}{0.05^2*229+3.841*0.5*0.5}$$

S =144, thus the study will use a sample of 144 respondents

3.4 Sampling techniques

Taherdoost (2016) acknowledges that sampling technigues involve both probability and non-prabability sampling techniques. This study specifically employed both simple random and purposive sampling technique while seecting respondents for the survey. The study used simple random sampling technique to select members of staff from selected supermarkets for structured interview. This sampling technique was considered because it gives equal chances to respondents, reduce collecting biased data and increases the validity of the results (Amin, 2005). On the other hand, the researcher employed purposive sampling to select key informants (supermarket managers) for semi-structured interviews. Purposive sampling technique was chosen since it enabled the investigator to select respondents with wide experience and knowledge concerning VMI and Inventory control. The blow table guided the sampling;

Table 3. 1: Sampling techniques, population and sample size

Category	Super markets	No of Super markets	Population	Sample size	Sampling Techniques
Kampala central division	Best buy super market, Capital shoppers, Shoprite, Mega standard, Standard supermarket and Urban supermarket	6	67	45	Simple random sampling
Kawempe division	Master supermarket,	1	19	11	Simple random sampling
Makindye division	Embassy supermarket, Kenjoy supermarket, Shoprite,	3	32	16	Simple random sampling
Nakawa division	Capital shoppers, Frain supermarket Ltd, Game discount world, Jazz super market, Kenjoy supermarket, Mwebale supermarket, Quality supermarket, Shoprite	8	90	55	Simple random sampling
Rubaga division	Kenjoy super market	1	17	12	Simple random sampling
Supermarket Manager		5	5	5	Purposive Sampling
Total		19	230	144	

Source: Crown Beverages Limited (2020)

3.5 Data types and sources

The survey was supported by both primary and secondary data. Primary data sources were considered suitable for this investigation and the researcher went to the field with appropriate

instruments for data collection to gather fast hand information from targeted respondents by support of a questionnaire and interview guide. Secondary data involved extracting information from already existing data sources like inventory and sales reports as well as online published information.

3.6 Data collection methods

This study utilized questionnaire survey method, interview method and document review methods as explained below;

3.6.1 Questionnaire survey method

The questionnaire survey method is vital in gathering information on individual perspectives from a large population size (Jones, Baxter & Khanduja, 2013). This method was used when obtaining information from staff members of the supermarkets through closed ended structured questions and it enables data collection from respondents in the shortest time possible.

3.6.2 Interview method

The interview method is a technique of collecting data which invlve a verbal communication between the researcher and the respondent (Mathers, Fox & Hunn, 2000). The interview method was helpful in interviewing key informants like supermarket managers and accountants where they were allowed to talk freely about whatever they wish about VMI and Inventory control of supermarkets in order to get a broader view and in-depth information.

3.6.3 Document Review method.

Document review method includes data collection from secondary sources of data for example reports, journals and unpublished reports in order to get a wider picture of the research study. Bagnoli and Clark (2010) stated that the documents reviewed may be internal documents such as organizational records, reports and documents or externals such as articles, internet publication and research. This method was suitable in providing information available from

the supermarkets' documents to the researcher which relate to the subject under study. Documents such as stock movement reports and sales reports were reviewed using this method. An in-depth analysis of the documents was undertaken in order to obtain information which was relevant to the study by the researcher. These documents were obtained from selected supermarkets in Kampala district, CBL and the internet.

3.7 Data collection instruments

Abawi (2013) contends that accurate and systematic instruments of collecting data are critical while conducting research. Similar to this, the current used structured questionnaire and interview guide in course of collecting data and are explained below.

3.7.1 Structured questionnaire

A Self-administered structured questionnaire was developed using the recommended guidelines by various scholars such as (Kothari, 2004; Saunders, Lewis & Thornhill, 2009) to collect primary data and this was delivered to the respondents by the researcher at selected supermarkets. In the sections of the questionnaire, respondents were given clear instructions on how to fill and complete the items, thus the questionnaire was structured with closed ended questions where the responses were predetermined. The questionnaire was refined once the instrument was piloted. The statements on the key study variables in the questionnaire were scored on a five-point Likert scale of 5- Strongly Agree; 4- Agree; 3- Not Sure; 2- Disagree; and 1- Strongly Disagree. This was used to get quantifiable primary data from individual respondents.

3.7.2 Interview guide

For qualitative data, an interview guide was used in data collection from key respondents like managers of selected supermarkets. The researcher designed a semi-structured interview guide which was employed during interview with key respondents. The questions entailed in the

interview guide were open ended to enable the researcher to get broad and detailed information on VMI and stock control in beverage industry as suggested by Sekeran (2010). All interviews for this study were conducted face to face and this took only 20 minutes on every respondent.

3.7.3 Document review checklist.

Document review checklist is mainly used while gathering data which is hardly collected using either a structured questionnaire or an interview guide (Wandera, 2017). The documents that were included in the document review checklist were stock movement reports, financial reports and sales reports. These documents were critically analyzed to determine their validity and authenticity to the study, and valuable relevant information was obtained and used in conclusion of the study.

3.8 Measurement of Variables of the study.

The independent variable in this study was Vendor Managed Inventory while the dependent variable was Inventory control. The dimensions of VMI were Inventory planning, Information system application and Supplier-customer collaborations. These were measured basing on the existing literature because VMI lacks a standard operation. In the same way of measurement, dimensions on Inventory control included reduced transportation costs, lowering inventory costs and product availability in the market shall be measured.

The variables were channeled into observable and measurable elements which enabled the development of an index of the concept. The items that were used to measure both the independent and dependent variables' constructs were put on a five point Likert scale namely: 5-Strongly agree; 4- Agree; 3- Not sure; 2- Disagree; and 1- Strongly disagree and means were captured to enable the analysis, a similar measurement was adopted by other researchers for instance (Tarca, 2004; Mukokoma & Tushabwomwe, 2019).

