INVENTORY MANAGEMENT SYSTEM FOR RETAILERS

ABSTRACT

In recent years, the correct management of inventories has become a fundamental pillar for achieving success in enterprises. Unfortunately, studies suggesting the investment and adoption of advanced inventory management and control systems are not easy to find. This study aims to analyse and present an extensive literature concerning inventory management, containing multiple definitions and fundamental concepts for the retail sector. The primary outcomes of this study are the leading inventory management systems and models, the Key Performance Indicators (KPIs) for their correct management, and the benefits and challenges for choosing or adopting an efficient inventory control and management system.

INTRODUCTION

Retail inventory management is the process of ensuring you carry merchandise that shoppers want, with neither too little nor too much on hand. By managing inventory, retailers meet customer demand without running out of stock or carrying excess supply.

Nowadays, organizations, and especially those performing activities in the retail sector, face multiple challenges in the planning and management of their resources. For this sector, having efficient management of human, technological, or material resources refers to the performance that companies characterized by the experience gained in their management could obtain over time. Therefore, the correct inventory management has become essential, especially in organizations dedicated to retail business. The determination of the optimal inventory level is a fundamental part of the life of organizations due to the high investment that it represents at the time of its acquisition, administration, and maintenance. According to [1], [2], “the role of inventory management is to ensure that stocks of raw material or other supplies, i.e., working-progress and finished goods, are kept at levels that provide maximum service levels at minimum costs”. This because the realizable asset occupies a significant percentage within the Total Assets. Hence, its correct ordering and administration imply being able to minimize the risk of contracting results that may put the health of the company at risk.

Various technologies have been developed over time for inventory management, going from basic manual reporting to an integrated information system (IS), which can help to “decide how and where orders should be fulfilled to improve service levels while decreasing total costs” [3]. Moreover, these new functionalities can collaborate in the most effective handling of materials and

better manage the cycle of purchase - reception - allocation in production [4], [5].

This article aims to present an extensive literature review concerning inventory control and management in the retail sector. First, the paper includes a systematic literature review regarding the Key Performance Indicators (KPIs) of inventory control and management in retail companies. Second, the main systems, methodologies, and tools used for inventory management are described. Finally, the current trends in inventory handling and management in retail companies are outlined. For this, the application of the Fink [6] and the Population, Interventions, Controls, and Outcome (PICO) [7] methodologies were developed, which suggests different steps and stages, to solve the problems and research questions raised.

LITERATURE REVIEW

Based on introduction, the literature review regarding inventory control and management within retail companies, 22 key aspects have been identified to consider when performing inventory management, which could play the role of performance indicators or performance within inventory control and management decisions. All the (Key Performance Indicators) KPIs identified allow knowing the effectiveness of inventory control and management carried out within retail companies. Among them, the first ten are considered essential due to its higher frequency of employment, while the remaining 12 have a minimum frequency.

The KPI's identified are,

1. Actual inventory and its relationship with the company's information system,
2. Inventory level,
3. Shortage of scarcity,
4. Product reordering,
5. Product replenishment,
6. Service level,
7. Product availability,
8. Excessive inventory,
9. Items on the shelf,
10. Income-level earnings,
11. Preference and purchase decisions,
12. Response level,
13. Lost item,
14. Returns,

15. Complexity and operational performance,
16. Proper planning,
17. Inventory balance,
18. Sales data,
19. Verification of the amounts received in stores,
20. Incorrect scanning at the time of payment,
21. Incorrect deliveries and
22. Adaptative, flexible inventory.

Actual inventory and it' s relationship with the company's information system:

A retail store must have the same data in all its records, that is, the data that has been recorded in the information system must be the same data that is physically held [8]. This is considered necessary due to continuous inconsistencies that exist between the physical inventory record and the inventory that appears in the system, incurring operational consequences.

Inventory level:

When an assortment planning problem arises, it is essential to develop an optimization model that considers the optimal assortment and the inventory level [9]. At the beginning of a season, the inventory level must be lower to avoid that in the end it is sold at a low price, this is a consequence of keeping the product at a fixed level throughout the season.

Shortage of scarcity:

A lack of products can be caused by various factors, including differences between product costs, which creates the possibility of a shortage of an expensive product and an excess of cheap products [8]. There is an interaction effect between scarcity levels and price leadership.

Product reordering:

In the retail environment, preventing the loss of sales opportunities requires the accurate and timely replacement of products to customers [10]. A periodic replenishment policy is essential, which is based in the variation of the levels of services and costs under the specific policies established.

Service level:

Poor service level results from having inadequate inventory control parameters. The level of inventory service for seasonal products should be kept high for basic clothing fashion retail companies. Conversely, the fashion manufacturer can reap benefits by improving its profit level if the inventory service level target is low.

Availability of products:

The product availability is related to the inventory information provided to the customer, through which the customer verifies the service quality. Besides, this information influences the customer's decision when the purchase is made.

Product Replacement:

Among the strategies used by retailers to minimize the effect on operational activities caused by inventory, several different errors can be detected, such as storing additional items or increasing the frequency of restocking of stores with the purpose of maintaining a high level of inventory.

Excessive inventory:

One of the strategies retailers use to deal with excess stock is to apply product rebates or pricing. The discounts applied to the products will depend on the

deterioration rate and the useful life of the product. The possibility of excess inventory increases if a timely inventory level review is not carried out [24]. Consequently, excess inventory is directly caused by inappropriate inventory control.

Items on the shelf, Response level, and Income level – earnings.

The importance of a response, relative to inventory, is greatest when it comes to reducing the risk of low profit levels for the fashion retailer and its supply chain (SC). When the inventory service is higher, it is required that the quick response must be also higher.

Incorrect delivery and returns:

One of the causes of inventory inaccuracy is making incorrect deliveries, driving an increase in the return of products. This creates pressure on the operating resources managed by retailers. Another critical aspect is the level of shortage, if this is high it will cause an increase in the probability that the customer will return the order.

Adaptive, flexible inventory, and proper planning:

Inventory problems imply low adaptability and a lack of functionality in the retailer's SC. These SC processes require adequate preparation due to their complexity. Determining adequate number of raw materials and finished products contributes to minimizing inventory costs [11].

CONCLUSION

Retail companies have acquired significant importance within several countries due to their high economic contribution. Therefore, the need to analyse their KPIs becomes highly significant, as well as their different systems, methodologies, and tools used within inventory management and optimization. From the aspects mentioned above, the main trends in inventory management within companies were defined.

Regarding KPIs, findings reveal 22 important indicators within inventory management that must be considered when retailers evaluate their stock. Among them, ten primary indicators were founded: inventory level, actual inventory and its relationship to the company's information system, shortage or shortage frequency, frequency of product reordering or replenishment, service level, replacement frequency, product availability, inventory in excess, number of items on the shelf and level of income or profit. These indicators allow the organization to know the state of the stock, to be managed appropriately, and show an excellent service quality and product availability image to the customer.

In practice, effective retail inventory management results in lower costs and a better understanding of sales patterns. Retail inventory management tools and methods give retailers more information with which to run their businesses.

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