



SPACE MANAGEMENT INVENTORY TECHNIQUES -A COMPARATIVE STUDY

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ABSTRACT:

The literature recognizes various inventory management capabilities ways to reduce material waste while increasing cost efficiency; thus helping organizations achieve higher productivity. Do your research on this issue treat some inventory management practices in silos Property some attempts to provide a unified overview with some key News techniques available to practitioners are the current passion this paper initially aims to orient the reader to the context of conceptual literature in modern inventory management practices. Inventory is the key, There are many important sources for growth trading and stock returns are one of the main sources The income generated for the administration of the company's inventory aims to maintain the inventory at the lowest cost, The purpose is to ensure the continuity of operations. When the decision is made inventory management helps to find compromises between different cost components. different cost components includes inventory provision, inventory holding costs, and costs due to inventory shortages. Finally this study gives some suggestion about what are the improvement that needed for the company to adopt the inventory management techniques this gives clarity about which inventory techniques is stable for there company.

Keywords: Inventory management, space management, Budget control, Customer satisfaction, cost efficiency, supply chain management.

Introduction:

Inventory management is a fundamental tool in operations management because of its key impact on costs, spoilage and sustainability, supply and demand balance, and production as well as retail decisions. Regarding its determinants Role, inventory control policies can achieve their ultimate objective in cost management only if they are able Capturing practical and real-world situations of existing problems. In classic inventory models, it is generally assumed that the nature of the items remains unchanged during their storage, and inventory levels are Just because of the demand it went to zero. This contribution is designed to provide Greater insight into the understanding of stock control measures, thereby enhancing the capabilities of managers. Contributing to the continuity and efficient productivity of their organization.

Types of inventory:

1. **Slow moving inventory (SMI)** It has very low ITR. A manager should take everything Steps necessary to keep such inventories to a minimum level
2. **Inactive Inventories (II)** These inventories have zero demand. A firm decision has to be taken They are taken to be retained or scrapped.
3. **Fast-moving inventories(FMI)** These inventories are in high demand and any shortages may occur Creates serious hindrance in the functioning of the organization.

Literature review:

1. Kiplagat Kennedy Kimaiyo¹, Mr. George Ochiri² (European Journal of Business Management, 2 (1), 336-341). The past 15-20 years have seen an increase in research focusing on operational issues relating to supply chain management. Most of the research has been related to multi-echelon inventory models. The general objective of this study was to examine the role of inventory management on performance of manufacturing firms in Kenya.
2. Stephen ARO-GORDON, Jaideep GUPTE (ICOMAR 2016) Theliterature acknowledges the capacity of diverse inventory management techniques to reduce material wastages while simultaneously increasing cost-efficiency, thereby helping the organization to achieve superior performance. In this regard, research so far tends to treat multiple inventory management techniques in silos; there has been relatively few significant attempts to undertake a holistic review and presentation of the several key emerging techniques available to today's practitioner,

hence the motivation for the present paper, which primarily aims at referring the reader to an outline the conceptual literature on contemporary inventory management practice.