3.9 Data collection procedures

After successfully defending the proposal, the researcher sought an approval through introductory letter from the Graduate school of Kyambogo University to be used to seek permission from selected supermarkets within Kampala district to carry out research study titled "*Vendor managed inventory and stock control in the products of Crown Beverages Limited in selected supermarkets in Kampala District* " and to ensure that high levels of ethics are adhered to throughout the entire process of data collection. The researcher then got permission from CBL to allow her access supermarkets where VMI was carried out within the divisions of Kampala district to collect data. The data collection package included a cover letter and a questionnaire, the cover letter was used to explain the purpose of the study to the respondents.

3.10 Validity and Reliability of data instruments.

3.10.1 Validity

Kothari (2004) defines data validity as the ability of the research instruments to elicit the expected response from the target population. The researcher measured validity for the quantitative and qualitative data as explained below;

3.10.1.1 Validity for qualitative

The interview guide was given to the researcher's supervisors to seek their opinion about the adequacy and representativeness of the instruments to ensure that it covers all the variables being measured such that invalid items in the instrument are removed.

3.10.1.2 Validity for quantitative

To test whether the questionnaire was valid for the study, validity test was conducted for content and criteria to test well how the tool used is representative and captures association between the variables as well as a concept measure (Saunders et al., 2003). The researcher

computed the content validity Index (CVI) through dividing the number of items in the instrument that were relevant to the study with the total number of items in the instrument. The CVI results that are greater or equal to 0.7 was a sign that the instrument was valid otherwise the instrument would not be declared reliable for the study as argued by Amin (2005). The CVI formula is clearly elaborated below;

$$CVI = \frac{\text{Total Number of items relevant to the study}}{\text{Total Number of items in the Instrument}} = \frac{36}{41} = 0.878$$

3.10.2 Reliability

According to Cohen, Manion and Morrison (2007) the reliability of a measure indicates the extent to which the measure is without bias and offer consistent results a cross various items in the instrument hence stability and consistency. In order to ensure reliability of the research instruments, a pilot study was conducted on a sample of 20 respondents from CBL staff using the questionnaire to test for its reliability before carrying out the major study from Supermarkets.

3.10.2.1 Reliability for qualitative

The researcher ensured reliability for qualitative instrument through constant data comparison and comprehensive data use as suggested by Silverman (2009). As data was extracted from the original sources, the researchers verified their accuracy in terms of form and context with constant comparison.

3.10.2.2 Reliability for Quantitative

The reliability of the questionnaire was tested using Cronbach's Alpha coefficient. The study questionnaire would be declared reliable for the study when the computed Cronbach Alpha coefficient was 0.7 and above according to Hinton, Brownlow and Mcmurray (2004). The results from Table 3.2 show that the questionnaire was reliable for the study since Cronbach's

Alpha was 0.959 which was above 0.7. The Cronbach's Alpha coefficient results are presented in Table 3.2 below.

Table 3. 2: Reliability Statistics

Cronbach's Alpha	N of Items
.959	32

3.11 Data analysis

Data analysis refers to the process of inspecting, cleansing, transforming and modeling data with the aim of identifying useful information, suggesting conclusions and supporting decision making (Herrman, 2009). The researcher analyzed quantitative and qualitative data as indicated below;

3.11.1 Quantitative analysis.

Quantitative data from questionnaires was coded, and analysis was performed using Statistical Package for Social Scientists (SPSS) software. The analysis was conducted using descriptive and inferential statistics. During analysis, quantitative data was analyzed using descriptive statistics of frequencies, percentages, mean and standard deviation for each of the variables used in the study to show the distribution of responses on VMI and inventory control. Inferential statistics was used to assess the the influence of VMI on Inventory control of selected supermarkets in the divisions of Kampala district. Regression analysis was conducted to establish the influence of VMI on Inventory control of Supermarkets in Kampala. The Coefficient of variation (R^2) was established to measure the total variations in Inventory control of supermarkets that are explained by VMI.

3.11.2 Qualitative data analysis

All the qualitative data was collected using interview schedules and was put into meaningful and exhaustive data categories. Content analysis was used to analyze collected data to determine the adequacy of the information, credibility, usefulness, and consistency in regard

to the emerging variables from each question in the interview guide and discussions. (Saunders et al, 2009). Qualitative data was further analyzed by comparing it with the quantitative data findings.

3.12 Ethical consideration

A number of ethical issues were put into consideration by the researcher, and these included;

Confidentiality of respondents where neither their names nor numbers was relieved to avoid information given being traced to respondents. Instead identification numbers were assigned.

All collected data was only used for study purposes.

The researcher explained all the research procedures to the respondents before they took part in the survey and their informed consent was obtained.

All forms of literature were recognized in the entire survey by proper citing and accurate referencing.

Bias by the researcher was avoided in the whole survey such as interviews, data analysis and reporting.

3.13 Limitations of the study

In view of the following threats to validity, the researcher claimed allowable five percent margin of error at 0.05 level of significance. In order to minimize or eradicate the threats of the validity of the study findings, measures were indicated

Testing. The use of the research assistants would bring about inconsistency in the administration of the questioners in terms of time of administration, understanding of the items in the questionnaires, and explanations given to respondents. To minimize or eliminate this threat, the research assistants were oriented and briefed on the procedures to be done in data collection.

Attribution. Not all questionnaires were returned neither completely answered nor retrieved back due to circumstances on the part of the respondents such as travels, sickness and refusal/withdraw to participate. This was minimized with reserving more respondents by exceeding the minimum sample size.

COVID-19 pandemic affected the response rate in the field since some respondents refused to take part in the study due to fear of contracting the disease. To minimize this limitation, the researcher observed the government standard operating procedures (SOPs), when collecting data for example putting on face masks, observing social distance, frequently washing and sanitizing hands while at the supermarket premises.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.0 Introduction

This chapter highlights the presentation, analysis and interpretation of findings on the influence of Vendor managed inventory on Inventory control of Crown Beverage's products in selected supermarkets in Kampala district. The analysis involves the response rate, demographic characteristics, descriptive statistics, multivariate correlation, and multiple linear regression analysis.

4.1 Response rate

The study expected to target 144 respondents where 139 respondents were expected to be for structured interviews and 5 respondents were expected to be for key informant interviews. The breakdown of the response rate is presented below.

