

Inventory Management: Techniques & Importance

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Abstract

There are many different types of inventories, and this study focuses on inventory management, which involves determining the best techniques for buying stock in order to fulfil future demand for a certain product. It is possible to think of inventory as the sum total of a company's inventories of different sorts. Thus, inventory management takes care of projected demand, bulk purchases, absorbing waste, and over-ordering. To put it another way, inventory refers to the amount of merchandise that a retailer has on hand at any particular moment for sale. Maintaining adequate stock levels is made easier by an inventory management system, which keeps tabs on the amount of each item available for sale. The term "inventory" does not always imply a focus on tangible products or those that can be sent right away. The importance of inventory management is shown via a variety of approaches.

Keywords: Inventory Managemnt , Inventory Management techniques, In ventory managemnt types, customer satisfaction.

1. INTRODUCTION

When an organization requires raw materials, semi-completed products, and finished goods, it keeps a supply of these items in its inventory. It's a big investment, and it has the potential to be a waste source that has to be monitored closely. A company's inventory is defined as the items it keeps on hand in case

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demand for them increases in the future. When inventory falls below a certain level, it signifies that a new order is needed.

Extending an inventory-dependent demand model may be used to identify goods that need replenishment quickly. A traditional cost-benefit trade-off governs the ideal cycle duration, while a promotions-oriented cost-benefit trade-off governs the reorder point. As a result of this, profit-driven inventory management is much superior than cost-based inventory management in most cases. Inventory management must be aggressive, supply chain operations restructured, and standards updated to the ideal standard if we want to achieve flawless order metrics. On-time delivery, data synchronization, damaged and useless items as well as days in supply and the shelf level of service are all factors to be taken into account when updating the metrics.

Having too much or too little products on hand might lead to company failures. Production may be halted if an organization runs out of an essential inventory item. The term "inventory management" refers to the overall framework of inventory management. Finding solutions to the issues of safety stock and lead time might be easier with the help of inventory management. As a result of inventory's unique characteristics, inventory management has evolved to suit the increasing demands of most corporations.

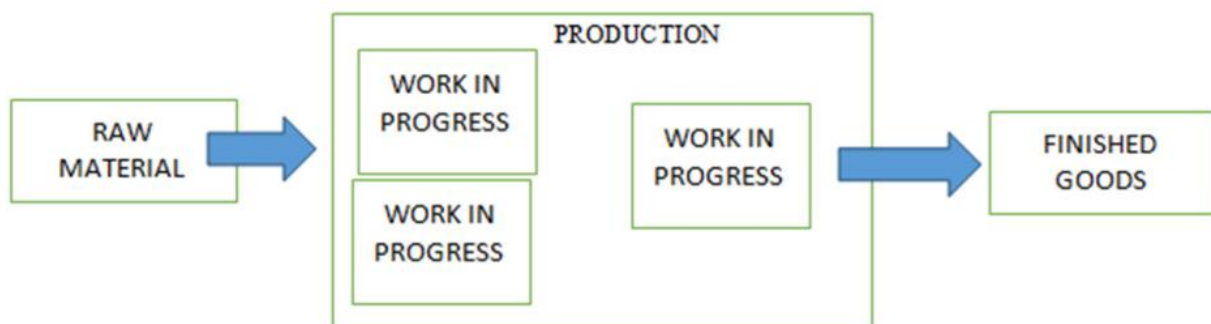


Figure: 1 showing production of raw material into finished goods

1.1. Types of Inventories

Inventory can be classified into three types which include;

1. **Raw material inventory:** All products acquired by an organisation for processing are included in this category. For example, a confectionery company's raw materials inventory includes flour, yeast, eggs, and so on.
2. **Work-In-Progress Inventory:** Before going on to the next step of processing, the firm still has to finish this intermediate level of raw material storage. They are what they are, and there is nothing you can do about it.

3. **Finished Goods Inventory:** Finished products are kept in this area. It's a question of coordination between the manufacturing and sales divisions of the company to ensure that there is enough completed items in stock to meet demand.

