ANALYSIS ON INVENTORY CONTROL AND MANAGEMENT STRATEGIES IN KNITWEAR COMPANIES

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ABSTRACT:

Inventory management is one of the most important and least aroused aspects of running an apparel business. Inventory control means the accurate calculation and data of every type of raw materials, spares and finished goods in time to time store. Inventory control in textile mill are necessary because this paper focuses on the use of material planning methods to control material flow to inventories of purchased items. Five material planning methods are studied the EOQ method, the re-order point method, the ABC Analysis and VED analysis. In this Research the Inventory analysis are used to analyse all the inventories like raw materials, spare parts and finished products in the garment sector to control in the inventory techniques. Descriptive type of research has been adopted for this research and description of a phenomenon or characteristics associated with the population are also dealt with. The Judgmental sampling method is used in this research various statistical tools used Chi Square, Correlation and One way ANOVA.

Key Words: Inventory management, Materials requirements planning, Re-order point, Performance

INTRODUCTION

Effective inventory management is all about knowing what is on hand, where it is in use, and how much finished product results. Inventory management is the process of efficiently overseeing the constant flow of units into and out of an existing inventory. This process usually involves controlling the transfer in of units in order to prevent the inventory from becoming too high, or dwindling to levels that could put the operation of the company into jeopardy. Competent inventory management also seeks to control the costs associated with the inventory, both from the perspective of the total value of the goods included and the tax burden generated by the cumulative value of the inventory.

Balancing the various tasks of inventory management means paying attention to three key aspects of any inventory. The first aspect has to do with time. In terms of materials acquired for inclusion in the total inventory, this means understanding how long it takes for a supplier to process an order and execute a delivery. Inventory management also demands that a solid understanding of how long it will take for those materials to transfer out of the inventory be established. Knowing these two important lead times makes it possible to know when to place an order and how many units must be ordered to keep production running smoothly.

In addition to maintaining control of the volume and movement of various inventories, inventory management also makes it possible to prepare accurate records that are used for accessing any taxes due on each inventory type. Without precise data regarding unit volumes within each phase of the overall operation, the company cannot accurately calculate the tax amounts. This could lead to underpaying the taxes due and possibly incurring stiff penalties in the event of an independent audit.

Inventories occupy the most strategic position in the structure of working capital of most business enterprises. It constitutes the largest component of current asset in most business enterprises. In the sphere of working capital, the efficient control of inventory has passed the most serious problem to the cement mills because about two-third of the current assets of mills blocked in inventories. The turnover of working capital is largely governed by the turnover of inventory. It is therefore quite natural that inventory which helps in maximize profit occupies the most significant place among current assets.

Management of Inventories

Inventories consist of raw materials, stores, spares, packing materials, coal, petroleum products, works-in-progress and finished products in stock either at the factory or deposits. It is most important component of current assets in the cement industry and was 42 per cent of total current assets for sample companies as on March 31, 2004. In other industries too

it is very important component of total investment. The maintenance of inventory means blocking of funds and so it involves the interest and opportunity cost to the firm.

In many countries specially in Japan great emphasis is placed on inventory management. Efforts are made to minimize the stock of inputs and outputs by proper planning and forecasting of demand of various inputs and producing only that much quantity which can be sold in the market. The inventory cost is not only interest on stocks but also cost of store building for storage, insurance and obsolesce and movement of inputs from place of storage to the factory where the materials have to be finally used to convert them into finished goods. In japan industries have adopted concept of JIT (Just in Time) and components, materials are received when required for which detailed instructions are given to suppliers.

As against this by and large in India the inventory of coal, raw materials and packing materials is very high and many items become junk or obsolete causing heavy loss to the enterprise. Lack of inventory planning in India has been pointed out by various committees but due to uncertainties in supplies, problem of timely receipt of railway wagons, lack of planning and unreliable suppliers the investment in inventories is quit high. The fluctuation in demand affects inventory of finished product of which cement industry has been a victim many times.

