Retail Store Stock Inventory Analytics

ABSTRACT

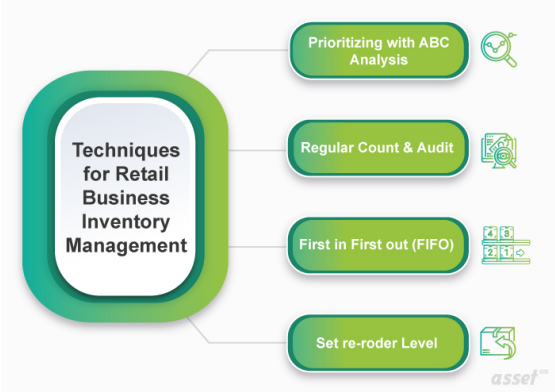
In recent years, the correct management of inventories has become a fundamental pillar for achieving success in enterprises. Unfortunately, studies suggesting the investment and adoption of advanced inventory management and control systems are not easy to find. In this context, this article aims to analyse and present an extensive literature concerning inventory management, containing multiple definitions and fundamental concepts for the retail sector. A systematic literature review was carried out to determine the main trends and indicators of inventory management in Small and Medium-sized Enterprises. This research covers five years, between 2015 and 2019, focusing specifically on the retail sector. The primary outcomes of this study are the leading inventory management systems and models, the Key Performance Indicators for their correct management, and the benefits and challenges for choosing or adopting an efficient inventory control and management system. Findings indicate that SMEs do not invest resources in sophisticated systems; instead, a simple Enterprise Resource Planning system or even programs such as Excel or manual inventories are mainly used.

Keywords:retail,management, inventories

INTRODUCTION

Nowadays, organisations, 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 characterised by the experience gained in their management could obtain over time. Therefore, the correct inventory management has become essential, especially in organisations dedicated to retail. The determination of the optimal inventory level is a fundamental part of the life of organisations due to the high investment that it represents at the time of its acquisition, administration, and maintenance. According to, "the role of inventory management is to ensure that stocks

of raw material or other supplies, i.e., work-in-progress and finished goods, are kept at levels that provide maximum service levels at minimum costs". This is because the realisable asset occupies a significant percentage within the Total Assets. Hence, its correct ordering and administration imply being able to minimise the risk of contracting results that may put the health of the company at risk.

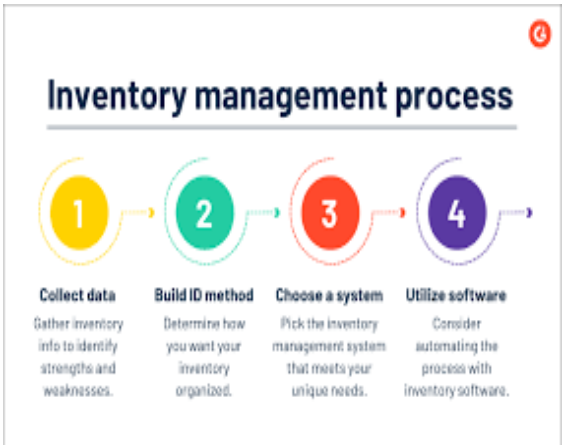


LITERATURE REVIEW

Based on the literature review, several results were obtained with the codes used. Within these codes are demographic data, such as year and country. In the results obtained between the years 2015 and 2019, it can be seen that studies have been increasingly carried out in such a way that, it is observed that 34.21% of the investigations were published during the year 2018 and 15.79% during the years 2015, 2016, and 2019. It is worth mentioning that during 2019 there is a reduction in publications since not all publications are covered due to the period in which this study is carried out.It is observed that 23.68% of studies were performed in the United States, being the year 2018 in which the majority of publications were made in this country,18.42% in the United Kingdom, and 15.79% in the Netherlands. Finally, countries with less number of reported studies are China, Hong Kong, India, Poland, Singapore,Switzerland, Taiwan, Vienna, and France, all with a contribution of 2.63%.On the other hand,the current tendencies in inventory management are primarily focused on developing tools that enable retailers, product location control, loss detection, stock management,cost reduction, and service level improvement.

To Accomplish These requirements, many studies have been developed over the past five years, whose findings can be categorised into three different approaches. The first approach refers to the tools, protocols, and systems which allow retailers to keep track of their inventory location as well as inventory loss. Examples of tools are RFID, RAIN RFID, Bar Codes,and systems based on previous devices

like a Smart shelf system. The second approach refers to algorithms and systems focused on inventory optimization. Trends aiming to find the optimization in inventory management include the Bayesian Estimation Method, Threshold Accepting and Differential Evolution algorithms, Logistic Information system, and Multi-Channel Distribution Centre system. Finally, the third approach focuses on determining the order quantity considering costsand inventory management. The main tendencies applied in retail industries are the IIS, EOQ, JRP,VMI,OEDistribution,Threshold Accepting,andDifferential Evolution algorithms, MDP, AUD and IQD policies,and Fuzzy Inventory Management method.



RESEARCH METHOD

Retail inventory management works by creating systems to log products, receive them into inventory, track changes when sales occur, manage the flow of goods from purchasing to final sale and check stock counts.

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.Regard 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 organisation to know the state of the stock, to be managed appropriately, and show an excellent service quality and product availability image to the customer. The importance of evaluating an inventory management system using indicators is reflected in the main advantages, i.e., the decrease in monetary loss, higher operating performance, and a higher profit rate.Overall, the evidence from this study suggests that order quantity, inventory localization, and optimization are the main factors in which the systems, methodologies, and tools are focused.

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