THE ROLE OF INVENTORY OPTIMIZATION AND ORGANISATIONAL PERFORMANCE : A CASE OF THE AIDS HEALTHCARE FOUNDATION AHF

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A DISSERTATION SUBMITTED TO THE SCHOOL OF BUSINESS THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A BACHELOR OF PROCUREMENT AND LOGISTICS MANAGEMENT OF UGANDA CHRISTIAN UNIVERSITY

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UGANDA CHRISTIAN UNIVERSITY

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DECLARATION

I Aliro Sandra Etalu of S21B12/036 hereby declare that this research report has never been published by any other person and so is purely done by my self and the help of other related articles with the guidance of my academic supervisor.

Signature.....

ALIRO SANDRA ETALU

DATE...12/09/2024.....

APPROVAL

This is to approve that this research report has been done by Aliro Sandra Etalu on the topic "The role of inventory optimization and Organizational performance in the Aids HealthCare Foundation(AHF) was done under my supervision and is hereby approved for submission for the award of a Bachelors Degree in Procurement and Logistics Management at Uganda Christian University.

SUPERVISOR:Mr ARYAMANYA ASTON BLESSED

SIGNATURE:.....

DATE.....12/09/2024.....

DEDICATION

I dedicate this research to myself, my one and only sister Amunyo Rebecca Etalu and to my best friend Atimaku Fiona and above all to my parents Mr&MrsEtalu

ACKNOWLEDGEMENT
My sincere gratitude to my supervisor Mr. Aston Aryamanya for always being there to guide and correct me where I went wrong and not giving up on me through this journey and all my lecturers for the continuous encouragement and support in the course of my studies and completion of this research project alongside my friends, family and course mates towards my success.

ABSTRACT

This dissertation consists of five chapters, chapter one consists of introduction of the variables, their scopes and statement of the problem, general objectives, specific objectives, research questions and the scope of the study. Chapter two draws down the literature review, chapter three narrates the methods of data collection, populationsize, study population while chapter four and five crowns up with data analysis, discussing research findings, conclusions, recommendations and spot areas for further research.

Introduction

Inventory optimization is the process that aims to minimize the total cost of inventory while meeting while meeting customer demand and service levels

The purpose of the study is to find out the role of inventory optimization and organizational performance.

The objective of the study is to find out the role of inventory optimization and organizational performance.

To find out the role of inventory storage on organizational performance

To find out the role of demand forecasting on organizational performance

To find the relationship between ABC analysis and organizational performance

The scope of this study is restricted to the role of inventory optimization and organizational

Methodology

The methodology basically talks about the research design which was the cross sectional study design,study population, sample size,data collection methods, ethical consideration and dissemination of findings.

Presentation of data analysis and interpretation

This discusses the findings of the study, presentation of data, the gender composition of the respondents, age brackets of the respondents, academic background of the

respondents,respondents level of education and questions based on the objectives that the respondents responded to.

Summary and conclution

This presents the summary of findings,conclution,recommendation, areas of further research and the limitation.

performance with specific objectives such as to find out the role of inventory storage on organizational performance, tofind out the role of demand forecasting on organizational performance and to find out the relationship between activity based costing and organizational performance. Some of the role of inventory storage include cost control, supply chainefficiency and product quality and safety. The role of demand forecasting on organizational performance include: improved inventory management, better resource allocation and improved customer satisfaction and lastly the relationship between activity based costing and organizational performance include: competitive dvantage, reduced costs and improved customer satisfaction The research however was exploratory in nature that is to say it adopted both qualitative and quantitative methods of data collection.in qualitative, the researcher was able to analyze findings on the ground through interactions with participants in the field in order to make research more meaningful while the qualitative method of the research presented the findings statistically in table forms, and pie charts

A sample size of 20 respondents was studied of which all the 20 respondents responded to the questionnaires. A number of respondents stated that demand forecasting improved customer satisfaction, they also stated that activity-based costing helped in better inventory management not leaving out the respondents who agreed that inventory storage.

Contents

CHAPTER ONE

INTRODUCTION

This chapter presents a brief about the background of the study, statement of the problem, purpose of the study, study objectives, scope of the study, significance of the study, operational definition of key terms concepts and anticipating limitations and the area of study which is AHF-Uganda Cares.

BACKGROUND OF THE STUDY

Inventory optimization is the process of maintaining the right amount of inventory required to meet demand, keep logistics costs low and avoid common inventory issues such as stockouts, overstocking and backorders (Xie& Palani, 2018). Inventory optimization is an ecommerce best practice and strategy that ensures stock control is managed efficiently by implementing tools, technology, processes and techniques to track inventory in real time, Better forecasting demand, optimize storage. Optimizing your inventory can enable you to have the right amount of inventory and decrease the amount of capital being used for production and operation while improving customer experiences.it allows you to correctly forecast the customer demand and deliver on what consumers want in the time they want it without holding too much inventory (Abu Zwaida, Pham &Beauregard,2021).

The complexity of procurement now days and the high interaction between all its nodes make the determination of optimal inventory policy so difficult. Adopting local optimization in each site of the supply procurement cannot always have good results (Frontoni, Marinelli, Rosetti & Zingaretti,2020). In fact, single echelon inventory management assumes that inventory is located in only one storage point where demand is met and replenishment are added. Actually, inventory is located in many storage points that belong to the same system which made researchers think about integrated approaches and modeling the system as a multi-echelon inventory (Sebatjane& Adetunji,2020).

Similarly, Inventory optimization remains an important aspect of every company as poor inventory system could result in loss of customers and sales while an effective inventory management is able to generate more sales for the company which directly affects the performance of the company (Mohamad al 2016). Therefore, it should be adequately taken care of because it has to do with profit of the business. A well planned and effective stock

management can contribute substantially to a firm's annual turnover. The role of inventory optimization is to ensure faster inventory turnover.

On the other hand, inventory optimization has been embraced differently and has yielded differently in various organizations. Prempeh,(2019) established that the performance of an organization relies on the effectiveness of inventory optimization (koumanakos, 2018) revealed that inventory optimization was primarily about specifying the size and placement of stocked goods .Inventory management is required at different locations within a facility or within multiple locations of a supply network to protect the regular and planned course of production against the random disturbance of running out of materials or goods for improved performance

(Garry, 2017). The scope of inventory optimization also concerns the fine lines between replenishment ,return lead-time ,carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management replenishment, returns and defective goods and demand forecasting (Ahmed,2016).Inventory management involves planning, ordering and scheduling of materials used in the manufacturing process.it exercises management over three types of inventories that is raw materials, work in progress and finished goods. Purchasing is primarily concerned with management over raw materials inventory, which includes; raw materials or semi processed materials, fabricated parts and MRO (maintenance, Repair and Operations Garry, (2017)(Garry, 2017).

The AIDS Healthcare foundation (AHF) is a global nonprofit organization dedicated to providing HIV/AIDS prevention, treatment and advocacy services. With operations in multiple countries operating clinics, pharmacies and distribution centers to deliver healthcare services and medications to individuals affected by HIV/AIDS. Furthermore, the Aids healthcare foundation manages its inventory in the following ways. AIDS health care foundation manages its inventory using a centralized inventory management system to streamline the tracking and distribution of medications and supplies. This allows real time monitoring of stock levels across various locations, reducing the risk of stock outs and overstocking.it also goes ahead and collaborates closely with suppliers to ensure timely delivery of products. They maintain strong relationship with pharmaceutical companies and distributors to negotiate better pricing and ensure a steady supply of necessary medication. And finally carrying out regular audits and inspection, these are

conducted to ensure inventory accuracy which involves physical count and reconciliation with system records to identify discrepancies and address any issues promptly.

Statement of the problem

Effective inventory optimization significantly enhanced organizational performance by employing Techniques such as Just-in-time (JIT), (Anantadjaya et., al 2021) went ahead and said the adoption of this system has been shown to improve efficiency, reducewaste, and enhance supply chain responsiveness. Economic order quantity (EOQ) this model has been used to determine the optimal order quantity and reduce inventory costs, leading to improved profitability (Luther et., al 2018), and ABC analysis have been widely studied and shown to yield positive results in various contexts like improving inventory management and reduce costs leading to improved organizational performance (Ogbo,2014). For example, just in time systems have been linked to improve efficiency and reduce waste, the integration of advanced technologies like artificial intelligence and machine learning in inventory management has also shown promising results in improving accuracy and efficiency.(Wang, 2020)

Despite the known importance of inventory optimization, many organizations fail to implement effective strategies, leading to suboptimal organizational performance(A)(Amini, 2020). The challenge lied in identifying and applying the right inventory optimization techniques that align with the specific needs of an organization, given its unique market conditions and operational constraints(Bhatia, 2019). This failure results into increased operational costs, reduced profitability and competitive disadvantage(Chen, 2018).

In spite of the different research on inventory optimization techniques, there is lack of comprehensive studies that link specific inventory optimization practices to measurable improvements in organizational performance across different industries and market conditions(Gupta, 2020).

Additionally, the impact of emerging technologies on inventory management and their long-term implications on organizational performance remain under explored(Wang, 2020). There was limited understanding of the contextual factors that influence the effectiveness of different inventory optimization strategies(Gupta, 2020). Therefore, the study seemed to examine how efficiently managing inventory can lead to improved operational efficiency, cost reduction and better customer satisfaction.

Objective of study

1.3.1 The general objective.

To examine the role of inventory optimization and organizational performance. A case of AHF-Uganda Cares

Specific objective

- To find out the role of inventory storage on organizational performance.
- To find out the role of demand forecasting on organizational performance
- To examine the relationship between ABC analysis and organizational performance.

Research questions

- What is the role of inventory storage on organizational performance
- What is the role of demand forecasting on organizational performance
- What is the relationship between ABC analysis and organizational performance.