REVIEW OF LITERATURE

 Wolf Bagby, Managing inventory,(2001) In this study Mr. W.Bagby explains that by managing the inventory it becomes easier for the organization to meet the profit goals, shorter the cash cycle, avoid inventory shortage, avoid excessive carrying costs for unused inventory, and improve profitability by decreasing cash conversion and adopt JIT system. According to this study companies need to get smart about inventory. Boosting financial performance is another benefit that comes from better inventory management. Infect large number of manufacturers enjoy savings and better performance by choosing the approach of inventory reduction. For this company needs to maximize the cash flow and profitability and this includes keeping a watchful discerning eye on charge in supply and demand

Silver, Edward A (2002) This article considers the context of a population of items for which the assumption underlying the EOQ derivation holds reasonably well. However as is frequently the cash in practices there is an aggregate constraint that applies to the population as a whole. Two common forms of constraints are:

1) The existence of budget to be allocated among the stocks of the items and
2) A purchasing production facility having the capability to process at most a certain number of replenishment per year. Because of the constraint the individual replenishment quantities cannot be selected independently.

D.Hoopman,(2003) In this article he said that inventory optimization recognize that different industry have different inventory profiles and requirements. Research has indicated that solutions are priced in a large range from tens of thousands of dollars to millions of dollars. In this niche market sector price is definitely not an indicator of the quality of solution, ROI and usability are paramount.

Asfaque Ahmed ,(2004) (Article from master requirement planning and master production scheduling) He said that most of the manufacturing company vendors have planning and scheduling product which assume either infinite production capacity for calculating quantities of row material and work in progress (WIP) requirements or infinite quantities of raw material and WIP materials for calculating production capacity. There are many problems with this approach and how to avoid these by making sure that the product you are buying indeed takes into account finite quantities of required materials as well as finite capacities of work centers in your manufacturing facilities.

Delaunay C ,Sahin E, (2007). A lots of work has been done but now if we want to go ahead we must have good visibility upon this field of research. That is why we are focused on frame work for an exhaustive review on the problem of supply chain management with inventory in accuracies. The author said that their aim in this work is also to present the most important criterion that allows a distinction between the different type of managing the inventory.

OlowolajuMonisola,(2013) reviewed about the Inventory is a vital asset, necessary for effective operation of any business organisation. The absence of good inventory management practices in the Small and Medium Scale Industrial Enterprises (SMEs) necessitates a study to determine the actual reasons for non application of scientific inventory management techniques in the SMEs. Three hundred and twenty SMEs in Food, Textiles, Wood and Metal Products sectors in South Western Nigeria were selected for the study. Two hundred and twelve organizations returned the questionnaire. It is established that non usage of scientific inventory techniques for better inventory decision was due to lack of skilled personnel and inadequate data to use inventory models; and low level of ICT in the SMEs. It is recommended that the SMEs should institute structure to improve the knowledge of their personnel about using quantitative inventory decision models and the SMEs should make the application of Information Communication Technology (ICT) for data management a priority.

Mohammad Shafi (2014) has discussed about the Inventory constitutes a major component of working capital. To a large extent, the success and failure of a business depends upon its inventory management performance. The basic objective of inventory management is to optimize the size of inventory in a firm so that smooth performance of production and sales function may be possible at minimum cost. *D.Babin Dhas, S.C Vetrivel (2019)* Galloping inventories in recent years, the credit squeeze and the resultant general paucity of funds have attracted the attention of planning elite on this crucial problem of inventories. Mismanagement of inventories and absence of control systems have resulted in deplorable performance for some of the industries in developing economies. Though, an abundance of literature, methods, models and computer analysis have evolved from time to time and are highly availed of in the realms

of industrial settings with greater pay-off of quality, precision and non-blockade of working capital.

LilianTundura, Daniel Wanyoike.(2016) The purpose of this study was to determine the effect of inventory control strategies on inventory record accuracy in Kenya Power Nakuru. The study looked at three inventory control strategies; cycle counting, inventory coding and computerized inventory accuracy. The three variables were individually and collectively related with inventory records accuracy. The study adopted a descriptive survey. The target populations for the study were the employees in Kenya Power Nakuru working in procurement, stores and finance departments. Since there are only 42 employees in the departments, all the employees were involved in the study as respondents. The researcher conducted a pilot study to test for validity and reliability of the research instruments before the actual study.

