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**SCHOOL OF BUSINESS**

**EXAMINING THE CONTRIBUTION OF INVENTORY MANAGEMENT TO OPERATIONAL PERFOMANCE AT BEVERAGE COMPANIES: A CASE STUDY OF CROWN BEVERAGES UGANDA.**

**BY**

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**A RESEARCH PROPOSAL SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL FULLFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF PROCUREMENT AND LOGISTICS MANAGEMENT OF UGANDA CHRISTIAN UNIVERSITY.**

**CHAPTER ONE**

**INTRODUCTION**

* **INTRODUCTION**

This study aims to assess the contribution, if any, of inventory management to operational performance. This chapter comprises of the background to the problem, the problem statement, purpose of the study, the objectives of the study as well as its scope and significance.

**1.1 BACKGROUND OF THE PROBLEM.**

Inventories are essential because they keep the company’s wheels of production turning, the market fluid and the distribution system intact. Inventory is essential in production, maintenance of the plant and its machinery and other operational activities. Poor inventory management results in tied up of money/capital which would otherwise be used productively. Therefore, high inventory stocks are a point of concern to organizations. Inventory is also important as it forms part of a company assets and reflects on the company’s balance sheet. This lays the foundation for the close scrutiny of inventory management (Afolabi et al, 2017).

Inventory management is an important business activity and is often the differentiating factor in the success of a company (Wild, 2017). In today's competitive markets, companies face a dilemma; on one hand, customers demand products and services suited to their needs expeditiously while on the other hand, they are unwilling to pay a premium for customization and availability (Davenport et al, 2011). As such, organizations try to adjust strategies in response to everchanging demands (Girod and Karim, 2017). Today, holding inventory and extensive product proliferation result in the risk of obsolescence especially in rapidly changing markets This makes the cost of holding large inventories of finished goods excessive (Schwarz, 2022). Furthermore, high demand items naturally have safety stock assigned to them but in many organizations there are so many very-low-demand items that keeping any stock of these items is unreasonably expensive so they argue that companies must now provide good service while maintaining minimal inventories. Therefore inventory management approaches are essential aspects of any organization.

Inventory is classified based on business undertaking from organization to organization. One of the common criteria used is the nature of inventory e.g, manufacturing, sale or retail, purpose for which inventory is being held in stock or function and the related usage in the supply chain. Typical classifications are raw materials (items in their unprocessed state awaiting conversion e.g. timber, steel and coffee seeds), components and sub-assemblies. These are for incorporation into the end product e.g. side mirrors, glasses for car assembling company and monitors or keyboards for a computer assembling company. Proper classification and control of inventory are important because they improve the financial position of a business (Orobia et al, 2020).

Inventory management is primarily about specifying the size and placement of stocked goods and it is required at different locations within a facility or within multiple locations of a supply network to insure regular and planned courses of production against random disturbances of running out of materials or goods which improves performance (Ogbo and Ukpere, 2014). The scope of inventory management extends to the aspects of replenishment 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 (Lau A., and Snell, 2006).

Management is very critical about any shortage of inventory items required for production. Any increase in the redundancy of machinery or operations due to shortages of inventory may lead to production loss and its associated costs. These two aspects call for continuous inventory control. Inventory management not only looks at the physical balance of materials but also at aspects of minimizing the inventory cost. The classic dilemma in inventory management is maintained in high service levels to meet the needs of customers while avoiding high stocks regardless of the type of items or even the department for which such stock is purchased.

Riza et al (2018) argue that efficiently controlled inventories contribute to the effective operation of firms and hence overall profits. Proper inventory management plays a big role in enabling other operations such as production, purchases, sales, marketing and financial management to be carried out smoothly. However, the basic challenge remains determining the inventory level that works most effectively with the operating system or system existing within the organization.

While Crown Beverages Limited, the case study, uses different kinds of inventory management, it is not clear how such methods affect operational performance. It is against this background that this research is premised.

* **PROBLEM STATEMENT.**

There is no doubt that inventory management enhances the perfomance of organizations and increases efficiency by preventing undesirable scenarios and overrun costs such as having poor storage or having inventory going obsolete respectively. According to Dimitrios (2008), inventory management practices must be recognised as a vital problem area needing top priority if an organization needs to meet its perfomance target. Organizations with high levels of finished goods inventory can offer a wide range of products and make quick delivery from their backyards to the customers.

Blue wave beverages limited’s operational perfomance was found to be greatly affected by inventory management practices. The inventory management was not taken as a priority at the time of the study at Blue wave beverages which led to substandard operational perfomance. (inventory management practices and perfomance of Blue Wave beverages ltd, Uganda. A Ssenkungu, 2018).

This study aims to collect present data on the inventory management techniques employed by Crown Beverages Limited as well as data on the operational performance of the company today in an attempt to define the nexus between inventory management techniques and operational performance.

* **PURPOSE OF STUDY.**

This study will examine the contribution of inventory management on organisation operational perfomace.

* **OBJECTIVES OF THE STUDY.**

To identify the various inventory management techniques used at Crown Beverages Limited.

To examine the relationship between inventory management and operational performance at Crown Beverages Limited.

To find out the challenges faced by Crown Beverages Limited in managing the inventory.

To find out the possible solutions to the challenges faced by Crown Beverages Limited in inventory management.

**1.5 RESEARCH QUESTIONS**

The following questions will guide the research:

* What are the various inventory techniques used at Crown Beverages?
* What is the relationship between inventory management and operational performance at Crown Beverages Limited?
* What are some of the challenges faced in inventory management at Crown Beverages Limited and what are the solutions to these problems?