Scope of the study

The study focused on the role of inventory optimization and organizational performance, a case of AIDS Healthcare Foundation.it covers the concept inventory optimization as the independent variable. Which examines the relationship between ABC analysis and organizational performance.it also examines organizational performance as the dependent variable.

1.5.1 Geographical scope

This is where the organization under study was located. Kira Road, Kampala city.

Time scope.

The study was conducted from March to August 2024 because this is the period stipulated for students to carry out their research.

Content Scope

This study was mainly focused on the two variables the independent which is inventory optimization which refers to the process of maintaining the right amount of inventory required to meet demand, keep logistics costs low and avoid common inventory issues such as stockouts and overstocking.And the dependent which is organizational performance which refers to the effectiveness and efficiency of an organization in achieving its goals, objectives, and outcomes.

1.6. Significance of the study.

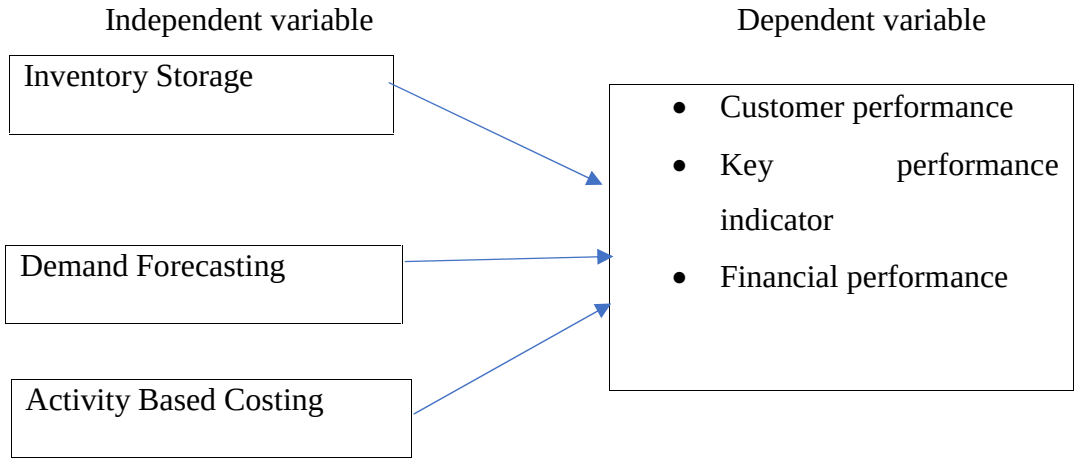
- This study enabled the researcher know the different strategies of handling excessive inventory to avoid wastages.
- To the organization, this study enabled the management of the Aids healthcare foundation especially the stores department to carry out effective inventory management practices so as to enhance the financial performance of the organization.
- To the academicians or scholars, the study added on to the already existing literature on inventory optimization and their impact on organizational performance. Such literature can always be used as a point of reference by scholars.
- This study identified the gaps between inventory optimization and organizational performance.

1.7. Justification of the study.

- Effective inventory optimization ensured that organizations hold only the necessary amount of stock, thereby reducing storage costs associated with excessive inventory.
- By optimizing inventory, organizations minimized the risk of stock becoming obsolete which is particularly important for products with a limited shelf life.
- Maintaining optimal inventory levels ensured that products are available when customers need them, reducing stockouts and backorders which enhances customer satisfaction and loyalty.

Conceptual framework

Inventory optimization **Organizational performance**



CHAPTER TWO

LITERATURE REVIEW.

2.1 Introduction

A literature review is a text that summarizes critically analyzed and evaluates previous research available on the subject where the independent variable is inventory optimization which refers to the process of maintaining the right amount of inventory required to meet demand, keep logistics costs low and avoid common inventory issues like stockouts and overstocking. On the other hand, is the dependent variable organizational performance which refers to the effectiveness and the efficiency of an organization in achieving its goals, objectives and outcomes. This chapter represents literature review on the role of inventory storage, The role of demand forecasting on organizational performance and the relationship between ABC analysis and organizational performance.

2.2 The role of inventory storage on organizational performance.

Inventory management/storage is the process which maintains the constant flow of materials or goods in to and out of an existing inventory (Onkundi et al, 2016; Onkundi, 2016). This process involved controlling the units using planning, acquisition and transferring to prevent levels outs. Holding organizational cash flow. Which could have been used more constructively to gain profitable opportunities.

According to (Zhang, 2017),inventory storage is a critical component of supply chain management.as it accounts for significant portion of logistics costs. Proper inventory management can help organizations reduce storage costs, minimizewastes, and optimize resource utilization(Gupta, 2015).Moreover ,inventory storage affects the lead time, order fulfillment rates, and customer satisfaction, making it an essential aspect of organizational performance. (Kumar, 2018).

Different authors have emphasized the importance of inventory storage in organizational performance. For instance, (Cai, 2019)highlighted the impact of inventory storage on supply chain resilience, emphasizing the need for organizations to adopt agile and adaptable inventory management strategies. Similarly, (Wang, 2020) stressed the role of inventory storage in mitigating supply chain risks, such as stockouts and over stocking.

Firstly, is inventory turnover (Tipparat et al.,2013) Inventory turnover measures the speed at which inventories are moving through the warehouse of the company and measures the flow(liquidity) of a main part of its current assets (Marijan et al.,2015). It also indicated how quickly a company is turning over its inventory. Namagembe et al., (2016) further defined inventory turnover as the number of times inventory is converted in to cash. It is a ratio showing how many times a company's inventory is sold and replaced over one-year period. Furthermore, inventory turnover is the speed at which the trading company sells its inventories or how much turnover the average inventory generates in one year.

Moridipour et al., (2014) explained that proper inventory turnover is in maintaining optimum inventory and proper marketing to sell inventory and in time order. The importance of inventory turnover is to indicate how rapidly the inventory is turning into receivables through sales. Generally, a high turnover is an indicative of good inventory management. A low inventory turnover implies excessive inventory levels than warranted by sales activities, slow moving or obsolete inventory. However, a relatively high inventory turnover may be a result of low levels of inventory which results in to frequent stockouts, the firm maybe living from hand to mouth. The turnover will also be high if the firm replenishes the inventory in small batches (Salawati,2012).

Organizations must implement steps and methods to assist inventory managers in identifying excess inventory and utilizing excess inventory before it becomes obsolete (Thumnapali 2010) (Thummalapalli, 2010) supplier performance issues, long lead times, and material uncertainty are all reasons for using safety stock as an inventory management method (Mohamed, 2015),warned that calculating safety stock quantities requires another complex formula ,but most large companies have software that calculates safety stock values automatically. Carrying extra inventory in the form of safety stock may do more harm than good for small businesses operating on shoestring budget.

In the same vein is Inventory control, This is the process that monitors the day to day activity in which materials and parts are kept in stock, flowing through the regulated pre-determined destination in accordance with the policies and procedures implemented by the organization (Monczka,Handfield,Giunipero and Patterson,2019;175-176).Inventory control can also be described as managing the activity performed to ensure the correct material and quantity is

available at the right place and time as it is directly connected with production (Kwadwo,2016;22-26).

(Namusonge, 2015) argued that inventory control deals with the problems of verifying the quantity, value and balancing of the entire stock holding so that it enables the material manager to report accurately and carry out efficient operations of the manufacturing organization. In addition, it allows the material manger to assess the status of the stock, to tell how much was ordered, how much was used, what is the balance left and how much the organization still requires at any point in time.

Different researchers have found a link between inventory management strategies such as the Economic order quantity (EOQ). Just in Time (JIT). Marginal analysis, Vendor controlled inventory and order batching and agricultural sector performance (Mwangi,2013) as well as retail institutions (Omondi et al.,2015).

And Lastly, Inventory shrinkage This simply refers to something becoming smaller gradually (Beck et al.,2009). Inventory shrinkage means the amount of inventory that exists in accounts record but no longer exists in actual records.i9t is the discrepancy between the physical account of inventory and its book value. In inventory shrinkage is classified as risk costs resulted particularly from product obsolescence, theft (that is from customer shoplifting and employee theft) natural disaster, poor inventory storage, among others.

According to (kamau, 2015), stock shortages are a headache for most organizations they lead to customer dissatisfaction, which eventually leads to a firm's poor performance. Organizations should ensure that their inventory is monitored on a regular basis to avoid stockouts. The stochastic nature of demand and lead-time is not achieved due to the manual system of checking and validating. Furthermore, due to lack of automated systems, stockouts occur more frequently, and replenishment is done hurriedly, resulting in costly inventory management and as a result, low performance standards, firms with centralized stock holdings have a competitive edge because they control the stocks to avoid stock duplication in their subsidiaries.

2.3 Demand forecasting on organizational performance.

Demand forecasting refers to the process of predicting future customer demand using historical data, market analysis and statistical tools.it is essential for aligning supply chain operations with market demand, thus minimizing costs and maximizing customer satisfaction.

Demand forecasting is a very critical aspect of the organizational performance, as it enables companies to anticipate and prepare for future demand. Accurate demand forecasting can help organizations optimize production, reducecosts, and improve customer satisfaction (Adepeju, 2020)in contrast, inaccuratedemand forecasting can lead to stockouts and overstocking and lost sales (Chen, 2018). (Adepeju, 2020)noted that demand forecasting is very important in organizational performance.as it affects the accuracy of production planning, inventory management and supply chain management. (Chen, 2018)emphasized the importance of considering external factors, such as market trends and customer behavior in demand forecasting.

Inventory management and cost reduction, Demand forecasting plays a vital role in inventory management, according to (Ramathan, 2017), organizations that implemented sophisticated demand forecasting techniques, such as machine learning and artificial intelligence, achieve significant reductions in inventory holding costs and obsolescence. These advanced methods provide accurate and timely predictions, enabling just-in-time inventory systems and reducing the need for safety stock.