Table 4.1: Response rate

Category	**Expected structured and semi-structured interviews**	**Actual structured and semi-structured interviews**	**Response rate (%)**
Questionnaire	139	120	86.3%
Interviews	5	5	100%
Total	**144**	**125**	**86.8%**

Source: Primary data (2020)

The total response rate of the study was represented by 86.8%. Out of 139 structured questionnaires which were expected to be filled, only 120 actual questionnaires were filled and returned. In addition, all the 5 key informant interviews were carried out by the researcher as expected.

4.2 Demographic characteristics of the respondents

The demographic characteristics of respondents included; gender, age, education level, and period worked with the supermarket. The demographic findings are presented in table 2 below.

Table 4.2: Findings of the demographic characteristics of the respondents

Demographic Characteristics		
Gender	**Frequency**	**Percentage**
Male	55	45.8
Female	65	54.2
Total	120	100.0
Age bracket	**Frequency**	**Percentage**
19-25	41	34.2
26-30	52	43.3
31-45	14	11.7
46 and above	13	10.8
Total	120	100.0
Education level	**Frequency**	**Percentage**
Certificate	7	5.8
Diploma	31	25.8
Bachelor's Degree	69	57.5
Master's degree	13	10.8
Total	120	100.0
Period worked with the Supermarket	**Frequency**	**Percentage**
Less than 1 year	28	23.3
Between 1 and 5 years	55	45.8

Between 6 and 10 years	20	16.7
Above 10 years	17	14.2
Total	120	100.0

Source: Primary data (2020)

Table 4.2 summarizes the demographic characteristics of the respondents in the study. In regards to gender of respondents, the study found that more females (54.2%) dominated in the study while the least were males (45.8%). The findings represent gender balance in the study as well as gender balance in terms of employment in supermarkets. The research revealed that majority of the respondents were aged between 26 and 30 years (43.3%), followed by 34.2% of the respondents who were aged between 19 and 25 years, and smallest number of respondents were aged 46 years and above. The findings may imply that most of the supermarkets in the divisions of Kampala employ young people and therefore this may be the justification for an improvement in inventory control in supermarkets as revealed by the study. The study found out that most of the respondents were bachelor's degree holders (57.5%) and the minority were certificate holders as represented by 5.8%. The study outcomes may imply that the supermarkets in the divisions of Kampala employ majority of highly educated people which may be the basis for improved inventory control in the supermarkets.

The period worked with the supermarket was also crucial during the study investigation as it indicated different periods worked by respondents. The investigation revealed that a greater proportion of the respondents (45.8%) had worked for a period between 1 and 5 years and the minimum proportion (14.2%) had worked for a period above 10 years. This may imply that a greater percentage of respondents had worked for a longer period of time with supermarkets and this might have improved the inventory control as revealed by the study.

4.3 Descriptive statistics of the variables

The descriptive statistics were important in this study as they indicated the views or opinions of the respondents on the questions concerning a particular variable. They highlighted the means and standard deviations to present the level of agreement and disagreement on specific questions. The descriptive statistics on variables are presented in different sections below.

4.3.1 Descriptive findings on inventory planning

The respondents were tasked to indicate their opinions on the questions on inventory planning of Supermarkets in Kampala district. The opinions of the respondents were rated on a Likert scale from strongly disagree to strongly agree. The mean scores on statements which are above 3 represent high level of agreement and the mean scores which are less than 3 represent high level of disagreement on statements. The results are shown in table 4.3.

Table 4.3: Descriptive findings on inventory planning

Statements	Mean score	Std. Dev
The management of the supermarket makes demand forecast to determine the estimated sales and supplies required	3.67	.938
The supplier makes stock replenishment decisions according to the operating needs of the supermarket	3.92	.922
The supermarket has inventory located where the products can easily be accessed by customers	4.28	.830
The vendor updates supermarket stocks and provides sales information	3.70	1.254
There is use of Lot for Lot technique which enables the supermarket to receive the exact quantity of supplies as planned to meet the demand needs of the customers in the market	3.61	1.279

The Crown beverages Limited ensures that enough stock is available on time as planned to meet the customer needs	3.93	1.030
The supermarket has inventory plan of the products	4.18	.809
Demand forecast is always accurate	3.09	1.390
Information on delivery schedules is shared with the vendor	4.34	.655

Source: Primary data (2020)

The study outcomes highlighted in Table 4.3 indicate that the management of the supermarkets in the divisions of Kampala make demand forecast to determine the estimated sales and supplies required as shown by a greater mean of 3.67 and small standard deviation of 0.938, this finding was supported by a qualitative finding during the interview by respondent A who said;

> *"we make demand forecast basing on the level of demand which is projected depending on the season of the year. Consumers buy more soda during the festival season than other seasons, this could be due to the many functions that take place during this season."*

On the season of the year that take place at the end of the year. The findings indicate that suppliers make stock replenishment decisions according to the operating needs of the supermarkets since the mean score of 3.92 was greater than the average mean of 3. This finding was a firmed during the interview with respondent E who said;

> "*Pepsi replenishes its products in the supermarket, they deliver soda, offload it from the truck and places it in the supermarket. They monitor their stock movement and decide when to bring more soda*."

The supermarkets were found to have inventory located where the products can easily be accessed by customers as shown by mean results of 4.28 which are above 3.

The survey results reveal that the vendor updates supermarket stocks and provides sales information since the mean (3.7) was higher than the threshold of 3 and the standard deviation was also small. The study found that there is use of Lot for Lot technique which enables the supermarket to receive the exact quantity of supplies as planned to meet the demand needs of the customers in the market as indicated by a greater mean score of 3.61. The results from the study revealed that Crown beverages Limited ensures that enough stock is available on time as planned to meet the customer needs as shown by high level mean score of 3.93, this finding was confirmed by the researcher while reviewing the December 2020's stock movement report of CBL's products in Standard Supermarket in central division where no stock outs were identified, and the supermarket always had enough stock to meet customers' demand.

The findings indicated that supermarkets in the divisions of Kampala have inventory plan of their products and this was evident as shown by a mean score of 4.18 which is greater than 3. In terms of demand forecast, it was found that the demand forecast of supermarkets is always accurate as indicated by mean score of 3.09, in line with this, the researcher while reviewing the sales reports of some of the supermarkets in Nakawa division found out that receipts from the supplier are equal to the sales made in each period, this implies that demand forecast is always accurate. And lastly, it was established that information on delivery schedules is shared with the vendor.