**1.6 SCOPE OF STUDY.**

**1.6.1 Content Scope.**

The study is interested in understanding the contribution of inventory management on operational performance of Crown Beverages Limited, inventory management being the independent variable and organization operational performance being the dependent variable.

**1.6.2. Geographical Scope.**

Geographically, the study will be conducted at Crown beverages limited located at plot M214 Jinja road, Nakawa industrial area P.O Box 20021 Kampala.

**1.6.3 Time Scope.**

The study will be conducted at Crown beverages limited and it will rely on data from the period between 2018 and 2021 as provided by the respondents. The three-year window has been chosen because it offers the real time insight into the inventory management practices that are being employed in the market today while avoiding the risk of relying on out-of-date data.

**1.6.4 Significance of the Study.**

The research findings will be useful to other researchers as a point of reference. The study will be useful to stores managers and management to adopt appropriate inventory management techniques so as to operate smoothly. To the crown beverages limited management, the recommendations of the study may enable them to design inventory management policies to improve the smooth running of the firm, thereby satisfying customers and generally minimizing costs. The findings may provide information to managers in different organization especially on knowing how to compare inventory management and operational performance.

**CHAPTER TWO**

**LITERATURE REVIEW**

**2.0 INTRODUCTION**

This chapter contains a review of preexisting literature that contributes to understanding the subject matter of this study. A significant portion of the data is collected by looking at publications of various authors from online sources and contextualizing the data therein to give a deeper understanding of the study.

More specifically, this chapter considers and discusses existing literature so as to breakdown some of the key terms that are relevant to the subject matter of the study. Additionally, the literature reviewed in this chapter examines some of the various techniques used in inventory management while examining their relationships with operational performance. Lastly, this chapter also discusses some of the challenges that have been identified as hinderances to optimal inventory management.

**2.1 DEFINITION OF KEY TERMS**

**a) Inventory:**

Inventories are raw materials, work in process goods and completely finished goods that are considered to be the portion of business’s assets that are ready or will be ready for sale (Serhii Ziukov 2015).

According to Arnold (2008), the inventory is generally made up of three elements which are, raw materials, work-in-progress, and finished goods. According to Cinnamon et al. (2010), raw materials are concerned with the goods that have been delivered by the supplier to the purchaser’s warehouse but have not yet been taken into the production area for the conversion process. They are of the view that WIP relates to the period between when the product leaves the raw material storage area and when it is declared ready for sale and delivery to customers. Finally, finished goods have been referred to by Birt et al. (2011), as the stock sitting in the warehouse waiting for sale and delivery to the customers.

**b) Inventory Management**

According to Stevenson (2010) inventory management is defined as a framework employed in firms for controlling the interests in their inventories. He discusses inventory management to include the recording and observing of stock levels, the estimation of future requests, and settling on when and how to arrange the inventory.

For their part, Deveshwar and Dhawal (2013) propose that inventory management is simply a method that companies use to organize, store, and replace inventory, with the aim of keeping an adequate supply of goods while minimizing costs at the same time.

Choi (2012) indicates that effective inventory management is essential in the operation of any business. Thus, keeping stock is used as an important strategy by companies to meet customer’s needs without taking the risk of frequent shortages while maintaining high service level.

**c) Customers**

According to Peppers and Rogers (2016), customers, who are also known as clients, purchasers, and buyers, are organizations or parts thereof, either business-to-business customers or end-user consumers. Customers are important because they drive revenues; without them, businesses cannot continue to exist. All businesses compete with other companies to attract customers, either by aggressively advertising their products, lowering prices to expand their customer bases or by developing unique products and experiences that customers love (Will K. 2021).

**d) Profit**

According to Arnold (2022), a profit is the difference between the revenue that an economic entity has received from its outputs and the opportunity costs if its inputs. Basically, when calculating profits, profit equals to total revenue minus total cost, including both explicit and implicit costs. Generally speaking, profit may be construed as the realization of gain in business activity for the benefit of the owners of the business.

**2.2 THEORETICAL FRAMEWORK**

Choi (2012) takes the view that effective inventory management is essential in the operation of any business. Thus, keeping stock is used as an important strategy by companies to meet customers’ needs without taking the risk of frequent shortages while maintaining high service level.

There are theories utilized in carrying clarity to the investigation of the role of stock administration on operational performance. The major theories include the theory of Constraints and Lean Theory to build the critical concerns regarding the impacts of inventory management approaches on the profitability of manufacturing firms.

**2.2.1 Theory of Constraints**

The theory of constraints (TOC) is a management philosophy developed by Eliyahu M. Goldratt in his 1984 publication, "*The Goal: A Process of Ongoing Improvement*." Put simply, Goldratt suggested that organizations can achieve their goals by identifying and leveraging a system’s constraints.

The theory is an administration reasoning that looks to expand manufacturing through output proficiency evaluated on the bases of recognizable proof of those procedures that are obliging the industrial system. The theory refers to the fact that every process in a manufacturing or services business consists of a sequence of interlinked activities. The optimization of the performance of a process as a whole requires that every link in the sequence must serve its purpose as proficiently as possible.

The theory of constraints postulates that amongst all those links, there is at least one weak link that acts as a limiting factor and restricts the output efficiency of the whole process. Therefore, in order to optimize or improve the performance of the process, the business must focus its efforts to manage the limiting factor in the process.