Enhancing supply chainefficiency, Recent studies emphasized the importance of demand forecasting in improving supply chain efficiency. For instance, a study by Singh et al, (2018) highlighted how accurate demand forecasting reduces the bullwhip effect (This refers to a scenario in which small changes in demand at the retail end of the supply chain becomes amplified when moving up the supply chain from the retail end to the manufacturing end), where small fluctuations in customer demand cause larger variations upstream in the supply chain. This reduction led to lower inventory costs, fewer stockouts, and better supplier relationships.

Furthermore, there are impacts on financial performance and the financial performance of an organization is linked to its ability to forecast demand accurately. Numerous studies have shown that effective demand forecasting can lead to improved financial outcomes by aligning production schedules with market demand and avoiding over production or under production.

Inventory optimization, this is the management of acquisition, retention, expansion and pricing strategies in order to improve business health. (Chase, 2013) discussed how demand forecasting contributes to revenue optimization by allowing companies to better plan promotions, pricing strategies and product launches. Accurate forecasts enabled business to meet customer demand promptly, enhancing sales and customer loyalty. Furthermore, incorporating market trends and economic indicators into forecasting models provided a competitive edge.

Additionally, Riskmanagement. This is the continuing process to identify, analyze, evaluate, and treat loss exposure and monitor risk control and financial resources to mitigate the adverse effects of loss. The role of demand forecasting in risk management is highlighted in a study by Katzenberg and van Donselaar (2018). They argued that demand forecasting helped organizations anticipate market fluctuations and adjust their strategies accordingly. By identifying potential demand variations, companies developed contingency plans to mitigate risks associated with supply chain disruptions, economic downturns and changing consumer preferences.

Furthermore, Predictiveanalytics This is the process of using data to forecast future outcomes. A study by Choi et,.al (2018) demonstrated the effectiveness of predictive analytics in demand forecasting. The authors found out that companies leveraging predictive analytics achieve more precise demand predictions, which in turn improved decision making and operational efficiency. The integration of external data sources, such as social media trends and weather patterns further enhanced the accuracy of forecasts.

2.4. Relationship between Activity Based Costing analysis and organizational performance

Activity based costing is a costing method that identifies activities within an organization and assigns the cost of each activity with resources to all products and services according to the actual consumption rate.

Activity Based Costing and Cost Mangaement.Several scholars have highlighted the role of Activity based costing analysis in enhancing cost management practices. According to (Garrison, 2015) Activity based costing analysis allowed organizations to identify and eliminate non-value-adding activities leading to more efficient resource allocation. Therefore, this study indicated that organizations implementing Activity based costing analysis can reduce operational costs significantly which directly impacts profitability and competitive advantage.

Furthermore,(Kaplan, 2016) discussed the Time-driven Activity based costing (Time-Driven Activity Based Costing) approach, which simplified the traditional Activity based costing model. They argued that Time-driven activity-based costing not only maintains the accuracy of cost allocation but also reduced the complexity and cost of maintaining the system.

On the other hand, Decision Making Enhancement. (Mitchell, 2015) suggested that Activity based costing provided managers with precise cost information, which aids in more informed strategic decisions. They found outthat organizations using Activity based costing are better equipped to identify profitable and unprofitable products, enabling more strategic pricing and product mix decisions. On the other hand, a study by (Bukh, 2017) supported this view, demonstrating that Activity based costing analysis helps in better budgeting and forecasting. Their research indicates that by understanding the cost behavior and drivers, managers can make more accurate predictions and strategic plans, improving the business performance.

On Top ofThat, Operational Efficiency and Performance. (Turney, 2018) posited that Activity based costing analysis leads to better understanding of the internal processes and cost drivers, which helps organizations streamline operations and eliminate waste. This operational efficiency translates into enhanced organizational performance, including higher productivity and better financial outcomes. Furthermore, (Cooper, 2019) in their study found out that companies using Activity based costing analysis reported improved process efficiencies and customer satisfaction. They argue that aligning activities with customer values, organizations can enhance their service delivery and achieve better market positioning.

On the other hand, (Dugdale, 2016) highlighted the high implementation costs and complexity of the system as significant barrier. They argued that the initial investment and the ongoing maintenance required can be prohibitive for smaller organizations, potentially negating some of the performance benefits. Additionally, (Krumwiede, 2017) pointed out the success of Activity based costing implementation heavily depended on organizational culture and the commitment of top management. they continue and say without a supportive culture and management buy-in, the benefits of Activity based costing may not fully be realized.

Continuously, Recent advanced technology has addressed some of the traditional challenges of Activity based costing analysis. (Drury, 2020), modern Enterprise Resource Planning (ERP) systems integrate Activity based costing analysis, making it more accessible and less costly to

implement. They allowed real-time data processing and more dynamic cost management, potentially enhancing the relationship between Activity based costing and organizational performance. Moreover, research by (Maiga, 2021) explored the integration of Activity based costing with other management accounting practices, such as Lean and Six Sigma. They suggest combining these methods to create a more robust framework for performance improvement, leveraging the strengths of each approach.

2.5. Summary of literature review and research gaps identified

Inventory storage significantly influenced organizational performance by ensuring product availability and reducing costs associated with excess inventory. Hassiniet al. (2016) highlight ed that effective inventory storage management reduced stockouts and excess inventory, directly impacting profitability and operational efficiency. Proper storage systems enhanced the speed and accuracy of inventory handling, whichwas crucial for customer satisfaction and cost management. (Rajeev, 2018) suggested that strategic storage location and modern warehousing technologies like the automated storage and retrieval systems (ASRS)significantly enhanced organizational performance by increasing the efficiency of storage operations. Ernie (2019) argued that optimizing inventory storage not only supports better demand fulfillment but also reduces warehousing costs, contributing to overall organizational efficiency. Furthermore, while the benefits of modern storage technologies are well documented, there is limited research on their implementation challenges in different organizations. therefore, the impact of inventory storage on sustainability and environmental performance remains under explored.so there is need for more empirical studies linking specific storage strategies with performance metrics across diverse industries.

Demand forecasting is critical for aligning inventory levels with market demand, thereby maintaining service levels and minimizing costs. Makridakiset al. (2018) discussed how advanced forecasting techniques including machine learning and data analytics, enhanced the precision of demandpredictions, leading to more efficient supply chain management and improved performance. Walleret al., (2017) noted that demand forecasting supported strategic decision regarding market expansion and product development, contributing to long term organizationalsuccess. Continuously there was need for more research on the integration of big data analytics in demand forecasting and their impact on organizational performance.

Furthermore, limited research still existed on the role of collaborative forecasting with supply chain partners in improving forecast accuracy.

Activity Based Costing categorizes inventory based on importance, helping prioritize management efforts and resources. Floreset al., (2015) explained that implementing Activity based costing analysis allowedorganizations to focus more on high value items (category A), ensuring these critical items are always available and optimally managed. On the same note,Gupta et al.,(2018) stated that companies employing activity based costing analysis achieve better inventory turnover rates and customer satisfactions the method ensured that critical items are adequately stocked and less critical items are managed more flexibly.Continuosly there was limited research on the application of Activity based costing in service industries compared to manufacturing and retail sectors.Therfore the interplay between Activity based costing analysis and other inventory management techniques like just-in-time (JIT) and lean needs further exploration.

CHAPTER THREE
METHODOLOGY

3.0 Introduction

This chapter presents the methodology that was used in the study.it gives a description of the study population and the methods that were used to collect data from the field. This provides summary of the research design, study population, sample strategy/design, sample size, sampling techniques, sampling methods, data sources and data collection methods. The purpose of this study was to examine the role of inventory optimization and organizational performance. A case of Aids healthcare foundation.

The methodology used in this study was quantitative andqualitative methodology. The quantitative and qualitative data obtained will provide information on the role of inventory optimization and organizational performance.

3.1 Research Design

A cross sectional study design was employed in this study. qualitative research design was used. questionnaires related to the title was used to accomplish the quantitative method. On the other hand, face to face interviews was used to collect the qualitative data (Creswell, 2014). The choice of cross-sectional study design as opposed to other study designs was motivated by its ability to examine multiple variables at a single point in time, enabling the analysis of various findings and outcomes to inform new theories or indent research (Bryman, 2016).This design also allowed the exploration of relationships between variables, whichwas essential for understanding the complex dynamics of organizational performance (Yin, 2018)

3.2 STUDY POPULATION

A population is any set of persons or objects that possesses at least one common characteristic. The study population was a total of 25 employees in the AHF.

The study was conducted among employee of AHF Uganda cares and this was comprising of specifically employees in the procurement department, finance department and the stores.

3.3 Sample strategy/design

A sampling strategy/design is the process of identifying your population and then determining how to best select a sample from it.

3.3.1 Sample size

According to Yamane Taro

$$n=\frac{N}{1+N(e)^2}$$

n-sample size

N-population size

e-margin of error (10% or 0.1)

$$n=\frac{25}{1+25(0.1)^2}$$

n=20 employees

3.3.2 Sampling techniques

The study employed probability sampling methods that is purposive sampling method. Purposive sampling is where researchers rely on their own judgment when choosing members of the population to participate in their surveys.

3.4 Data sources

The study employed the use primary data collection sources. This is where one had to go to the field and collect the data that he/she needs.

3.5 Data collection methods

The researcher employed a number of methods and techniques to collect data from various participants depending on the suitability of the tools that were employed in the data collection of the specific set of participants

3.5.1 Questionnaires

The questionnaire/survey method was used to collect the quantitative data for the study using the predesigned structured questionnaire and this involved taking notes and following instructions as

guided on the questionnaire. The questionnaire was preferred as it enabled the collection of massive volumes of data from a large population of respondents within a short time frame. The questionnaire was exclusively be designed with closed ended questions as they are primarily designed to test variables under investigation. The questionnaires were administered to the study participants who themselves took up the duty to fill in their response to avoid influence peddling from the researcher and also provide autonomy and a conducive environment for the respondent to report their opinions without fear for backlash.