4.3.2 Descriptive findings on Information System Application

The respondents gave their views on the statements on Information System Application of Supermarkets in Kampala district when they were asked. The views of the respondents were rated on a Likert scale as indicated in the questionnaire. The mean scores on statements which are above 3 represent high level of agreement and the mean scores which are less than 3 represent high level of disagreement on statements. The summary of the findings is highlighted in Table 4.4.

Table 4.4: Descriptive findings on Information System Application

Statements	Mean score	Std. Dev
There is electronic supply information sharing between Crown Beverages Limited and its supermarket customers	3.18	1.152
The sales from the supermarket are tracked using electronic point of sale	4.17	.813
The receipts on sales made by the supermarket are stored and transmitted using electronic system.	4.08	.784
The verification, checking and provision of immediate sales reports and changes in transactions are done electronically using the computer system	3.75	1.169
There is use of barcoding in counting supplies and sale of goods in the supermarket	4.48	.502
The vendor communicates with the supermarket through online	3.77	1.179
Information on inventory is easily shared with the vendor	4.35	.545

Source: Primary data (2020)

The descriptive statistics in Table 4.4 present the mean scores and standard deviations of the respondents' views on information system application in the supermarkets of Kampala divisions. It was clear from the study that there is electronic supply information sharing between Crown Beverages Limited and its supermarket customers as shown by a high level mean of 3.18 and a standard deviation of 1.152. The study revealed that the sales from the supermarket are tracked using electronic point of sale since majority of the respondents were in agreement with the statement (mean score= 4.17).

The findings revealed that the receipts on sales made by the supermarket are stored and transmitted using electronic system as shown by a greater mean score of 4.08 which was above the threshold of 3. The research findings indicate that the verification, checking and provision of immediate sales reports and changes in transactions are done electronically using the

computer system as revealed by high level mean score of 3.75 and small standard deviation of 1.169, this finding was supported by the qualitative findings of respondent B who elaborated that;

> "*We use Ezypos point of sale software in this supermarket which helps us to easily track sales, profits and stock movement*."

Respondent C further supported the finding through an interview by saying;

> "*We use ACCEO smart vendor system to manage stock and process orders placed by customers, all transactions are made electronically for effective stock control*."

The research found out that there is use of barcoding in counting supplies and sale of goods in the supermarket as shown by a mean score of 4.48 and a standard deviation of .502.

In terms of vendor communication, the findings revealed that the vendor communicates with the supermarket through online as shown by a mean score of 3.77 which is above 3 and a standard deviation of 1.179. Lastly, the research found out in the supermarkets of the divisions in Kampala that the information on inventory is easily shared with the vendor as shown by a mean score of 4.35 which is above 3.

4.3.3 Descriptive findings on Supplier- Customer collaborations

The respondents were told to give their views on the statements on Supplier- Customer collaborations of Supermarkets in Kampala district. The respondents' views were ranked on a Likert scale of five points as indicated in the questionnaire. However, it is noted that the mean scores on statements which are above 3 represent high level of agreement and the mean scores which are less than 3 represent high level of disagreement on statements. The results are summarized in Table 4.5.

Table 4.5: Descriptive findings on Supplier-Customer collaborations

Statements	Mean score	Std. Dev
There is a strong trust and commitment between Crown Beverages Limited and its customers	3.65	1.105
There is strategic partnership between Crown Beverages Limited and its customers which allows information sharing	3.85	1.018
The supermarkets in Kampala share their inventory risks with Crown Beverages Limited	4.10	.793
There is early supplier involvement of supermarket customers which gives customers an opportunity to participate in the process of new product development at an early phase	3.17	1.292
Crown Beverages Limited shares inventory knowledge and information with its supermarket customers which helps to foster new process and product innovations	3.80	1.042
Crown Beverages Limited delivers products just on time when required.	4.03	.721
The vendor is reliable	3.94	1.056
Inventory risks are shared with Crown beverage limited	4.02	.944

Source: Primary data (2020)

Table 4.5 present a summary of findings of the mean scores and standard deviation on the respondents' views on Supplier-Customer collaborations in supermarkets in the divisions of Kampala. In terms of trust and commitment between Crown Beverages Limited and its customers, it was evident from the study that there is a strong trust and commitment between Crown Beverages Limited and its customers as indicated by a greater mean score of 3.65 and a small standard deviation of 1.105. The research revealed that there is strategic partnership between Crown Beverages Limited and its customers which allows information sharing since

majority of the respondents were in agreement with the statement (mean score=3.85). This finding was affirmed by a qualitative finding from Respondent D who said;

> "*Pepsi has a strategic collaboration with this supermarket which enables easy information sharing and reduces the supermarket's inventory costs and risks. They always check their stocks to ensure no expired soda is on shelf sold to final customers."*

The descriptive findings show that the supermarkets in Kampala share their inventory risks with Crown Beverages Limited as supported by most of the respondents in the study (mean score=4.10). The findings indicate that there is early supplier involvement of supermarket customers which gives customers an opportunity to participate in the process of new product development at an early phase as shown by a high level mean of 3.17 and a small standard deviation of 1.292. The study established that Crown Beverages Limited shares inventory knowledge and information with its supermarket customers which helps to foster new process and product innovations as strongly agreed by the respondents (mean score=3.80).

The majority of the respondents were in strong agreement that Crown Beverages Limited delivers products just on time when required as shown by a mean of 4.03 and small standard deviation of 0.721. In regards to reliability, the bigger proportion of respondents confirmed that the vendor is reliable (mean score= 3.94). Lastly, it was evident from the study that inventory risks are shared with Crown beverage limited as indicated by a mean score of 4.02 which is above the threshold of 3.

4.4 Correlation findings between the study variables

The study assessed the relationship between the study variables to find out whether they had any significant association. The relationship was tested using spearman's rank correlation since ranked data was used as indicated in the table below.