The theory makes basic assumptions relying upon three variables:

**Inventory**: All the money of the business is stuck or invested in the form of inventory and the company makes profit by selling them

**Expenses**: These include the operational expenses that a business incurs to convert the inventory into finished products

**Throughput**: It is the maximum possible output or production.

The theory presents a well-established scientific method based on a continuous stream of five steps that specifically focus on the identification and elimination of the constraints that limit a process from achieving its maximum capability. These are;

**Identification of the constraint**: In this step, the constraint or bottleneck in the system is identified

**Optimization of the constraint**: The constraint is exploited to its maximum outcome in its present state

**Subordination of other activities**: All the other activities present in the system are set to match the needs of the constraint

**Elevation of the constraint**: This step involves the enhancement of current capacity of the constraint. Money and time are heavily consumed in this step

**Process repetition**: This step is not actually a step in itself but rather a repetition of the first four steps. It is necessary because when a constraint is removed from a system, it moves somewhere else within the system meaning that another constraint is found with the process and has to be eliminated using the four steps.

However, the applicability of the theory is not without limitations. For instance, the approach of the theory is an ongoing one which means it might be unsustainable in the sense that it is likely to be very difficult to maintain. This is largely because the implementation of the theory demands changes in the processes of the business which carries the likelihood of becoming costly.

Furthermore, the determination of the constraint in the first place is a major challenge for most business. Even where the business identifies a constraint. it is likely to be the case that that specific constraint is fueled by some underlying hidden constraint.

Lastly, while it can be argued that the theory of constraints works very efficiently in the real-life situations faced by business organizations, it is equally true that the effects if this theory are short-term. The theory might be useful for improving a process in real time but it may be the case that the constraint upon which the business focuses its attention is a temporary one and thus cannot produce long-term benefits.

**2.2.2 Lean Theory**

Lean theory is an argumentation of thoughts of just in time. The theory disposes of buffer stock and minimizes waste in production procedure. Inventory leanness decidedly influences the productivity of a business firm and is the best inventory control tool (Daniel A. 2018).

The theory expounds on how manufacturers’ adaptability in their requesting choices diminish the supplies of stock aimed at eliminating costs associated with the transportation of inventory. Some of the advantages of the theory are that all given times, there will be less raw materials and finished products in stock. There would also exist an optimized workspace, supplies and tools in addition to the process being streamlined to sync manufacturing with customer expectation which reduces overhead costs.

However, some of the disadvantages of the theory are that focus on streamlined processes leaves little margin for possible errors and gives little room to forecast changes or implement new strategies because the focus is always emphasized on the present. Furthermore, economies of scale are next to impossible due to lack of stocked spare materials. Lastly, for big corporations, implementation of the theory would require a companywide overhaul of production systems in order for it to function properly which is likely to cause serious shortcomings.

**2.3 INVENTORY MANAGEMENT TECHNIQUES**

Chalotra (2013) argues that the very essence of inventory management is to optimize business operations so as to ensure that there is effective flow of goods, products, and services. As such, inventory management is looked at as the supervision of supply, storage and accessibility of items with the aim of ensuring that there is an adequate supply without excessive oversupply.

Inventory management has also been regarded as a discipline charged with optimal use of resources and for achieving overall operational efficiency across industries (Akindipe, 2014). Akindipe (2014) observes that there are various perspectives to the issue of inventory management especially in developing economies which makes it important to adopt modern inventory management techniques to complement efforts to attain operational efficiency.

Having reviewed literature related to the subject matter under discussion, some of the following have been identified as some of the widely used contemporary approaches to inventory management.

Some of these include monitoring of stock levels, preparation of accurate inventory information, establishment and among others which are discussed below.

**2.3.1 Setting Up and Monitoring Various Stock Levels**

One of the most widely adopted techniques involves the establishment of a system for monitoring various levels of inventory with the aim of making sure that optimality, effectiveness and efficiency are at the forefront when dealing with the inventory. It is argued that having high levels of inventory inflates expenses while increasing overhead costs. Therefore, inventory levels and stock-outs ought to be seen as important metrics for the development of proactive inventory management policy in an organization. (Kurano *et al*, 2014; Achebo and Omoregie, 2013)

**2.3.2 Preparation of Accurate Inventory Budgets**

Chand (2015) argues that the preparation of realistic inventory budgets is complementary to proper monitoring of stock levels. He is of the view that purchase budgets are often prepared bearing in mind the anticipated sales/revenue targets of the different departments of the organization.

Furthermore, Chand (2015) is of the view that actual performances ought to be periodically compared with budgeted figures as a good framework for controlling the purchase of materials. Where the forecasts are poorly done, there can arise situations where organizations are forced to store huge amounts of inventory owing to unexpected declines in demand. The result of this would be that the organizations would be faced with high carrying costs.

Lastly, Chand (2015) argues that there ought to be some form of classification between “predictable” and “unpredictable” materials. His reasoning is that it would promote a sound inventory that can be maintained for the predictable portion of the forecast. He also makes the case for the incorporation of automated interactive accounting software packages in the inventory management process.

**2.3.3 Establishment of Proper Purchase Procedures**

Scott (2015) argues that the need for establishing proper procurement procedures cannot be overstated. The reason for this is that a proper purchase procedure is crucial for ensuring that the appropriate control is exercised over the inventory. Whereas it can be argued that the procedure often varies from organization to organization, the steps in the table below offer typical guidance on how to go about purchase procedure.

*Table 1: Robust Inventory Purchase Procedures*

|  |  |
| --- | --- |
| STEP | ACTIVITY |
| Step 1 | Purchase Requisition |
| Step 2 | Inviting Quotations |
| Step 3 | Schedule/Analysis of Quotations – Considering of factors such as share price, quality of materials, terms of payment, delivery schedule, etc. |
| Step 4 | Purchase Committee considers and approves the supplier/vendor |
| Step 5 | Purchase Order is issued |

*Source: Scott (2015)*

In addition to setting up proper purchase procedures, it is also important that the inventory manager is charged with monitoring the usage or demand for the items, He/she ought to conduct regular inventory turnover and ABC analyses (Aro-Gordon and Gupte, 2016). These two concepts are discussed below.