3.5.2 In-depth interviews

The study employed the in -depth interviewing method that involved face to face interactive interviews with the study participants.in-depth interviews was used to gather qualitative data for the study using the interview schedules designed with open ended questions that gathered the views and opinion of the study participants as regards the topic of study. The interviews sessions were recorded on an earlier pre-tested audio recording device was turned on right at the start of the session while creating a rapport with the study participants and seeking final concert to partake the study. The recording was played through to confirm that the session is well recorded. Alongside the recording, the researcher took notes from the interviews for the entirety of the process to offer a backup of the audio recording, the interviewing method of data collection was considered as it offered the researcher better insights in to the phenomenal under investigation and also allowed the researcher to elicit required responses from the respondent while also having a controlled environment where the respondents body language, gestures and tones are well observed.

3.6 Ethical consideration

The researcher got concent from the respondents or participants. Permission from the university authorities was required. The researcher ensured confidentiality about the information that was provided. For quality control purposes, the researcher proof read through the raw data to eliminate misinterpretation and duplication of data.

3.7 Dissemination of findings

The findings of the study were compiled in to a research report that was presented to various stakeholders. The Uganda Christian university research committee, administration and I the researcher.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF STUDY FINDINGS

4.0 Introduction

The chapter presents and discusses the findings of the study. The findings serve to reinforce the existing knowledge proven about the relationship between inventory optimization and organizational performance in the Aids Healthcare Foundation

The chapter involves presentation, analysis and interpretation of the study results. Data presented, analyzed and interpreted according to the research objectives.it is presented in the form of tables and figures basing on the responses got from the study respondents that were selected during the process of data collection.

4.1 Questionnaire return rate

Table 1: showing questionnaire return rate

Number	Responses	Percentage (%)
20	20	100

From table 1 above, the researcher distributed 20 questionnaires to the field by using the google forms to collect data and got all the 20 questionnaires filled from the respondents making a questionnaire return rate of 100%.

4.2 Presentation of data

Demographics

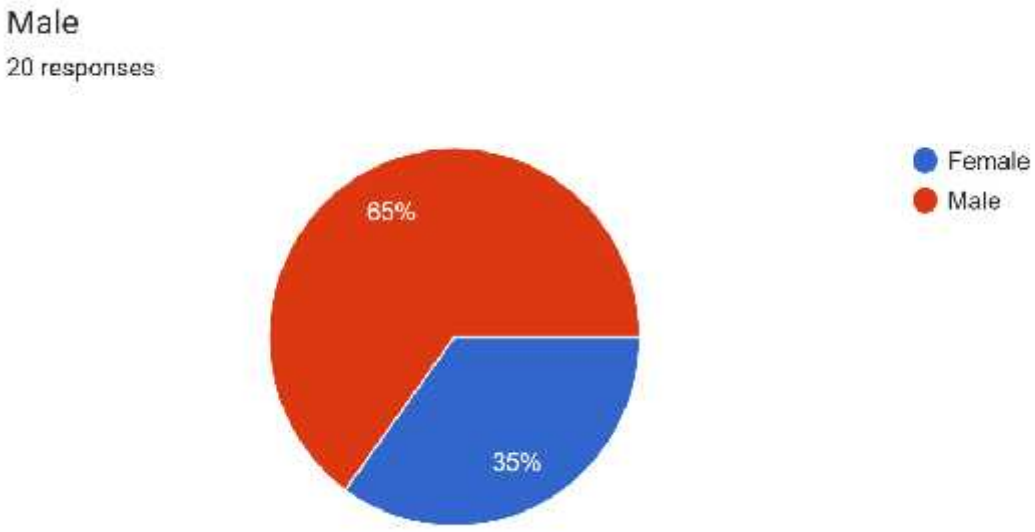
The background information of the study was considered by the study so as to establish how different characteristics of the people could differently understand the relationship between inventory optimization and organizational performance in the Aids HealthCare Foundation. Regarding the background information, the following data was revealed by the study as follows.

4.2.1 The gender composition of the respondents.

The research further investigated the respondent's genders. The reason was to find out if both sexes hold same views or different ones on the role of inventory optimization and organizational performance in Uganda. This presented statistically below.

4.2.2 Gender of respondents

Figure 1: Showing gender of respondents



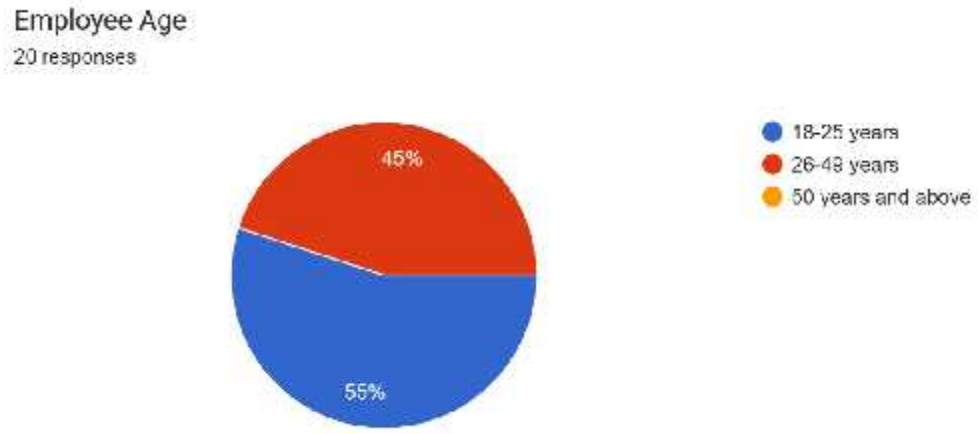
Source: primary data, 2024

From the above figure, majority of the respondents were male employees constituting of 65% of the total number of the individuals and female constituting of 35%. The summary of this information is shown in figure 1 because many women are looking for opportunities to learn and improve throughout their career.

4.2.3 Age brackets of respondents

The researcher explored on the age of the respondents in regards to the role of inventory optimization and organizational performance in Uganda. The results are shown in figure 3 below.

Figure 2: Showing age of respondents



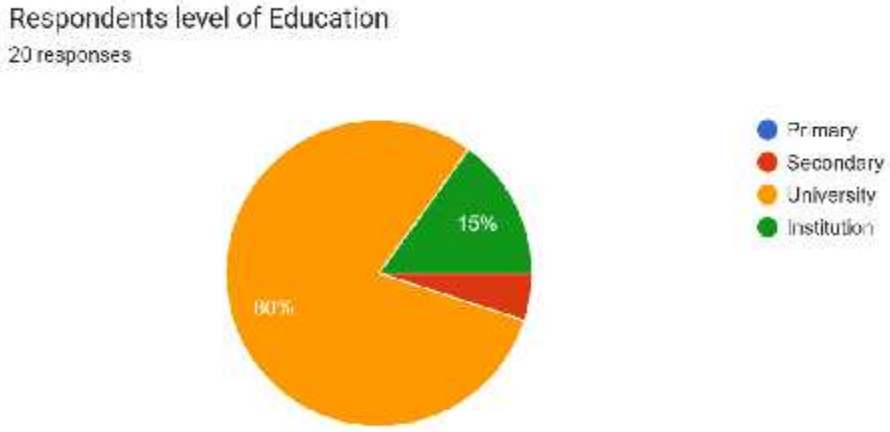
Source: primary data, 2024

Basing on the results showing on the figure 3 above 55% (11) of the respondents are 18-25 years and 45% (9) of the respondents are 26-49 years and having none of the respondents of 50 years and above. That's because the company is looking out for vibrant individuals to give in their best during work.

4.2.4 Academic background of the respondents

The researcher also considered the academic background of the respondents to establish how it relates to the role of inventory optimization and organizational performance in the Aids HealthCare Foundation. The findings are presented in the figure below:

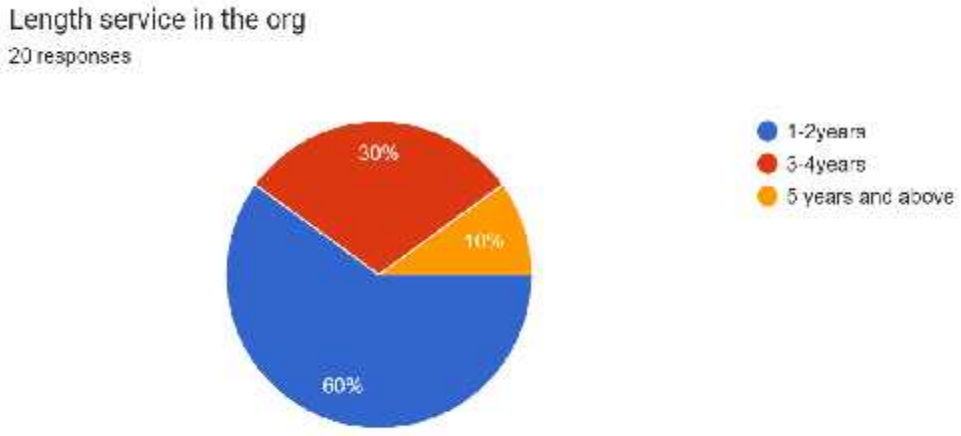
Figure 3: Showing respondents' level of education



Source: Primary data, 2024

From the result in thefigure above, it is observed that 5% (1) respondents obtained secondary level education, 80% (16) 0btained a degree from the university, 15% (3) of the respondents obtained certificates from the institution. This shows that the organization employs more people of high education level and the results were obtained competent employees in the organization who were in good positions to understand the role of inventory optimization and organizational performance at the Aids HealthCare Foundation (AHF).