1.2. Inventory management techniques

1. Economic Order Quantity (EOQ):

Economies of scale dictate the order quantity that is most cost-effective. In this case, the least expensive amount of a given substance may be acquired.

It involves 2 types of costs:

- **Ordering Costs:** Bringing inventory into the production chain costs money. It includes all costs associated with bringing the inventory into the production system, whether they are directly or indirectly related. Tendering expenses, quality inspection charges, shipping fees, and so forth are all included in the ordering costs.
- **Carrying Costs:** It is the total cost of the store's inventory storage expenses. The amount and length of time an item will be kept in storage are two factors to consider. Everything from depreciation to handling costs to insurance premiums is included.

2. Stock Level Analysis:

Material management relies heavily on stock levels. The following methods are used to ensure that the control materials are of the highest quality.

1. Minimum Stock Levels
2. Reorder Levels
3. Maximum Stock Levels

3. Trial Error Approach

An economic order quantity is determined by calculating the total cost (ordering and carrying) of inventory for various sizes of orders, and then selecting the order size that is the most cost-effective. (Byaliha, 2020)

1.3. Significance of Inventory management

A.Inventory management increases profitability

- Planning, regulating, and managing inventory results in more output and sales while also lowering expenses. This translates into increased profitability for the company.
- It is possible to save a significant amount of money by improving accuracy and reducing the time and effort required to repair expensive errors.

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- Quick access to current and historical pricing, as well as cross-reference product codes, facilitates simplified operations and enhanced spend management.

B. Inventory management improves cash flow

- Higher earnings and improved cash flow may be achieved by purchasing the appropriate inventory at the right time in the right volume to fulfil University demand.
- An integrated inventory management system with credit management and collection capabilities helps convert receivables to cash more quickly.

C. Inventory management improves decision-making

- Access to real-time business insight throughout the University is made possible by rapid and precise data gathering.
- Using an inventory management system, all employees may use the issue, event, and project tracking to find and fix problems before they arise.

D. Inventory management increases customer satisfaction

- Having the proper items on hand is a consequence of responding to changing marketing circumstances like as trends, seasonality, promotions, and so on.
- As long as things are clearly labelled, the University can purchase and get the right supplies swiftly.

2. LITERATURE REVIEW

(History, 2020) It is widely agreed that inventory management is important enough to need the appointment of a specialised person to be in charge of it. Inventory management and firm performance were examined in the research. Inventory days were utilised as a dependent variable, while gross profit and net profit were employed as independent variables. As a result, the study used STATA package to conduct an investigation into the impact of inventory management on the performance of the listed manufacturing companies. It employed descriptive analysis, correlation analysis, and regression analysis in order to better understand how different organisations are managing their inventories, such as JIT.

(Byalihal, 2020) Inventory control is critical in the day-to-day operations of a business in order to ensure that the right commodities are available at the right time. In addition to representing a significant component of many businesses' existing assets, inventory is a key decision variable at all phases of product creation, distribution, and sales. A company's profitability suffers when its inventories are too high or excessively low. That's why it's important to keep inventory levels low in both manufacturing and merchandizing organisations, no matter what kind of business they are in. The efficient and effective use of raw materials and spare parts that are utilised in the manufacture of finished products in manufacturing concerns is the functional area of inventory management in finance and production. A

company's long-term profitability and even survival may be jeopardized if inventory management is neglected. As inventory are reduced, a positive effect is seen on the profitability of the business. The basics of inventory management and various inventory control methods are explored in various sections of this article. Furthermore, the study discusses the numerous costs associated with storing inventory, economic order amounts, stock levels, shortfall costs, and inventory techniques in this way.

(Basa et al., 2019) In this research, solar panels were used to power an inventory management system for a freezer. An effort is being made to improve energy conservation and the proper use of food resources. Using an Arduino-based sensor network on a solar-powered freezer, the team has created an accessible and user-friendly smart inventory management system. The inventory of perishable and non-perishable products may be readily checked without personally checking the interior of the freezer by using a network of sensors in the freezer.