**2.3.4 Inventory Turnover Ratio (ITR)**

The inventory turnover ratio is a measure of how many times the inventory is sold and replaced over a given period of time. It is an inventory/cost minimization approach and it is usually computed as follows. (Aro-Gordon and Gupte, 2016):

Aro-Gordon and Gupte (2016) show the comparison of various inventory turnover ratios at various periods with those of previous years to often indicate four types of inventories as shown in the table below.

*Table 2: Inventory Turnover Ratio (ITR): Four Types of Inventories*

|  |  |  |
| --- | --- | --- |
| S/No | Inventory Type | Description/Implication |
| 1 | Slow-moving inventories | The have a very low ITR. The manager should take all necessary steps to keep such inventories at the minimum levels |
| 2 | Dormant inventories | These inventories have zero demand. Firm decision ought to be taken whether to retain or scrap them |
| 3 | Obsolete inventories | Similar to the dormant inventories, these inventories are probably no longer in demand due to their becoming out of fashion |
| 4 | Fast-moving inventories | These inventories are in hot demand and any shortage can create serious bottleneck in the organization’s operations |

*Source: Aro-Gordon and Gupte (2016)*

From the table above, it can be seen that a good ITR analysis would help the organization to closely monitor the fast-moving inventories, while minimizing wastages that could be associated with high levels of slow-moving inventories, dormant inventories and obsolete inventories.

**2.3.5 ABC Inventory Classification Technique**

The Always Better Control (ABC) is a well-known inventory management technique that large firms adopt to have efficient control over huge amounts of inventory items (Hatefi *et al,* 2014). The technique aims at engendering effective control of materials by classifying the inventory into three groups, A, B, and Q, according to their respective values as shown in the table below.

*Table 3: ABC Analysis - Three Classes of Inventories*

|  |  |  |
| --- | --- | --- |
| S/NO | Inventory Group | Description/Implication |
| 1 | Group A | This group constitutes the costly items which may be only 10-20% of the inventory but account for up to 50% of the total value of the stocked items |
| 2 | Group B | This group comprises of items which constitute 20-30% of the stored items and represent about 30% of the total value of the total inventory |
| 3 | Group Q | This residual group cover about 70-80% of the stocked items and are valued at about 20% of the total inventory. |

*Source: Hatefi et al (2014)*

In a nutshell, the ABC analysis model involves classifying the items of the inventory, determining the expected use in unites and price per unit for each item, determining the total value of each item by price and units, ranking the items according to value, and determining percentage ratio or unites of each item to total items and value. This method generally leads to better control over materials and can result into reduction in costs associated with materials (Hatefi *et al,* 2014).

**2.3.6 Just-In-Time (JIT) Inventory Management Technique**

As the name implies, just-in-time is a model that attempts to replenish inventories for organizations right before the inventory is required. It is the preferred method for very expensive inventory items, that is, items with relatively higher purchase price, holding costs or ordering cost, but low levels of demand.

The model attempts to avoid excess inventory and its associated costs. As a result, organizations receive inventory only when the need for more stock is approaching. For JIT approach to succeed, a crucial requirement is to that there can be timely delivery by the vendor/supplier. This is to avoid expensive and irreparable business downtimes occasioned by any delay in inventory delivery, a major operational management issue among many manufacturers in developing countries (Takim, 2014).

**2.3.7 Bulk Purchasing**

This method relies on the principle that if one purchases goods in bulk, they are able to procure them at much lower costs. The method can only be employed where management is sure that the item in question is a fast-moving item in the inventory. If a material is in high demand, then one  
ought to consider adopting this inventory management technique which can result in significant savings.

However, the flipside is that bulk-purchasing is often time-consuming as compared to smaller purchases that need less storage space and manufacturing/delivery time. More than 50 percent of the current assets of a manufacturing enterprises and inventories usually form a sizable portion of most organizations’ assets / working capital (Ranganatham, 2014; Takim, 2014), hence, bulk purchasing is an attractive inventory management solution.

**2.3.8 Trial and Error Technique**

Pandey (2005) believes that the trial-and-error technique is the simplest method of inventory management. With this method, the inventory manager determines the level of the inventory by analyzing the prices, orders and value of the items of the inventory. Basically, material control is gained by assessing the need for the material and then taking appropriate action to meet this need (Lau and Snell, 2006).

**2.4 THE RELATIONSHIP BETWEEN INVENTORY MANAGEMENT AND OPERATIONAL PERFORMANCE**

**2.4.1 The Concept of Performance**

Performance could be defined simply in terms of the achievement of quantified objectives. But performance is not only a matter of what people achieve but also how they are achieving it. A high-performance result comes from appropriate behavior and the effective use of required knowledge, skills and competencies.

Performance measurement systems have been developed as a means of monitoring and maintaining organizational control, which is the process of ensuring that an organization aims at strategies that lead to the achievement of its overall goals and objectives. Though Key Performance Indicators (KPIs) may at times seem to be the real driving force behind social systems, economies and organizations, they can also have far-reaching normative effects, which can modify organizational behavior and influence key decisions even to the point that organizations themselves tend to become what they measure (Fiorenzo Franceschini et al 2019).

Poorly chosen performance measures routinely create the wrong signals for managers, leading to poor decisions and undesirable results. There are enormous hidden costs incurred through misused performance measures. Shareholders pay the bill each day in the form of overinvestment and acquisitions that do not pay off etc. It is not that management is poor. Simply, it is the wrongly chosen performance measures, which in turn push management to take improper decisions (Fiorenzo Franceschini et al 2019).