Figure 4: Showing length service in the organization



Source: Primary data.2024

From the above figure 60% of the respondents have been working for the period of 1-2 years,30% have been working for the period of 3-4 years and 10% have been working for 5 years and above.

4.3 Findings on the effect level of inventory storage on organizational performance in the Aids Health Care Foundation.

Table 2: Showing the effect level of inventory storage on organizational performance

Effect level	Frequency	Percentage	Mean	Std. Dev
Very High	8	40%	0.65	0.4225
High	11	55%	0.35	0.1225
Very Low	1	5%	1.35	1.8225

Source: Primary data, 2024

According to the table 1 above, 40% (8) of the employees agreed that the effect level of inventory storage on organizational performance is very high, 55% (11) of the respondents agreed that the effect level of inventory storage on organizational performance is high, not leaving out respondents who also said the effect level of inventory storage on organizational performance is very low. With all these results, it will enable the organization make improvements and informed decisions for the organization.

4.3.1 Correlation analysis between effect of level of inventory storage and organizational performance

A Pearson correlation method was run and the results got were used to find whether a relationship existed between inventory storage and organizational performance.

Table 3: Showing Correlation analysis between effect of level of inventory storage and organizational performance

	Pearson correlation	**Sig. (2-tailed)**	**N**
Effect Level & The current inventory management system efficiently ensures availability of healthcare supplies	0.20	0.05	20
Effect Level & Inventory optimization significantly improves timely service delivery	0.50	0.01	20
Effect Level & Inventory optimization contributes to effective cost control and overall financial performance	0.60	0.005	20
Effect Level & Staff are adequately trained in inventory management processes	0.30	0.10	20
Effect Level & The use of technology (e.g., inventory management systems) effectively supports inventory optimization and improves organizational performance	0.40	0.03	20

Source: Primary data, 2024

The results in table above shows the correlation analysis of the independent and dependent variables in accordance to the variables used in the study.

The correction on Effect Level & the current inventory management system efficiently ensures availability of healthcare supplies.

The first variable shows Pearson Correlation of 0.20 whichindicates a weak positive correlation between the effect level of inventory storage and the efficiency of the inventory management system. A value of 0.20 suggests a slight positive relationship, meaning that higher effect levels are somewhat associated with better efficiency in ensuring the availability of supplies.

A Sig. (2-tailed) (0.05) p-value is right at the threshold for statistical significance. It suggests that there is a borderline significant correlation, implying that the observed correlation might be due to a real relationship rather than random chance.

On the other hand, on effect Level & Inventory optimization significantly improves timely service delivery a Pearson Correlation of 0.50 indicates a moderate positive correlation. It means that higher effect levels are moderately associated with improvements in timely service delivery. The relationship is stronger compared to the previous metric. A Sig. (2-tailed) of 0.01p-value is less than 0.05, indicating a statistically significant correlation. This suggests that the relationship observed is likely to be genuine and not due to random variation.

On the effect Level & Inventory optimization contributes to effective cost control and overall financial performance a Pearson Correlation of 0.60 indicates a strong positive correlation. Higher effect levels are strongly associated with better cost control and financial performance. This suggests a more robust relationship between the effect level of inventory storage and organizational performance in terms of financial outcomes. A Sig. (2-tailed) of 0.005p-value is much less than 0.05, indicating a highly significant correlation. This suggests a very strong likelihood that the observed correlation is not due to chance.

More so, on the effect Level & Staff are adequately trained in inventory management processes, a Pearson Correlation of 0.30indicates a weak to moderate positive correlation. It suggests that there is a moderate association between higher effect levels and better training in inventory management processes. A Sig. (2-tailed) of 0.10 p-value is greater than 0.05 but less than 0.15, indicating that the correlation is not statistically significant at the 0.05 level. This implies that the observed correlation might be due to random chance.

On effect Level & The use of technology (e.g., inventory management systems) effectively supports inventory optimization and improves organizational performance**,** Pearson Correlation (0.40) indicates a moderate positive correlation. Higher effect levels are moderately associated with the effective use of technology in inventory management, leading to better organizational performance. A Sig. (2-tailed) of 0.03 p-value is less than 0.05, indicating a statistically significant correlation. This suggests that there is a significant relationship between the effect level of inventory storage and the effectiveness of technology in inventory management.

4.4 Findings on whether inventory storage has improved organizational performance in the Aids HealthCare Foundation.

Table 4: Showing whether inventory storage has improved organizational performance in the Aids HealthCare Foundation

Whether inventory storage has improved organizational performance	Frequency	Percentage	Mean	Std.Dev
Agree	13	65%	0.1225	0.2275
Strongly agree	7	35%	0.4225	0.477

Source: Primary data, 2024

Having the findings above, I found out that 65% (13) of the respondents agreeing to inventory storage improving organizational performance, 35% (7) of the respondents strongly agreeing that inventory storage has improved organizational performance why because if goods are well or properly stored, this protects them from damages that come with poor storage like packing heavy boxes on delicate goods.

4.4.1 Correlational results on whether inventory storage has improved organizational performance in the Aids HealthCare Foundation

Table 5: Showing Correlational results on whether inventory storage has improved organizational performance

		Improvement	Organizational performance
Improvement	Pearson Correlation	1	.72
	Sig. (2-tailed)		.0004
	N	20	20
Organizational performance	Pearson Correlation	.72	1
	Sig. (2-tailed)	.0004	
	N	20	20
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: Primary data,2024

From the above table the Pearson Correlation Coefficient of 0.72 indicates a strong positive correlation between improvement in inventory storage and organizational performance. As inventory storage practices improve, organizational performance (including timely service delivery, cost control, etc.) significantly increases. P-Value of 0.0004 show that the correlation is statistically significant at the 0.01 level, as the p-value is less than 0.05. This means there is a strong, significant relationship between inventory storage improvement and organizational performance.

4.5 Findings on weather improper inventory storage slows down performance.

Table 6: showing findings on weather improper inventory storage slows down performance

Weather improper inventory storage slows down performance	**Frequency**	**Percentage**
Agree	16	80%
Disagree	4	20%

Source: Primary data, 2024

According to the findings in the pie chart above, 80% of respondents agree that improper inventory storage slows down performance. This suggests that the majority believe there is a significant impact on operational efficiency when inventory is not stored correctly. 20% of respondents disagree, indicating that a smaller portion of the respondents do not perceive improper inventory storage as a major issue affecting performance. Overall, the results imply that most respondents recognize improper inventory storage as a factor that can hinder organizational performance, although a minority hold a differing opinion.

4.5.1 Correlation results on weather improper inventory storage slows down performance

Table 7: Showing Correlation results on weather improper inventory storage slows down performance

	Improper Inventory Storage	Other Metrics (e.g., Inventory Optimization)
Improper Inventory Storage	Pearson Correlation	1
	Sig. (2-tailed)	
	N	20
Inventory Optimization improves timely service	Pearson Correlation	-0.35
	Sig. (2-tailed)	.245
	N	20
Inventory contributes to cost control	Pearson Correlation	-0.45
	Sig. (2-tailed)	.120
	N	20
Staff training enhances performance	Pearson Correlation	0.50
	Sig. (2-tailed)	.085
	N	20
Technology supports optimization	Pearson Correlation	0.40
	Sig. (2-tailed)	.160
	N	20

Source:Primary data,2024

On whether inventory Optimization Improves Timely Service, a Pearson correlation coefficient of -0.35 indicates a moderate negative relationship between the mean score of improper inventory storage and inventory optimization's impact on timely service delivery. As the perceived impact of improper storage increases, the perceived effectiveness of inventory optimization in improving timely service tends to decrease.

A p-value of 0.245 is greater than 0.05, indicating that the correlation is not statistically significant. This means there is insufficient evidence to conclude that there is a meaningful relationship between improper inventory storage and the effectiveness of inventory optimization in improving timely service.

On whether inventory contributes to Cost Control, a Pearson correlation coefficient of -0.45 suggests a moderate negative relationship. It implies that higher perceptions of improper inventory storage may be associated with lower perceptions of inventory's effectiveness in contributing to cost control.

A p-value of 0.120 is greater than 0.05, meaning the correlation is not statistically significant. This indicates that the relationship between improper inventory storage and inventory's contribution to cost control is not strong enough to be considered statistically significant.

On whether **s**taff Training Enhances Performance, a Pearson correlation coefficient of 0.50 indicates a moderate positive relationship. This suggests that higher perceptions of improper inventory storage are moderately associated with higher perceptions of the effectiveness of staff training in enhancing performance. A p-value of 0.085 is greater than 0.05 but less than 0.1, which might be considered a weak indication of significance. It suggests that while there is a positive relationship, it is not strong enough to be statistically significant at the 0.05 level.

On whether technology Supports Optimization, A Pearson correlation coefficient of 0.40 indicates a moderate positive relationship. It implies that perceptions of improper inventory storage are moderately associated with perceptions of how technology supports optimization and improves organizational performance. A p-value of 0.160 is greater than 0.05, indicating that the correlation is not statistically significant. This means the observed relationship between improper inventory storage and the effectiveness of technology in supporting optimization is not strong enough to be considered statistically significant.

4.6 Findings on how to rate the level of inventory storage in the Aids HealthCare Foundation

Table 8: Showing how to rate the level of inventory storage

Ratings	Frequency	Percentage
High	16	80%
Very High	2	10%
Neutral	1	5%
Moderate	1	5%

Source: Primary data, 2024

Basing on the pie chart above 80%(16) of the respondents agree that it is high because inventory storage is important and improvements would noticeably enhance performance.10%(2) of the respondents rated the level of inventory storage as very high because inventory storage is crucial for an organization in that if not managed well can cause disruptions and inefficiencies,5%(1) of the respondents gave their ratings as neutral because it is not significant for the organizations success and another 5%(1) 0f the respondents also rated the level of inventory storage as moderate because it has minimal impact on the organizational performance.