(Simon, Phebe, 2018) Using “Danas Food Limited” as a case study, this research evaluates inventory management and organisational performance. To deal with inventory control issues, there has been a combination of inefficiency and previously unobserved inconsistent behaviour. Optimal inventory development and maintenance is critical to ensuring production continuity, maximising the use of workers and machinery, and being able to satisfy particular client demand in a timely manner. Purposive non-probability sampling was used to perform a survey study.

(Sohail & Sheikh, 2018) In supply chain management, inventory management is a difficult issue to solve. Warehouse stocks are necessary for companies to meet consumer demand, but these inventories come with holding fees and a frozen pot of money that might be lost. Therefore, inventory management is concerned with determining the amount of inventory necessary to meet demand while preventing overstocking. An inventory management case study for the small-scale steel manufacturing business is presented in this article. “Inventory days and return on asset (ROA) analyses” were used to evaluate the link between inventory management and firm success.

(Ahmad & Zabri, 2018) It is vital for retail firms to use standardised inventory management procedures (IMPs). In spite of this, there is a dearth of extensive knowledge in the subject of inventory management in a micro company context. An empirical investigation of how micro retailing firms use IMPs and the role knowledge of IMPs plays in this connection is presented in this paper. Among 300 Malaysian micro-retail business owners and managers, a questionnaire was sent out and 100 responses were obtained. According to the report, the use of systematic IMPs in micro retailing firms is modest, with the most common being the assessment of suppliers. Purchasing, reordering, and inventory control all play a little role in inventory management. Even more interesting is that the results of this research show that IMPs have a direct impact on corporate performance. Inventory management expertise has a role in the interaction. With this study, we add to the body of information about inventory management and the effectiveness of small businesses.

(Johnson & Ruankaew, 2017) Effective inventory management is commonly considered to be possible with the correct tactics. The inventory control practises of small and medium-sized businesses (SMEs)

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in Jamaica were examined in this research. The study's goals were to determine whether these organisations employed the "best practises" in inventory management, the impact of their strategies on company performance, and the variables that influenced the creation of their strategies.. Twelve inventory-intensive SMEs in retail and manufacturing/distribution sectors were studied using a techniques triangulation approach that includes case studies, interviews, questionnaires, and observation. Stock counts, ERP systems, forecasting, and inventory categorization were found to be prevalent inventory management tactics used by the SMEs. According to the results of this research, which back up institutional theory and isomorphism, enterprises in comparable sectors adopted similar methods because of external forces, whereas 'best practises' for inventory management were shown to be the same across industries. Costs, government requirements, and the replication of successful techniques in other organisations were shown to be the main factors behind this isomorphic organisational behaviour. They were classed as semi-automated because of their modest automation, although they reported success in inventory management. The findings of this research show that SMEs in the retail and manufacturing/distribution sectors in Jamaica have a strong sense of institutionalism. Isomorphic organisational behaviour may be seen across the Jamaican corporate environment if a wider perspective is examined, including bigger enterprises and other sectors. Financial performance and changes in inventory control tactics of Jamaican SMEs may provide a more complete picture on how inventory management affects the financial performance of Jamaican SMEs in future study.

(Oluwaseyi et al., 2017) The operation of inventory management determines the efficiency of storage of products. The progress in techniques and management principles improves the moving load, delivery speed, service quality, operation costs, the usage of facilities and energy saving. Inventory management takes a crucial part in the manipulation of logistics. Reviewing the current condition, a strong system needs a clear frame of logistics and a proper inventory implements and techniques to link the producing procedures. The objective of the paper is to define the role of inventory management in logistics for the reference of further improvement. The research was undertaken to assist logistics managers, researchers and inventory planners to define and comprehend the basic views of logistics and its various applications and the relationships between logistics and inventory.

(Williams & Tokar, 2008) This work reviews studies on inventory management published in key logistics publications, identifies themes from the literature, and provides future directions for inventory management research published in logistics journals in the literature. Articles published in major logistics journals since 1976 that add to the body of knowledge on inventory management are examined and catalogued. Literature and inventory management model assumptions are taken into consideration while categorizing items.