Likert (2003) argues that there are too many ways of optimizing performance. These include the improving the measured attribute by using the performance platform more effectively and by improving the measured attribute by modifying the performance platform, which in turn would increase the effectiveness of producing the desired outcomes.

**2.4.2 Operational Performance and Inventory Management**

Each and every one of the concepts discussed herein has a bearing on the relationship between inventory management and operational performance. From the literature reviewed, it can be seen that where there is proper inventory management, there is positive feedback from the various measures of operation performance.

One of the ways in which operational performance can be measured is by looking at a firm’s operating cycle ratio (Azim *et al,* 2015). The operating cycle ratio shows if a company is managing its accounts payable, accounts receivable and inventory efficiently.

The operating cycle ratio involves three aspects of the company's finances; the days inventory outstanding, the days sales outstanding and the days payable outstanding. A shorter operating cycle means that a company collects money from customers efficiently, has good payment terms with businesses and other entities to which it owes money and is moving inventory at a pace that keeps up with average production ability and customer demand (Azim *et al,* 2015). They have also argued that the operating cycle ratio can be improved by managing unused inventory which can be decreased by putting on sales or selling overstock products to resellers.

Another metric through which operational performance can be measured is the fixed-asset turnover ratio. The fixed-asset turnover ratio is a measure of whether the money a company spends on the equipment and buildings the company owns, often referred to as property, plant and equipment actually adds value to the company. Treadwell (2015) is of the view that upgrading or replacing outdated equipment and inventory may be the way to increase the fixed-asset turnover ratio.

In the operations management field, operational practices applied in inventory management such as the Just in Time technique, have been seen as a way to improve operational performance and ultimately, financial performance. Literature on operations management indicates that there exists a positive relationship between inventory management practices and performance (Duarte *et al,* 2011).

Another concept that can be used to examine the relationship between inventory management and operational performance is the current ratio (also known as the working capital ratio). This refers to the ratio of current assets to current liabilities (Azim *et al,* 2015). Where an inventory is poorly managed and ends up with a stockpile of items that are difficult to liquidate, the asset to liabilities ratio goes down and this is likely to have a negative impact on the operational performance. Where it so happens that the inventory is managed optimally, such situations are avoided and the firm’s performance is never under any considerable threat.

It is worth noting that the relationship between inventory management and operational performance is not only explained by the above concepts. Other authors have also conducted studies and come to their own conclusions about this relationship and some of these views are expounded on below.

According to Nzuza (2015), the material that an organization holds (inventory) makes up most of the organization’s assets and because most organizations invest considerable sums of money in materials, it is important to have good material management systems for handling stock properly. Nzuza (2015) believes that poor inventory management negatively affects the profitability of any organization and its general performance.

Proper inventory management systems enable a business to determine and maintain an optimum level of investment in the inventory so as to achieve the required operational performance. Sila *et al* (2006) expressed the view that the purpose of inventory management is to meet customer demand. Furthermore, Fawcett *et al* (2006) argue that to meet customer demand, firms have to ensure that stock-outs are avoided without incurring high inventory costs. Stocking level variability is caused by factors such as deficient information sharing and deficient forecasts. they are of the view that variability of inventory is majorly as a result of failure by the firms to apply proper inventory management systems.

In most cases where inventory management decisions have been effective, inventory planning models have been developed and implemented focusing especially on the twin problems of inventory size and timing. Usually, inventory management models are designed to achieve a balance between the costs of acquiring and holding inventory and in so doing it makes it possible to know whether companies are earning profits or not (Atnafu and Balda, 2018).

Variability of inventory majorly results due to firms not applying the inventory control systems in accordance with the baseline principles. According to Ogbo (2011), the information flow between leaf collection centers and factories is inadequate contributing significantly to high operational costs. Inventory of tea leaves is a requirement for the efficient operational performance; hence, inventory needs proper control as it is one of the largest assets of the factory. To excel in competitive environment, companies have to design and operate materials management and product distribution functions effectively.

The discussion above lays down a broad spectrum through which the relationship between inventory management and operational performance can be examined. It is clear that the relationship cannot be defined by one concept but rather by a combination of conclusions drawn from a broad range of scholarly works.

According to a survey carried out by Mutwol (2013), on the impact of the collapse of Caltex in Uganda, it was found that the oil sector had suffered so much over the past years due to lack of adequate commitment to timely funding of materials procurement, poor material planning, poor inventory management, purchasing problems, quality control problems, store control problems, material movement and even surplus disposal problems.

It can therefore be concluded that proper inventory management tends to have a positive influence on the operational performance of firms and that poor inventory management tends to adverse effects on the operational performance of firms.

**2.5 CHALLENGES FACED BY FIRMS IN INVENTORY MANAGEMENT**

It is not uncommon that inventory management is faced with challenges. Not only do these challenges interfere with the profitability of the company, but also do they affect customer service. They often result in increased costs for the business and an unplanned increase in stock or an undesirable shortage of stock.

**2.5.1 Demand Fluctuation**

Patil and Divekar (2014) note that most retailers have to account for the demand fluctuations which may be as a result of the seasonality and product popularity. They give the example of schools reopening after summer vacation and how retailers face a huge task in supplying all the necessary items that students might need. The challenge is occasioned by the fact that the demand suddenly increases owing to the seasonality.

**2.5.2 Stockouts**

Seeking to analyze the stockout problem in retail, first of all, it is important to understand that the stockout meaning is not one-sided, A stockout as a situation when demand for an inventory item outplaces supply and the need for the item cannot be fulfilled (J.C.F. Ehrenthal, T.W. Gruen, J.S. Hofstetter, 2014).

