THE EFFECT OF VENDOR MANAGED INVENTORY ON PERFORMANCE OF RETAIL SUPERMARKETS IN UGANDA:

A CASE STUDY OF NAKUMATT SUPERMARKET

SIMON NABYAMA

14/MBA/11/024

A DISSERTATION SUBMITTED TO THE SCHOOL OF MANAGEMENT SCIENCE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE MASTER OF BUSINESS ADMINISTRATION OF

UGANDA MANAGEMENT INSTITUTE

JANUARY, 2018

DECLARATION

I, Simon *Nabyama* hereby declare that this is my original work and has not been presented to any university or institutions of higher learning for any academic award. I have acknowledged secondary sources of information wherever I used them in this work.

Date: _____

_____

Signed

APPROVAL

This dissertation has been written under our supervision and has been submitted for the award of the degree of Master of Business Administration (MBA) with our approval as Uganda Management Institute supervisors.

Signature: ……

Mrs. Pross Oluka Nagitta

Date: ……....

Signature: ……

Mr. Christopher Mayanja

Date: ……....

DEDICATION

This dissertation is dedicated to my family, more especially my wife, parents, brothers and other relatives.

ACKNOWLEDGEMENT

With utmost appreciation, I acknowledge the contribution of my supervisors; Mrs. Pross Oluka Nagitta and Mr. Christopher Mayanja of Uganda Management Institute for their academic guidance, commitment and willingness to help me complete of this work.

I acknowledge with gratitude the contributions and co-operation of Nakumatt Supermarket Staff for their enthusiasm to provide the necessary information when I visited their respective stations during the research process. Without their assistance, this study would have been difficult to realize.

I would like to sincerely recognize all my Lecturers of UMI. These have sufficiently guided and equipped me with both theoretical and practical skills. I would also like to acknowledge the contribution of my classmates especially my discussion group in the MBA class from whom I enjoyed fruitful discussions on many topics. Lastly, I thank my colleagues at work who always stood in for me when I could not fully execute my duties in pursuit of the MBA.

MAY GOD BLESS THEM ALL

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

CPFR:	Collaborative Planning, Forecasting and Replenishment.
CRP:	Continuous Replenishment Program.
CVI:	Content Validity Index
DRP:	Distribution Requirement Planning.
ECR:	Efficient Customer Response.
EDI:	Electronic Data Interchange.
EPOS:	Electronic Point of Sale.
JIT:	Just In Time.
ICT:	Information Communication Technology
SAIM:	Supplier- Assisted Inventory Management.
SAIR:	Supplier-Assisted Inventory Replenishment.
SCM:	Supply Chain Management
SKU:	Stock Keeping Unit.
SPSS:	Statistical Package for Social Scientists
SRM:	Supply Risk Management
UK:	United Kingdom
VMI:	Vendor Managed Inventory.

ABSTRACT

This study was about the effect of vendor managed inventory on performance of retail supermarkets in Uganda, using a case study of Nakumatt Supermarket, Oasis Mall branch-Uganda. Specifically, the study sought to; assess the effect of inventory flow management on the performance of Nakumatt supermarket; examine the effect of ICT systems employed on the performance of Nakumatt supermarket and; establish the effect of the supplier-client relationship on the performance of Nakumatt supermarket. This study adopted a case study research design and employed both qualitative and quantitative approaches. Out of a study population of 102 subjects, the study identified a sample size of 89, using purposive, convenience and simple random sampling techniques. Analysis of quantitative data consisted of descriptive statistics, such as frequencies and percentages and inferential statistics, from which deductions about the findings were made. Analysis of qualitative data was done by way of thematic and content analysis methods. Findings revealed a statistically significant relationship between inventory flow management, the ICT systems employed and the supplier-client relationship on one hand and performance of Nakumatt supermarket on the other hand. It was concluded that; poor information sharing affects performance of a retail outlet; failure to embrace the changing aspects of ICT and sustain new optimum ICT systems may invariably affect performance and the poor supplier-client relationships have a negative bearing on performance. The study recommended the need for developing a Vendor management Inventory (VMI) system with robust inventory flow policies and plans; make a prudent selection for the ideal products that qualify to fit within a VMI program; have mechanisms to create an atmosphere of trust and commitment with chosen and interested upstream chain partners/suppliers and lastly; develop a fully automated and integrated VMI system with the upstream partners.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Owing to the increasingly competitive business environment, organizations world over are making all efforts to achieve efficiency, cost reduction, effectiveness and economies of scale (Benson, 2011). Majority of such organizations hold inventory in an effort to meet the needs of their customers. This study thus was an investigation of Vendor Managed Inventory and its effect on the performance of retail supermarkets in Uganda using a case study of Nakumatt Supermarket – Oasis Mall branch. Vendor Managed Inventory in this study was perceived as the independent variable (IV) whereas performance was the dependent variable (DV). This chapter covers the background to the study, statement of the problem, general objectives of the study, research questions, hypotheses that the study intended to test, scope of the study, significance of the study, study justification, as well as operational definitions of key terms and concepts used in the study.

1.2 Background of the Study

The background to the study is presented along the four dimensional approach, reflecting the historical, theoretical, conceptual, and contextual perspectives.

1.2.1 Historical Background

Globally, Vendor Managed Inventory gained popularity at the end of the 1980s. Later, successful Vendor Managed Inventory (VMI) initiatives were reverberated by other various organizations. The reasons cited for adoption of VMI by the different organizations included; the need to revive customer demand improbability, the need to reduce inventory level, the need to reduce the number and frequency of stock out, ensuring a more flexible mechanism of production and

distribution planning and lastly, enhancing the quality of service delivery to customer (Disney and Towill, 2008).

In developing countries of Africa, VMI is a relatively new phenomenon the retail service chain and is estimated to have gained initial recognition in the early 2000s and is still rising (Benson, 2011). VMI has been noted to have gained more prominence in the retail supermarkets where reports indicate that it enhanced management of stock, cash flow management, risk assessment and management, and a host of other aspects associated with demand uncertainties. Though a number of countries such as Nigeria, South Africa and Kenya have hailed VMI, it has a number of drawbacks in regard to trust, supplier turnover and suppliers who operate at a small scale without the requisite financial resources to facilitate implementation of VMI concepts in a sustainable manner. This kind of situation tends to interfere with customer satisfaction due to failure to sustain a stable supply of certain items as a result of high supplier turnover (Benson, 2011).

In Uganda, very few organizations in the manufacturing and retail sector have embraced VMI. As such, many organizations have suffered the brunt of increased costs in executing inventory management functions (Ntayi and Eyaa, 2010). The effectiveness of VMI is affected by inventory flow management, the relationship between the supplier and the client, as well as the nature of ICT systems employed. This illustrates that the way VMI partners relate is determined by their level of trust and reliability (Benson, 2011).

It is worth noting that the ICT quality plays a very crucial role in facilitating information sharing among the partners of VMI within the supply chain (Watson, 2007). In this respect, VMI is most appropriate for supermarkets that are fairly medium or large, with well-established network systems that have the potential to effectively run the system. Besides, a small supermarket as a result of low purchasing power may not have the requisite capacity to support demand for goods as required by VMI warehousing (Benson, 2011). In Uganda, VMI was widely embraced by Nakumatt supermarket. This study assessed VMI's effect on performance of retail supermarkets, with specific focus on Nakumatt supermarket.

1.2.2 Theoretical Background

This study was hinged on the relationship marketing theory of Berry (1983). Morgan (2000) argues that the roots of marketing and relationship marketing theory stem from economics. The theory recognizes that time is a necessary ingredient for successful relationships to develop. While transaction-based exchanges are usually short term, long-term relationships that are successful tend to have a history and as a result, the present or past behaviors of the partners can affect interactions at a later stage (Jraisat, 2010). This theory is used in a number of disciplines and offers various dimensions that can aid a deeper understanding of buyer-supplier relationships (Wilson, 1995).

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's (2003) argument, customer relationship management software has facilitated relationship marketing by analyzing and tracking these

customer tastes and preferences, further still, 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.

In principle, relationship marketing is about customer retention through various means that give a strong possibility for repeat purchase; this can be achieved by both parties maintaining a mutually beneficial relationship (Toften and Olsen, 2003). The potential for new leads however, is more successful under direct marketing than relationship marketing. Relationship marketing directly thrives from the advantages of viral marketing (Armstrong, 2010). Relationship Marketing therefore infers that to have improved performance through maximizing profits, it is imperative to satisfy customers, manage inventory levels, lead time, costs and customer service (Bail, Farmer, Crocker, Jessop and Jones 2008).

The relationship marketing theory therefore infers that through interaction, transaction analysis, observation, information sharing and use the experience with customers, the retailer supermarkets and upstream chain partners/distributers are able to create stronger ties, personalize and customize preferences of their products, inventory policies, plans , systems and stores layouts to meet the customer's needs and hence lead to performance. The theory is not exclusive to the study variables and is generally used across other fields like international marketing and information technology.

1.2.3 Conceptual Background

The major concepts that guided this study were Vendor Management Inventory and performance of retail outlets. Vendor –Managed Inventory (VMI) is used in reference to a style of inventory management, where decisions for inventory replacement are managed in a central place, especially, with upstream manufacturers or distributors in the supply chain. In other terms, VMI is regarded as an extension of distribution requirement planning (DRP) (Lyson and Farrington 2005). The VMI strategy is collaborative and aims at ensuring optimization of products at a minimal 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 (Bail et al., 2008).

According to Kuk (2004), VMI is a kind 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 favourable 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. In Kumar and Kumar's (2003) conceptualization, VMI refers to the system of inventory flow management, technological input, management of relationships with distributors and suppliers and in-time delivery. For purposes of this study, Vendor Managed Inventory was operationalized to mean of inventory flow management, the supplier-client relationship and the ICT system employed.

Performance, on the other hand, entails the results or organization outputs against those planned and intended organisational outputs (objectives and goals). According to Richard et al. (2009),

for organizations involved in service delivery, the measurement of improvement in performance calls for high quality service delivery, value for money, timely service delivery and reduced cost of service delivery. Performance was construed in terms of profitability, accountability, service availability and accessibility. Dixon et al (1990) argue that measures of performance considered suitable are those that facilitate organizations in their efforts to ensure that their actions aim at achieving the intended objectives. Stoner (2003) on the other hand measures performance in terms of profitability, product availability, product fill rate and timeliness. For purposes of this study, performance of retail supermarkets was conceptualized from the four perspectives of profitability, product availability, product fill rate and timeliness in service delivery.

1.2.4 Contextual Background

Inventory management, with view of achieving the intended objectives poses significant challenge to many organizations (Disney and Towill, 2008). A number of organizations are yet to establish the inventory investment requirements and the appropriate levels of inventory to hold, in order to satisfy their customers. Organizations have therefore resorted to using modern inventory techniques such as Vendor Managed Inventory (VMI) so as to overcome these challenges most especially in developed world (Mugo, 2008).

Nakumatt Supermarket is formally a Kenyan based supermarket with 09 branches in Uganda located at; Kisementi, Entebbe, Mbarara, Bugolobi Village, Bugolobi Express, Katwe, Bukoto, Naalya and the flagship Oasis Hypermarket (Kiruga, 2013). Nakumatt Supermarket is among the first supermarkets in Uganda to adopt Vendor Managed Inventory practice where the Supermarket gets into contract with vendors who supply directly to the shelves. This was done with a purpose of improving the performance of the supermarket. However, the effort did not

yield the intended outcome of enhancing performance. For instance, Nakumatt supermarket financial report (2015) indicates that purchases and stocks inputs such as local foods and groceries and other related equipment in the VMI system were in excess of the one year's quarterly stocking requirement while others were under-stocked. There were reports of huge stocks of expired food inputs, such as drugs, chemicals and feeds in the VMI system within the stores of Nakumatt supermarket (Nakumatt financial report, 2014). This had largely contributed to unreliability of vendors. The increased costs of expired foods, over stocked items and unusable products were assumed to have led to poor performance of the company. This study thus endeavored to assess the effect of Vendor Managed Inventory on performance of Nakumatt supermarket.

1.3 Statement of the Problem

The major goal of vendor managed inventory is to serve the customer (Toomey, 2000). It is from this perspective that Nakumatt Supermarket engaged various vendors, to directly supply to the shelves. However, despite such efforts, the performance of Nakumatt supermarket in Uganda still remained wanting. For instance, Nakumatt supermarket financial report (2015) indicates that purchases and stocks inputs such as local foods and groceries and other related equipment in the VMI system were in excess of the one year's quarterly stocking requirement (20% above), while others were under-stocked (16% below) in 2015. There had also been reports of huge stocks of expired drinks i.e., beverages (5%), Milk (26%), food inputs, such as drugs (9%), chemicals (17%) and feeds (22%) within the stores of Nakumatt supermarket (Nakumatt financial report, 2014). The increased costs of expired foods, over stocked items and unusable products are assumed to have led to poor performance of the company. If this situation is not catered for, it would continually affect the profitability of the company and possibly lead to its collapse.

Against this backdrop, this study was undertaken to investigate VMI's effect on performance of Nakumatt supermarket retail outlets.

1.4 Purpose of the study

The overall aim was to establish Vendor Managed Inventory's effect on Pperformance of retail supermarkets in Uganda, using a case of Nakumatt supermarket -Oasis Mall branch.

1.5 Specific Objectives

i) To assess the effect of inventory flow management on performance of Nakumatt supermarket.

ii) To examine the effect of ICT systems employed on performance of Nakumatt supermarket.

iii) To establish the effect of supplier-client relationship on performance of Nakumatt supermarket.

1.6 Research Questions

i) What is the effect of inventory flow management on performance of Nakumatt supermarket?

ii) How do ICT systems employed on affect the performance of Nakumatt supermarket?

iii) What is the effect of supplier-client relationship on performance of Nakumatt supermarket?

1.7 Hypotheses for the Study

i) Inventory flow management significantly affects performance of retail supermarkets in Uganda.

ii) The ICT systems employed have a significant effect on performance of retail supermarkets in Uganda.

iii) The supplier-client relationship has a significant effect on performance of retail supermarkets in Uganda.

1.8 Conceptual Framework

This section presents the conceptual framework as illustrated in figure 1. The framework is an illustration of the hypothesized relationship between Vendor Inventory Management (the independent) and performance of retail outlets (dependent variables). The independent variable was Vendor Managed Inventory, with emphasis on inventory flow management, the ICT system employed and supplier-client relationship. The dependent variable was conceived as performance of retail outlets with emphasis on profitability, product availability, product fill rate and timeliness in service delivery.