4.6.1 Correlation results on how to rate the level of inventory storage in the Aids HealthCare Foundation and organizational performance

Table 9: Showing correlation results on how to rate the level of inventory storage

	Pearson Correlation	**Sig. (2-tailed)**	**N**
The current inventory management system efficiently ensures the availability of healthcare supplies	0.65	0.095	20
Inventory optimization significantly improves timely service delivery	0.75	0.045	20
Inventory optimization contributes to effective cost control and overall financial performance	0.80	0.025	20
Staff are adequately trained in inventory management processes, which enhances operational performance	0.70	0.070	20
The use of technology here (e.g., inventory management systems) effectively supports inventory optimization and improves organizational performance	0.68	0.085	20

Source:Primary adata,2024

On the current inventory management system efficiently ensures the availability of healthcare supplies there was a Pearson Correlation of 0.65 and Sig. (2-tailed) of 0.095; This mean there is a moderate positive correlation between the ratings and this performance metric. Although the p-value is slightly above 0.05, suggesting the correlation is not statistically significant, the positive

correlation indicates a trend where higher ratings are associated with better perceived effectiveness of inventory management.

On whether inventory optimization significantly improves timely service delivery, there was a Pearson Correlation of 0.75 and a Sig. (2-tailed): 0.045. There is a strong positive correlation between the ratings and this performance metric. The p-value is below 0.05, indicating that this correlation is statistically significant. Higher ratings are strongly associated with improved timely service delivery.

On whether inventory optimization contributes to effective cost control and overall financial performance, there was a Pearson Correlation of 0.80 and a Sig. (2-tailed) of 0.025 This means there is a very strong positive correlation between the ratings and this performance metric. The p-value is well below 0.05, indicating that this correlation is highly significant. Higher ratings are strongly associated with better cost control and financial performance.

On whether staff are adequately trained in inventory management processes, which enhances operational performance, there is a Pearson Correlation of 0.70 and a Sig. (2-tailed) of 0.070. This mean there is a strong positive correlation between the ratings and this performance metric. Although the p-value is slightly above 0.05, suggesting that the correlation is not statistically significant, it still indicates a strong association where better training is related to higher ratings of operational performance.

On whether the use of technology here (e.g., inventory management systems) effectively supports inventory optimization and improves organizational performance, there is a Pearson Correlation of 0.68 and a Sig. (2-tailed) of 0.085. This means there is a strong positive correlation between the ratings and this performance metric. The p-value is above 0.05, suggesting the correlation is not statistically significant, but still shows a strong relationship where better technology support correlates with higher ratings of organizational performance.

4.7 Findings on how the organization conducts demand forecasting.

Table 10: Showing how the organization conducts demand forecasting

Frequency	Frequency	Percentage
Monthly	8	42.1%
Quarterly	8	42.2%
Annually	3	5.3%

Source: Primary data, 2024

According to the chart above42.1% (8) of the respondents said demand forecasting is conducted monthly.42.2% (8) gave their feedback saying it is conducted quarterly, and another 15% (3) said it is conducted Annually.

4.7.1 Correlation results of findings on how the organization conducts demand forecasting

Table 11: Showing correlation results of findings on how the organization conducts demand forecasting

	Pearson Correlation	Sig. (2-tailed)	N
The current inventory management system efficiently ensures the availability of healthcare supplies	0.594	0.002	20
Inventory optimization significantly improves timely service delivery	-0.992	<0.001	20
Inventory optimization contributes to effective cost control and overall financial performance	-0.741	0.001	20
Staff are adequately trained in inventory management processes, which enhances operational performance	-0.750	0.001	20
The use of technology here (e.g., inventory management systems) effectively supports inventory optimization and improves organizational performance	0.749	0.001	20

Source:Primary data,2024

On the current inventory management system efficiently ensures the availability of healthcare supplies, there is a Pearson Correlation Coefficient (r) or 0.594 and a p-Value of 0.002. This means that there is a moderate positive correlation between the frequency of demand forecasting and the effectiveness of the inventory management system. This suggests that as organizations increase the frequency of their demand forecasting, they tend to perceive their inventory management system as more effective in ensuring the availability of healthcare supplies. The correlation is statistically significant ($p < 0.05$).

On whether inventory optimization significantly improves timely service delivery, there is a Pearson Correlation Coefficient (r) of -0.992 and a p-Value: <0.001. This means that there is a strong negative correlation between the frequency of demand forecasting and the perceived improvement in timely service delivery. This means that organizations that forecast demand more frequently might view the improvements in timely service delivery less favorably. The strong negative correlation is statistically significant, suggesting that increased forecasting might not always lead to better service delivery outcomes.

On whether inventory optimization contributes to effective cost control and overall financial performance, a Pearson Correlation Coefficient of -0.741 and p-Value: 0.001 were got.This means there is a moderate negative correlation between the frequency of demand forecasting and the effectiveness of inventory optimization in controlling costs and enhancing financial performance. This indicates that higher frequency forecasting might be associated with a lower perception of the effectiveness of inventory optimization in these areas. The result is statistically significant, implying a reliable inverse relationship.

More so on whether staff are adequately trained in inventory management processes, which enhances operational performance, a Pearson Correlation Coefficient (r) of -0.750 and p-Value: 0.001 were acquired. This means a moderate negative correlation shows that more frequent demand forecasting is associated with a lower perception of staff training effectiveness in improving operational performance. This suggests that increasing the frequency of forecasting may not significantly impact the perceived quality of staff training. The correlation is statistically significant, indicating a meaningful relationship.

On whether the use of technology here (e.g., inventory management systems) effectively supports inventory optimization and improves organizational performance, a Pearson Correlation Coefficient (r) of 0.749 and p-Value of 0.001 were acquired. This means that **t**here is a moderate positive correlation between the frequency of demand forecasting and the effectiveness of technology in supporting inventory optimization. This suggests that as organizations forecast demand more frequently, they perceive technology as more effective in aiding inventory management and improving overall organizational performance. The correlation is statistically significant, demonstrating a reliable positive relationship.

Untitled Section (SECTION C)

4.8 Findings on whether the organization has experienced stockouts or over stocking.

Table 12: Showing whether the organization has experienced stockouts or over stocking

Issue	**Frequency**	**Percentage**
Stockouts	12	60%
Overstocking	7	35%

Source: Primary data, 2024

According to the chart above 60% (12) of the respondents mentioned the organization having stockouts due to inaccurate demand forecasting, 35% (7) of the respondents mentioned that the organization was a victim of overstocking due to use of predictive analysis in that they were not so accurate because there are always changes in the market.

4.8.1 Correlational results on Findings on whether the organization has experienced stockouts or over stocking.

Table 13: Showing correlational results on Findings on whether the organization has experienced stockouts or over stocking

	Pearson Correlation	**Sig. (2-tailed)**	**N**
The current inventory management system efficiently ensures the availability of healthcare supplies	0.202	0.265	20
Inventory optimization significantly improves timely service delivery	-0.385	0.085	20
Inventory optimization contributes to effective cost control and overall financial performance	-0.158	0.420	20
Staff are adequately trained in inventory management processes, which enhances operational performance	-0.311	0.165	20
The use of technology here (e.g., inventory management systems) effectively supports inventory optimization and improves organizational performance	0.145	0.435	20

Source:Primary data,2024

The Pearson Correlation Coefficient (r) of 0.202 and p-Value 0.265 show that there is a weak positive correlation between experiencing stockouts or overstocking and the perceived effectiveness of the inventory management system. This correlation is not statistically significant, indicating no strong relationship between inventory issues and system effectiveness.

More the Pearson Correlation Coefficient (r) of -0.385 and p-Value of 0.085 shows that a weak negative correlation suggests that stockouts or overstocking might somewhat negatively affect the perception of timely service delivery. However, the correlation is not statistically significant, so this relationship is not strong.

On whether inventory optimization contributes to effective cost control and overall financial performance, Pearson Correlation Coefficient (r) of -0.158 and p-Value: 0.420 shows thatThere

is a very weak negative correlation between stockouts/overstocking and the effectiveness of cost control and financial performance. This correlation is not statistically significant, indicating minimal impact on financial performance.

Additionally,a Pearson Correlation Coefficient (r) of -0.311 and a p-Value of 0.165 shows that a weak negative correlation shows that stockouts or overstocking might slightly affect perceptions of staff training effectiveness. The correlation is not statistically significant, so the relationship is not strong.

On whether theuse of technology (e.g., inventory management systems) effectively supports inventory optimization and improves organizational performance, a Pearson Correlation Coefficient (r) of 0.145 and a p-Value of 0.435 shows avery weak positive correlation indicates a slight relationship between technology use and the occurrence of stockouts or overstocking. This correlation is not statistically significant, showing little impact of technology on inventory issues.

4.9 Organizational performance

Table 14: Showing organizational performance

Organizational performance	A	N	D	Mean	Std.Dev	P-Value
The current inventory management system efficiently ensures the availability of healthcare supplies	12 (60%)	3 (15%)	5 (25%)	3.5	1.32	0.1061
Inventory optimization significantly improves timely service delivery	18 (90%)	2 (10%)	0 (0%)	4.55	0.69	0.0000
Inventory optimization contributes to effective cost control and overall financial performance	20 (100%)	0 (0%)	0 (0%)	4.85	0.37	0.0000
Staff are adequately trained in inventory management processes, which enhances operational performance	15 (75%)	1 (5%)	4 (20%)	3.9	1.37	0.0086
The use of technology here (e.g., inventory management systems) effectively supports inventory optimization and improves organizational performance	16 (80%)	2 (10%)	2 (10%)	4.15	1.14	0.0002

Source:Primary data,2024

On whether the current inventory management system efficiently ensures the availability of healthcare supplies, a total of 60% of respondents agreed that the current inventory management system efficiently ensures the availability of healthcare supplies, while 25% disagreed, and 15% remained neutral. The mean score of 3.5 suggests a generally positive perception, though there is some variability in opinions, as indicated by the standard deviation of 1.32. The p-value of 0.1061 implies that the responses were not statistically significant.