Table 4.6: Relationship between the variables of the study

		Inventory Planning	Information System Application	Supplier-Customer collaborations	Inventory control
Inventory planning	Spearman's Correlation Coefficient	1.000	.865**	.671**	.696**
	Sig. (2-tailed)	.	.000	.000	.000
	N	120	120	120	120
Information System Application	Correlation Coefficient	.865**	1.000	.668**	.760**
	Sig. (2-tailed)	.000	.	.000	.000
	N	120	120	120	120
Supplier-Customer collaborations	Correlation Coefficient	.671**	.668**	1.000	.714**
	Sig. (2-tailed)	.000	.000	.	.000
	N	120	120	120	120
Inventory control	Correlation Coefficient	.696**	.760**	.714**	1.000

Sig. (2-tailed)	.000	.000	.000	.
N	120	120	120	120

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

Source: Primary data (2020)

Table 4.6 presents multivariate correlation analysis between the study variables. The outcomes from the study indicate that inventory planning had a positive moderate and significant relationship with inventory control as indicated by a correlation coefficient of 0.696 and a p-value less than 0.01 level of significance. The results imply that an improvement in inventory planning also leads to an improvement in inventory control in supermarkets in the divisions of Kampala. In terms of information system application and inventory control, it is evident from the study that information system application had a strong positive and significant relationship with inventory control as shown by the correlation coefficient of 0.760 and probability value of 0.000 which was below 0.01 level of significance. This implies that an improvement in information system application significantly improves on inventory control in supermarkets in the divisions of Kampala.

The correlation analysis also found that supplier- customer collaborations had a strong positive and significant relationship with inventory control as indicated by a correlation coefficient of 0.714 and the p-value of 0.000 which was below 0.01 level of significance. This implies that as supplier- customer collaborations improve, there is improvement in inventory control in supermarkets in the divisions of Kampala.

4.5 Multiple regression analysis

The regression analysis was so important to this study since it provided results in line with the specific objectives of the study. The regression findings are presented in the following subsections.

4.5.1 Regression coefficients of the study variables

This area presents the findings on how the dependent variable was responding by a unit change in the independent variables. The results are summarized in the table below.

Table 4.7: Regression coefficients of the study variables

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.647	.186		3.486	.001
	Inventory Planning	.051	.097	.053	.525	.006
	Information System Application	.460	.095	.463	4.830	.000
	Supplier-Customer collaborations	.367	.069	.413	5.311	.000

a. Dependent Variable: Inventory Control

Source: Primary data (2020)

The findings in the regression coefficients table indicate that inventory planning had a significant and positive effect on inventory control of supermarkets in the divisions of Kampala ($p<0.05$). As observed in Table 4.7 above, it is evident that as inventory planning grow by one

unit results into an improvement in Inventory control by 0.051. The results imply that as inventory planning grows results into an improvement in inventory control of supermarkets in the divisions of Kampala.

In relation to information system application and inventory control, the study found that information system application had a positive significant effect on inventory control at 5% level. The additional improvement in information system application results into an improvement in inventory control by 0.460. The results may imply that growth in information system application improves on inventory control of supermarkets in the divisions of Kampala. The model coefficients result also revealed that Supplier- Customer collaborations had a positive and significant effect on inventory control of supermarkets in the divisions of Kampala (p-value<0.05). Additional improvement in Supplier- Customer collaborations increases on inventory control by 0.367. This may imply that growth in supplier- customer collaborations also improves on inventory control of supermarkets in the divisions of Kampala.

4.5.2 Model summary results

The model summary was important as it revealed the ability of the independent variables to predict the dependent variable. In addition, it portrayed the amount of the variations in inventory control which are accounted for by inventory planning, Information System Application, and Supplier- Customer collaborations. The model summary results are shown in the Table 4.8.

Table 4.8: Model summary results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.871[a]	.758	.752	.34376

a. Predictors: (Constant), Supplier- Customer collaborations, Information System Application, Inventory Planning

Source: Primary data (2020)

The model summary findings show that 75.8% of the total variations in inventory control are explained by supplier-customer collaborations, information system application, and inventory planning. The results imply that the model is a good fit and supplier-customer collaborations, information system application, and inventory planning can statistically predict inventory control of supermarkets in the divisions of Kampala.

CHAPTER FIVE

SUMMARY FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The chapter highlights the findings' summary, discussions of findings, conclusions of findings, recommendations, and areas for future research.

5.1 Summary of findings

The section shows the summary of the detection on the study objectives which appeared in chapter four.

5.1.1 Effect of Inventory Planning on Inventory Control of Supermarkets in Kampala district

The regression analysis indicated that inventory planning had a positive significant effect on Inventory control in selected supermarkets in the divisions of Kampala. The results confirmed with the alternative hypothesis of the study in rejection of the null hypothesis. The implication is that as inventory planning growth results into an improvement in inventory control of supermarkets in the divisions of Kampala.

The study findings indicate that the supermarket makes demand forecast to determine the estimated sales and supplies required, this is in line with Do Rego and de Mesquita (2015) who concluded in their survey on automotive spare parts that inventory planning through demand forecast was crucial in improving inventory control.

The study concludes that supplier makes stock replenishment decisions according to the operating needs of the supermarket, this finding is in line with Hurdogan (2010) who concluded in his research that the supplier is entirely responsible for stock replenishment. Yoa, Evers and Desner (2007); Vigtil (2007) and Sari (2008) all in their studies concluded replacement decisions are a responsibility of the suppliers as per the customers', this is in relation to the study findings.

The study reveals that supermarket has inventory located where the products can easily be accessed by customers, this discover is in the same line with Elvander et al. (2007) who concluded in his study that in order to achieve a high level of responsiveness using inventory, locating large amounts of inventory close to the customer should be considered.

The study reveals how the vendor updates supermarket stocks and provides sales information, Horrison, Alan and Hoek (2008) found out the same in his study where he concluded that the supplier is responsible for managing and updating stock at the customer's premises.

The study finds out that there is use of Lot for Lot technique which enables the supermarket to receive the exact quantity of supplies as planned to meet the demand needs of the customers in the market. This finding is in agreement with Chairul, Mokh and Rifiqi (2017) found out in this study that lot for lot technique determines the amount of inventory required for a respective as per prevailing demand and customer satisfaction.