3. Mr. Harshad Pawar¹, Mr. Akshay Helode², Miss. Vaishnavi Gunjal³ (IJARIE-ISSN(O)-2395-4396) In this paper titled, a comparative study of inventory management and budgetary control system in automobile sector aimed at finding out the impact of budgeting and performance in the automobile sector. Inventory management has come up with most of the important tools to improve operational efficiency over the last 3 to 4 decades across the globe. The automobile industry boosts it for profit it solve the unemployment problem and it shows new technologies through which time, money and manpower can be saved
4. Muhayimana Victoire (European Journal of Academic Essays 2(6): 49-58, 2015) The aim of this study is to highlight or determine the contribution of inventory management techniques on better management of manufacturing companies. Study was done in SULFO RWANDA Ltd ,located in KIGALI CITY in Rwanda.. The purposive sampling method was used to target only people who are capable to deliver relevant information; the total population was 14 respondents. The study was guided by the general objectives which were analyzing inventory Management techniques and finds possible solutions to overcome high costs involved in improper management of inventory in manufacturing companies
5. Bijal Pandya¹, Hemant Thakkar² (Journal on Emerging trends in Modelling and Manufacturing 2(3) 2016, 82-86) This paper provides the review of the inventory management and its control techniques of various articles in different field of application. Identify the methods to reduce the cost of inventory which effect organization overall cost and use the resources to their maximum efficiency by concentrating items having greatest potential saving. This paper uses the methodology on which literature is collected on ABC and XYZ analysis of inventory control. Some research articles are reviewed to study overall understanding of approach for inventory control
6. Gholami-Qadikolaei, M.A. Sobhanollahi and A. Mirzazadeh This study presents the mixed backorder and lost sales inventory models involving four variables; order quantity, lead time, safety factor (a discrete variable) and backorder rate. A controllable negative exponential backorder rate is considered in the proposed model. In the real market, as unsatisfied demands occur, the longer length of lead time is, the smaller proportion of backorder rate would be. Considering this reason, backorder rate is dependent on the length of lead time through the amount of shortages. The negative exponential lead time crashing cost is considered in this study
7. S S Islam^{1,*}, A H Pulungan² and A Rochim³ The research aims to examine factors that affect inventory mismanagement in a Small Medium Enterprises (SME), which is a market leader in the Heavy Equipment Spare part Industry. Despite its status as market leader, the company deals with various inventory problems, for examples slow-moving stocks, delivery delays to customers, and so forth. Those problems, at the end, may reduce company's profit. In order to determine the main factors, this study applies quantitative and qualitative methods.
8. Agu Okoro Agu¹, Obi-Anike, Happiness Ozioma, Eke Chukwuma Nnate The study sought to ascertain the extent at which inventory control affect the productivity of selected manufacturing firms, to determine the nature of the relationship between demand management and customer satisfaction of selected manufacturing firms and to determine the effect of Just – in- time on the growth of selected manufacturing firms.
9. Entsar Kouni A Alhaj Mohamed Industrial sector in Libya needs modernization process that will upgrade the level of its local industrial Companies, and allowing them to achieve the highest possible level to compete globally. Although there is no sufficient accounting information system in place to calculate the considerably high storage cost, this study pointed out some factors that might affect it.
10. Hong Shen¹, Qiang Deng², Rebecca Lao³, Simon Wu⁴ (Business Journal 2017) In this paper, we focus on inventory management in a manufacturing company in China. This study aims to identify the key factors that influence inventory management practices, investigate efficient and effective inventory management approaches, and examine the impact of supplier cooperation on supply chain improvement.

Importance and scope of inventory space management

It refers to the strategic planning, organization and optimization of physical warehouse space to store, track and manage inventory items effectively. The importance and scope of inventory management can be understood through several key points

1. **Optimal space utilization** Effective inventory space management ensures efficient space utilization. By using more available space, businesses can reduce the need for additional storage devices and associated costs.
2. **Reduce costs** Proper space management helps reduce maintenance costs such as rent, utilities, and labor. By optimizing space utilization, businesses can avoid unnecessary costs associated with overusing or under utilizing warehouse space.
3. **Improve inventory accuracy** An organized storage system allows for better tracking and control of inventory levels. This helps maintain accurate inventory records reducing the risk of errors such as overstocking or overstocking, misplacement or under stocking.
4. **Improved operational efficiency** Inventory space management streamlines warehouse operations by reducing the time and effort required to locate, select, and replenish inventory items. This results in increased productivity, shorter lead times and smoother workflows.
5. **Learning Optimization** Space management is closely related to inventory optimization efforts, such as inventory turnover, overhead costs, and safety stock levels. By managing inventory in a way that meets sales demands and sales volume, businesses can reduce excess inventory and related costs while maintaining sufficient stock levels to meet customer demand.
6. **Scalability and flexibility** A well-designed inventory space management system allows businesses to adapt to inventory needs and demands. Scalable storage solutions and flexible layout configurations enable businesses to expand or adjust storage capacity to support growth and expansion initiatives.
7. **Reduce risk** Effective space management helps reduce the risk of inventory loss, damage or theft. By implementing proper storage practices and security measures, businesses can protect inventory assets and minimize losses.