**2.5.3 Unqualified and Inexperienced Staff**

Stock and Lambert (2001) are of the view that one of the challenges in inventory management which include; unqualified employees that are placed in charge of the inventory. There often arises a situation where they use a measure of performance for the business that turns out to be too narrow, flawed or unrealistic for the business. Such employees can also fail to identify shortages in the inventory ahead of time.

This is usually because the firms may hire persons who have inadequate training and lack the experience needed to be in charge of the inventory. The result is that many areas are often overlooked and it can either lead to inventory shortages or inventory stockpiling.

**2.5.4 High Rates of Taxation**

Ross *et al* (2012) are of the view that sometimes, governments impose high taxes on organizations without consulting the stakeholders who are affected by the tax assessment especially on the inventory and on the property. The result of the taxes imposed is that the profit after tax that is paid out to the shareholders is significantly reduced and this affects overall profitability of the business. So as to remain ‘profitable’ the management might opt to reduce the investment made in the inventory and any disruptions in inventory budgets often has negative consequences as can be seen from the relationship between inventory management and overall performance above.

**2.5.5 Increased Cost of Operation**

All firms have to incur such costs for the smooth running of business. Some of these costs include transport, electricity, rent, etc. While it is expected that such costs are bound to be incurred, it is not desirable that the cost of operation should constantly rise. For instance, the country is currently facing increased costs of fuel which in turn increases the cost of transportation and ultimately contributes to increased cost of operation. This is likely to cause a shortage in the inventory because less items can be purchased for the same price as before. Because of this, the inventory is likely to face shortages and either more money must be invested, or the management has to revise and cut down the budget for the inventory Ross *et al* (2012).

**2.5.6 Poor Planning and Implementation**

A good number of firms find themselves in situations where their plans and projections fall miserably short of their business realities. Flawed and unrealistic business plans often result in failure to predict how a company is likely to perform in the future. This is detrimental to inventory management in the sense that where a firm predicts a higher level of growth than it realizes, the likely result is an overstock of inventory. The reverse is equally true in the sense that where forecasters do not predict enough growth, the firm is likely to be left with a shortage in inventory. Result of a firm’s failure to identify shortages in a timely manner and resolve them is that there is usually lack of enough product in stock to meet customer demands which negatively impacts on the firm’s relationship with its customers (Stock and Lambert, 2001).

**2.6 POSSIBLE SOLUTIONS TO CHALLENGES IN INVENTORY MANAGEMENT.**

**2.6.1 Use of Stock Keeping Units (SKU’s).**

A stock keeping unit is an alphanumeric code that identifies a product and helps you track inventory for your business. Depending on the inventory, retailers can include identifying information for everything from department to style, size, color. For example, an SKU system in which the first two letters correspond to the type of product it is attached to like all shirts have SKUs starting with SH, all dresses with DR etc. The remaining digits correspond to store location, size, and other relevant product information. (Brigitte Hodge, 2021). Product movement will be able to be tracked both in and out with this system in place as the barcode is scanned and it reflects in the system. Managers get to know how much is leaving and therefore are able to plan for restocking before the inventory is at zero (stockout), this system also creates records of product sales which can be used to predict the demand behavior of customers for example for the cases of schools opening after summer vacation and the demand of scholastic materials being higher than before, the system guides managers through records that demand usually shoots when students are returning to school and therefore can stock less during the summer vacation and more at the end of the holiday knowing that students are going to demand highly as they need them.

**2.6.2 Training of your staff on inventory management.**

Training helps staff to improve their knowledge, skills and capabilities, enhancing their overall efficiency and reducing inventory waste. Providing your employees with inventory management training is essential if the objectives of an organization are to be suitably met and company’s inventory management practices and procedures are understood. (Melanie, 2018).

As a manager, however much you have planned to use techniques like Just in time, ABC analysis, Economic Order Quantity, without the employees, who do the ground work, understanding how each work and everything involved for their successful operations the inventory management of the organization will still be poor. When you hire people, they come with different ideas of how things are done and that is why training is important so that the mindset is changed and the employees are able to know what you expect of them and in return positive results are archived.

**2.6.3 Use of S.M.A.R.T Objectives.**

S.M.A.R.T is an acronym that managers can use to guide their goal setting. To ensure proper and effective planning managers can use this to ensure that the goals set are clear and achievable. All team members must exhibit high level of clarity in understanding each element of SMART. (Bjerke & Renger, 2017; Aghera et al. 2018). Specific, your goals should be clear and specific otherwise you won’t be able to focus your efforts to achieve it, an example of a specific goal is “10% increase in inventory control throughout organization this year” this shows that the goal is to see that inventory wastes are minimized and that inventory in the organization is controlled better by 10%. Measurable, goals should be measurable like how much? Which is dependent on the specific bit of it as the 10% increment is the measurement. Agreed upon, the goals have to be agreed upon by all necessary stakeholders which includes top management, employees, shareholders, in order to avoid some people falling off track since they had not agreed. Realistic, goals should not be fairytales like “50% increase in customer share within the next 2 months” this clearly cannot be achieved since it isn’t realistic. The goal should be considerate of the resources and skills at hand for it be realistic enough to be achieved. Time based, the goals should be time based in order to avoid reluctancy and be able to put that little pressure on everyone responsible to be able to act and achieve the goal for example “10% increase in waste management in 2 years’ time”

**2.6.4 Multiple sourcing.**

This provides the organization with options of suppliers for the required materials for production for example the case of fuel prices increasing rapidly the cost of operations are also increased in a way of transportation costs to reach supply and attain the raw materials for production which in turn affects the price that is put on the market for customers to enjoy the product. In such a scenario multiple sourcing comes in handy whereby by some suppliers are closer to the organization production point and therefore can be able to continue with production and at a cost that isn’t high. Inventory shortage due to the increased costs is therefore less likely as the strategy ensures that the organization isn’t dependent on only the supplier that is far away. Although Multiple sourcing has its costs with management of more than one supplier, it is the best strategy for an organization to increase its flexibility and be able to adapt to changes in the market. (Rob S. & Natalie D. 2016)

**CHAPTER THREE**

**METHODOLOGY**

**3.0 Introduction**

This chapter covers aspects like research design, study population, sample size, data collection methods, reliability and validity, data analysis, ethical considerations, limitations of study.

