RETAIL STORE STOCK INVENTORY ANALYSIS

LITERATURE SURVEY

TEAM ID : PNT2022TMID23149

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Title: Inventory management for retail companies: A literature review and current trends

Author: Cinthya Vanessa Muñoz Macas, Mario Peña

Year: 2021

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 analyze 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 (SMEs). 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 (KPIs) 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 (ERP) system or even programs such as Excel or manual inventories are mainly used.

Title: Optimizing Inventory Replenishment and Shelf Space Management in Retail Stores

Author: Alyaa Abouali, Nermine Harraz, M. Nashat Fors

Year:2014

Abstract - The retail stores put up for sale multiple items while the spaces in the backroom and display areas constitute a scarce resource. Availability, volume, and location of the product displayed in the showroom influence the customer's demand. Managing these operations individually will result in sub-optimal overall retail store's profit; therefore, a non-linear integer programming model (NLIP) is developed to determine the inventory replenishment and shelf space allocation decisions that together maximize the retailer's profit under shelf space and backroom storage constraints taking into consideration that the demand rate is positively dependent on the amount and location of items displayed in the showroom. The developed model is solved using LINGO® software. The NLIP model is implemented in a real world case study in a large retail outlet providing a large variety of products. The proposed model is validated and shows logical results when using the experimental data collected from the market.

Title: A joint optimisation model for inventory replenishment, product assortment, shelf space and display area allocation decisions

Author: Abdulrahman Al-Ahmari,King Saud University
Abdel Rahman Hassan Mohamed,Najran University

Year: Aug 2007

Abstract: In this paper, we propose an optimisation model to determine the product assortment, inventory replenishment, display area and shelf space allocation decisions that jointly maximize the retailer's profit under shelf space and backroom storage constraints. The variety of products to be displayed in the retail store, their display locations within the store, their ordering quantities, and the allocated shelf space in each display area are considered as decision variables to be determined by the proposed integrated model. In the model formulation, we include the inventory investment costs, which are proportional to the average inventory, and storage and display costs as components of the inventory costs and make a clear distinction between showroom and backroom inventories. We also consider the effect of the display area location on the item demand. The developed model is a mixed integer nonlinear program that we solved using LINGO software. Numerical examples are used to illustrate the developed model.

Title: Retail Business Analytics in Store Execution

Author: Timothy.L.urban

Year: Feb 2002

Abstract: Acknowledges that the effect of displayed inventory on retail sales is widely recognized in the logistics, marketing and operations management literature and has been empirically verified. However, neither the marketing literature (shelf-space allocation models) nor the operations management literature (inventory control models) has appropriately modeled this effect. The displayed-inventory news-vendor problem is developed and analyzed, utilizing a simple model to illustrate the interdependencies between the inventory and space-allocation decisions. The model is then extended to the multi-item case, which can be incorporated as part of a comprehensive shelf-management system.

Title: Relationships between inventory, sales and service in a retail chain store operation

Authors: Chris Dubelaar, Deakin University
Garland Chow, University of British Columbia - Vancouver
Paul Larson, University of Manitoba

Year: Mar 2001

Abstract: Effective inventory management is critical to retailing success. Surprisingly, there is little published empirical research examining relationships between retail inventory, sales and customer service. Based on a survey of 101 chain store units, this paper develops and tests a series of hypotheses about retail inventory. Seventy-five percent of the store owners/managers responded to the mail survey. As expected, significant positive relationships were found between inventory, service and sales. Specifically, support was found for the theory that inventory is a function of the square root of sales. Also, greater product variety leads to higher inventory, and service level is an exponential function of inventory. Finally, demand uncertainty was found to have no apparent effect on inventory levels.