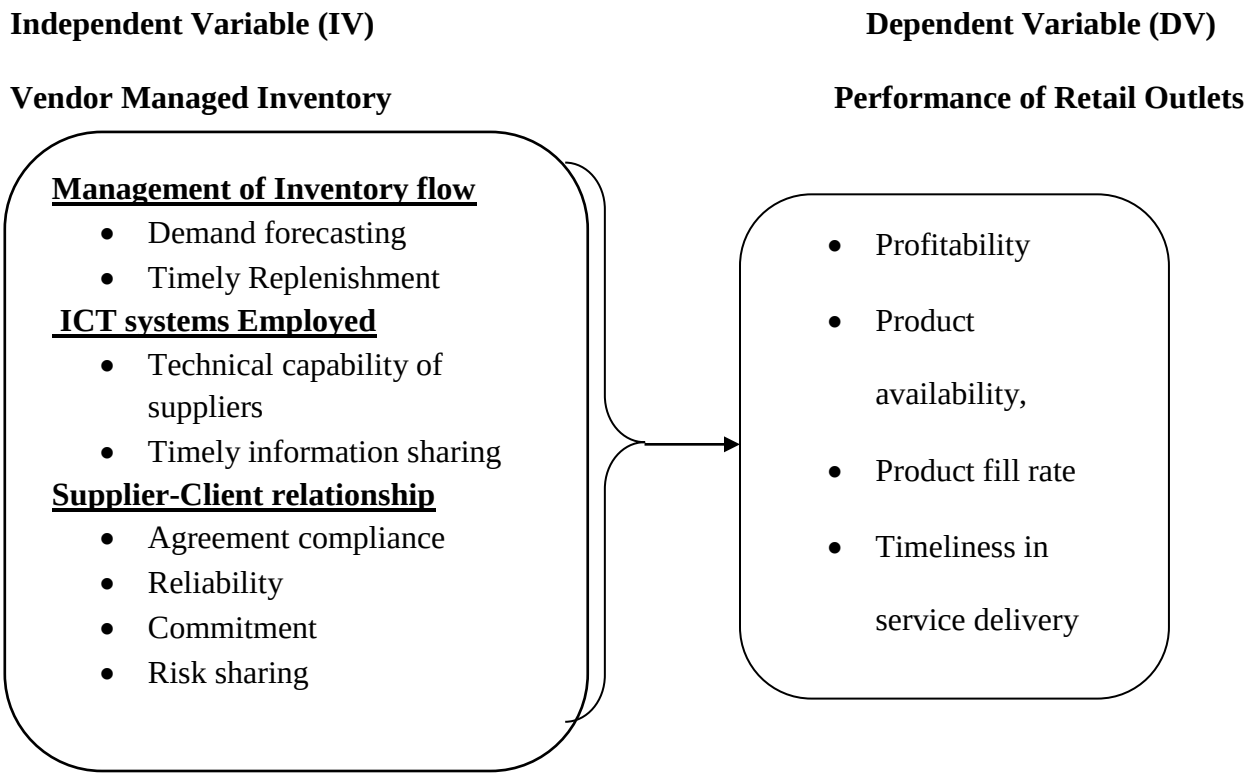

Fig 1: Conceptual Framework showing the relationship between the Independent Variable (Vendor Managed Inventory) and the Dependent Variable (Performance of Retail Outlets).
Source: Adopted from Cooper, Lambert and Pagh (1997)

As illustrated in figure 1, the framework draws from the assumption that with better management of inventory flow, having in place suitable ICT systems and enhancing supplier-client relations would contribute to better performance of retail outlets, in terms of their profitability, product availability, product fill rate and timeliness in service delivery. The assumption expressed in the conceptual framework resonates well with the relationship marketing theory since the theory is based on the main assumption that the performance of retail outlets lies largely with how the VMI system is managed (Cooper et al, 1997). The theory assumes that if a robust Vendor Managed Inventory system that is cognizant of its customers' needs is properly implemented, the performance of retail outlets would improve. This formed the basis of the study.

1.9 Significance of the Study

This study was intended to contribute and provide reference to scholars and policy makers for creative ways of improving the inventory management in the supply chain. It may also identify challenges currently facing Nakumatt Supermarket inventory management and propose solutions to overcome them. The study may help to enhance the researcher's skills in conducting investigative studies. This may help the researcher in further studies in future while developing the academic career. The study findings may help to highlight the weaknesses in inventory management of Nakumatt Supermarket. This may help management to know the underlying weaknesses and take appropriate decisions. The study findings may also provide reference for future researchers.

1.10 Justification of the Study

In view of Toomey's (2000) assertion, the overall aim of vendor managed inventory is giving service to the customer. Viale (2001) further explains that vendor managed inventory is a very expensive venture in any organization, yet it can be replaced by the less expensive option of inventory information. Some of the key challenges facing many retail supermarkets and companies emanate from their inability to offer quality services to the customers, as a result of poor inventory management (Manjrekar, Bhonsale and Kamath, 2008). In a similar view, Heikilla (2002) observes 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 et al., 2012). The observations made by different scholars as indicated

herein prompted the researcher to conduct this study, so as to come up with recommendations that could salvage the retail supermarkets from total collapse.

1.11 Scope of the Study

This section presents an account on expected coverage in terms of geographical scope, time scope and content scope of the study;

1.11.1 Geographical Scope

The study was conducted at Nakumatt Supermarket – Oasis Mall branch, located on Yusuf Lule Road, Kololo Kampala in February 2017. This was selected because of its position as one of the leading retail supermarkets in Uganda practicing vendor managed inventory approach and yet one that had registered a number of performance challenges.

1.11.2 Time Scope

The study covered the period of 2012-2015 because it is within this period that there were anomalies and cases of stock-outs reported in Nakumatt Supermarket.

1.11.3 Content Scope

This research was limited to vendor managed inventory and performance of retail outlets. Vendor managed inventory in this study was considered as the independent variable (IV) while performance of retail outlets was the dependent variable (DV). Vendor managed inventory was limited to management of inventory flow, the ICT system employed and the supplier-client relationship, whilst performance of retail outlets was limited to profitability, product availability, product fill rate and timeliness in service delivery.

1.12 Operational definition of key terms and concepts

Management of Inventory flow; this referred to the extent by which inventory is managed in Nakumatt Supermarket in accordance with right inventory levels, policies, plans , stores layout and quality of supplies.

The ICT system employed: this referred to how the suppliers/vendor in upstream of the supply chain and the supermarket can ably utilize ICT systems to monitor and share on time information about inventories in the supermarket that includes Bar coding, Electronic point of sale, Electronic Data interchange (EDI) Systems comprising of external linkages like shared EDI software, Hardware (servers and computers), Networks, Backup and Storage and People.

(Hill and Scudder, 2002) observe that ICT technologies like EDI create many benefits, information exchange is much less expensive compared to paper use, less labor and time is needed to execute transactions, fewer freight costs are incurred, there are fewer stock out occurrences, less errors occur as the computer automatically generate orders, there is reduction in inventory levels.

However, they point out than one of the biggest challenges of establishing an EDI system are the vast amount of resourced required to set up a EDI program, they assert that a number of components are required to set up an EDI system; Hard ware that requires servers and computers, data backup and power backup, various software for communications, setting up of networks for communications, personnel who must be trained on how the software works and operates, secured office space and security for managing the EDI system.

The Supplier-Client relationship; this referred to extent to which the supplier/vendor in the upstream of the supply chain and the supermarket are willing to relate in terms of trust, commitment, reliability, risk sharing and collaboration .

Profitability: This meant the rate at which the supermarket is profitable in its services.

Product fill rate*:* This referred to the fraction demand met from stock.

Product availability: This meant the presence of stock whenever a customer needed it.

Timeliness in service delivery: This meant the timely receipt of stock from suppliers in Nakumatt supermarket.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of related literature on Vendor Management Inventory and Performance of retail supermarkets. The literature focuses on inventory flow management, the ICT systems employed and the supplier-client relationship on Performance of retail outlets, highlighting the gaps addressed by the study. This chapter is concluded with a summary of the literature review.

2.2 Management of Inventory flow and performance of retail supermarkets

According to Jaecques (2002), retail supermarkets can meet their customer needs by developing an inventory plan and planning on how inventories have to flow in a retail store. She points out that developing an effective and efficient inventory plan will involve developing what Saenz called "best-practices solutions" and defining future plan requirements. Regardless of the approach which will be used by the company, developing an inventory plan is a critical step in the right direction.

Nyangau, Seidmann and Vakrat (2014), explained that there are factors that organizations can consider in inventory planning so as to provide customer satisfaction which improves its profitability in long run. The scholars point out that the key for providing customer satisfaction is to determine their needs accordingly and to meet and exceed the need in a consistent manner. The scholars also argue that organizations can adopt strategic and proactive plans that focus on improving customer service by gaining an understanding of the customers' logistics process and designing a logistics system which will meet customer needs. They further argue that the system

should be designed with the ultimate goal of creating value for customers that enables them to achieve their objectives efficiently.

2.2.1 Demand Forecasting and performance of retail supermarkets

Demand forecasting is the process of translating inputs assumptions into forecasting of expected sales. In all industries, organizations are faced with a challenge of increasing customer expectations, regulations that get stricter by the day, speedy changes in market dynamics and the rapid impact of technology changes. This is forcing organizations to find ways of refining their forecasting and managing demand so as to satisfy their customers (Mann, Head &Yuan, 2014).

In view of the argument put forward by Kang and Gershwin (2005), lack of collaboration by chain partners usually leads to inaccurate inventory records. On the other hand, Raman, Tachizawa and Ginemez (2001) argue that the mismatch between inventory records and physical stock in chain partners' stores is as a result of lack of collaboration. Demand forecasting is a key determinant of flow of inventories. Therefore, better inventory flow facilitates better performance of retail supermarkets, in terms of meeting customer satisfaction (Eckert, 2007). In the same breath, Wilding (2003) argues that when suppliers orders are fulfill on time, customers are satisfied.

Demand forecasting requires flexibility, implying the extent of the supplier’s willingness to make changes that can accommodate the constantly evolving customer requirements and needs, in addition to ensuring that the products that can meet the customer expectations are availed (Humphrey and Tucker, 2003; Gunasekaran, 2001). In the event of unpredicted challenges, flexibility is considered paramount to meet the needs of customers, such flexible suppliers are

those that quickly respond to the buyer's needs (Tachizawa and Ginemezi, 2005). Moreover, by being flexible, a supplier is able to demonstrate readiness to respond to the needs of customers (Romano, 2003).

2.2.2 Timely replenishment and performance of retail supermarkets

According to Wallin et al., (2006), customers derive more satisfaction once their products are delivered in a period shorter than what they are willing to wait for after placing their order. In their study on effective customer delivery and service quality, Yin-mei (2013) found out that effective customer service delivery influenced customer satisfaction and service quality. Similarly, Widing (2003) opines that customers tend to derive more satisfaction once their suppliers display that they are able to deliver their orders within the expected period of time.

Gruen and Corsten (2006) indicated that effective management of stock outs reduces inventory distribution costs. The scholars also established that distribution costs have a great effect on organizational performance; merchandise display and packaging costs greatly affect organizational performance; warehousing and storage costs moderately affect organizational performance and length lead time has a minimal effect on organisational.

Previously, business environments that focus on customers faced a challenge of having in place systems and processes that meet the demands of their customers (Christopher, 2011). Such demands included the need for diversity of products in an effort to remain competitive, in addition to the increased desire receive orders within the shortest period of time possible (Da Cunha, Agard and Kusiak, 2007). Reduced lead times imply that the flow of products and information is in a uniform manner, allowing supply chain members to quickly respond to the

needs of their customers, while at the same time maintaining minimum inventory (Brewer, 2000).

2.3 The ICT systems employed and performance of retail supermarkets

Martinez (2009), in his survey on benefits of ICT system on the performance of retail outlets in Uchumi Kenya, found out that retail supermarkets which embraced information communication technology realized increased performance. The study further established that customer service has a great effect on performance; communication moderately affects performance of retail outlets; inventory monitoring has a moderate effect on performance of retail supermarkets and information exchange minimally affects the performance of retail supermarkets. Singhal (2008) contends that performance of retail outlets and customer satisfaction heavily relies on information technology in SCM. Satisfaction and giving pleasure to the customers have become a main obsession of many corporate entities. Effective and efficient service to customers has become even more critical. In addition, managers are essentially aided by information to right size the number of human resources and inventory levels.

Strategic planning is strongly directed and influenced by the kind of information flow available. In his survey on the benefits of ICT systems on the performance of retail outlets in Uchumi Kenya, Martinez (2009) found out that; carriage inwards costs registered a significant effect on the performance of retail outlets, carriage outwards costs greatly affected organisational performance and lastly, inventory overheads registered moderate effect on organizational performance. The study as well found out that the cost of sales had an effect on performance of retail outlets. Relatedly, Hines (2007) concluded that supermarkets that did not embrace VIM-ICT suffered high inventory overhead costs, resulting into increased sale costs and reduced

profits. High inventory levels result into increased stock holding costs and in-store logistics errors. This is owed to the difficulty that the employees may have in shelving and replacement of goods on the shelves, which may eventually make it difficult for the goods to be easily traced, yet they are available in the stores (phantom products) (Ton and Raman, 2005).

2.3.1 Technical capability of suppliers and performance of retail supermarkets

Berling (2011) argues that high quality of ICT system maintains optimum levels of inventory which is essential in a retail supermarket because of the possibility that excess inventory may result in higher costs in terms of stock holding. On the other hand, inadequate inventory (stock outs) also has the associated cost of customers leaving to competitors. For each lost sale in retail supermarkets due to stock outs, the supermarket risks losing profits as well as customers, as they may instead source for an alternative (Knights, 2008).

Danese (2007) in a study, found out that in US, many retail outlets adopted a central information system that allowed vendors to decide how much or when to deliver, considering all necessary information on the various supply network members, were key factors in ensuring success a VMI program. Such a system enhances production planning and order cycle processes using sales forecasts of the distribution centers and using suppliers' decisions concerning confirmation of orders (Murray, 2007).

In a study done in Kenya by Kumar and Kumar (2007), it was established the technical capability of suppliers had an effect on VMI effectiveness. Responses showed that VMI facilitated availability of data on inventory to the vendors and availed sales data to the suppliers, and as well offered reliable, adequate, timely and complete information to the suppliers. In

addition, the study found out that VMI was strongly and positively associated with suppliers' technical capability. The positive influence of technical capability of suppliers supports the research findings noted by a host of other researchers, including Garvineni (1999), among others, who indicated that technical capability of suppliers registers tremendous performance improvements for the entire supply chain. However, the ineffective sharing of information would, as Kumar and Kumar (2007) argue, bring about negative results.

2.3.2 Timely information sharing and performance of retail supermarkets

Companies can reduce cycle times through exchanging information related to inventory levels, forecasting data, and sales trends. Besides, they can be able to fulfill orders in a manner that is more efficient and effective as they cut more costs that would accrue as a result of excess inventory and improve forecast accuracy and customer service. According to Carr and Kaynak, (2007), information sharing within an organization can significantly affect information sharing between organizations. Information sharing within the organization can be a mechanism for encouraging collaboration and provision of efficient support for suppliers (Dewitt and Jones, 2001).

Ronchi et al (2012) identified and measured four types of cost savings from using ICT system. With the aid of their assessment model, they were able to predict the cost savings of 6 different companies in 5 different industries. The data indicated a 7.6% reduction in administrative costs, 11.2% in order costs, 88.9% savings on lead-time order cost and 72% saving on opportunity cost of capital.

2.4 The Supplier-Client relationship and performance of retail supermarkets

According to Waller (1999), having a strong supplier-client relationship has several benefits, including reduction in costs and increment in customer service levels. According to Centinkaya

and Lee (2000), strong supplier-client relationships significantly reduce the costs of carrying inventory and challenges of stock-out and enables inventory synchronization and decisions regarding transportation. Similarly, Fox (1996) argued that VMI contributes to better service to the customers, reduces demand related uncertainties, among others.

2.4.1 Agreement compliance and performance of retail supermarkets

Nelson (2009) noted that agreement compliance is centered on supplier monitoring and that poor supplier management can lead to associated challenges in regard to monitoring and selection of competent suppliers, leading to delays in delivery and stock out costs. Findings of this study showed that the employees of Nakumatt supermarket lacked the requisite skills, leading to their incompetency. The existing storage facilities were inadequate, which created a challenge of large quantities orders and inventory distribution to other country supermarket branches.

