DATA ANALYTICS

Retail Store Stock Inventory Analysis

Author:Larissa Janssen, Jürgen Sauer, Thorsten Claus, Uwe Nehls

The food waste in grocery retail is a worldwide problem. Many mathematical inventory models for perishable items do not have a closing days constraint, although the age of perishable items also increases on closing days in grocery stores. We develop a new age-based inventory model with a closing days constraint. This stochastic multi-item inventory model includes total stock capacity constraints, a positive lead time, a periodic inventory control, a target customer service level and mixed FIFO and LIFO issuing policies for perishable items with a fixed lifetime under a non-stationary random demand. We show in a comparative simulation study under a rolling planning that the closing days constraint improves order decisions and reduces waste quantities and costs in grocery stores.

Author: Jasmine Kaur, Vernika Arora, Shivani Bali

A nexus of technological advances and an increasingly competitive environment of the retail industry has taken the phrase, "Customer is the King" to a new tangent altogether. It has been observed how combination of technologies along with analytical concepts of video analytics, social media analytics, wireless analytics and smart vision systems on marketing concepts like market basket model, value-based customer segmentation, campaign planning, etc. can impact the customer satisfaction and reduce the customer churn rate. An effective amalgamative implementation of these concepts will help enhance customer satisfaction and help the retailers gain an edge in the competitive market environment. The aim of this paper is to understand the technological advancements along with the impact of data analytics in the retail sector and to capture and retain maximum customers by conceptualizing effective merchandising and marketing strategies.

Authors: Gang, Kai & Bei

The importance and usage of Business intelligence technologies in the retail industry

The importance and usage of Business intelligence technologies in the retail industry The increase in data available due to the advent of automation, modern technologies and standards have made the decision-making process in business become complicated. The key technologies used in business intelligence are Data Warehouse, Online Analytical Processing (OLAP), Data Mining and Release & Express technology. The main applications of a BI system are profit analysis and KPI (Key Performance Indicators) Management, client service management and environmental analysis

Author: Roberta Sirovich, Giuseppe Craparotta, Elena Marocco

Artificial Intelligence for Fashion Industry in the Big Data Era

Retail stock allocation is crucial but challenging. The authors developed an innovative solution, successfully tested in the context of high-end fashion: collaboration between artificial intelligence and human intuition. Each week, stores are assigned a budget based on current stock levels versus potential sales, and offered to "spend" this budget with an initial data-driven recommendation on which SKU/sizes order and release. Each store manager is then given a time window, so she can modify the proposal while respecting budget constraints; and finally, the artificial intelligence optimally allocates available stock to requests based on the expected likelihood of sale minus cost of logistics, subject to management-defined constraints. Our test showed how this system outperformed the control group of stores, relying on a traditional head office-driven allocation without direct human input

Author: MD Imtiaz Uddin, Tanvir Ahmed, Redoyan Raz, AHM Saiful Islam

Global Journal of Computer Science and Technology

Data mining is one of the most essential tools for gathering information from different datasets in almost all recent industries. In this 21st-century, data mining gained attention because of its significance in decision making, and it has become a key component in various industries such as retail. Inventory

management requires pre-planned goals and attention to detail, and prioritizing items that require less attention can be a waste of time and resources. Learning indications about customers' shopping patterns by showing associations among various provides significant value in managing retail inventory.

Author: Garima Makkar

Data Management, Analytics and Innovation

Be it a retailer, producer, or supplier, the weather has a substantial effect on each one of them. Climate variability and weather patterns have become critical success factors in retail these days. As a matter of fact, weather forecasting has become a $3 billion business now. One of the main reason behind this surge is the capability of the forecasters to sell weather-related information to businesses who then strategize their various decisions regarding inventory, marketing, advertising, etc. accordingly. Hence only those retailers who stay "ahead of the game" will be able to enjoy huge sales while others who do not would face the consequences. Various studies regarding change in consumer behavior occurring due to the change in weather conditions have shown that even a degree change in temperature affects the store's traffic and reflect the growing importance of predictive analytics in this domain. However, these studies incorporate only the historical weather statistics into account. In this paper, we will propose our methodology for footfall analytics to see how the changes in weather conditions will impact the retail store's traffic and thereby retailing value chain, using real-time weather forecasts and footfall data.

Authors: Carmichael, Chen & Luo

Data-driven segmentation of customer behavior in the retail industry

The traditional marketing strategies are data-driven and include Business analytics to improve customer relevancy and efficiency. Customer segmentation has become an important part of marketing analytics because it allows the customers to be grouped based on their purchase behaviors, segment demographics, and behavioral evolvement. This segmentation is used to create tailored marketing campaigns based on the target customers to have

an idea of the effectiveness of a campaign for each segment. Gathering enough data to analyze it for each segment has been the main limitation here

Author: Geert-Jan van Houtum, Jan A Van Mieghem

Manufacturing & Service Operations Management

We present a reproducible, objective review of research trends using text mining and citations of papers published in Manufacturing & Service Operations Management during its first 20 years whose abstracts or keywords contain capacity or inventory. The review is followed by our subjective projections on future research opportunities.

Author: Neha Verma, Dheeraj Malhotra, Jatinder Singh

Journal of Management Analytics

Presently, retailing has changed its face from unordered stacked traditional stores to beautifully decorated and appropriately managed merchandise stores or shopping malls with excellent ambiance and comfort. Therefore, these stores try to accommodate all needed items for daily use or rarely required items under the same roof. However, the primary challenge for today's retailer is that the modern customer is quality and brands conscious as well as compare for services provided to them by different outlets at the comfort of home with a single click. Therefore, customers prefer to purchase from E-Commerce websites instead of physically visiting a retail store, which leads to the downfall in the sales of retailers which become a serious threat to them. Therefore, retailers are required to work sincerely towards their customer expectations by providing all their needed goods under the same roof.