**3.1 Research design.**

The study will employ cross sectional survey research design as the overall strategy. Cross-sectional study will be used in this study because it emphasizes detailed contextual analysis of a limited number of events or conditions and their relationships. The researcher will employ both quantitative and qualitative research approaches because they compliment one another. Most researchers with a basic background in quantitative and qualitative methods will find the methods quite similar and dependable. (David L Morgan, 2013).

A qualitative description design is particularly relevant where information is required directly from those experiencing the phenomenon under investigation and where time and resources are limited. (Vickie A Lambert 2012). The researcher will also use descriptive design to collect information relevant to the study, and also because it is one of the suitable methods to obtain information on the study.

**3.2 Study population.**

This comprises of staff and support staff members of Crown beverages limited who made a total of 106. These include departments like administration, operation and procurement. This will enable the researcher to get relevant information from the right people.

(Source: Human resource manager-Crown Beverages limited, Nakawa. 2022)

**3.3 Sample size**

Key participants of the study will comprise of respondents from Crown beverages’ stores department, administrations, operations and stores department, procurement. From the total population of 106 people, the sample size will be determined using solvent’s formula.

n= N

(1+N(e)2)

Where n = sample size

N = Total population

e = sampling error value (0.05)

n= 106

1+106(0.05)2

n=83

The overall sample size will constitute of 86 respondents derived from a total population of 110 employees at crown beverages limited. The sample size will be categorized as below;

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **Population** | **Sample** | **Sampling technique** | **Data collection method** |
| Administration | 10 | 7 | Purposive sampling | Questionnaire |
| Operation and store | 90 | 72 | Simple random sampling | Interview |
| Procurement | 6 | 4 | Purposive sampling | Questionnaire |
| **Total** | **106** | **83** |  |  |

**3.4 Sampling technique.**

The researcher will use the purposive sampling technique to select the respondents from the administration department and the procurement department based on their level in management and their exposure to company information. The researcher will also use simple random sampling technique to select the respondents in the operation and store department in order for all members to have an equal chance of being selected and different information and experiences can be got.

**3.5 Data collection methods.**

The researcher will employ both qualitative and quantitative data collection methods. This will involve the use of questionnaires and key informant interview as explained below;

**3.5.1 Questionnaires.**

These will be administered in form of structured interviews. This will involve asking the respondents different set of questions as the researcher fills in the answers. Only Crown beverages limited employees will be targeted for questionnaires because they are deemed to be most knowledgeable on the subject under investigation. Structured interviews will be standardized in order of which questions will be asked to the respondents and minimize the impact of variation so that each interview is offered with exactly the same question in the same order. This will guarantee that answers were reliably collected and that comparisons were made with confidence between sample subgroups and respondents. (Brendan Bartram, 2019).

Questionnaires will be constructed based on the research objectives and will be preferred since they are easy to administer and time saving. The questionnaire will contain close end questions using a liker scale (ranging from 1=Strongly disagree; 2= Disagree; 3=Not sure; 4= Agree; 5= Strongly agree). Self-administered questionnaires will be completed by those who can interpret the questionnaire. Self-administered questionnaires are ideal for achieving a wide geographic coverage of the target population, dealing with sensitive topics and are less resource-intensive tan other data collection methods. They can be delivered electronically, which can maximize the scalability and speed of data collection while reducing cost (Jose S Marcano et al, 2015).

**3.5.2 Interviewing.**

The researcher will use formal interviewing as a method of data collection and the interviews will offer a chance to explore the topic in depth and allow interaction between the researcher and the respondents such that any misunderstanding of the questions and answers provided could easily be corrected. The researcher will interview the lower-level employees of the organization using the interview guide. This will be used to tap the vital information that would not be collected using the questionnaires from the top-level management employees.

**3.6 Reliability and validity.**

Data quality control measures will be undertaken to ascertain accuracy and consistence of the data collected. The data collection instruments will be pre-tested to ensure validity and reliability.

Validity refers to the appropriateness of the instrument. Under this research the validity will be tested using the content validity index by using expert judgement taking only the variable scoring above 0.70.

Reliability is the ability of the instrument to collect the same and reliable data consistently after repeated tests or trials. To ensure reliability, the questionnaire will be pre-tested on a few respondents from Crown beverages outside the sample population of study in order to compare with results that will come out from the respondents in the sample population of study. This will help to ensure that the research instrument yields consistent result and will enable researcher to collect reliable data for a complete report.

**3.7 Data Analysis.**

After collecting all the necessary data, the data will be coded and edited, analyzed and rephrased to eliminate errors and ensure consistency. It will involve categorizing, discussing, classifying and summarizing of the responses to each question in coding frames, basing on the various responses. This will intend to ease the tabulation work. It will also help to remove unwanted responses which would be considered insignificant. Data collected from the field with the use of study instruments will be classified into meaningful categories. This will enable the researcher to bring out essential patterns from the data that would organize the presentation. Data will be entered into a computer and analyzed with the use of Statistical Package for Social Sciences (SPSS). Finally, a research report will be written from the analyzed data in which conclusions and recommendations will be made.