2.4.2 Supplier Reliability and performance of retail supermarkets

Supplier reliability is undertaken by the purchasing organization before a contract is placed with the supplier. Fogg (2006) considers supplier reliability as an assessment of the capability of a potential supplier in terms of ability to conduct quality control, delivery schedules as well as all factors that constitute the requirements of a buyer. He emphasises the ability to understand whether the supplier is in position to meet the requirements of the purchasing entity as the main aim of supplier reliability assessment. This is owed to the fact that suppliers can significantly affect organisational success or failure.

Balakrishan (2004) asserts that a more ambiguous trend has been the conscious assessment and validation of supplier networks and the development of collaborative partnerships between buyers and suppliers. Storey (2002) adds that, such schemes are of strategic significance than

simply of tactical gains. Therefore success is derived from all members of the supply chain adding superior value to their product/services and delivering them more efficiently than competitors (Storey, 2006).

2.4.3 Supplier Commitment and performance of retail supermarkets

Supplier Commitment needs to include a motivational element (Wells, 2006). He states that there are often two key components of a motivation strategy which include; gain sharing which used in a number of industries and these enable the pursuit of quality, efficiency and affordability without eroding suppliers' profit margins and supplier award programs. Heide and John (2009); Krause (2006) propose collaboration in inter-organisational relationships stems from what the parties expect out of the relationship. Simatupang and Sridharan (2005) further observe that in order to facilitate collaborative action through information exchange between a buyer and supplier, there is need for information sharing, joint decision making and incentive alignment.

Supplier commitment is highly related to performance of retail outlets (Centikaya and Lee, 2000). It is further emphasised by Malz, Arnold and Elliot (2008) that a reduction in order cycle time can result into on-time deliveries and thus contribute to customer satisfaction. Patel (2001) also argues that flexibility and responsiveness of suppliers also lead to customer satisfaction.

2.4.4 Risk sharing and performance of retail supermarkets

Risk sharing refers to sharing of losses between the suppliers and the mangers. Companies enter into collaboration with suppliers, out of the need to be competitive, flexible and efficient (Cousins, 1999; Hines, Lammings et al., 2000; Carr and Smeltzer, 1999). Competitive battles among companies are fought along supply chains, implying that the strength of a company is determined by the strength of its weakest supply chain partner (Best, 1990; Veludo, Macbeth and Purchase, 2004).

Supplier collaboration results into; reduction in inventory substantially, cost savings, reduced lead time and flexibility, which aspects contribute towards improved performance of the supply chain(Lee et al., 1997; Doherty, 2001; Selen and Soliman, 2002). Integration of supply chain operations through collaboration enables rapid response to changes in the market place, thus improving supply chain performance (McHugh et al., 2003). Simatupang and Sridharan (2002) and Mclvor and Humphreys (2002) further assert that developing collaboration relationship is a challenging task for supply chain members with the many challenges / difficulties associated with it. A lot of time, finances and effort have to be invested if the collaborative relationships are to work. Conflict between collaborative among partners cannot be completely avoided and therefore has to be managed. This conflict can easily affect supply chain performance negatively. Lack of mutual trust also makes it hard for collaborative relationships to succeed and improve supply chain performance (Simatupang and Sridharan, 2002).

In a study conducted by Jain (1994), it was established that with reduction in stock-outs, suppliers benefited through saving and receiving additional information on the demand patterns of customers; this contributed to better inventory planning. Better inventory planning and deliveries have been cited as major benefits for companies that use VMI. A study conducted by Chaouch (2001) found out that reducing variability in the amount and timing of the demand could increase the benefits that might accrue as a result of reduced prices.

2.5 Summary of the Literature Review

The literature reviewed revealed key gaps that called for conducting this study. Contextually, it is clear that vendor managed inventory has a relationship with performance of retail supermarkets. However, the literature ignored the basic indicators of vendor managed inventory like inventory flow management, the ICT system employed and the supplier-client relationship as adopted in

this study. Moreover, the literature does not particularly address Nakumatt Supermarket, which was the focus of this study. Methodologically, most of the literature reviewed was designed as a research paper without the required empirical basis of evaluating the study variables in a setting like Nakumatt Supermarket. Additionally, the literature reviewed was of work done in years before 2015 and yet the circumstances in many organizations change so rapidly, implying that such findings may have been overtaken by time.

This study was called for to currently verify what was happening in management of inventory flow, the ICT system employed and the supplier-client relationship on the performance of Nakumatt Supermarket. Results of this study showed that inventory flow management significantly affects performance of Nakumatt supermarket. On the second objective, it was revealed that the ICT systems employed had a significant effect on performance of Nakumatt supermarket. On the third objective, it was found out that the supplier-client relationship had a significant effect on performance of Nakumatt supermarket.

CHAPTER THREE:

METHODOLOGY

3.1Introduction

This chapter highlights the methodological aspects that guided this study. The chapter covers the research design, study population, sample size and selection criteria, sampling techniques, data collection methods and instruments, validity and reliability, procedure of data collection, data analysis and measurement of variables.

3.2 Research Design

For this study, a case study design was adopted to enable the researcher use one case to represent other retail supermarkets in Uganda. Using a case study guides the researcher to concentrate on one case and generalize what is happening elsewhere (Creswell, 2008). Therefore, using a case study guided the researcher in picking Nakumatt Supermarket to discover and generalize what is happening in other retail supermarket. The study employed a blend of qualitative and quantitative approaches. At the data collection stage, open ended interviews were administered to respondents to reflect the use of the qualitative design, whilst closed ended interviews and questionnaires to respondents to reflect the use of the quantitative design in Nakumatt Supermarket. Triangulation was used to minimize biases which are inherent in any single method as the results from one method can help inform the other (Creswell, 2008). Triangulation also provided a deeper understanding of the problem and eliminated preexisting assumptions by the researcher.

3.3 Study Population

The targeted study population was 102 respondents (Nakumatt Supermarket, 2016 staff list) which included; 3 managers in Nakumatt Supermarket, 4 supervisors and 75 General employees in Nakumatt Supermarket. In addition, the top 20 main suppliers in Nakumatt Supermarket from the list of suppliers for Nakumatt were also considered for the study. The managers and supervisors were selected because, by virtue of their positions, they were aware of the inventory management process adopted by the supermarket. The employees were chosen to gain their insight on the challenges faced in the inventory management process and how they affect performance of the outlet. For suppliers, these had been chosen to inform the research on the adequacy of VIM in Nakumatt Supermarket.

3.4 Sample size determination

In line with Krejcie and Morgan's sample selection table (Appendix IV), the study sample size constituted 89 respondents. Table 1 below shows a summary of how the sample size for the population was determined; it also shows the techniques used in the selection criteria for this study.

Table 1 Showing how determine the sample size for the population

Population category	**Population**	**Sample size**	**Techniques**
Managers	3	3	Purposive sampling
Supervisors	4	4	Purposive sampling
Nakumatt Employees	75	63	Simple random sampling
Suppliers	20	19	Convenience sampling
Total	**102**	**89**	

Source: ***Primary Data***

3.5 Sampling Techniques

A purposive sampling technique was used to select supervisors and managers. These were chosen purposively because they hold managerial positions and directly deal with inventory. This sampling technique was used on the assumption that they had a lot of knowledge and information on VIM by virtue of their positions, as Sekaran (2004) recommends. The convenience sampling was used to choose those suppliers in Nakumatt Supermarket that were accessible to researcher.

Simple random sampling techniques on the other hand was used to give every employee at lower levels in daily operation of Nakumatt Supermarket the opportunity to participate in the study by drawing a large number of staff with the help of random numbers selected from the given population in the table. This technique was chosen because it helped the selection process not to be biased and it reduced on the time and costs involved in the process.

3.6 Data Collection Methods

The study deployed methods that included, questionnaire survey, interview and document review;

3.6.1 Questionnaire Survey method

The researcher used structured questionnaires to gather data from suppliers and lower level employees of Nakumatt Supermarket. The questionnaire method was used because it was considered cost effective and a faster means of generating responses in the shortest period of time and from a wide range of respondents. Neuman (2010) also argued that closed ended questionnaires are easier to analyze because they are in an immediate usable form and are easier to administer, as possible responses options follow each question. Using questionnaires was therefore considered useful to the study and helped to ease the researcher's work.

3.6.2 Interview

The researcher used the interview method to collect primary data from managers and supervisors in Nakumatt Supermarket. The interview method involved use an interview guide that was semi-structured, as depicted in Appendix II. The interview method was considered appropriate, since the categories of aforementioned staff had the essential information yet little time to have the questionnaires filled (Sekaran, 2003). The interview method was based on questions on the VMI system in place and performance of Nkumatt Supermarket. Probing and prompting were concurrently employed in conducting interviews for opinions and perceptions.

3.6.3 Document Review

This method was used to primarily collect secondary data, guided by a documentary review checklist. Various documents from Nakumatt Supermarket, with literature related to the research subject provided secondary data sources and supplemented primary data from surveys and interviews (Creswell, 2008). Documents reviewed included Nakumatt Supermarket reports, records and Strategic plan. Other secondary data was got from manuals and annual reports, as well as other documents considered vital by the researcher. The document review was guided by a checklist that consisted of documents listed (Sekaran, 2003) particularly concerning VMI and on performance of Nakumatt Supermarket.

3.7 Data Collection Instruments

This section highlights the means by which data were collected from both primary and secondary sources. Both qualitative and quantitative methods were. Primary data were collected using self-administered questionnaires and interviews, while secondary data were obtained from review of documents such as journals, reports, planning documents, memos, and files.

3.7.1 Self-administered Questionnaire

Data was collected from lower level employees of Nakumatt Supermarket using closed ended questionnaires. According to Brymen & Bell (2007), use of a self-administered questionnaire allowed the researcher to collect data from many respondents in the shortest time. It also helps the researcher get information easily for subsequent analysis hence reducing on the error gap. The designed questionnaire included both open and closed ended items (Amin, 2005). Close ended questions were used with the five-point Likert scale with ;(5=Strongly Agree, 4=Agree, 3=Not sure, 2=Disagree and 1=Strongly Disagree)

3.7.2 Interview Guide

The study used interview guides to collect data from the key informants because it was user friendly, flexible and enabled the researcher to remain focused on the domains of the study thus generating in-depth information by probing some of the issues which arose during the interview (Saratankos, 2005). The interview guide consisted of questions on the VMI system in place and Performance of retail outlets. Probing and prompting were concurrently employed in conducting interviews for opinions and perceptions.

3.7.3 Document Review Checklist

The researcher used a document review checklist to peruse through various documents containing vital information about the status of various inventory plans, warehousing and in order to get acquainted with the situation relating to performance. Checklists were used to collect secondary data to enable verification of the primary data. Secondary data was got from manuals and annual reports, and other documents considered vital by the researcher. This consisted of a list of documents that mainly concerned issues of VMI and performance of retail supermarkets.

3.8 Quality control of Data Collection Instruments

In order to ensure that the data collected were valid and reliable, the data collection instruments were subjected to validity and reliability test, as further explained.

3.8.1 Validity

In a bid to generate relevant, accurate and reliable data, the data collection instruments were handed to two experts on the study field to inspect the instruments to look out for ambiguity, difficulty and relevancy of the questions being asked so as to ensure content and face validity. As such, the formulae used for computing the Content Validity Index (CVI) was as shown below;

$$CVI = \frac{\text{No. of items rated relevant}}{\text{Total no. of items}}$$

Results are presented in table 2 below;

Table 2: Content Validity Indices for the Questionnaire

Variable	Description	No. of Items	Content validity index
Independent	Management of Inventory flow	8	.878
	The ICT systems employed.	7	.866
	The Supplier-Client relationship	7	.770
Dependent	Performance	9	.815

Source: Primary data (2017)

As noted in table 2, the results of the Content validity Index for the questionnaire instrument indicated that it was valid, owing to the coefficients that were above 0.7, the least recommended CVI in survey studies, according to Amin (2004) and Gay (1996).

3.8.2 Reliability

To ascertain the reliability of the data collection instruments used, the tools were subjected to a pilot test using 10 subjects from Shoprite supermarket, at a time interval of four weeks. After the pilot test, the data were subjected to the Cronbach Alpha test, with the aid of Statistical Package for the Social Scientists (Foster, 1998). The results are as on Table 3**:**

Table 3: Reliability indices for the respective sections of the questionnaire

Variable	Description	No. of Items	Cronbach alpha
Independent	Management of Inventory flow	8	.831
	The ICT systems employed	7	.799
	The Supplier-client relationship	7	.872
Dependent	Performance	9	.787

Source: Primary data (2017)

Amin (2005) recommends that 0.7 is the least recommended Cronbach Value in survey studies. As such, since all items in the instrument posted reliability coefficients greater than 0.7, the instruments were considered reliable, modified and adopted for the final data collection.

3.9 Procedure for Data Collection.

The researcher got an authorization letter from UMI which was presented to the authorities of Nakumatt Supermarket as a request for permission to carry out research study in their organization. The researcher also attached a cover letter to the data collection instruments, that helped make clear the purpose of the study. Upon getting the permission to carry out the study, the researcher directly distributed the questionnaires to the staff of Nakumatt Supermarket for filling. Questionnaires were then collected for data analysis. The cover letter was equally presented to the managers of Nakumatt Supermarket to secure interviews. In addition, schedules

for the interviews were arranged with the respondents, after which interviews were conducted with the key informants.

3.10 Data Analysis

Raw data were collected and checked for completeness. Analysis and processing involved coding, editing, classification, presentation and interpretation in the form of frequency measures through which supporting or contrasting results of the original or new hypotheses statistically tested so as to ascertain the extent to which the data can be said to indicate and reach conclusions (Kothari, 2004).

3.10.1 Quantitative Data

Descriptive and inferential statistics aided in the analysis of quantitative data. For the descriptive statistics, percentages and frequencies were used to find out the proportion of respondents and their views on the different variable attributes that were used to measure vendor managed inventory and performance. Spearman rho coefficient and regression were used to test the hypothesis (Oso and Onen, 2008). For the inferential statistics, the Spearman correlation was used in order to ascertain the nature, direction and strength of relationship between the independent and dependent variables (Oso and Onen, 2008). The linear relationship between variables was determined by regression coefficient (R). This was squared to determine how much variance in the dependent variable is caused by the independent variable. How each of independent variable significantly contributed to the dependent variable was determined by the coefficient of the regression.

3.10.2 Qualitative Data

Content and thematic analysis methods were used for the analysis of qualitative data. Using content analysis method, qualitative data were organized into meaningful patterns in accordance with the study objectives. For the thematic analysis method, data were organized into identifiable themes and codes (Sekaran, 2003). Following successful data collection, the qualitative data was compared with the findings from the quantitative data and thereafter, a report was compiled. \

3.11 Measurement of Variables

Variables as gender, age, level of education, years of experience, among others were measured using a nominal scale. On the other hand, the ordinal scale, using the five point Likert type scale (1- strongly disagree, 2-disagree, 3-not sure, 4- agree and 5-Strongly agree) was used to measure the independent variable (Vendor managed inventory) and the dependent variable (performance) (Brymen and Bell, 2007). The choice of Likert scale of measurement was premised on the fact that each point on the scale carries a numerical score which is used to measure the respondents' attitude and it is the most frequently used summated scale in the study of social attitude. According to Mugenda (2003) and Amin (2005), the Likert scale aids in measuring perceptions, attitudes, values and behaviors of individuals towards a given phenomenon.