5.1.2 Effect of Information System Application on Inventory Control of Supermarkets in Kampala district

The study found that information system application had a positive and significant effect on inventory control at 5% level of significance. The results were in agreement with the alternative hypothesis and resulted into the rejection of the null hypothesis. This implies that growth in information system application improves on inventory control of supermarkets in the divisions of Kampala.

5.1.3 Effect of Supplier-Customer collaborations on Inventory Control of Supermarkets in Kampala district

The study results revealed that Supplier-Customer collaborations had a positive and significant effect on inventory control of supermarkets in the divisions of Kampala. The findings were sufficient for rejecting the null hypothesis in support of the alternative hypothesis. This may imply that growth in supplier- customer collaborations also improve on inventory control of supermarkets in the divisions of Kampala.

The study states that there is strategic partnership between Crown Beverages Limited and its customers which allows information sharing, this is in agreement with Tyan and Wee (2003) who found out in his study that strategic partnership is enhanced by information sharing due to demand uncertainties from end-customer, shortening product life cycle and increasing request

for product customization. Tyan and Wee (2003) further stated that the most crucial aspects of VMI is strategic partnership, and this is in line with the findings of the study.

5.2 Discussions of the findings

The discussions are presented in line with the findings on the study objectives and statements on the study variables.

5.2.1 Inventory Planning and Inventory Control of Supermarkets in Kampala district

The study found that inventory planning had a significant and positive effect on inventory control of supermarkets in the divisions of Kampala. The findings conform to the findings of Do Rego and de Mesquita (2015) who also found that Inventory Planning had a positive and significant effect on inventory control.

The study revealed that the management of the supermarkets in Kampala make demand forecasts to determine the estimated sales and supplies required and this is also in agreement with Do Rego & de Mesquita (2015). The study found that the supplier makes stock replenishment decisions according to the operating needs of the supermarket, this finding is in agreement with Hurdogan (2010) who concluded in his study that Vendors replenish their customers' inventory on appropriate levels as agreed by their customers. (Yoa et al., 2007; Vigtil, 2007; Sari 2008) all concluded in their respective studies that replenishment decision is a full responsibility of the supplier which is in line with the research findings.

The study found out that the supermarkets had inventory located where the products can easily be accessed by customers. The findings conform to Wilding (2003) who also concluded in his study that sellers had inventory located where the products could easily be accessed by customers and this helped to save time of the customers whenever they would purchase goods. It was established that the Crown Beverages Limited ensures that enough stock is available on time as planned to meet the customer needs which is in agreement with Heizer (2014) who

established in his study that companies were ensuring that enough stock is available on time as planned to meet the customer needs. The research found that the supermarket has inventory plan of the products and the findings are supported by Leung et al. (2016) who highlighted in their study that there were inventory plans of the drugs and this limited stock-outs of essential drugs.

5.2.2 Information System Application and Inventory Control of Supermarkets in Kampala district

The findings indicated that information system application had a positive and significant effect on inventory control of Supermarkets in Kampala district. The findings are consistent with Ruankaew and Williams (2013) who found out that information system application had a significant positive effect on inventory control.

The study found out that there was electronic supply of information sharing between Crown Beverages Limited and its supermarket customers. The findings are in agreement with Jessop (1999) who was cited by Nabyama (2018) and concluded that direct communication between organizations and information sharing are enabled through the EDI, which is the transmission of receipt of structured data by the computer systems of trading partners devoid of human mediation through the Electronic Data Interchange.

The study found out that the sales from the supermarket are tracked using electronic point of sale. The findings are supported by Wanjoi et al. (2013) who found out that the major use of barcode identification system is to track inventory automatically, count supplies and sales of inventory at the customers' premises. The study found out that inventory information is easily shared between the buyer and the supplier, this is in line with Horrison, Alan and Hoek (2008) who found out in his research that EDI system that connects the buying organization with its suppliers enables easy information sharing. He added that the delivery schedule is easily communicated to the vendor and there is instant conveyance of message from the maiden

destination without additional decomposition in the course of transmission. Electronic point of sales is also applied in inventory management.

5.2.3 Supplier-Customer collaborations and Inventory Control of Supermarkets in Kampala district

The results revealed that supplier- customer collaborations had a positive and significant effect on inventory control of supermarkets in the divisions of Kampala. The results are in agreement with Mukopi and Iravo (2015) who found out similar findings that Supplier-Customer collaborations had a positive and significant effect on Inventory Control of sugar manufacturing companies in the Western Kenya Sugar Belt.

The study results revealed that there is a strong trust and commitment between the supplier and the customers, this is in line with what Sazani (2004) who asserted that one of key success in any business establishment is the high level of trust and commitment between suppliers and manufacturers or customers, he further elaborated that trust will make most of operational issue be solved with good faith and towards meeting mutual common objective. In addition, Sazani (2004) found out that after a certain period of time, simple business trust will be transformed into deeper level of understanding called ‘strategic partnership’, this statement is in agreement with the research findings which state the there is a strategic partnership between the supplier and the supermarket customers.

The investigation revealed that there is a strategic partnership between Crown Beverages Limited and its customers which allows information sharing. The findings are in agreement with Nabyama (2018) who found out in his study that a strategic partnership between the buyer and the seller results into inventory risk sharing, which is in line with the finding of the study where it was found that there is risk sharing between Crown Beverages Limited (Vendor) and the customers.

The study found out that there is early supplier involvement of customers to give them an opportunity to participate in the process of developing a new product at an early phase and this is in agreement with Johnsen (2009) who stated in his study that early supplier involvement of customers gives the customers an opportunity to participate in the process of new product development at an early phase. According to Allen (2002) knowledge transfer and information sharing are enablers of inter-firm learning which help firms to foster new process and product innovations for effective inventory control. This is in line with the study finding.

The study found out that Crown Beverages Limited delivers products just on time when required and this is in agreement with Mukopi and Iravo (2015) in their study who found out that supplier-customer collaboration enables effective use of Just in Time technique of inventory delivery, inventory risk sharing between the vendor and the customer, reliability of the vendor in the supply chain and information sharing, these aspects are in line with the findings of the study.

5.3 Conclusions of the findings

The conclusions are presented in line with the specific objectives of the as shown in the subsections below.