Implications:

Establishment and monitoring of various stock levels Perhaps the first approach is to create a system to keep track of various inventories ensure optimality, maximum efficiency and effectiveness. Higher education levels contribute to the cost and increasing costs, leading important metrics for inventory and stock levels develop a proactive inventory management policy in any organization (Kurano et al., 2014; Achebo & Omoregie, 2013). An effective way to manage inventory is to determine the inventory requirements of the business. Seasonal inventory should be limited to non-performing or slow-moving inventory. In general, it is important for managers to avoid overstocking/non-stocking of materials by making decisions at different stock levels. This helps us to manage the space in inventory areas so this leads to control the budget.

Formulas used for stock level control are

- a) **ROL**= **MCR*OLT** (ROL= Re-ordering level, MCR= Maximum consumption rate, OLT= Order lead time)
- b) **MLC**= **ROL- (NRC*OLT)** (MLC= Minimum level of consumption, ROL= Re-ordering level, NRC= Normal rate of consumption OLT= Order lead time)
- c) **MAL**= **MLC*ROL** (MAL= Maximum level of , MLC= Minimum level of consumption, ROL= Re-ordering level)
- d) **ASL**= **MAL+MLC/2** (ASL= Average stock level, MAL= Maximum level of , MLC= Minimum level of consumption)
- e) **DL**= **ASL*EST** (DL= Danger Level, ASL= Average stock level, EST= Emergency Supply Time)

Automated inventory system This approach provides tight control over inventory at all times. Physical stock may be regular Checked with stock (quantity) records maintained in stores and cost valuation records The existence of an automated inventory system, however, is essential to the establishment A proper procurement process as part of an inventory management policy cannot be overemphasized. This method is worker best on automated re-order technology that it analyse the stock in inventory and it gives order to the vendor based on that inventory that we have already maintained in the stock. So this Automated inventory system technique is mostly used to control over stock in the inventory, by controlling the over stock we can mange a space in the store.

Establishing proper purchasing procedures A proper purchase procedure is imperative to ensure the appropriate inventory control. The procedure will vary from organization to organization, but the steps are typical. Beyond setting up proper purchase system, the inventory manager needs to monitor the usage or demand for he items in terms of conducting regular inventory turnover and ABC analyses, and these two approaches are explained briefly below. When the organization follow proper procedure for purchase order then it will focus on the particular procedure so this simple changes will have good impact on the inventory management some times it allows more space in the store as free, we can utilize this free space for to store other raw material.

ABC inventory classification technique ABC (Always Better Control) is a well-known IMT adopted by large companies for effective control On large quantities of inventory items (Hatefi, et al, 2014. The aim of this technique is to make effective Control of materials by classifying materials into three groups, A, B, and Q, according to them Relative values

ABC Analysis – Three Classes of Inventories

1. Group A This group makes expensive items that can only be had Accounts for 10-20% but up to 50% of inventory Total cost of stocked items.
2. Group B This group includes items that comprise 20-30% stockpiles and represents about 30% of the total value Total inventory.
3. Group Q This remaining group covers about 70-80% of the stocked items and is worth about 20% of the total inventory.

By classifying the raw material it to this three category we can identify the material witch has more market price and we can segment the material for better understanding about how to store the material, what are the requirement that needed for to store the material, by this clarification the company can build the store house are to adopt the warehouse with this specification.