3.12. Ethical considerations

The researcher ensured privacy of the study subjects and informed them prior to seeking their views that they were free not to indicate their names on the questionnaires. In addition, the researcher gave the respondents the assurance that they were at liberty to leave some questions unanswered if they wished so, without facing any repercussions (Mugenda and Mugenda, 2003). For confidentiality purposes, the researcher informed the study participants that whatever

responses they shared would be strictly used for none other than academic purposes and that whatever private views they shared would be treated as confidential (Amin, 2005).

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

4.1. Introduction

This study was conducted to examine the effect of vendor managed inventory on performance of retail supermarkets in Uganda using a case study of Nakumatt Supermarket. This chapter presents the study findings in accordance to the study objectives. The first section entails results on the background characteristic of the respondents. The second section gives the empirical analysis of the study findings (findings on the effect of inventory flow management; the ICT systems employed and the supplier-client relationship and findings on performance of Nakumatt supermarket). The last section handles the testing of hypotheses that were set for this study to prove or disprove.

4.2. Response rate

The response rate of the study is shown in table 4, which was computed by dividing the total number of respondents who actually took part in the study with the total number that was sampled, and then multiplied by 100 so as to express it in percentage form.

Table 4: Showing the response rate

Respondents	**Sample size**	**Frequency**	**Response Rate**
Managers	3	3	66.7%
Supervisors	4	4	50%
Nakumatt Employees	63	60	95.2%
Suppliers	19	18	94.3%
Total	**89**	**84**	**94.4%**

Source: Primary data (2017)

Table 4 indicates that out of the 89 respondents that were targeted for investigation, 84 were able to respond to the study. The remaining 5 from (Suppliers and Lower level Nakumatt Employee's) could not be reached by the researcher in the specified time while some wrongly filled the questionnaire. According to Amin (2005), 70% of the respondents are enough to represent the sample size set for the study. This means that 94.4% was adequate for this study.

4.3. Background characteristics of the respondents

This theme handles the background information on the respondents that participated in the study. The characteristics included; gender, age, level of education and time spent working with Nakumatt Supermarket.

4.3.1. Gender of the respondents

To understand the gender of the respondents, the researcher recorded their gender and fig. 2 gives a summary of the results that were obtained.

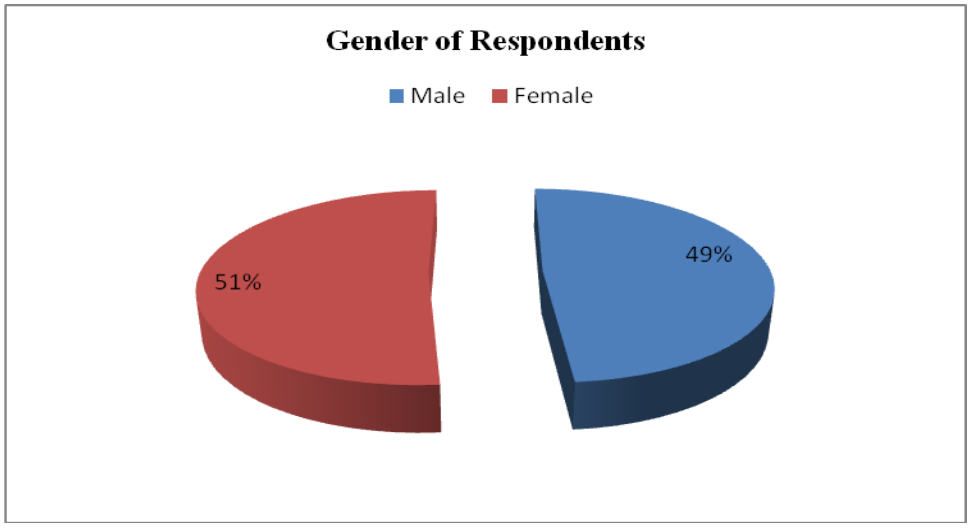

Figure 2: Gender of the respondents

Source: Primary data, 2017

From figure 2, it is indicated that majority of the study respondents (51%) were female, while 49% were male. Though majority of the respondents were female, which is characteristic of most female outlets that tend to have more female than male employees, the fact that males too were represented is an indication that the study was gender sensitive as views of both male and female were well represented.

4.3.2. Respondents Age

To find out the age of the respondents (Suppliers: 18, and Lower level Nakumatt Employee's: 60), respondents were asked to give their age ranges. Emergent results are presented in figure 3.

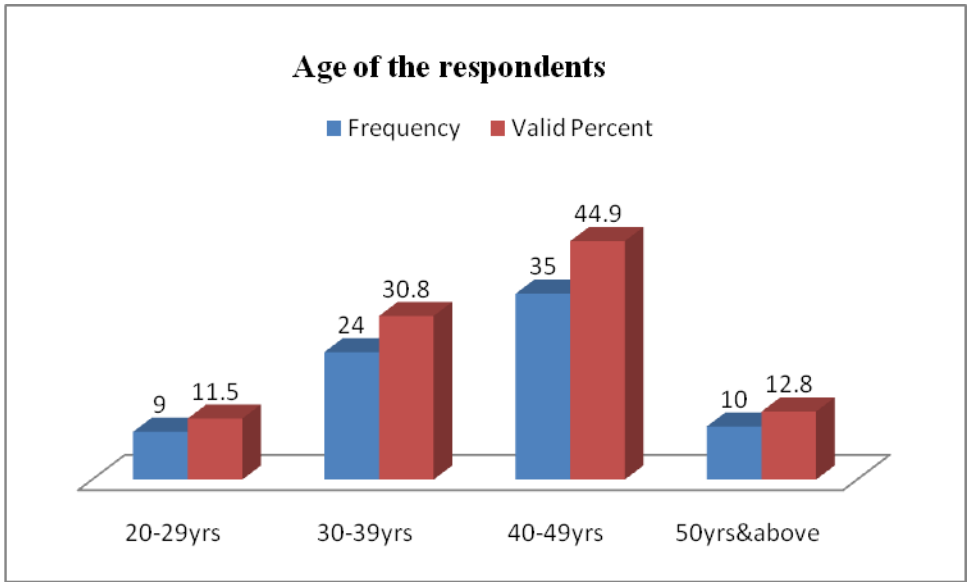

Figure 3: Rrespondents *Age*

Source: Primary data, 2017

Figure 3 shows most respondents were in the age bracket of 40-49years and these took the highest toll of 44.9%. Those who were in the category of 30-39 constituted 30.8%, the category of 20-29years was represented by 11.5% and those who were above 50yrs were represented by 12.8%. The above statistics show that majority of the study participants were 30years and above.

These age groups are associated with having sufficient work experience and were therefore likely to offer more reliable and accurate data.

4.3.3. Education level of the Respondents

Respondents (Suppliers: 18 and Lower level Nakumatt Employee's:60) were also asked to indicate their highest level of education attainment. Results showed that most of them had a bachelor's degree as further shown in figure 4.

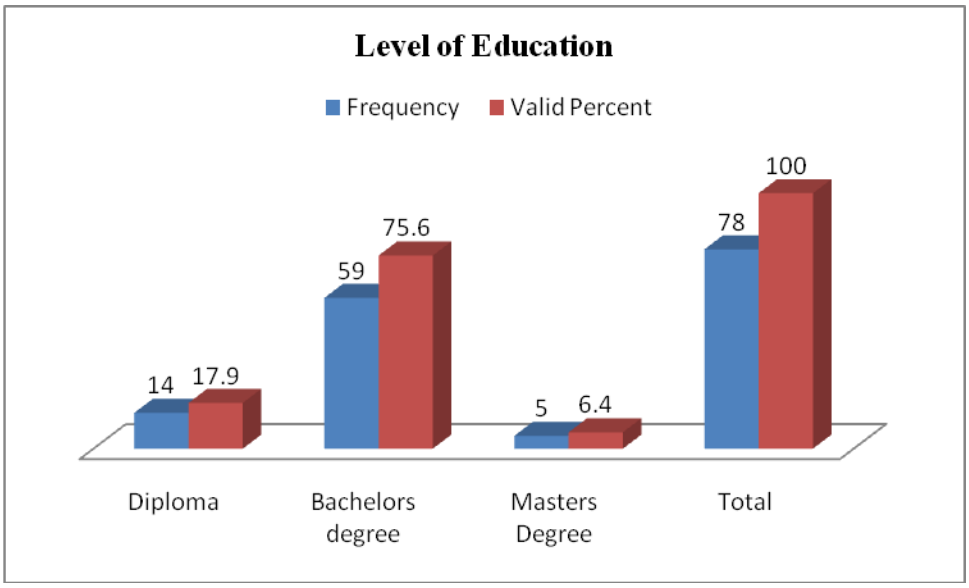

Figure 4: Education level of the respondents

Source: Primary data, 2017

Figure 4 indicates most respondents in Nakumatt Supermarket had attained a bachelor's degree as their highest level of education attainment and these constituted 75.6% of the respondents. Further, 17.9% of the respondents had a diploma, 6.4% of the respondents represented master's degree holders. Basing on the above findings, the study engaged both higher educated and lower educated respondents. This means that it provided balanced pictures in regard to the mental and cognitive capacity of the respondents and thus the obtained results were likely to be accurate.

4.3.4. Time spent working with Nakumatt Supermarket

Respondents (Suppliers: 18 and Lower level Nakumatt Employee's:60) were asked to indicate the time spent working with Nakumatt Supermarket. Figure 5 illustrates the responses.

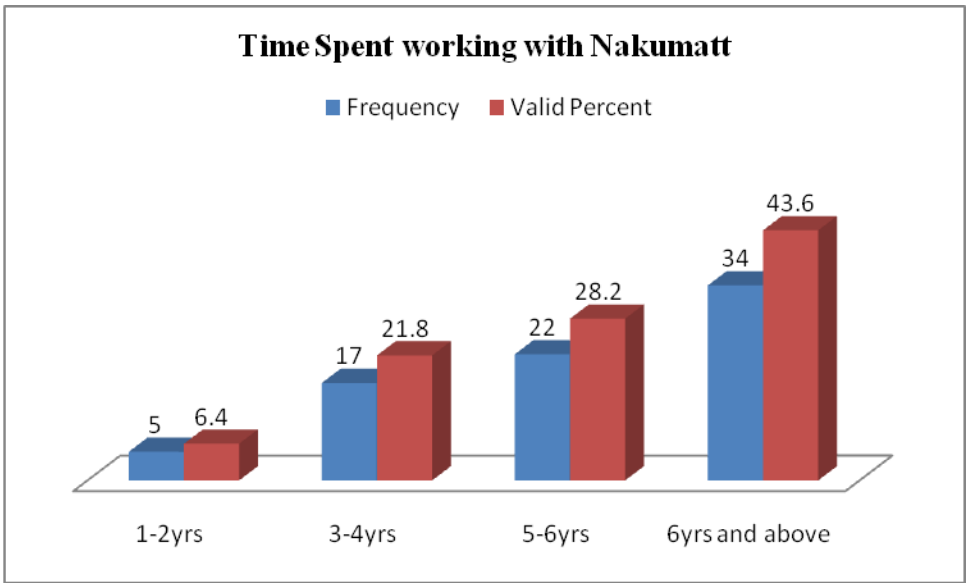

Figure 5: Time spent working with Nakumatt Supermarket

Source: Primary data, 2017

Figure 5 shows that most of the respondents had worked with Nakumatt Supermarket for over 6years and these took 43.6% of the respondents. Over twenty eight percent (28.2%) of the respondents had worked with Nakumatt for 5-6years; those who had spent between 3-4years were represented by 21.8% and the last category of those who had spent 1-3years was represented by 2.7%. This therefore, means that the responses to the study questions were obtained from people who had enough experience in observing the trends as far as Vendor Managed Inventory and performance of Nakumatt Supermarket was concerned.

4.4. Descriptive analysis

In this section, the research findings are presented as per the study objectives. These findings were obtained on the study variables including; inventory flow management; the ICT systems employed, the supplier-client relationship and performance of Nakumatt supermarket.

4.4.1. Findings on the performance of Nakumatt Supermarket

To understand the performance of Nakumatt supermarket, the respondents were engaged to have their say on different items. Computing of responses was done by aggregating 9-item questions on a 5point Likert scale (5=Strongly Agree, 4=Agree, 3=Not sure, 2=Disagree and 1=Strongly Disagree), which sought to find out the opinions of the respondents on the performance of Nakumatt supermarket.

Table 5: Descriptive Statistics on performance of Nakumatt supermarket

	Percentage responses (%)					Mean	Std. Dev.
	SD	**D**	**N**	**A**	**SA**		
Ordering and carrying costs have been reducing	41.02% (32)	46.15% (36)	1.28% (1)	8.97% (7)	2.56% (2)	1.85	1.021
The supermarket pays no obsolescence costs	10.2% (8)	56.4% (44)	9% (7)	34.6% (28)	5.1% (4)	1.90	1.181
Our profit margin has increased in the past three years	5.1% (4)	11.5% (9)	5.1% (4)	42.2% (33)	35.8% (28)	3.96	.700
Nakumatt supermarket's income every year represents a good percentage of shareholder equity	7.7% (6)	3.8% (3)	3.8% (3)	57.7% (45)	27% (21)	3.97	.689
Holding costs for inventories have been reducing for the last three years	3.8% (3)	5.2% (4)	6.4% (5)	53.8% (42)	30.7% (24)	4.06	.507
The percentage of losses incurred by the supermarket is very minimal	7.7% (6)	9% (7)	11.5% (9)	46.2% (36)	25.6% (20)	4.13	.497
The supermarket makes normal profits	2.6% (2)	3.8% (3)	7.7% (6)	43.6% (34)	42.2% (33)	4.18	.640
Our customers have increased for the last three years	3.8% (3)	2.6% (2)	2.6% (2)	43.6%(34)	47.4%(37)	4.21	.639
Our sales have showed an upward trend for the last three years	5.2% (4)	2.6% (2)	1.3% (1)	50% (39)	41% (32)	4.41	.666

Source: Primary data, 2017

Results in table 5 show that most mean items were above 3.5. Basing on the likert scale of 5-strongly agree to 1-strongly disagree, any data mean of above 3.5 shows presence of the variable under the study. This statistically means that most respondents agreed to most of the opinion statements about the performance of Nakumatt supermarket.

A mean response of 4.41 was registered in response to whether the Nakumatt supermarket's sales had shown an upward trend for the past three years. The frequency responses also showed that most of the respondents (50%) had indicated agreement to the same item, implying that Nakumatt supermarket had been making good sales over years. The degree of sales has a bearing on the profitability of a business and therefore, the result shows that that Nakumatt was in a comfortable position in terms of performance.

Further, majority of the respondents indicated that Nakumatt's customers had increased for the last three years, as indicated by a mean response of 4.21. The increase in volume of customers over time could be interpreted to mean that a wide range of products were available and thus served as an attraction to customers. The result also shows that the performance of Nakumatt was satisfactory.

It was further revealed by majority respondents (Mean= 4.18) that Nakumatt supermarket makes normal profits. This implies that the supermarket was profitable and profitability is an indicator of good performance. Related to profitability was the view that the percentage of losses incurred by the supermarket is very minimal, which was shared by majority of the respondents, as revealed by the mean response of 4.13.