(Jonsson & Mattsson, 2008) Manufacturing and distribution firms may manage their purchased-item inventories by using material planning techniques, which are the subject of this study. For starters, we'll examine how manufacturers and distributors rate the perceived success of various inventory-controlling material planning approaches. Sub-objective number two focuses on determining the difference in perceived planning performance based on the methodologies utilised and the determination of planning

parameters. Run-out time planning, kanban, and MRP are among the five approaches of material planning that have been examined. The study drew on survey responses from 153 manufacturers and 53 distributors. This study concludes that material planning techniques are used differently by organisations of various sizes, depending on where they are used along the material flow, where the inventory is stored (in production or distribution activities). Using a material planning strategy in a variety of ways affects its perceived effectiveness. Reorder point approaches relied heavily on safety stock levels and lead times, whereas MRP methods relied on order points, review frequencies, and run-out durations for their planning success. This is an essential distinction.

3. CONCLUSION

Every organisation has to keep track of its inventory. In order to prevent scenarios such as "out of stock" and "overstock," businesses must maintain adequate levels of inventory. Inventory control may be improved, and expenses can be reduced, using inventory management. Using an agent system, we can automate this process, support many forecasting methodologies, and respond to environmental changes. The study's overall conclusion is that inventory management has a substantial impact on the company's financial statements as well as its day-to-day operations. In order to keep the business running smoothly, there must be an optimal amount of inventory, but the organization should not be over or understocked.

References

- Ahmad, K., & Zabri, S. M. (2018). The mediating effect of knowledge of inventory management in the relationship between inventory management practices and performance: The case of micro retailing enterprises. *Journal of Business and Retail Management Research*, 12(2), 83–93. <https://doi.org/10.24052/jbrmr/v12is02/tmeokoimtrbimpaptcomre>
- Basa, J. J. A., Cu, P. L. G., Malabag, N. N., Naag, L. A. V., Abacco, D. F. P., Siquihod, M. J. M., Madrigal, G. A., & Tolentino, L. K. S. (2019). Smart inventory management system for photovoltaic-powered freezer using wireless sensor network. *International Journal of Emerging Trends in Engineering Research*, 7(10). <https://doi.org/10.30534/ijeter/2019/057102019>
- Byalihal, S. (2020). A Study on INVENTORY MANAGEMENT and its impact on Profitability at ACHAL INDUSTRIES PVT LTD. 10(1), 1499–1512. www.joics.org
- History, A. (2020). *Effect of Inventory Management on Financial Performance of Listed Manufacturing Companies in Sri Lanka*. November.
- Johnson, F., & Ruankaew, T. (2017). A Study of Inventory Control Systems by Jamaican SMEs in Retail and Manufacturing/Distribution Industries. *International Journal of Business and Management*, 12(8), 1. <https://doi.org/10.5539/ijbm.v12n8p1>
- Jonsson, P., & Mattsson, S. A. (2008). Inventory management practices and their implications on perceived planning performance. *International Journal of Production Research*, 46(7), 1787–1812.

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<https://doi.org/10.1080/00207540600988071>

- Oluwaseyi, J. A., Onifade, M. K., & Odeyinka, O. F. (2017). Evaluation of the Role of Inventory Management in Logistics Chain of an Organisation. *LOGI – Scientific Journal on Transport and Logistics*, 8(2), 1–11. <https://doi.org/10.1515/logi-2017-0011>
- Simon, Phebe, N. P. P. C. (2018). INVENTORY MANAGEMENT AND ORGANIZATIONAL PERFORMANCE (Study of Dansa Food Limited). *ResearchGate*, December, 1–24. <https://doi.org/10.13140/RG.2.2.11093.27364>
- Sohail, N., & Sheikh, T. H. (2018). A study of inventory management system case study. *Journal of Advanced Research in Dynamical and Control Systems*, 10(10 Special Issue), 1176–1190.
- Williams, B. D., & Tokar, T. (2008). A review of inventory management research in major logistics journals: Themes and future directions. *The International Journal of Logistics Management*, 19(2), 212–232. <https://doi.org/10.1108/09574090810895960>