- **Just-in-time inventory management technique** As the name suggests, JIT is a model for organizations that try to replenish inventory when Inventory is required. It would be the method of choice for very expensive inventory items, items A relatively high purchase price, holding cost or ordering cost, but with a low level of demand. This The model tries to avoid excess inventory and the costs associated with it. As a result, organizations receive Inventory only when the need for more stock is approaching. For the JIT approach to be successful, a critical Seller is required to ensure timely delivery. This is to avoid expensive and irreversible Business downtime due to any delay in inventory delivery, a key operational management issue among many Nigerian manufacturers (Takim, 2014). Just-in-time, as a growing field in scheduling, aims to improve return on investment by reducing process inventory and associated carrying costs. As a production scheduling strategy, JIT is outlined Single and parallel machines environment when it is considered in flow shop Machine Environment (Adamuetal, 2014)
- **Vendor managing inventory** In the VMI method, significant benefits can be made through reliable and transparent cooperation sellers of critical inventories, especially in the management of large-scale production. VMI enable Vendors/retailers in vendor/customer relationships to plan, monitor and control inventory for their customers; assume responsibility for managing inventory to a certain level previously agreed with the seller focuses on improving the accuracy of customer requests (Zanoni et al., 2014; Kannan et al., 2013). Customer disclaims responsibility for orders during installation replenishing inventories ultimately works in overall capacity planning and institutional

effectiveness. Mathematical models can be developed such as the total cost of inventory management system (seller and buyer's / customer costs) is minimal.

- **Out-sourcing inventory control personnel** Some organizations hire external inventory consultants to develop and manage internal inventory Systems such inventory management specialists are responsible for maintaining accuracy, cycles Managing counting, shipping and receiving, and order-picking operations. Dedicated inventory Specialists can be partnered to manage all inventory items on hand and in transit. They can also make adjustments, manage returns, validate deliveries and implement inventory reporting.
- **Lead-time analysis** Another useful way to manage inventory is to prepare a report in advance on how to understand it It takes a long time to fill your inventory. Lead time is how long it takes to sort inventory. The supplier delivers the product at different times after the order is placed. Some vendors/suppliers notorious for late submission of inventories; such vendors should be penalized or removed from the optimal list inventory management and overall cost efficiency.
- **Software Applications and Tracking System** Research results show that inventory management software is feasible be a valuable tool for organizations looking to improve their inventory management systems. This can happen at the same time Today, various practical possibilities (Akindipe, 2014 Adoga & Valverde, 2014) A number of inventory management programs provide organizations with a structured way to store records all inventory flows in and out of the facility. The organization saves significantly Total costs associated with manual inventory counts, administrative errors, and shortages stock inventory. Learning management software can be customized to fit your personality necessity. Additionally, many facilities are developing tracking systems from spreadsheets to computers application, inventory management and turnaround times control. They wrote a complete list control that allows inventory managers to accurately track inventory records, material requirements planning to get the right thing to the right place at the right time (inventory decision making) processes such as anticipating workload, determining order quantities and stock levels, and managing goods level and cycle count in the distribution center or store.

Results:

1. Current training with a continuous focus on automating the inventory Space management system identify nine broad inventory management techniques to solve the problem found in operations in warehouses and industrial stores.
2. IMT options vary based on the size of the organization as well as cost effectiveness and space affordability as a key consideration.

Perceived usefulness:

1. Do not keep too much inventory in your warehouse. Use accurate estimates way to help you buy goods in time before demand increases.
2. Make sure you follow your studies properly. Using barcodes and inventory tracking software can help. Having the right software and backup modules can also make things easier Efficient inventory management.
3. Order products based on your preferences. Quick products must be ordered first keep products in random inventory, thus making your organization a big profit no need to save.

Conclusion:

In today's competitive environment and income pressure, organizations have no choice but to manage more resources effective for survival and financial survival. Accept the appropriate combination of several This approach can improve service in terms of ensuring a consistent flow of materials reduce the carrier's carrying operating costs. The discussion is incomplete as an organization become more competitive, more inventory management practices will follow lit.

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Published online: 26 April 2017 © Nang Yan Business Journal 2017