Concerning the holding costs for inventories and whether they had been reducing for the past three years, a mean of 4.06 was registered. The high mean response (given the scale of 1 – 5) indicated that majority of the respondents affirmed the statement. The deduction in holding costs is yet another measure of good performance, implying that Nakumatt was in a comfortable lead as far as performance was concerned.

Further, it was revealed through the responses that Nakumatt Supermarket's income every year represented a good percentage of shareholder equity, as shown by the mean of 3.97, an indication that majority of the respondents agreed to the opinion statement. The trend of responses meant that Nakumatt Supermarket had enough liquidity, made enough sales and was therefore profitable.

However, while other responses showed that the supermarket had a comfortable position in its performance, there were some challenges that had to be surmounted. For instance, a mean response of 1.85 on whether the ordering and carrying costs had been reducing implied that the vendor's were not managing their inventory well, leading to an increase in the cost of doing business for Nakumatt. This would ultimately affect its profitability and negatively affect its overall performance.

More responses were sought through interviews from key informants so as to validate the findings obtained using the questionnaire approach. The interview responses are presented hereunder.

On profitability, one of the key informants was quoted saying;

> *"The level of our performance has been quite good especially in non-perishable goods that have a higher expiry date than these perishable goods that takes less time to expire…perishable goods have less profits…"*

The above response can be interpreted to mean that in Nakumatt supermarket vendor managed inventory was not really keenly employed for perishable goods. This was an indication of a gap in VIM, which would have addressed the issue of goods perishing in the supermarket and reduce the losses incurred by automatically managing supplies in the best time possible.

Responding to the level of product availability and product fill rate, one key informant shared thus;

> *"Our supermarket has reliable suppliers who are competent enough in ensuring that all goods are available…we often use invoices that are sent to our suppliers in time and I am sure 80% of the products that customers need are in place."*

The above quotation shows that while most of the products needed by the customers (80%) were available in Nakumatt Supermarket, the 20% which are unavailable could still have a negative bearing on the performance of the supermarket. This gap (20%) could be attributed to other problems causing delays in the VMI system. Basing on the responses from the questionnaire and interviews that were conducted, it can was noted that performance of Nakumatt supermarket was relatively good, though still affected by other factors that were likely to cause delays.

4.4.2. Findings on management of inventory flow in Nakumatt Supermarket

To find out how Nakumatt Supermarket managed its inventory flow, respondents were introduced to different items to have their say. Their responses were computed by making an

aggregate of responses from 10-items on a 5point Likert scale (5=Strongly Agree, 4=Agree, 3=Not sure, 2=Disagree and 1=Strongly Disagree), which sought to measure how the inventory flow is managed in Nakumatt Supermarket. Responses were categorized according to their frequencies, means, percentages and standard deviation as follow;

Table 6: Descriptive Statistics on management of inventory flow in Nakumatt Supermarket

Items	**SD**	**D**	**N**	**A**	**A**	**Mean**	**Std. Dev.**
We make accurate forecasts for our inventories which match with our customer demand in Nakumatt	3.8% (3)	51.2 (40)	6.4% (5)	32% (25)	6.4% (5)	2.15	.994
Inventory demand forecasting in Nakumatt Supermarket is always accurate	21.8% (17)	3.8% (3)	9% (7)	64.1%(50)	1.3% (1)	2.62	.760
Nakumatt Supermarket always has enough supplies to meet the customer needs	3.8% (3)	3.8% (3)	6.4% (5)	51.2%(40)	34.6% (27)	3.53	.716
We share information on delivery schedules with our vendors	5.1% (4)	5.1% (4)	11.5% (9)	42.2% (33)	35.8% (28)	3.68	.781
Inventory demand Forecasting is always carried out in Nakumatt Supermarket	3.8% (3)	3.8% (3)	7.7% (6)	57.7% (45)	27% (21)	3.97	.911
There is an inventory plan in Nakumatt Supermarket	5.1% (4)	6.4% (5)	3.8% (3)	46.1% (36)	38.4% (30)	4.24	.793
Order processing is well stipulated out in our inventory management plans	10.2% (8)	5.1% (4)	11.5% (9)	28.2%(22)	44.8% (35)	4.64	.483
Transportation modes are well defined in our inventory plans at Nakumatt Supermarket	3.8% (3)	3.8% (3)	23% (18)	28.2% (22)	41% (32)	4.71	.459

Source: Primary data, 2017

Results in table 6 show that most mean items were above 3.5. Basing on the likert scale of 5-strongly agree to 1-strongly disagree, any data mean of above 3.5 indicates that most responses were in agreement to the different questionnaire items.

As to whether transportation modes were well defined in the inventory plans at Nakumatt Supermarket, a mean response of 4.71 was registered. The response can be interpreted to refer to

ease of managing inventory, since the modes of transport were agreed on and well defined. This contributed to an improvement in the functioning of the overall VMI in Nakumatt and could thus enhance the supermarket's performance. Further, it was established that majority respondents (mean =4.64) affirmed the view that order processing was well stipulated out in the inventory management plans of Nakumatt supermarket. The trend of responses, where by most of the respondents agreed can be interpreted to mean that VMI had eased the process of making orders, which could enhance product availability and ease product fill rate.

In addition, a mean response of 4.24 was obtained in relation to whether Nakumatt supermarket had an inventory plan. An inventory plan facilitates demand forecasts, an essential aspect in meeting the needs of the customers at all times. Results also showed that majority respondents (mean =3.97) subscribed to view that inventory demand Forecasting was always carried out in Nakumatt Supermarket, implying that not only did Nakumatt have an inventory plan but the plan was well adhered to. The results could thus be interpreted to mean that the VMI system was well adhered to and this positively impacted on the performance of the supermarket.

Notably still, majority respondents (mean =3.68) indicated that there were mechanisms for sharing information on delivery schedules with the vendors. This implied that there is timely replenishment at Nakumatt Supermarket, a sign of a functional VMI which can result in good performance of the retail outlet. Further, it was observed through majority respondents that Nakumatt Supermarket always had enough supplies to meet the customer needs (mean =3.53). This result implies that the supermarket made accurate demand forecasts which are important in meeting customer needs and increasing sales. Generally, the above statements implied that Nakumatt Supermarket had measures in place to ensure a well-managed inventory flow system.

However, some of the responses indicated that there were still challenges in the management of inventory flow. For instance, a mean of 2.62 was obtained in response to whether inventory demand forecasting in Nakumatt Supermarket was always accurate. This seemed contrary to the view that there were enough supplies in Nakumatt supermarket. The result thus implied that in some instances, the demand forecasts were not always accurate and could not meet the requirements of the customers.

4.4.2.1. Correlation results on management of inventory flow and performance of Nakumatt Supermarket.

The first null hypothesis stated, "Inventory flow management has a significant effect on performance of retail supermarkets in Uganda." The hypothesis was tested by Spearman correlation coefficient (rho). Table 7 presents the test results.

Table 7: Correlation results

			Management of Inventory flow	Performance
Spearman's rho	Management of Inventory flow	Correlation Coefficient	1.000	.669**
		Sig. (2-tailed)	.	.022
		N	78	78
	Performance	Correlation Coefficient	.669**	1.000
		Sig. (2-tailed)	.022	.
		N	78	78

**. Correlation is significant at the 0.05 level (2- tailed).

Source: Primary data, 2017

Findings show that there was a significant positive correlation (*rho* = .669) between management of inventory flow and performance of Nakumatt Supermarket. These findings were subjected to a test of significance (p) and it is shown that the significance of the correlation (p = .022) is less than the recommended critical significance at 0.05. Thus, the relationship was

significant. Because of this, the hypothesis, *"Inventory flow management has a significant effect on performance of retail supermarkets in Uganda"* was accepted.

The correlation finding thus implies that management of inventory flow has a positive relationship with performance of Nakumatt Supermarket. The positive influence implies that a positive change in how inventory flow is managed relates to a significant change in performance of Nakumatt Supermarket. The positive nature of the correlation implied that inventory flow must be managed well if performance of Nakumatt Supermarket is to be achieved.

The correlation results were also in agreement with the views of a number of key informants. For instance, one key informant shared thus;

> Over time, we have always realized that the moment you fail to make the required demands, it is likely that you will lose money and customers…for instance, we as a company, we always make demand forecasts while working with our clients. From our forecasts, we always make inventory plans which I think have been the basis of our financial improvement each and every year because our financial targets are clearly met…

The above findings imply that the company has sustainably managed its inventory flow and this has been the basis for its improvements in its performance. However, on the other hand, one interviewee seemed to hold a view contrary to the above:

> Inventory forecasts are often made but you cannot always be accurate because a lot of crises emerge…some items sell more in different seasons, for example scholastic items sell more when students are returning to school than in the festive seasons…such trends tend guide us but cannot just be predicted to the exact extent…this thus finds us either in scarcity or with more than enough. This affects the performance of supermarket…

The above finding indicates that there are still challenges in the management of inventory flow and planning. The challenges could include lack of an instant communication system, lack of electronic data interchange links that connect the suppliers to the supermarket, all of which show

that the available VMI system is still a traditional one as opposed to being a fully integrated one. This situation was further echoed by another key respondent who shared thus;

> We have in place sales reports that are made every month and these tell us exactly the basket value of our customers or help us to determine the flow of the customers and sales in our store…these have been important basis we consider before we place orders with our suppliers… our stock position are not shared with vendors, we use sales reports, basket values to determine demand before placing orders.

The trend of responses shared in this section suggests that Nakumatt Supermarket had not fully adopted an integrated vendor managed inventory system but rather still used a local or traditional system that could not automatically inform suppliers on the stock position.

Lack of a fully integrated system causes delays in replenishment causes stock outs, affecting product availability and product fill rate which in the end, negatively affects the profitability of the supermarket. Having a fully automated and integrated VMI system eliminates bureaucracy. These findings however seemed a bit contrary with the documents reviewed. For instance, according to Nakumatt Supermarket Strategic plan (2012/2017), the company made it policy that inventory plans are produced and propagated before orders are processed. The annual report of the supermarket (2013) indicates that this has helped the company to achieve more profits in its operations.

4.4.2.2. Regression results for inventory flow management and performance of Nakumatt Supermarket

A further analysis was conducted using a regression to determine the effect of inventory flow management on performance of Nakumatt Supermarket. Findings are presented in Table 8, accompanied by analysis and interpretation.

Table 8: Model summary between inventory flow management and performance of Nakumatt Supermarket

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.102	.170		6.467	.000
	Management of Inventory flow	.306	.054	.500	5.693	.000
Dependent variable: performance						
	R square	.447[a]			F-statistics	33.098
	Adjusted R Square	.415			Sig.	0.01

Source: Primary data, 2017

Findings in Table 8 show a strong linear relationship (Multiple R =.447) for inventory flow management and performance of Nakumatt Supermarket. The adjusted R Square (.415) shows that inventory flow management account for 41.5% change in performance of Nakumatt Supermarket. These findings were subjected to an ANOVA test, which showed that the significance (Sig F = 0.01) of the Fishers ratio (F = 33.098) was less than the critical significance at .05. Hence, the findings were accepted. Interview findings supported the findings obtained from questionnaires.

4.4.3. Findings on the ICT systems employed at Nakumatt Supermarket.

To understand whether Nakumatt Supermarket employed suitable ICT systems in its VMI operations**,** respondents were introduced to different items to give their opinions. Their responses were computed by making an aggregate from 7-items on a 5point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Not sure, 4=Agree and 5=Strongly Agree), which sought to measure the suitability of ICT systems employed in Nakumatt Supermarket. These were categorized according to their frequencies, percentages, means and standard deviation as follows:

Table 9: Descriptive Statistics on the ICT systems employed at Nakumatt Supermarket

	Percentage responses (%)					Mean	Std. Dev.
	SD	**D**	**N**	**A**	**SA**		
Our suppliers have the ability to use ICT in managing and monitoring inventories	40% (32)	44.8% (36)	1.3% (1)	7.7% (7)	3.8% (3)	1.43	.497
Nakumatt supermarket has automatic central information system that manages inventories	21.8% (17)	64.1% (50)	9% (7)	3.8% (3)	1.3% (1)	1.70	.707
There is a reliable system to track the movement of materials	5.1% (4)	11.5% (9)	5.1% (4)	42.2% (33)	35.8% (28)	3.55	.644
Supplies are well monitored using information systems	7.7% (6)	3.8% (3)	3.8% (3)	57.7% (45)	27% (21)	3.76	.674
We can now easily share information on inventories with suppliers	3.8% (3)	5.2% (4)	6.4% (5)	53.8% (42)	30.7% (24)	4.22	.726
A supervision checklist on inventory systems is in place, against which timely and quality indicators are checked.	3.8% (3)	3.8% (3)	23% (18)	41% (32)	28.2% (22)	4.23	.797
Our suppliers clearly communicates to us through online	3.8% (3)	2.6% (2)	2.6% (2)	43.6% (34)	47.4% (37)	4.50	.503

Source: Primary data, 2017

Results in table 9 show that most mean items were above 3.5. Among the 7-items introduced to respondents, 5-items indicated a data mean above 3.5 and 2-items had data means below 3.5.

Based on the scale of 5-strongly agree to 1-strongly disagree, any data mean of above 3.5 shows presence of the variables understudy.

Responses to whether Nakumatt's suppliers clearly communicated online showed a mean response of 4.50. This means that Nakumatt had in place an online trading system that enabled it to communicate to its clients in time. This is interpreted as having a well performing VMI in place. Besides, as to whether a supervision checklist on inventory systems was in place, against which timely and quality indicators are checked, the registered mean response was4.23, implying that most of the respondents were in agreement. The response also showed that Nakumatt Supermarket took time to automatically monitor time and quality which is too vital in meeting the required performance of the supermarket.

Further, it was widely affirmed by the respondents (mean =4.22) that Nakumatt supermarket could easily share information on inventories with suppliers. The result implies that the VMI was efficiently functioning to appropriately meet fill rate. Moreover, most respondents (mean =3.76) agreed that supplies were well monitored using information systems, which further illustrates how the ICT system can meet the daily demands of the customers and report to suppliers. In addition, it was generally agreed that there was a reliable system to track the movement of materials, as indicated through the mean response of 3.55. The implication of the results is that Nakumatt's VMI was quite reliable and could meet the needs of the customers at any given time. The well functioning of the VMI meant that there was a well-functioning ICT system in place which could enable Nakumatt to meet its performance requirements.

However, basing on a few divergent responses, it could be noted that Nakumatt Supermarket still lacked an optimum ICT systems. For instance, a mean of 1.7 in response to whether Nakumatt

supermarket had automatic central information system that manages inventories showed that most respondents negated the statement. In addition, a weak mean response of 1.43 was obtained in regard to whether Nakumatt's suppliers had the ability to use ICT in managing and monitoring inventories. These implied that the suitability of the ICT systems was still below the required standards since it lacked an automatic central information system that manages inventories and the inability of suppliers to use ICT in managing and monitoring inventories was also presumed to have an effect on performance of Nakumatt Supermarket.