5.3.1 Inventory planning and inventory control of Supermarkets in Kampala district

The study concludes that inventory planning is very crucial in ensuring that there is effective inventory control of Supermarkets in Kampala district. The study established that supermarkets ensure that there is; demand forecast, stock replenishment decisions according to the operating needs of the supermarket, inventory located where the products can easily be accessed by customers, and use of Lot for Lot technique among others which are so crucial improving inventory control.

5.3.2 Information System Application and Inventory Control of Supermarkets in Kampala district

In conclusion, it is evident that Information System Application is very important in boosting Inventory Control of Supermarkets in Kampala district. The study noted there; is electronic supply information sharing between Crown Beverages Limited and its supermarket customers, tracking of supermarket sales using electronic point of sale, and use of barcoding in counting supplies and sale of goods and these were so instrumental in improving inventory control.

5.3.3 Supplier-Customer collaborations and Inventory Control of Supermarkets in Kampala district

The study concludes that Supplier-Customer collaborations is so important in improving Inventory Control of Supermarkets in Kampala district. The research noted that there is a strong trust and commitment between Crown Beverages Limited and its customers, the supermarkets shares inventory risks with Crown Beverages Limited, and sharing of inventory knowledge and information with supermarket customers among others which are important in enhancing inventory control in supermarkets.

5.4 Recommendations

There should be more efforts in demand forecasting to determine the estimated sales and supplies required.

The supermarkets are recommended to continue with the best practice of positioning inventory where the products can easily be accessed by customers since it was found to be crucial.

The study recommends that Crown beverages Limited should continue ensuring that enough stock is available on time as planned to meet the needs of the supermarkets. This would enable the supermarkets not to run out of stock.

The study recommends that there is need to ensure that there is electronic supply of information sharing between Crown Beverages Limited and all the supermarket customers in all the divisions of Kampala.

The study suggests that all the supermarkets should ensure that the verification, checking and provision of immediate sales reports and changes in transactions are done electronically using the computer system.

There is need for more efforts to ensure that there is a strong trust and commitment between Crown Beverages Limited and supermarkets.

The study recommends that more sensitization about inventory management should be provided to supermarkets and retail businesses in Kampala as this would enable them get acquainted with inventory control and management to limit losses in their business and improve their customer base.

The study suggests that Crown beverages Limited should involve all supermarket operators which are its customers to give them an opportunity to participate in the process of developing a new productat an early phase.

The study recommends that inventory management and supply chain should be improved in all the companies that are in the supply and distribution sector in Uganda with incorporation of the different vendors in the business.

5.5 Areas for further research

Since Crown Beverages Limited has supermarket customers all over Uganda, it is suggested that further research on the same objectives should be conducted in others districts of Uganda to investigate whether vendor managed inventory significantly affect inventory control.

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APPENDICES

APPENDIX I: QUESTIONNAIRE FOR SUPERMARKET STAFF

Introduction

Dear respondent,

I am **ATHOLERE JANET (Reg No. 18/U/GMBA/19403/PD)** a student of Kyambogo University pursuing Master's degree in Business Administration. I am conducting a study on "***Vendor Managed Inventory and Inventory Control in supermarkets in the divisions of Kampala District*"** as a requirement for the award my master's degree. The information provided will be strictly for academic purposes and will be treated with utmost confidentiality. Thank you.

SECTION A: Demographic features of Respondents

Name of the supermarket you work for **(optional)……..……..**

INSTRUCTIONS

Please tick one response of your choice in the box provided.

1.1: **Gender:** Male ☐ Female ☐

1.2. Age bracket of the respondent:

19-25 ☐ 26- 30 ☐ 31-45 ☐ 46 and above ☐

1.3. Educational level:

Certificate ☐ Diploma ☐ Bachelor's Degree ☐ Master's degree ☐

Others _____

1.4. Period worked with the Supermarket

Less than 1 year ☐ Between 1 and 5 years ☐ Between 6 and 10 years ☐

Above 10 years ☐

SECTION B: INDEPENDENT VARIABLE: VENDOR MANANGED INVENTORY

(i) Inventory planning

Please indicate your response mode by writing only the score in the blank space provided for each of the items stated below.

KEY

Response mode	**Score**
Strongly agree (agree with no doubt at all)	**5**
Agree (agree with minor doubt)	**4**
Not sure (Neither agree nor disagree)	**3**
Disagree (disagree with minor doubt)	**2**
Strongly disagree (disagree with no doubt at all)	**1**

S/N	**Inventory planning**	**1**	**2**	**3**	**4**	**5**
IVP.1	The management of the supermarket makes demand forecast to determine the estimated sales and supplies required					
IVP.2	The supplier makes stock replenishment decisions according to the operating needs of the supermarket					

IVP.3	The supermarket has inventory located where the products can easily be accessed by customers					
IVP.4	The vendor updates supermarket stocks and provides sales information					
IVP.5	There is use of Lot for Lot technique which enables the supermarket to receive the exact quantity of supplies as planned to meet the demand needs of the customers in the market					
IVP.6	The Crown beverages Limited ensures that enough stock is available on time as planned to meet the customer needs					
IVP.7	The supermarket has inventory plan of the products					
IVP.8	Demand forecast is always accurate					
IVP.9	Information on delivery schedules is shared with the vendor					

(ii) Information System Application

Please indicate your response mode by writing only the score in the blank space provided for each of the items stated below.

KEY

Response mode	**Score**
Strongly agree (agree with no doubt at all)	**5**
Agree (agree with minor doubt)	**4**
Not sure (Neither agree nor disagree)	**3**
Disagree (disagree with minor doubt)	**2**
Strongly disagree (disagree with no doubt at all)	**1**

S/N	**Information system application**	**1**	**2**	**3**	**4**	**5**

ISA.1	There is electronic supply information sharing between Crown Beverages Limited and its supermarket customers					
ISA.2	The sales from the supermarket are tracked using electronic point of sale					
ISA.3	The receipts on sales made by the supermarket are stored and transmitted using electronic system.					
ISA.4	The verification, checking and provision of immediate sales reports and changes in transactions are done electronically using the computer system					
ISA.5	There is use of barcoding in counting supplies and sale of goods in the supermarket					
ISA.6	The vendor communicates with the supermarket through online					
ISA.7	Information on inventory is easily shared with the vendor					

(iii) Supplier- Customer collaborations

Please indicate your response mode by writing only the score in the blank space provided for each of the items stated below.