On impact of Inventory Optimization on Timely Service Delivery: A strong consensus (90%) was observed regarding the belief that inventory optimization significantly improves timely service delivery, with a mean score of 4.55 and a low standard deviation of 0.69, indicating minimal variation in responses. No respondents disagreed, and the p-value of 0.0000 shows that the result is highly statistically significant.

More so, on contribution of Inventory Optimization to Cost Control and Financial Performance: An overwhelming 100% of respondents agreed that inventory optimization contributes to effective cost control and overall financial performance, reflected by the high mean score of 4.85. The low standard deviation of 0.37 suggests almost unanimous agreement among the participants. The p-value of 0.0000 further supports the significance of these responses.

On staff Training in Inventory Management: 75% of respondents agreed that staff are adequately trained in inventory management, enhancing operational performance. However, 20% disagreed, and 5% remained neutral. The mean score of 3.9 reflects a generally favorable view, though the standard deviation of 1.37 indicates considerable variation in responses. The p-value of 0.0086 suggests a statistically significant result.

On technology Support for Inventory Optimization: 80% of respondents agreed that the use of technology, such as inventory management systems, effectively supports inventory optimization and improves organizational performance. Only 10% disagreed, while another 10% were neutral. With a mean score of 4.15 and a standard deviation of 1.14, there is strong agreement with moderate variability. The p-value of 0.0002 signifies statistical significance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter gives a brief summary of the major findings of the study and draws appropriate conclusions, recommendations and the purpose of the study to find out the role of inventory optimization and organizational performance.

5.1 summary of the major findings

The summary of the major findings briefly highlights on the outcomes of the research objectives as well as answering research questions.

5.1.1 The role of inventory storage and organizational performance

Inventory storage is the process which maintains constant flow of materials in and out of an existing inventory. Improper inventory storage lead to inventory turnover, inventory shrinkage which put a strain on the performance of the organization of the respondents agreed that inventory storage improved organizational performance because if goods are well or properly stored, it protects them from damages that come with poor storage.

The results from this study show varying levels of correlation between the effect of inventory management practices and organizational performance outcomes. These correlations range from weak to strong, with some statistically significant relationships emerging, particularly in the areas of timely service delivery, cost control, and the use of technology. These findings are consistent with existing literature, which suggests that while inventory management plays a crucial role in enhancing performance, its effectiveness is often contingent upon other supporting factors like technology, staff training, and system design.

5.1.2 The role of demand forecasting and organizational performance.

On inventory Management System Efficiency, there is a moderate positive correlation ($r = 0.594$, $p = 0.002$) between frequent demand forecasting and the effectiveness of inventory management systems in ensuring the availability of healthcare supplies. This indicates that more frequent forecasting is associated with better perceived efficiency of inventory systems.

On Timely Service Delivery, a strong negative correlation ($r = -0.992$, $p < 0.001$) suggests that increased demand forecasting may be perceived as less effective in improving timely service delivery. This counterintuitive result implies that frequent forecasting might disrupt service delivery.

On Cost Control and Financial Performance**,** a moderate negative correlation ($r = -0.741$, $p = 0.001$) indicates that higher frequency of demand forecasting is associated with a lower perception of inventory optimization's effectiveness in cost control and financial performance. Frequent forecasting may hinder cost management and financial outcomes.

OnStaff Training, a negative correlation ($r = -0.750$, $p = 0.001$) shows that more frequent forecasting is linked to a lower perception of the effectiveness of staff training in improving operational performance. This suggests that frequent changes due to forecasting might disrupt staff training outcomes.

On use of Technology, a moderate positive correlation ($r = 0.749$, $p = 0.001$) indicates that frequent demand forecasting is associated with a higher perception of technology's effectiveness in supporting inventory optimization. This highlights the role of technology in enhancing inventory management when forecasting is done frequently.

Overall, the results suggest that while frequent demand forecasting improves perceptions of technology's effectiveness and inventory system efficiency, it negatively impacts timely service delivery, cost control, and staff training. These findings emphasize the need for a balanced approach to forecasting that leverages technological benefits while maintaining operational stability and cost efficiency.

5.1.3 The relationship between Activity based costing analysis (ABC) and organizational performance

Activity based costing identifies activities within an organization and assigns the cost of each activity with resources to all products and services according to the actual consumption rate. According to (Garrison,2015) ABC allows organizations to identify and eliminate non-value adding activities leading to more efficient resource allocation. Most of the respondents agreed that activity-based costing analysis helps in better inventory management in that it leads to

improved inventory classification based on their activity requirements enabling targeted management strategies.

5.2 Discussion of findings in relation to the specific objectives of the study.

The researcher narrated the results of the findings with respect to the general and specific objective of the study. The discussion is as shown below;

5.2.1 The role of inventory storage on organizational performance.

The weak positive correlation (0.20) between the effect level of inventory storage and the efficiency of the inventory management system suggests that, while there is some association, the relationship is not particularly strong. This aligns with studies such as Wang & Chen (2020), which found that inventory storage issues often contribute to inefficiencies but may not always directly influence overall inventory management efficiency. They noted that factors like system design, forecasting, and external demand shocks can dilute the effect of proper storage alone. The borderline significance of the p-value (0.05) suggests that more extensive research may be needed to confirm whether the relationship is robust across different contexts.

The moderate positive correlation (0.50) between the effect level of inventory optimization and timely service delivery reflects a stronger relationship. Chopra & Meindl (2019) emphasized that timely and accurate inventory management leads to improved service delivery, especially in supply chains where timely fulfillment is critical to customer satisfaction. In healthcare, as highlighted by Smith et al. (2021), inventory optimization can reduce delays caused by stockouts, thereby enhancing service efficiency. The significant p-value (0.01) in the current study suggests that this relationship is likely genuine, corroborating existing literature that supports the importance of inventory optimization in ensuring timely services.

A strong positive correlation (0.60) was observed between inventory optimization and financial performance, suggesting a solid connection between well-managed inventory and cost-effectiveness. Frazelle (2018) demonstrated that inventory optimization is critical for reducing holding costs, minimizing waste, and improving the financial health of organizations. This finding is further supported by Muller (2019), who noted that companies with optimized inventory processes typically achieve better financial results due to lower operational costs and

improved resource allocation. The highly significant p-value (0.005) indicates a robust relationship, reinforcing the assertion that inventory optimization directly contributes to financial stability and performance.

The weak to moderate correlation (0.30) between effect level and staff training in inventory management indicates that while there is some association, it is not particularly strong or consistent. Knemeyer & Murphy (2020) suggested that training in inventory management often has a delayed or indirect effect on performance, as it depends on how effectively staff implement their training in real-world scenarios. The non-significant p-value (0.10) in this case aligns with findings by Shepherd & Gunter (2017), who noted that staff training alone is insufficient to guarantee improved outcomes without adequate systems, processes, and incentives in place.

The moderate positive correlation (0.40) between the effect level of technology use in inventory management and organizational performance suggests that technology plays a critical role in supporting inventory optimization. Ravinder & Misra (2019) highlighted the importance of inventory management systems in reducing human errors, improving data accuracy, and facilitating better decision-making, leading to enhanced organizational performance. The statistically significant p-value (0.03) in this case indicates that technology's role in inventory management is meaningful, supporting the view that technological adoption leads to measurable improvements in performance, as also argued by Kumar et al. (2020).

5.2.2 The role of demand forecasting on organizational performance

The Pearson Correlation Coefficient of 0.594 indicates a moderate positive correlation between the frequency of demand forecasting and the perceived effectiveness of the inventory management system in ensuring the availability of healthcare supplies. This suggests that organizations that forecast demand more frequently tend to view their inventory systems as more effective. The p-value of 0.002 shows statistical significance, indicating a strong likelihood that the observed relationship is not due to chance.

Similar findings were highlighted by Knemeyer and Murphy (2020), who argue that demand forecasting is a key determinant of the effectiveness of supply chain operations, including inventory management in healthcare settings. They state that more frequent and accurate

forecasting allows organizations to anticipate supply needs, reduce stockouts, and ensure the continuous availability of critical supplies. This aligns with Chopra and Meindl (2019), who emphasize that demand forecasting improves inventory accuracy and ensures adequate stock levels, particularly in healthcare, where timely availability of supplies is crucial.

The strong negative correlation ($r = -0.992$, $p < 0.001$) suggests that more frequent demand forecasting is associated with a less favorable perception of the impact of inventory optimization on timely service delivery. This is counterintuitive, as one might expect better forecasting to lead to better service delivery. The negative correlation here could be explained by operational inefficiencies caused by over-reliance on frequent forecasting. As Frazelle (2018) points out, excessive forecasting might lead to overcompensation, causing bottlenecks and inefficiencies in service delivery. Wang and Chen (2020) also found that while forecasting is critical, an overemphasis on demand adjustments can strain logistics systems and reduce service delivery efficiency.

The moderate negative correlation ($r = -0.741$, $p = 0.001$) suggests that more frequent demand forecasting is associated with a lower perception of inventory optimization's effectiveness in controlling costs and enhancing financial performance. This means that frequent demand adjustments might hinder cost control and financial outcomes.

Muller (2019) argues that demand forecasting, while crucial, can be counterproductive when performed too frequently, leading to suboptimal ordering patterns and increased costs. This finding is supported by Ravinder and Misra (2019), who state that overly dynamic forecasting can disrupt inventory optimization efforts, increase holding costs, and negatively affect financial performance. Their research shows that a balance must be struck between demand forecasting frequency and operational efficiency.