4.4.3.1 Correlation results on the ICT systems employed and performance of Nakumatt Supermarket

To test if the ICT systems employed had a relationship with performance of Nakumatt Supermarket, a spearman rho correlation coefficient was done and the results are shown in Table 10 below. To verify this hypothesis, a null hypothesis was derived that *"The ICT systems employed significantly affects performance of retail supermarkets in Uganda."*

Table 10: Correlation results

			The ICT systems employed	Performance
Spearman's rho	The ICT systems employed	Correlation Coefficient	1.000	.544**
		Sig. (2-tailed)	.	.039
		N	78	78
	Performance	Correlation Coefficient	.544**	1.000
		Sig. (2-tailed)	.039	.
		N	78	78

**. Correlation is significant at the 0.05 level (2-tailed).

Source: Primary data, 2017

Findings show that there was a significant positive correlation (*rho* = .544) between the ICT systems employed and performance of Nakumatt Supermarket, which means that the ICT systems employed accounted for 29.5% (.544 x.544) change in performance. These findings were subjected to a test of significance (p) and it is shown that the significance of the correlation (p = .039) is less than the recommended critical significance at 0.05. Thus, the relationship was statistically significant and therefore, the hypothesis; *"The ICT systems employed significantly affects performance of retail supermarkets in Uganda"* was accepted.

The findings further imply that there exists a positive relationship between ICT systems employed and performance of Nakumatt Supermarket. The positive significant relationship implies that a positive change in suitable ICT systems contributes to a corresponding change in performance of Nakumatt Supermarket.

The above findings from the correlations and the questionnaires were further supported by qualitative findings as follows: From one of the key informants, it was noted;

> As a supermarket our ICT system is highly improved internally but still lacking external based communication with our suppliers….for instance, internally, Nakumatt supermarket has in place electronic point of sales and internal data exchanges, and these have been important in ensuring that products have required bar codes recognized by UNBS, and ISO. However, externally, we are still using phone calls and emails to reach to our suppliers.

The above quotation suggests that Nakumatt supermarket still lacks an optimum ICT system especially externally. Internally, the system is working and well automated but externally, suppliers cannot automatically monitor the stock position. Suppliers rely manually on the vendors stationed on the shop flow and from local purchase orders from the supermarket. This implies that collaborative planning, forecasting and replenishment of stock is negatively affected.

Therefore lack of a fully integrated VMI system partly explains the delays which ultimately affect performance of the supermarket.

In a related view, another key informant supported the above explanation as;

> Most of the delays we have in our supermarket are basically invoice delays that affect timely delivery of supplies in certain instances, other than the technical capability…our suppliers have enough capacity to deliver in time and quality required.

The above findings imply that the existing internal system has to some extent contributed to Nakumatt's good performance, though fully automating and integrating the system with its upstream suppliers would further improve performance.

4.4.3.2. Regression results for ICT systems employed and performance of Nakumatt Supermarket

Further analysis was conducted using a regression to determine the extent to which the ICT systems employed affect performance of Nakumatt Supermarket. Findings are presented in **Table 11**, accompanied with an analysis and interpretation.

Table 11: Model summary

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.181	.347		3.401	.001
	ICT systems employed	.669	.086	.315	3.263	.002
Dependent variable: performance						
	R square	.295[a]			F-statistics	125.666
	Adjusted R Square	.290			Sig.	0.01

Source: Primary data, 2017

Findings in Table 11 show a strong linear relationship (Multiple R = .295) between the ICT systems employed and performance of Nakumatt Supermarket. Going by the adjusted R Square, it is shown that the ICT system employed account for 29% change in performance of Nakumatt Supermarket. These findings were subjected to an ANOVA test, which showed that the significance (Sig F = 0.01) of the Fishers ratio (F = 125.666) was less than the critical significance at .05. Hence, the findings were accepted.

4.4.4. Findings on Supplier-Client relationship at Nakumatt supermarket.

To understand whether Nakumatt supermarket has in place strong supplier-client relationships, respondents were introduced different items to have their say. Their responses were computed by making an aggregate from 7-items on a 5point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Not sure, 4=Agree and 5=Strongly Agree), which sought to measure the supplier-client relationships in Nakumatt Supermarket. Responses were categorized according to their frequencies, means, percentages and standard deviation as follow;

Table 12: Descriptive Statistics on Supplier-Client relationship at Nakumatt supermarket

Items	SD	D	N	A	A	Mean	Std Dev.
Our suppliers adhere to joint agreements on inventory changes.	2.6% (3)	50% (39)	9% (7)	32% (25)	6.4% (5)	1.50	.503
All logistical and shop flow risks are shared with suppliers.	14.1% (11)	51.2%(40)	9% (7)	34.6% (28)	5.1% (4)	1.62	.490
Our suppliers/vendors have the capacity to deliver in the just in time set	35.8% (28)	42.2% (33)	11.5% (9)	5.1% (4)	5.1% (4)	1.62	.490
Our suppliers fulfils our inventory requirements issued to them	3.8% (3)	3.8% (3)	6.4% (5)	51.2% (40)	34.6% (27)	3.71	.854
Our suppliers/vendors are trustworthy	10.2% (8)	5.1% (4)	11.5% (9)	44.8% (35)	28.2% (22)	3.80	.922
Our suppliers/vendors are reliable	3.8% (3)	3.8% (3)	7.7% (6)	57.7% (45)	27% (21)	3.81	1.652
Our suppliers clearly adhere to our inventory schedules	5.1% (4)	6.4% (5)	3.8% (3)	46.1% (36)	38.4% (30)	4.29	.899

Source: Primary data, 2017

Results in table 12 show that most mean items were above 3.5. Among the 7-item questions introduced to respondents, 4-items were indicated with a data mean above 3.5 and 3-items below 3.5. Based on the scale of 5-strongly 1-strongly disagree agree, any data mean of above 3.5 presence of variable under the study. This thus, statistically means that the supplier-client relationship was generally positive in Nakumatt Supermarket.

Results in table 12 show that most mean items were above 3.5. Basing on the likert scale of 5-strongly agree to 1-strongly disagree, any data mean of above 3.5 shows presence of the variable under the study. This statistically means that most respondents agreed to most of the opinion statements about the performance of Nakumatt supermarket.

Responses as to whether Nakumatt's suppliers clearly adhered to the inventory schedules registered a mean of 4.29, implying that there was majority affirmation. In this case, adhering to the established schedule by the suppliers implies reliability of supplies and thus better performance of the supermarket. In a related view, a mean of 3.81 was obtained in response to whether Nakumatt's suppliers/vendors were reliable; and a mean of 3.80 was registered pertaining whether the suppliers/vendors were trustworthy. The responses here meant that the client-supplier relationship at Nakumatt supermarket was favorable and therefore likely to have a positive bearing on performance.

It was also noted that most respondents (mean =3.71) affirmed the view that Nakumatt's suppliers fulfilled the inventory requirements issued to them. This thus implies that Nakumatt Supermarket's suppliers clearly adhered to inventory schedules, were reliable, trustworthy and

fulfilled inventory requirements and therefore the supermarket was always assured of reliable supplies of the necessary items.

However, some of the responses were indicated with means below 3.5 which principally meant that there are still challenges in managing the client- supplier relationship at Nakumatt Supermarket. For instance, a mean of 1.62 was registered concerning whether Nakumatt's suppliers/vendors had the capacity to deliver in the just in time set. This meant that there was a gap in terms of timely delivery of the necessary items, which could negatively affect performance. As to whether suppliers adhered to joint agreements on inventory changes, a mean response of 1.50 was observed, while a mean of 1.62 was registered in line with whether all logistical and shop flow risks were shared with suppliers. Such results showed that Nakumatt Supermarket suppliers/vendors did not have sufficient capacity to deliver in the just in time set and moreover, all logistical and shop flow risks were not shared with Nakumatt. All these are indicators of challenges embedded within the supplier-client relationship in Nakumatt supermarket that could thus have a negative bearing on performance.

4.4.4.1 Correlation results on the supplier-client relationship and performance of Nakumatt supermarket

To test if the supplier-client relationship had an effect on performance of Nakumatt supermarket, a spearman rho correlation coefficient was done by the study and the results are shown in Table 13 below. To verify this hypothesis, a null hypothesis was derived that *"The supplier-client relationship significantly affects performance of retail supermarkets in Uganda."*

Table 11: Correlation results

			The Supplier-client relationship	Performance
Spearman's rho	The Supplier-Client relationship	Correlation Coefficient	1.000	.276*
		Sig. (2-tailed)	.	.041
		N	78	78
	Performance	Correlation Coefficient	.276*	1.000
		Sig. (2-tailed)	.041	.
		N	78	78

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Primary data, 2017

A weak positive correlation is shown from the findings (*rho* = .276) between the Supplier-Client relationship and performance of retail outlets. Thus, findings show that the supplier-client relationship accounts for 7.6% change in performance of Nakumatt Supermarket. These findings were subjected to a test of significance (p) and it is shown that the significance of the correlation (p = .041) was less than the recommended critical significance at 0.05. Thus, the relationship was significant. Because of this, the hypothesis *"The supplier-client relationship significantly affects performance of retail supermarkets in Uganda"* was accepted.

The implication of these findings is that supplier-client relationship have a positive relationship with performance of Nakumatt Supermarket, implying that a positive change in supplier-client relations can contribute to a corresponding change in performance of Nakumatt Supermarket. The positive nature of the relationship implied that managers in Nakumatt Supermarket need to ensure stronger supplier-client relations if the company's performance is to improve.

The findings from the interviewees seemed congruent to what most of the respondents in the questionnaire had indicated. Most of the key informants indicated that Nakumatt Supermarket

had and maintained a very good relationship with its suppliers. This was reflected in opinions of most of the key informants who said that there has been full compliance to agreements as set between suppliers and the supermarket. The suppliers were also reported to be reliable, committed and trustworthy. For instance one of the key informants was quoted saying:

> *"Nakumatt Supermarket has prequalified suppliers that are passed through a well organized system or vetting before they are contracted to work with us…in the first place, all our suppliers must have a certificate of incorporation for operation, they must have the financial capacity to deliver, they must also have the franchise or stock or source of goods to deliver utmost…"*

The above quotation indicates that the suppler-client relationship is favorable since it is embedded on the essential foundation of reliability, capacity and commitment. However on further probing and prompting, one of the key informants was uncertain as to whether the suppliers were interested or even possessed the requisite VMI integration skills and knowledge, since it has never been tried externally. This would limit the optimal performance potential.

Further, another key informant added:

> *"Our relationship with suppliers has been highly secured by insurance, we often guard ourselves against risks…so in case there are losses along, most of the losses are insured and we are sure our suppliers can always be paid back…*

The implication of the above findings is that Nakumatt supermarket has a good and favorable relationship with its suppliers and this has positively affected its performance, since losses are minimized.

4.4.4.2 Regression results of the supplier-client relationship and performance of Nakumatt Supermarket

Further analysis was conducted using regression to determine the effect of supplier-client relations on performance of Nakumatt supermarket. Findings are presented in Table 14, accompanied with an analysis and interpretation.

Table 14: Model summary

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.073	1.134		-.064	.949
	supplier-client relationship	.172	.255	.259	2.638	.010
Dependent variable: performance						
	R square	.076[a]			F-statistics	16.958
	Adjusted R Square	.070			Sig.	0.01

Source: Primary data, 2017

Findings in Table 14 show a moderate linear relationship (Multiple R = .076) between supplier-client relationship and performance of Nakumatt Supermarket. Going by the adjusted R Square, it is shown that supplier-client relationship account for 7% change in performance of Nakumatt Supermarket. These findings were subjected to an ANOVA test, which showed that the significance (Sig F = .01) of the Fishers ratio (F = 16.958) was less than the critical significance at .05. Hence, the findings were accepted.

4.5 Overall Prediction Model

Regression analysis was carried out to examine the extent to which facet variables (inventory flow management, ICT systems employed and the supplier-client relationship) predict performance.

Table 15: Prediction Model for Factor Components

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.106	.682		1.623	.114
	Management of Inventory flow	.306	.054	.500	5.693	.000
	ICT systems employed	.669	.086	.315	2.638	.002
	Supplier-Client relationship	.172	.255	.259	3.263	.010
Dependent Variable: **Performance**						
R=.823[a]						
R Square=.799						
Adjusted R Square=.733						
Sig=0.000						

Source: primary data

According to **Table 15**, Management of Inventory Flow, the ICT Systems employed and the Supplier-Client relationship predict 73.3% of Nakumatt Supermarket Performance.(Adjusted R Square = .733). The regression model was significant and thus reliable for making conclusions and recommendations (Sig. <.05). The most significant predictors of performance of Nakumatt Supermarket were inventory flow management (Beta= .500), the ICT systems employed (Beta=.315) and the supplier-client relationship (Beta= .259). The results revealed that the most determining factor was on management of inventory flow. Therefore, much emphasis needs to be

vested in improving the ICT systems employed and the supplier-client relations if performance of Nakumatt Supermarket is to achieve full potential.

CHAPTER FIVE:

SUMMARY, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

This chapter presents the summaries of the findings, discussions of objectives set for the study, conclusions derived from the findings, and the recommendations that could help in improving performance of Nakumatt Supermarket based on the findings of the study. Limitations, contributions of the study and areas of further study are also suggested.

5.2. Summary of Study Findings

The study established a number of findings, the summary of the findings are outlined here under;
The study was based on three inventory management dimensions which included management of inventory flow, the ICT systems employed and the supplier-client relationship. Results indicated that, Nakumatt Supermarket undertakes the three attributes in order to improve performance. The study established that the influence of vendor managed inventory on performance of Nakumatt Supermarket was adequately strong, positive and significant.

5.2.1. The effect of inventory flow management on performance of Nakumatt Supermarket

The hypothesis that management of inventory flow has a positive effect on performance of Nakumatt Supermarket was tested and accepted. This was because of the favorable results from spearman correlations which indicated that the spearman Correlation Coefficient value was 0.669, in respect to the hypothesis and statistically significant at .022 which is less than 0.05 (level of significance). Regression results showed that inventory flow affects the performance of Nakumatt Supermarket by 41.5%. This implied that, statistically there is a positive and

significant influence among the means. From the qualitative data collected, the respondents interviewed indicated that the inventory flow management practices in place strongly improved on the performance of Nakumatt Supermarket. This position was further supported by documents reviewed.

5.2.2. The effect of ICT systems employed on performance of Nakumatt Supermarket

The hypothesis that ICT systems have a positive effect on performance of Nakumatt Supermarket was tested and accepted. This was because of the favorable results from spearman correlations which indicated that the spearman Correlation Coefficient value is 0.544, in respect to the hypothesis and statistically significant at .039 which is less than 0.05 (level of significance). Regression results showed that ICT systems employed affects the performance of Nakumatt Supermarket by 29%. This implied that, there is a statistically positive and significant influence among the means. From the qualitative data collected, the respondents interviewed indicated that the ICT systems in place positively contributed to the performance of Nakumatt Supermarket.

5.2.3 The effect of Supplier-Client relationship on performance of Nakumatt Supermarket

The hypothesis that the supplier-client relationship has a positive effect on performance of Nakumatt Supermarket was tested and accepted. This was because of the favorable results from Spearman correlations which indicated that the Spearman Correlation Coefficient value was 0.276, in respect to the hypothesis and statistically significant at .041 which is less than 0.05 (level of significance). Regression results showed that supplier-client relationship affects the performance of Nakumatt Supermarket by 7.0%. This implied that, there is a statistically positive and significant influence among the means. From the qualitative data collected, the respondents

interviewed indicated that the Supplier-Client relations in place positively contributed to the performance of Nakumatt Supermarket.