**3.8 Ethical considerations.**

The researcher will obtain a letter from Uganda Christian University allowing her to go to the field to collect data. The researcher will then use the letter as an introduction and to seek permission at Crown beverages where she will collect data from. The major ethical problem that the researcher will face during this study will be the privacy and confidentiality of the respondents including the information they were willing to provide. To ensure confidentiality and privacy, the respondents will be told upfront that participation in the study is voluntary and that they are not under any pressure to answer questions they are not comfortable with.

Information relating to inventory management and operational performance of an organization is sensitive and the fear by managers of exposure of inadequacies in the organization is inevitable. The respondents will be assured at the start of the data collection that the information they were giving was strictly for academic purposes and all data obtained in private matters will be treated with confidentiality.

**3.9 Limitations of study.**

Financial constraints. The researcher will be limited by financial resources such as transport costs to carry out the research effectively especially with the costly economy.

Slow or no response. Since the researcher does not know the respondents for them to feel comfortable or to be willing to share information, some of them will delay to respond while others will not.

Due to sensitivity of the study, the respondents will refuse to give some data to the researcher citing the reason behind the study. The researcher however will overcome this by showing an introductory letter she will acquire from university explaining the purpose of the research. She will also assure respondents that their ideas and information would be treated with utmost confidentiality.

UGANDA CHRISTIAN UNIVERSITY, MUKONO.

SCHOOL OF BUSINESS

DEPARTMENT: UNDER GRADUATE

A QUESTIONNAIRE FOR STAFF OF CROWN BEVERAGES LIMITED

Dear Respondent,

I am Natukunda Grace a bachelor’s student of Procurement and Logistics Management from Uganda Christian University- Mukono campus conducting a research study on “the contribution of inventory management to operational performance of beverage companies in Uganda”. You have been selected to participate in this study because the contribution you make to Crown beverages is central to the kind of information required. Kindly answer the different questions with honesty and all information will be used only for academic purposes and treated with confidentiality.

Please kindly spare some few minutes to respond to the following questions. Thank you.

*(Where alternatives are given, tick the appropriate box)*

**SECTION A: BIO DATA**

1**. GENDER**

Male Female

2. **AGE**

Below 30 years of age  46-55 years 

31-45  above 55 years 

3**. DEPARTMENT**

ProcurementAdministration

Operation and stores

4. **TIME OF SERVICE**

Less than one year 3-4 years 

1-2 years  5-10 years

More than 10 years 

*The table below shows alternative responses like Strongly Agree (SA), Agree(A), Disagree(D), Strongly Disagree (SD). Please evaluate the statement by ticking in the box with the response that best suits it.*

**SECTION B: INVENTORY MANAGEMENT TECHNIQUES**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **SA** | **A** | **D** | **SD** |
| 1. | Setting up and monitoring various stock levels is an inventory management technique used at Crown beverages, Nakawa. |  |  |  |  |
| 2. | Preparation of accurate inventory budgets is an inventory management technique used at Crown beverages, Nakawa. |  |  |  |  |
| 3. | ABC inventory classification is an inventory management technique used at Crown beverages, Nakawa. |  |  |  |  |
| 4. | Just In Time (JIT) is an inventory management technique used at Crown beverages, Nakawa. |  |  |  |  |
| 5. | Bulk purchasing is an inventory management technique used at Crown beverages, Nakawa. |  |  |  |  |
| 6. | Inventory management techniques have led to reduction of costs incurred by Crown beverages, Nakawa. |  |  |  |  |
| 7. | There are maximum and minimum levels of stock at Crown beverages, Nakawa. |  |  |  |  |
| 8. | Crown beverages, Nakawa maintains or has a defined re-order level. |  |  |  |  |

**SECTION C: RELATIONSHIP BETWEEN INVENTORY MANAGEMENT AND OPERATIONAL PERFOMANCE.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **SA** | **A** | **D** | **SD** |
|  | **INVENTORY MANAGEMENT** |  |  |  |  |
| 2. | There is improved operational performance with proper inventory management practice. |  |  |  |  |
| 3. | Operational performance is below standard when inventory management is inadequately practiced. |  |  |  |  |
| 4. | Inventory management is time saving hence good operational performance of Crown beverages, Nakawa. |  |  |  |  |
| 5. | Inventory management helps in inventory planning and scheduling and hence improved operational performance at Crown beverages, Nakawa. |  |  |  |  |
| 6. | Inventory management improves procurement planning and hence an improved operational performance at Crown beverages, Nakawa. |  |  |  |  |
| 7. | Inventory management leads to improved internal coordination and hence improved operational performance at Crown beverages, Nakawa. |  |  |  |  |

**SECTION D: CHALLENGES FACED IN INVENTORY MANAGEMENT BY CROWN BEVERAGES, NAKAWA.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **SA** | **A** | **D** | **SD** |
| 1. | Inventory management at Crown beverages, Nakawa involves various challenges. |  |  |  |  |
| 2. | Demand fluctuations affect inventory management in Crown beverages, Nakawa. |  |  |  |  |
| 3. | Weak management systems in Crown beverages, Nakawa is a challenge to inventory management. |  |  |  |  |
| 4. | Increased cost of operation is a challenge to inventory management at Crown beverages, Nakawa. |  |  |  |  |
| 5. | The experience of staff members affects inventory management at Crown beverages, Nakawa. |  |  |  |  |
| 6. | Poor implementation of the inventory management practices affects inventory management at Crown beverages, Nakawa. |  |  |  |  |