Biri Anthony, DegbeSewodoAugustin(2017) discussed about the the implementation of transshipments among two independent locations which belong to one parent firm and the impact of transshipments, when implemented between these two locations. We examine how the possibility of such transshipments affects the optimal inventory orders at each location and find that, if each location aims to maximize its own profit, their inventory choices will not in general maximize joint profits. However, we find transshipment prices which if implemented by the parent firm as incentive design will make each location behave in order to optimize aggregate profit.

Andre P. Calmon and Stephen C. Graves (2017) The goal of this paper is to describe, model, and optimize inventory in a reverse logistics system that supports the warranty returns and replacements for a consumer electronic device. The context and motivation for this work stem from a collaboration with an industrial partner, a Fortune 100 company that sells consumer electronics. The reverse logistics system is a closed-loop supply chain: failed devices are returned for repair and refurbishing; this inventory is then used to serve warranty claims or sold through a side sales channel. *SC Vetrivel , J. Rajini , V. Krishnamoorthy (2020)* Managing inventory in this system is challenging because of the short life cycle of these devices and the rapidly declining value for the inventory.

Objectives

1. To understand the perception of employees towards the inventory management and to understand the factors causing the excess inventory within the organization.
2. To find the factors for the low inventory turnover ratio and to assess the mostly used inventory management method

ANALYSIS AND INTERPRETATION

TABLE 1   Rank The Factor By Which The Company Should Take Necessary Steps To Safeguard The Good From Loss

SL.No	Factors	5	%	4	%	3	%	2	%	1	%	TOTAL
1	Adequate written instructions	30	30	40	40	10	10	20	20	0	0	100
2	Adequate supervision	20	20	20	20	50	50	10	10	10	10	100
3	Use of pre-numbered tags which are accounted for	10	10	6	6	44	44	40	40	0	0	100
4	Careful investigation of significant overages and shortages	4	4	50	50	26	26	20	20	0	0	100
5	The signing and dating of inventory count sheets by the person supervising the count	12	12	28	28	10	10	40	40	10	10	100
6	Clearly marking damaged and obsolete inventory	30	30	40	40	10	10	20	20	0	0	100
7	Prompt adjustment of records for inventory discrepancies after approval by a responsible official other than stores personnel	40	40	60	60	0	0	0	0	0	0	100

INFERENCE

From the above table we find that, 40% of the respondents are given the 4th the most preference for the adequate written instructions, 25% of the respondents are given the 3rd preference for the adequate supervision,40% of the respondents given the 4th preference for the clearly marking the damaged and obsolete inventory.

ANALYSIS USING KARL PEARSON'S CORRELATION

Correlation analysis is the statistical tool used to measure the degree to which two variables are linearly related to each other. Correlation measures the degree of association between two variables.

Null hypothesis (Ho): There is positive relationship between the management review and follow up reports of inventory turnover, ageing and inventory adjustments and important is managing inventory levels in your organization.

Alternate hypothesis (H1): There is negative relationship between the management review and follow up reports of inventory turnover, ageing and inventory adjustments and important is managing inventory levels in your organization

Correlations

		management review and follow up reports of inventory turnover, ageing and inventory adjustments	Important is managing inventory levels in your organization
management review and follow up reports of inventory turnover, ageing and inventory adjustments	Pearson Correlation	1	.871**
	Sig. (2-tailed)		.000
	N	100	100
important is managing inventory levels in your organization	Pearson Correlation	.871**	1
	Sig. (2-tailed)	.000	
	N	100	100

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

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2}\sqrt{N\sum Y^2 - (\sum Y)^2}}$$

$r = \mathbf{0.871}$

Since r is positive, there is positive relationship between the management review and follow up reports of inventory turnover, ageing and inventory adjustments and important is managing inventory levels in your organization.

CHI- SQUARE TEST I – (ψ^2)

   Chi-square is the sum of the squared difference between observed (*o*) and the expected (*e*) data (or the deviation, *d*), divided by the expected data in all possible categories.

Null hypothesis (Ho):

   There is no significant difference between the inventory items maintained in a secured manner and satisfaction level of the company's inventory management.