5.3. Discussion of the study findings

The discussion of the study findings have been made as per the study objectives below;

5.3.1 The effect of inventory flow management and performance of Nakumatt Supermarket

The first hypothesis stated, "Inventory flow management has a significant effect on performance of retail supermarkets in Uganda." The inferential statistics indicated that inventory flow management has a significant effect on performance of Nakumatt Supermarket. This finding is in line with what Cachon and Terwiesch (2006) had earlier indicated that high levels of inventory tend to increase the probability of customers getting what they, increases sales and service levels.

Contrary to the findings, Ton and Raman (2005) hold the view that with higher levels of inventory, a company runs into a risk of registering increased costs of holding, as well as in-store logistics errors. This is because of the difficulty associated with performing shelving and replenishment by the employees, due to the difficulty of physically tracing those (phantom products). Ewuolo et al, (2005) also emphasise that with efficient inventory management (maintaining adequate inventory levels), an organization is able to get the right quality and quantity of materials needed, thereby avoiding situations of overstocking or under stocking and subsequently ensure effective customer service delivery and more profits.

This study finding was further supported by Eckert (2007), that better inventory flow enables better performance of retail supermarkets in terms of meeting customer satisfaction. Relatedly, Wilding (2003) holds the view that customer satisfaction increases with suppliers' ability to

satisfy orders on time. As such, organizations maintain buffer stocks in an effort to meet the needs of their customers and win their commitment and trust over a long duration (Wang, 2002).

According to Jaecques (2002), retail supermarkets can meet their customer needs by managing their inventory flow as per the plan on how inventories have to flow in a retail store. She points out that developing an effective and efficient inventory plan will involve developing what Saenz called "best-practices solutions" and defining future plan requirements. Regardless of the approach which will be used by the company, developing an inventory plan is a crucial step in the desired direction.

Nyangau, Seidmann and Vakrat (2014) further in line with the above findings explained that there are factors that organizations can consider in inventory planning so as to provide customer satisfaction which improves its profitability in long run. They point out that the key for providing customer satisfaction is to determine their needs accordingly and to meet and exceed the need in a consistent manner. They argue that organizations can adopt strategic and proactive plans that focus improving customer service by gaining an understanding of the customers' logistics process and to design a logistics system which will meet customer needs with the ultimate goal of creating value for customers that enables them to achieve their objectives efficiently.

The position of Mann, Head and Yuan (2014) also supports the findings of this study, emphasising that inventory accuracy helps to predict the true demand of a product. Relatedly, Tachizawa and Ginemez (2001) argue that inventory records do not match with physical stock in chain partners' stores due to lack of collaboration. In further support of the study findings, Mann, Head and Yuan (2014) emphasise demand forecasting as an essential pillar in managing inventories, which is key in improving the performance of an organization.

5.3.2 The effect of ICT systems employed on performance of Nakumatt Supermarket

The second hypothesis stated; "ICT systems employed significantly affect performance of retail supermarkets in Uganda." The inferential statistics indicated that there is a positive effect of ICT systems employed on performance of Nakumatt Supermarket. The study established that the ICT systems employed has a positive effect on inventory flow by reducing carrying costs, ensuring minimal product spoilage/damage, reduced wastage and reduction in inventory holdings for a retail supermarket. Still, it was established through this study that VMI contributes to faster inventory turns, through which lower transportation costs are realized by the supermarkets. These findings are confirmed by the earlier works of Chandra (2000); De Toni and Zomolo (2004); Patel (2001) who had ascertained that the suitable ICT systems play an important role in meeting financial objectives of the company. They explained that robust ICT system enables chain partners in order generation, data exchange, use of compatible devices, planning, performances and application fields.

The findings were further in agreement with those of Lyson and Farrington (2006) who indicated that the Quality of ICT system is rooted in the assumption that the customer has got into a collaborative partnership agreement with a vendor. Khai (2007) also assumes that VMI is usually successful in organizations that have several outlets, have a high incidence of human errors with severe consequences, industries with high level of demand unpredictability and high-value inventory and , as well as organizations with visionary leadership and strong management capability to form strategic long term partnerships.

Still, the findings of this study were supported by the works of Elvander, Sarpola and Mattson (2007) who showed that stock optimization is very important. They indicated that in most cases,

buyers who need particular products place their orders with the suppliers. This provides the necessary information which facilitates knowledge of the quantities to be ordered and the timing of the orders. In an effort to share information, the buyer and supplier form a partnership in which the supplier takes control of ordering and replenishment (Ahmed, 2004). In order to accomplish this, through the web or Electronic Data Interchange (EDI) the supplier gets information on a regular basis, concerning the inventory level and sales data of the buyer (Homburg, Grozdanovic and Klarmann, 2007). In case inventory drops below the required level, orders generation is then made automatically on behalf of the buyer.

The study findings are also congruent with the study findings is the study done in United Kingdom by Silver et al. (2014) who suggested that the fate of a partner depends on its inventory management. Most of the costs of any chain partners are owed to how much is invested in inventory management and other associated costs, such as holding and transportation costs. In the same breath, Knights (2008) asserts that for each sale that a retail supermarket does loose as a result of stock outs, the company not only loses profits but also stands to lose customers who may feel dissatisfied and move on to look for an alternative more reliable supplier.

5.3.3 The effect of the supplier-client relationship on performance of Nakumatt Supermarket

The third hypothesis stated, “The supplier-client relationship significantly affects performance of retail supermarkets in Uganda.” The inferential statistics indicated that there is significant effect of supplier-client relations on performance of Nakumatt supermarket. The study found out that Nakumatt supermarket had not yet fully automated and integrated its VMI system with upstream suppliers, however, the information system in place realized some performance increase. These study findings are related to what Singhal (2008) had earlier highlighted through what he

mentioned as the three factors that make the strongest impact on variations in the need for information technology in vendor managed inventory. In the first instance, ensuring customer satisfaction and pleasure is a major factor that many corporate entities observe, that is, offering customer service in a manner considered to be the most satisfying and efficient. In addition, In addition, managers are essentially aided by information to right size the number of human resources and inventory levels to a competitive level. Overall, information flow has a significant effect on the quality of strategic plans (Martinez, 2009).

The findings of this study were further supported by the findings of a study conducted by Narasimhan and Nair (2005) and Petersen et al., (2005), who makes an argument that a trust, commitment, reliability, risk sharing, shared values, communication and honesty are major characteristics of a successful collaborative relationship between the buyer and seller. Similarly, Spekman et al., (2008) argues that for performance of retail supermarkets using VMI to be realized, supply-chain partners need to become truly collaborative in nature, have trust, have commitment, be reliable, share risks , have shared values. The findings were further in tandem with those of Mentzer et al (2000) who concluded that strong relationships built around the core values of trust, honesty, commitment and reliability tend to increase the possibility of exchanging crucial information between firms, as required in a collaboration.

The study result and findings were also congruent with Anderson and Weitz's (2011) assertion that for commitment of each supply chain link, there is need for commitment in perception of other members. As such, commitment of the buyer bears a positive influence on the supplier's commitment and thus brings about reliability and consequently, regular availability of products

in the retail stores. Geyskens and Steenkamp (2005) suggest that uncertainty is reduced by trust in a relationship in the sense that, once there is trust between organizations, it will create positive intentions to the trusted organization. Andaleeb (2005) however, suggests that trust creates room for ensuring that the desired goals and outcomes are achieved, leading to even more cooperate.

5.4. Conclusions

The study concludes that VMI effectiveness and efficiency as a system is very much dependent on how inventory flow is managed, the ICT systems employed and the supplier –client relations. Having an effective and efficient VMI System will then ultimately lead to the Performance of Supermarkets in Uganda. The study also concludes that to achieve optimum Performance of Supermarkets in Uganda, how Inventory flow is managed is the most important, secondly, the ICT systems employed and lastly the Supplier-Client relations. Below are the conclusion reached on each and every objective;

5.4.1. The effect of inventory flow management on performance of Nakumatt Supermarket

The study findings showed that there is a significant effect of how the inventory flow is managed on performance of Nakumatt Supermarket. Centered on the empirical results of this study, it is concluded that in as much as there were efforts to ensure effective inventory flow in Nakumatt Supermarket, the existing challenges could have a negative effect on its performance.

5.4.2 The effect of ICT system on performance of Nakumatt Supermarket

The study findings showed that there is a significant effect of the ICT systems employed on performance of Nakumatt Supermarket. Empirically, based on study results, it is concluded that Nakumatt Supermarket's failure to embrace the changing aspects of ICT and sustain new suitable ICT systems may invariably affect its performance.

5.4.3 The effect of the supplier-client relationship on performance of Nakumatt Supermarket

Study findings reveal a significant effect of the supplier-client relations on performance of Nakumatt supermarket. Centered on the empirical results of this study, it is concluded that effective performance is centered largely on the supplier-client relations but the inherent gaps in this relationship in the context of Nakumatt supermarket are likely to have a negative bearing on its performance.

5.5. Recommendations

In light of the above conclusions, below are the suggested recommendations as each study objective;

5.5.1. The effect of inventory flow management on performance of Nakumatt Supermarket

The study recommends that that while managing the inventory flow, robust inventory plans and policies should be adopted that take into consideration the right stores lay out, location of items, stores design, lighting and customer traffic. Proper identification and selection of which product items /categories qualify to fit within a VMI program is also very important. This would allow the supermarket achieve its optimum performance.

5.5.2 The effect of ICT systems employed on performance of Nakumatt Supermarket

The study recommends that the Nakumatt supermarket should fully automate and integrate its VMI system with chosen and interested upstream partners/ suppliers in the supply chain through Electronic Data Interchange to enable timely collaborative planning, forecasting and replenishment. Adopting this fully integrated approach should also be done in a phased manner

in order to easily embrace change and manage the risks involved. This would allow the Nakumatt supermarket to achieve the desired optimum performance.

5.5.3 The effect of the supplier-client relationship on performance of Nakumatt Supermarket

The study recommends that Nakumatt supermarket should create an atmosphere of trust and commitment with interested partners/suppliers in the upstream of the supply chain. This will create a platform for developing strategic partnerships and initiates like supplier development, innovation, collaboration development in form of joint capital investment, sharing of challenges and risks. This will give the supply chain a competitive advantage over other supply chains in the retail supermarket industry and hence improve performance of all partners in the supply chain.

5.6. Limitations of the study

The study registered a number of limitations and these majorly included;

Some respondents deliberately failed to answer the questionnaire. This gave the researcher hard time but had to replace such people with others in the target population. Secondly, some respondents wrongly filled the questionnaires. This came as a result of time constraints as some of them rushed to answer the questions and attend to their work. But the researcher managed to recover most of the questionnaires well filled. Those which were wrongly filled were ignored.

Time was a key limitation in this study owing to the busy schedules of some of the study respondents. Since the study had to be conducted within a specified period of time, the researcher had to replace some of such respondents with their deputies or those who were next in line.

5.7. Areas recommended for further study

This study examined VMI's effect on performance of retail outlets in Uganda with particular reference to Nakumatt supermarket. The researcher recommends that further research be conducted beyond the retail supermarket industry. Further study on Key success factors for VMI implementation in Uganda should be carried out.

REFERENCES

Agarwal.V. (2007). *Contemporary Issues in Supply Chain Management, A Case Study of Marico Industries, Supply Chain Management*. New Century Publication. New Delhi.

Allen, D.R. & Wilburn, M. (2002). *Linking Customer and Employee Satisfaction to the Bottomline*, A Comprehensive Guide to Establishing the Impact of Customer and Employee Satisfaction on Critical Business Outcomes. ASQ Quality Press. USA

Amin, M.E. (2005). *Social Science Research Methods: Conception, methodology and analysis*, MUK Printery.

Andel, L. (2007). *Business Market Management. Understanding, Creating, and Delivering Value*, Pearson Education International, Upper Saddle River, NJ,.

Angulo,A. (2007). Supply chain information sharing in a vendor managed inventory partnership, *Journal of Business Logistics*, Vol. 25 No.1, pp.101-20.

Ansari, S. (2009). Purchasing and Supply Management, 6th edition, McGraw-Hill

Armstrong, M. (2008). *Human Resource Management*, Fifth Edition Kogan Page Publishers

Benson, K. (2011). Effectiveness of VMI in retail outlets. *International Journal of Business and Public Management* (ISSN: 2223-6244) Vol. 1(1): 85-89.

Lewin, J. E., & Johnston, W. J. (1997). Relationship marketing theory in practice: a case study. *Journal of Business Research, 39*(1), 23-31.

Berling, P. (2011). *A Characterization of optimal Base-Stock levels for a Continuous Stage Serial Supply Chain*, IESE Business School. University of Navara.

Bertrand, J.W.M, Poutre, J.A.L. & Luin, J.V. (2006). *Learning Inventory Management Strategies for Commodity supply chains with Customer satisfaction*, retrieved on 19th July 2013 from: http://repository.tue.nl/659712,

Bhausaheb, A. N. & Routroy, S. (2010). Evaluation of Inventory Performance for Perishable Products Through Simulation, *Journal of Operations Management*. (9), 71-72

Bill, L. (2009). *Supplier Management.* Third Edition; Pearson Publisher, London, UK

Bogdan, J. (2003). *Understanding Conceptual Framework.* Second edition. Kogan Page Publishers

Bowersok, P. (2007). *Purchasing and Supply Management*, 6th edition, McGraw-Hill.

Boyer, S. (2010). Research opportunities in supply chain management, *Journal of the Academy of Marketing Science*, Vol. 38

Brewer, P.C & Speh, T.W. (2000). Using the Balanced scorecard to Measure Supply Chain performance. *Journal of Business Logistics*. (12), 78-80

Brian,M.(2008). Managing stock. *Journal of purchasing*. Vol. 23

Browne, M. (2007). *European Logistics: Markets, Management and Strategy*. First Edition. Blackwell.

Cachon, G. & Terwiesch. (2006). M*atching supply with Demand, An Introduction to Operations Management*. McGraw-Hill. New York

Cacioppo, K. (2000).Measuring and Managing Customer Satisfaction, *Quality Digest*. Retrieved on 31st July from: Retrieved March 23, 2007.

Caines,C. (2007). Implementation of supply chain management and its impact on the value of firms, *International Journal of Retail & Distribution Management*, Vol. 27 No.10, pp.409-19

Campton, J. (2004). How to Manage Customer expectations, *Customer relationship Management*. Retrieved on 24th July from: http://www.destinationcrm.com/

Cetinkaya, S. and Lee, C. (2009). Stock replenishment and shipment scheduling for vendor managed inventory systems, *Management Science*, Vol. 46 No.2, pp. 217-232.

Christopher, M. (2008). Logistics & Supply Chain Management, *Financial Times*, vol 4. Prentice Hal. Great Britain

Coelho, L. C., Cordeau, J. F., & Laporte, G. (2013). Thirty years of inventory routing. *Transportation Science*, *48*(1), 1-19.

Colburn, R. (2013). *Determining the Effect of Return management Experience on Customer Satisfaction*, University of Tennessee Honors thesis project

Copco, A. (2013). *Dimensioning of Inventory Levels in a VMI Relationship*. Rutledge.

Dan Cunha, C., Agard, B. & Kusiak, A. (2007). Design for Cost: Module-Based mass Customization, *IEEE Transaction on Automation and Engineering*. 4(3), 169-174

Disney, S. M., & Towill, M. R. (2008). On replenishment rules, forecasting, and the bullwhip effect in supply chains. *Foundations and Trends® in Technology, Information and Operations Management*, *2*(1), 1-80.