KEY

Response mode	**Score**
Strongly agree (agree with no doubt at all)	**5**
Agree (agree with minor doubt)	**4**
Not sure (Neither agree nor disagree)	**3**
Disagree (disagree with minor doubt)	**2**

Strongly disagree (disagree with no doubt at all) **1**

S/N	Supplier- Customer collaborations	1	2	3	4	5
SCC.1	There is a strong trust and commitment between Crown Beverages Limited and its customers					
SCC.2	There is strategic partnership between Crown Beverages Limited and its customers which allows information sharing					
SCC.3	The supermarkets in Kampala share their inventory risks with Crown Beverages Limited					
SCC.4	There is early supplier involvement of supermarket customers which gives customers an opportunity to participate in the process of new product development at an early phase					
SCC.5	Crown Beverages Limited shares inventory knowledge and information with its supermarket customers which helps to foster new process and product innovations					
SCC.6	Crown Beverages Limited delivers products just on time when required.					
SCC. 7	The vendor is reliable					
SCC.8	Inventory risks are shared with Crown beverage limited					

SECTION C: DEPENDENT VARIABLE: INVENTORY CONTROL

Please indicate your response mode by writing only the score in the blank space provided for each of the items stated below.

KEY

Response mode **Score**

Strongly agree (agree with no doubt at all) **5**

Agree (agree with minor doubt) **4**

Not sure (Neither agree nor disagree) **3**

Disagree (disagree with minor doubt) **2**

Strongly disagree (disagree with no doubt at all) **1**

S/N	**Inventory control**	**1**	**2**	**3**	**4**	**5**
IC.1	The supermarket incurs less costs while receiving products from the supplier (Crown Beverages Limited) and when delivering to its customers					
IC.2	The costs of managing inventory are low because of adoption of technology like computer systems and electronic barcoding					
IC.3	The products are kept well and in a good and accessible location in the supermarket before they are distributed to clients					
IC.4	There is tracking or recording of information of the products that move in and out of the supermarket					
IC.5	The Crown Beverages Limited ensures that there is enough stock available in the supermarket in order to meet the demand of its customers					
IC.6	The supermarket pays for no expiries					
IC.7	There is reduced inventory holding costs in the supermarket					
IC.8	The supermarket incurs minimal losses from the products					

THANK YOU FOR YOUR RESPONSE

APPENDIX 11: INTERVIEW GUIDE

Dear respondent,

I am **ATHOLERE JANET (Reg No. 18/U/GMBA/19403/PD)** a student of Kyambogo University pursuing Master's degree in Business Administration. I am conducting a study on "***Vendor Managed Inventory and Inventory Control in the products of Crown Beverages limited; a case study of selected supermarkets in the divisions of Kampala District***" as a requirement for the award my master's degree. The researcher has selected you because of your indispensable knowledge and experience on the topic that is under investigation. The information provided will be strictly for academic purposes and will be treated with utmost confidentiality. Thank you.

Questions

1. What is your designation in the supermarket?
2. What kind of collaborations do you have with your Crown Beverages Limited (Vendor) and how have they helped the supermarket to effectively manage its inventory?
3. What kind of information system application do you use in this supermarket and how significant has it helped in inventory control?
4. What forms of inventory planning do you have in this Supermarket? In addition, how has inventory planning helped in effective inventory control?
5. What technique do you use to decide the location of the product and who manages the replenishment schedules?
6. What causes expiries of the products and how do you minimize them?

Recommendations

What recommendations would you give pertaining Vendor managed inventory and inventory control in the supermarket?

The End (Thank You)

APPENDIX III: LETTER OF INTRODUCTION

KYAMBOGO UNIVERSITY

P. O. BOX 1 KYAMBOGO
Tel: 041 - 4286792 Fax: 256-41-220464
Website: www.kyu.ac.ug

Office of the Dean, Graduate School

10th December, 2020

To Whom It May Concern

RE: LETTER OF INTRODUCTION

Dear Sir/Madam,

This is to introduce **Ms. Atholere Janet Registration** Number **18/U/GMBA/19403/PD** who is a student of Kyambogo University pursuing a Masters Degree.

He intends to carry out research on **"Vendor Managed Inventory and Inventory Control in Crown Beverages Limited's Products; A case Study of Selected Supermarkets in the Division of Kampala District** as partial fulfillment of the requirements for the award of Master of Business Administration (Procurement) of Kyambogo University.

We therefore kindly request you to grant her permission to carry out this study in your institution.

Any assistance accorded to her will be highly appreciated.

KYAMBOGO UNIVERSITY
OFFICE OF THE
DEAN GRADUATE SCH

Yours sincerely,

Assoc. Prof. Muhamud N. Wambede
DEAN, GRADUATE SCHOOL

APPENDIX IV: LETTER OF RECOMMENDATION

CROWN BEVERAGES LIMITED

(Authorised producers of Pepsi)

25th January, 2020

To whom it may concern,

RE: LETTER OF RECOMMENDATION

Dear Sir/Madam,

This is to recommend **Ms. Atholere Janet** who is our employee at Crown Beverages Limited and a student at Kyambogo University pursuing her Masters Degree to carry out research in your supermarket.

She is carrying out research on "***Vendor Managed Inventory and stock control in the products of Crown Beverages Limited in selected supermarkets in the divisions of Kampala district"*** as a partial fulfilment for the award of Masters Degree of Business Administration (Procurement) of Kyambogo University.

We therefore recommend her and request you to grant her permission and necessary support to carry out research in your supermarket.

Your cooperation is highly appreciated.

Anti-bribery: Crown Beverages Limited expressly prohibits the payment or offers of any items that may be construed as a bribe and the payment of any facilitation payments in connection with its business operations. Crown Beverages Limited shall terminate any of the agreement for default for the party in breach of this clause or any applicable anti-bribery Laws in performing its obligations under the agreement in question.