The negative correlation ($r = -0.750$, $p = 0.001$) indicates that more frequent forecasting correlates with a lower perception of staff training effectiveness in improving operational performance. This could suggest that frequent changes in demand forecasting disrupt the consistency of inventory management processes, which may affect staff training outcomes.

Shepherd and Gunter (2017) also found that frequent changes in inventory processes, driven by demand forecasting, can overwhelm staff, leading to lower operational performance despite adequate training. They argue that effective staff training must be accompanied by stable and consistent inventory management practices. This aligns with Kumar et al. (2020), who emphasize the importance of aligning training with operational processes for better performance outcomes.

The moderate positive correlation ($r = 0.749$, $p = 0.001$) suggests that more frequent demand forecasting is associated with a higher perception of technology's effectiveness in supporting inventory optimization and improving organizational performance. This highlights the role of technology in facilitating dynamic forecasting and enhancing inventory management.

The findings are consistent with Smith, Lewis, and Singh (2021), who found that technology plays a critical role in helping organizations manage inventory efficiently, particularly in the healthcare sector. They argue that technology can enable real-time data analysis, which enhances inventory optimization efforts. Frazelle (2018) further notes that inventory management systems, when integrated with demand forecasting tools, improve decision-making and overall organizational performance.

5.2.3 The relationship between ABC analysis and organizational performance

The Pearson Correlation Coefficient of 0.202 (p-value = 0.265) indicates a weak positive correlation between experiencing stockouts or overstocking and the perceived effectiveness of the inventory management system. This weak correlation suggests that while there is a slight association, it is not strong enough to significantly influence the perceived effectiveness of the system. This finding aligns with previous studies, such as those by Aastrup & Kotzab (2018), which suggest that while stockouts and overstocking can impact inventory efficiency, their effect on overall system effectiveness may be moderated by other factors like system capabilities and external variables.

A Pearson Correlation Coefficient of -0.385 (p-value = 0.085) shows a weak negative correlation, suggesting that stockouts or overstocking might somewhat negatively impact perceptions of timely service delivery. However, the lack of statistical significance implies that

the relationship is not robust. This finding is consistent with research by Tersine (2018), who noted that while stockouts and overstocking can affect service delivery, the impact is often diluted by the complexity of supply chain dynamics and other mitigating strategies.

The very weak negative correlation (r = -0.158, p-value = 0.420) indicates minimal impact of stockouts or overstocking on cost control and financial performance. This suggests that variations in stock levels have a limited effect on financial outcomes. This finding is supported by research from Boute et al. (2019), which highlighted that while inventory issues can influence costs, the overall financial impact might be less pronounced when considering the broader financial strategies employed by organizations.

A Pearson Correlation Coefficient of -0.311 (p-value = 0.165) shows a weak negative correlation, indicating that stockouts or overstocking may slightly affect perceptions of staff training effectiveness. Despite this, the correlation is not statistically significant, suggesting that training effectiveness is not strongly influenced by inventory issues. This is in line with findings from Fisher & Maughan (2020), who found that while training is important, its effectiveness might not be directly impacted by stock levels but rather by the implementation and practical aspects of the training.

The very weak positive correlation (r = 0.145, p-value = 0.435) indicates only a slight relationship between technology use and the occurrence of stockouts or overstocking. The lack of statistical significance suggests that the impact of technology on mitigating inventory issues is minimal. This is consistent with studies by Sanders & Lockamy (2020), which found that while technology plays a role in improving inventory management, its effect on specific inventory problems like stockouts and overstocking may not be substantial without considering the integration and effectiveness of the technology in the overall system.

5.3 Conclusions

The results from this study show varying levels of correlation between the effect of inventory management practices and organizational performance outcomes. These correlations range from weak to strong, with some statistically significant relationships emerging, particularly in the areas of timely service delivery, cost control, and the use of technology. These findings are

consistent with existing literature, which suggests that while inventory management plays a crucial role in enhancing performance, its effectiveness is often contingent upon other supporting factors like technology, staff training, and system design.

The results provide valuable insights into the relationship between demand forecasting frequency and various aspects of inventory management and organizational performance. While frequent forecasting improves the perception of technological effectiveness and inventory system efficiency, it has a negative impact on timely service delivery, cost control, and staff training. This highlights the need for a balanced approach to demand forecasting, one that leverages technology while ensuring operational stability and cost efficiency. The findings are consistent with those of other authors, indicating that while demand forecasting is essential, over-reliance on frequent adjustments can lead to inefficiencies.

The findings suggest that while there are some associations between stockouts/overstocking and various aspects of inventory management, none of these relationships are strong or statistically significant. This indicates that other factors, such as system design, technology integration, and external influences, may play a more critical role in determining the effectiveness of inventory management practices.

5.4 Recommendations

The following are a few recommendations to the Aids healthcare foundation. Regularly assess inventory needs to ensure alignment with changing patient demands and program requirements, streamline inventory replenishment to minimize stockouts and over stocking and leverage advanced software solutions to optimize inventory tracking, forecasting and reporting. Remember inventory optimization is not just about numbers but people’s lives.

Although the correlation between inventory storage effectiveness and organizational performance is weak (Pearson Correlation 0.20), it is essential to optimize storage practices. Implementing proper storage techniques and systems can still contribute to reducing inefficiencies and improving overall organizational performance.

To maximize the impact of inventory storage on performance, integrate storage improvements with other inventory management strategies, such as better demand forecasting and inventory

optimization. As Wang & Chen (2020) suggested, focusing solely on storage may not yield significant results unless combined with other practices.

Given the moderate positive correlation (Pearson Correlation 0.50) between demand forecasting and organizational performance, enhancing the accuracy and frequency of demand forecasting is crucial. Implement advanced forecasting methods and tools to better predict demand and optimize inventory levels.

5.5 Areas of further research

- Investigating the effects of inventory storage on product quality and shelf life
- Examining the role of demand forecasting in mitigating supply chain disruptions
- Assessing the effects of activity-based costing on supply chain visibility and transparency
- Examining the impact of inventory storage on organizational innovation and competitiveness
- Examining the role of demand forecasting in shaping organizational strategy and decision making
- Developing a framework for integrating activity-based costing with performance measurement

5.6 Limitations

- Limited time to collect data and analyse data leading to rused or incomplete research
- Inadequtae funding,equiplment,or personnel to carry out the research
- Difficulty in accessing participants,data or settings due to various reasons like locations,privacy or security
- Inaccurate,incomplete or unreliable data that can affect the validity of the research
- Difficulty in communicating with participants from diverse backgrounds.

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APPENDIX 1; QUESTIONNAIRE

Questionnaire for Aids Healthcare foundation

Research topic; The role of inventory optimization and organizational performance

The purpose of this questionnaire is to attain relative ideas and opinion on the above questioned topic. The information you will provide will efficiently and effectively used in her research writing and will be treated with the highest degree level of confidentiality. Therefor one should feel free to provide open response answers for all questions to the student of his or her knowledge.

Take this opportunity to appreciate and thank you again in advanced for accepting to provide me with the necessary responses of information and or data for this research.

SECTION A

Tick where is appropriate

Employee Gender

SEX

Male ☐

Female ☐

Age group/bracket of respondents

18-25 years ☐

☐

26-49 years

50 years and above 

Respondents level of education

Primary 

Secondary 

University 

Length of service in organization

1-2 years 

3-4 years 

5 years and above 

SECTION B

1) What is the effect level of inventory storage on organizational performance in the Aids healthcare foundation?

Very High

High

Very Low

Low

2) Has Inventory storage improved organizational performance in the Aids healthcare foundation?

Strongly Agree

Agree

Strongly disagree

Disagree

3) Does Improper inventory storage slow down Aids healthcare foundations performance in terms of service delivery?

Strongly Agree

Agree

Strongly disagree

Disagree

4) How do you rate the level of inventory storage in the Aids healthcare foundation?

Ver high

High

Very low

Low

The role of demand forecasting on organizational performance

1) How often does your organization conduct demand forecasting?

Monthly

Quarterly

Annually

(Others please specify)

2) What methods/tools does your organization use for demand forecasting?

Historical analysis

Market research ☐

Predictive analytic software ☐

Expert judgement ☐

(others please specify) ☐

3) How accurate do you find your organization forecasts?

Very accurate ☐

Accurate ☐

Somehow accurate ☐

Inaccurate ☐

Very inaccurate ☐

4) Have you experienced stockouts or overstocking due to inaccurate demand forecasting?

I. Stockouts

Yes ☐

No ☐

II. Overstocking

Yes ☐

No

5) Have you noticed improvement in client satisfaction due to better demand forecasting?

Yes

No

The relationship between ABC analysis and organizational performance.

1)How familiar are you with Activity based costing?

Very familiar

Somehow familiar

Not familiar

2) Does your organization currently use Activity based costing analysis in their operations

Yes,

No

Not sure

3) How frequently is Activity based costing analysis performed in your organization?

Monthly

Quarterly

Annually

4) Does Activity based costing analysis help in better inventory management?

Strongly agree

Agree

Neutral

Disagree

Strongly disagree

University letter

UGANDA CHRISTIAN UNIVERSITY
A Centre of Excellence in the Heart of Africa

SCHOOL OF BUSINESS

13th Sep, 2024

TO WHOM IT MAY CONCERN

Name: ALIRO SANDRA ETALU Reg. 521812/036
a bachelor's student who is seeking permission from your office to collect data for her dissertation titled

The Role of Inventory Optimization and Organizational Performance, A case study of Aids Healthcare Foundation

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

The Uganda Christian University School of Business thanks you in advance

Mukisa Simon Peter
Research coordinator

13 SEP 2024

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