Dixonn, T., Wells, A., & Davies, M. I. (1990). The Thought Control Questionnaire: A measure of individual differences in the control of unwanted thoughts. *Behavior research and therapy*, *32*(8),871-878.

Eckert, S.G. (2007). Inventory Management and Its Effects on Customer Satisfaction. *Journal of Business and public Policy.* (1), 1-2

Ellram. (1999). Retail Logistics, *International Journal of Physical distribution & Logistics Management.* (29), 477-449

Ewuola, S.O., Imoundo, P.B, Ajibefun, I., daramola, A.G. & Ayodeji, O. (2005). *Inventory Management in an Agro-Allied Industry: A Case study of Cocoa processing Plants In South western Nigeria.*

Festinger, L. (1957). *A Theory of cognitive Dissonance*. Stanford, CA: Stanford University press

Fornell, C. (2006). A National Customer satisfaction Barometer. *Journal of marketing* (55), 1-21

Gerald, C. (2006). *Purchasing & Supply Management* 4th edition. Pearson Publishers

Goldstein, S. (2006). Use of structural equation modeling in operations management research: looking back and forward, *Journal of Operations Management*, Vol. 24

Gunasekaran, A., Patel, C. & Tirtiroglu, E. (2001). Performance Measures and metrics in an *International Journal of Academic Research in Business and Social Sciences*

Heikilla, J. (2002). From Supply to demand Chain Management: Efficiency and Customer Satisfaction. *Journal of Operations Management*. (20), 747-767

Hogstrom, M. & Grigorjev, V. (2003). Gaining Competitive Advantage Through Improved Management of Information and Material Flows: A Case study at Flextronics network Services. *Journal of Logistics and Transport management*

Hunt, S.D. and Morgan, R.M. (1994). Relationship marketing in the era of network competition, *Marketing Management*, Vol 3 No.1, pp.19-28

Jaecques, J. (2002). Supply chain planning opportunities for small and medium sized companies. *Computers in Industry, 49*(1), 3-8.

Jraisat, L.E. (2010). *Information Sharing in An Export Supply Chain Relationship: The Case of Jordian Fresh Fruit and Vegetable Export Industry*. Brunel University. West London

Kang, Y., & Gershwin, S. B. (2005). Information inaccuracy in inventory systems: stock loss and stockout. *IIE transactions*, *37*(9), 843-859.

Kenya Association of Manufacturers (2013). Food Beverages and Tobacco.

Kirunga, K. A. (2013). The Relationship Between Foreign Exchange Rates And Interest Rates In Kenya and Uganda.

Knights, M. (2008). *Managing stock levels: materials management and Inventory Control*

Kothari, C.R. (2006). *Research Methodology: methods & techniques*. (1sted). Nairobi: New age International Publishers

Kuk, G. (2004). Effectiveness of vendor-managed inventory in the electronics industry: determinants and outcomes. *Information & management*, *41*(5), 645-654.

Kumar, P., & Kumar, M., 2003. Vendor managed inventory in retail industry. White Paper, Tata Consultancy Services.

Lee, H. & Kleiner, B. (2001). *Inventory Management in Women's Retail Clothing Industry: Management Research News.* (24), 40-45

Lyson, R. M., & Farrington, T. O. (2005). The Impact of Outsourcing on Lead-Time and Customer Service in Supermarkets in Nairobi-Kenya. *European Journal of Business and Management*, *ISSN*, 2222-1905.

Mann, H. D., Head, F., & Yuan, S. (2014). From cents to half-cents and its liquidity impact. *Pacific Accounting Review*, *26*(3), 160-176.

Marketing Management, Vol. 3 No. 1, pp. 19-28.

Mitchell (2004). *Determinants of Governance Choice in Business-to-Business Electronic markets: An Empirical Analysis Working paper*, Ross school of Business, University of Michigan

Morgan N.E.A. & Rego, M. (2005).Understanding Firms Customer Satisfaction information Usage. *Journal of Marketing*, (69), 131-151

Morgan, R.M. (2000). *Relationship marketing and marketing strategy*, Sage Publications, Inc.,

Mpwanya, M.F. (2005). *Inventory Management as a Determinant for Improvement of Customer Service. Department of Business Management Faculty of Economic and Management Sciences.* University of Pretoria

Mugenda & mugenda (1999). *Research methodology*; (3rd ed). Nairobi. Longman Publishers.

Mugo, J. K., (2008). Influence of vendor inventory management on organizational performance in retail outlets in Kenya: A case of Uchumi supermarkets. *International Journal of Business and Social Research*, *2*(7), 62-69.

Mutua, M. (2010). *The Role of Stock Control in Organizations Performance: A Case Study of Kenya Vehicle Manufacturers*

Namagembe, S., Munene, J. C., Muhwezi, M. D., & Eyaa, S. (2012). Information sharing inventory management and customer satisfaction: the case of manufacturing firms in Kampala.

Narkotey, M.A. (2012). *Inventory management in the Ghana Health Services and Its Role in Healthcare Delivery: A Case study of health facilities in HO Municipality*, Kwame Nkuruma University of science and technology

Nordin, R. (2002). *Inventory Cost reduction*. Retrieved on 30th August from: http://pure.ltu.se/portal/en/studentthesis/inventory-cost-reduction%287b2db5b24091 49c4-bdfa-5ae83210a886%29.html

Nyangau, K., Seidmann, J., & Vakrat, E., (2014). Determinants of successful vendor managed inventory relationships in oligopoly industries. International Journal of Physical Distribution & Logistics Management, 36 (3), pp. 176-191

Ohno, R. & Mae, M. (2012). *The Impact of Changing Lead-time on Inbound Logistics*

Olson, J. and Dover, P. (197 9). Disconfirmation of Consumer Expectations through Product Trial. *Journal of applied psychology*. 64 179-189

Peyton, R.M., pitts, S. and Kamery, H.R. (2003). Consumer Satisfaction/Dissatisfaction: A Review of the Literature prior to 1990. *Proceedings of the Academy of Organizational Culture Communication and Conflict*, 7 (2), pp.409-19.

Rad, M.H. (2008). Lead Time Reduction. A Case Study of BEAB Etikett & System AB Rushton, A., Croucher, P., Baker P. (2006). *The Handbook of logistics and distribution Management*. 3rd ed. Philadelphia. London

Raman, J., Tachizawa, E., & Giménez Thomsen, C. (2001). Drivers and sources of supply flexibility: an exploratory study. *International Journal of Operations & Production Management*, *27*(10), 1115-1136.

Richard, Z. G., Fuller, R. A., Loram, A., Irvine, K. N., Sims, V., & Gaston, K. J. (2009). Performance Index. Business Perspective, *142*(4), 761-771.

Sahay, B. S. (2003). Supply chain collaboration: the key to value creation. *Work study*, *52*(2), 76 83.

Shafie, S. (2004). *The Effectiveness of Vendor Managed Inventory (VMI) Towards Improving Supply Chain Management (SCM):* A Contract Manufacturer perspective, Research report in partial fulfillment of the requirement for The degree of Master of Business Administration

Simchi-livi, H. M. (2000). Vendor managed inventory: a survey of the Taiwanese grocery industry. *Journal of Purchasing and Supply Management*, *9*(1), 11-18.

Small Business Resource (2013). *Managing Inventory*. Retrieved on 30th July from: http://www.esmalloffice.com/SBR_template.cfm?DocNumber=PL10_0200.htm

Stoner, G. J. (2003). Towards a framework for operations management in e-commerce. *International Journal of Operations & Production Management*, *23*(2), 200-212.

Taylor, G. A. (2000). *U.S. Patent No. 6,012,041*. Washington, DC: U.S. Patent and Trademark Office. Thousand Oaks, CA, pp. 481-504.

Toften, K. and Olsen, S.O. (2003). Export market Information Use, Organizational Knowledge and firm performance: A Conceptual Framework, *Industrial marketing review*, 20 (1) 95100

Ton, Z.A. & Raman. (2005). Cross-Sectional analysis of phantom products at retail stores. Working papers

Toomey, J.W. (2000). *Inventory Management: Principles Concepts and Techniques*. Vol 12 pg 45-59. Retrieved on 27th June from: http://link.springer.com/chapter/10.1007/978-14615 4363-3_4

Tuli, K. & Bharadwaj. G.S. (2009). *Customer Satisfaction and Stock Returns Risk*. Research Collection Lee Kong Chian School of Business. Singapore Management University

Value, Pearson Education International, Upper Saddle River, NJ, .

Verstegen, M. & Amstel, P.V. (1991). Total logistics Concept: A method of Improving Logistics Performance. *The International journal of Logistics management*, (2), 63-73

Viale, D. (1991). *Basics of Inventory Management: From Warehousing to distribution*. Adam Wilcox. United States of America.

Wallin, C., Johnny Rungtusanatham, M., & Rabinovich, E. (2006). What is the "right" inventory management approach for a purchased item?. *International Journal of Operations & Production Management*, *26*(1), 50-68.

Wang, H. (2007). *Inventory Management with alternative Lead times*. Retrieved on 17th July from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1121250

Weber, R. & Kantamneni, L (2002). Improved supply chain management based on hybrid demand forecasts. *Applied Soft Computing*, *7*(1), 136-144.

Wildding (2003). The 3 Ts of Highly Effective Supply Chains: *Journal of Supply Chain Practice*, (5), 3

Wilson N. (1996). The Supply Chain of perishable products in Northern Europe. *British Food Journal*, 98 (6) 9-15

Hill, C. A., & Scudder, G. D. (2002). The use of electronic data interchange for supply chain coordination in the food industry. *Journal of Operations Management*, *20*(4), 375-387.

Wyse, S.E. (2012). *Customer Satisfaction And Customer Loyalty*. Retrieved on 10th August 2013 from: http://www.snapsurveys.com/blog/customer-satisfaction-customer-loyalty/

Yin-Mei, Huang & Wei-Chi & Tsai, (2013). *Mechanisms Linking Employee effective delivery and Customer Behavioral Intentions*. Retrieved on 31st July from:

Zerbini, F., caru, A. & Cugini, A. (2007). The Cost of Customer Satisfaction: a Framework for Strategic Cost Management in Service Industries. *European Accounting Review*, (16), 499-530

Zhang, Q. (2005). Logistics Flexibility and its impact on Customer satisfaction. *International Journal of Logistics Management*, (16), 71-95

APPENDICES

APPENDIX I:QUESTIONNAIRE FOR EMPLOYEES AND SUPPLIERS IN NAKUMATT SUPERMARKET

Introduction

Dear Respondent,

The researcher is a student of Masters in Business Administration (MBA) at Uganda Management Institute (UMI), Kampala, Uganda. He is undertaking a research to generate data and information on *"The effect of Vendor Managed Inventory on performance of retail supermarkets in Uganda using a case study of Nakumatt Supermarket."*Kindly spare some of your valuable time to answer these questions by giving your views where necessary or ticking one of the alternatives given. Indeed your name may not be required. Thank you for your time and cooperation.

SECTION A: BACKGROUND DATA

Please circle the numbers representing the most appropriate responses for you in respect of the following items:

1. Your gender a) Male b) Female ☐

2. What is your age group?

a) 20-29, ☐ b) 30-39, ☐ c) 40-49, ☐ d) 50 and above ☐

3. What is your highest level of education?

a) Post Grad Diploma, ☐ b) Bachelor's degree, ☐ c) Masters' degree ☐ d) Doctorate ☐

e) Others (specify) ----------

4. Time spent in Nakumatt Supermarket? ----------

SECTION B: VENDOR MANAGED INVENTORY

i) Management of Inventory flow

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

No	Statement	1	2	3	4	5
1	We make accurate forecasts for our inventories which match with our customer demand in Nakumatt					
2	There is an inventory plan in Nakumatt Supermarket					
3	Inventory demand Forecasting is always carried out in Nakumatt Supermarket					
4	Inventory demand forecasting in Nakumatt Supermarket is always accurate					
5	Nakumatt Supermarket always has enough supplies to meet the customer needs					
6	Order processing is well stipulated out in our inventory management plans					
7	Transportation modes are well defined in our inventory plans at Nakumatt Supermarket					
8	We share information on delivery schedules with our vendors					

ii) The ICT systems employed

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

No.	Statement	1	2	3	4	5
1	Nakumatt supermarket has automatic central information system that manages inventories					
2	There is a reliable system to track the movement of materials					
3	Our suppliers clearly communicates to us through online					
4	We can now easily share information on inventories with suppliers					
5	Supplies are well monitored using information system by suppliers					
6	A supervision checklist on inventory systems is in place, against which timely and quality indicators are checked.					
7	Our suppliers have the ability to use ICT in managing and monitoring inventories					

iii) The supplier-client relationship

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

No.	Statement	1	2	3	4	5
1	Our suppliers adhere to joint agreements on inventory changes.					
2	All logistical and shop flow risks are shared with suppliers.					
3	Our suppliers fulfils our inventory requirements issued to them					
4	Our suppliers clearly adhere to our inventory schedules					
5	Our suppliers/vendors are reliable					
6	Our suppliers/vendors are trustworthy					
7	Our suppliers/vendors have the capacity to deliver in the just in time set					

SECTION C: INDEPENDENT VARIABLE: PERFORMANCE OF OUTLETS

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

No.	Statement	1	2	3	4	5
1	Nakumatt supermarket's income every year represents a good percentage of shareholder equity					
2	The supermarket makes normal profits					
3	Our profit margin has increased in the past three years					
4	The percentage of losses incurred by the supermarket is very minimal					
5	Our sales have showed an upward trend for the last three years					
6	Our customers have increased for the last three years					
7	Holding costs for inventories have been reducing for the last three years					
8	Ordering and carrying costs have been reducing					
9	The supermarket pays no obsolescence costs					

THANK YOU FOR YOUR PARTICIPATION!

APPENDIX II:INTERVIEW SCHEDULE FOR MANAGERS AND SUPERVISORS

1. Position in Nakumatt supermarket ……..

2a) Is the flow of inventories in Nakumatt supermarket been improving?

If so, in what why?(Probe for demand forecasting, order processing, supplier selection, transportation mode and optimal quantity)

Has inventory flow improved on performance of Nakumatt supermarket?

3a) Is the ICT system employed by Nakumatt supermarket in managing inventories adequate?

If so, in what why?(Probe for technical capability of suppliers, quality of communication, database management and timely information sharing)

Has the ICT system employed by Nakumatt supermarket improved on performance?

4a) Is the relationship between suppliers and Nakumatt supermarket been reliable in managing its inventories?

If so, in what why? (Probe for agreement compliance, trust, reliability, commitment, capability and risk sharing)

Has the relationship between suppliers and Nakumatt supermarket improved on performance?

THANK YOU SO MUCH

APPENDIX III:DOCUMENTARY REVIEW CHECKLIST

Documents to be reviewed	**Information expected**
Nakumatt Supermarket reports and records	• Ordering costs • Carrying costs • Stock costs • Obsolescence costs • Holding costs
Nakumatt Supermarket Strategic plan	- Inventory/stock planning - Demand forecasting - Order processing - Supplier selection - Optimal quantity - Inventory/stock optimization - Inventory Control - Buffer stocks - Pest control activities used - Reordering level - Waste and disposal - Temperature control - Issuing Procedures

APPENDIX IV:

TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN POPULATION

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

Source: Krejcie & Morgan (1970, as cited by Amin, 2005)

Note.—*N* is population size.

S is sample size.