Alternate hypothesis (H1):

   There is a significant difference between the inventory items maintained in a secured manner and satisfaction level of the company's inventory management.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Inventory items maintained in a secured manner * satisfaction level of the company's inventory management.	100	100.0%	0	.0%	100	100.0%

Inventory items maintained in a secured manner * satisfaction level of the company's inventory management.
Cross tabulation

			Satisfaction level of the company's inventory management.				
			highly satisfied	satisfied	Neutral	Dissatisfied	Total
inventory items maintained in a secured manner	yes	Count	20	56	0	0	76
		Expected Count	7.6	22.8	3.8	3.8	38.0
		% within inventory items maintained in a secured manner	26.3%	73.7%	.0%	.0%	100.0%
		% within satisfaction level of the company's inventory management.	100.0%	93.3%	.0%	.0%	76.0%
		% of Total	20.0%	56.0%	.0%	.0%	76.0%
	No	Count	0	4	10	10	24
		Expected Count	2.4	7.2	1.2	1.2	12.0
		% within inventory items maintained in a secured manner	.0%	16.7%	41.7%	41.7%	100.0%
		% within satisfaction level of the company's inventory management.	.0%	6.7%	100.0%	100.0%	24.0%
		% of Total	.0%	4.0%	10.0%	10.0%	24.0%
Total		Count	20	60	10	10	100
		Expected Count	10.0	30.0	5.0	5.0	50.0
		% within inventory items maintained in a secured manner	20.0%	60.0%	10.0%	10.0%	100.0%
		% within satisfaction level of the company's inventory management.	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	20.0%	60.0%	10.0%	10.0%	100.0%

Chi-Square Test

*	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	39.766[a]	3	.000
Likelihood Ratio	40.412	3	.000
Linear-by-Linear Association	29.658	1	.000
N of Valid Cases	100		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is 1.20.

Calculated value = 39.766

Z = Z cal>Z tab

Hence, the alternate hypothesis [H1] is accepted

Since the calculated value is greater than the tabulated value, we reject the null hypothesis and hence there is a significant difference between the inventory items maintained in a secured manner and satisfaction level of the company's inventory management.

ONE-WAY ANOVA CLASSIFICATION

Null hypothesis (Ho):

There is no significance difference between the management monitor and approve the write-offs of obsolete and inactive inventories and often do departments compare quantities received against receiving reports.

Alternate hypothesis (H1):

There is a significance difference between the management monitor and approve the write-offs of obsolete and inactive inventories and often do departments compare quantities received against receiving reports.

Descriptive

often do departments compare quantities received against receiving reports, etc

| | | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Between-Component Variance |
				Lower Bound	Upper Bound	
Model	Fixed Effects	.433	.061	2.52	2.76	
	Random Effects		.739	-6.75	12.03	1.069

ANOVA

often do departments compare quantities received against receiving reports, etc

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	52.533	2	26.533	141.714	.000
Within Groups	16.987	96	.187		
Total	70.520	98			

The calculated value of F is greater than the tabulated value. Hence, we reject the null hypothesis and conclude that there is significance difference between the management monitor and approve the write-offs of obsolete and inactive inventories and often do departments compare quantities received against receiving reports.

Findings:

Among the total 44% of the respondents are degree holder so, the majority of the respondents are degree holders.30% of the respondents are between 1-2years so, the majority of respondents are between 1-2years of experience. 24% of the respondents are in the Packaging department so, the majority respondents belongs to packaging.36% of the respondents are using EOQ methods, so,the majority of them uses EOQ method.70% of the accepting that inventories are customizable .48% of the respondents are accepting they are following FIFO method so the majority follows FIFO.32% of the respondents are agreeing with management reviews so, the majority of them agrees. Majority 80% of the respondents are accepting that proper layout having for inventory storage facilities.Majority 90% of the respondents are accepting that document procedure for stock taking.Majority 70% of the respondents are accepting that they receiving the information correctly, Majority 40% of the respondents are accepting that quality check has been done monthly ,56% of the respondents are accepting it's very important .

Conclusion :

Inventory management is a science primarily about specifying the shape and percentage of stocked goods. It is required at different locations within a facility or within many

locations of a supply network to precede the regular and planned course of production and stock of materials. With this study, the researcher has been able to find out the efficiency of the inventory management in Knit Wear companies. It can be inferred from that study that inventory management at Knit Wear companies were very satisfactory. Company can continue the good work and implement the suggestions derived from this study to optimize their inventory management.

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