

Retail Store Stock Inventory Analytics

Literature survey

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Abstract

The retail industry is becoming rigorously competitive and narrowly profitable that retailers find themselves in a dilemma of either excessive in-stock nor depleted out-of-stock is negotiable. This report investigates the answer to the question by providing a comprehensive evaluation of substantial inventory management models which are widely used by retailers throughout the history. Then it commences with the transformation that Big Data Analytics (BDA) made on inventory control. Results from literature review and inventory management practices show that BDA has made a great contribution to demand

forecast improvement and inventory diminution. In particular, the application of BDA has significantly enhanced the precision in demand forecast and the visibility in inventory tracking, which conjointly support the reduction in inventory level. The report articulates the core problem of inventory management is the trade-off between shortage cost and overage costs. Again, the performance frontier graph indicates a pragmatic solution is introducing innovative to shift the efficiency curve. In this context, that innovative is BDA. The report finds the prospects of integrating BDA in the conventional inventory management techniques and promoting the viability and appropriateness of these models in the big-data era. However, the limitations of BDA underlie data challenges, processing challenges and management challenges. Finally, the connection between BDA and tradition operation concepts is presented with insightful lessons from the personal perspective.

INTRODUCTION

In recent times, the employment of analytics in the all kinds of business sectors, especially the retail sector has proven to increase success in their daily operations. This project aims to prove that, in addition will identify what factors are actually contributing to this roaring success in the retail sector. Of course, the use of analytics in the business processes has its

own pros and cons, but majority of the organizations feel that the introduction of analytics in their business processes has made things easier for them.

Some of the drawbacks of using big data analytics in the retail sector has risen concerns among the customers as well the retailers. Privacy concern is one of them. Customers feel that their privacy are being snatched away when retailer track their location or store their purchase information for targeting them with personalized advertisements.

Although big data analytics help employees to fasten up their work, it also poses a high cost for managing such a huge amount of data. Software needed to sort and analyze these data are very expensive. On the other hand, requires skilled people to work with them. Data quality decreases because of automation of data gathering, sorting and analyzing them.

EXISTING SYSTEM

Inventory data management deals with large collections stock related data in the supply chain management environment. The frequency of data collection is very high in terms of stock volume. Content analysis management plays a vital role in managing the stock data in order to classify and cluster in terms managing the data. The process of data classification and clustering will keep track on the stock in order to fulfill the customer need on demand.

The inventory management with respect to supply chain management involves not only controlling the raw materials of stock as well the cost which is related to the stock in the supply chain environment. This process involves verifying the demand on stock by making use of the concept first in first out (FIFO) and last in first out (LIFO) techniques in order to verify the demand basis of end user which helps to control the wastages in stock in inventory Management.

The error rate and complexity of huge volume of data is very high. We need some techniques in order to prevent the issues which are directly related to the volume and variety of data in managing the stock information within an organization.

Cons OF EXISTING. SYSTEM

- As inventory management has numerous components, clear communication is vital for a seamless flow.
- Better access would improve the efficiency of inventory and other business processes.
- Warehouse management would be vulnerable to errors without integrated software. Inept warehouse management could lead to lost orders, delays in order fulfillment, and errors in shipment.
- Selling more than you can deliver could stain your business reputation for a long time.

REFERENCES

1. Retail Inventory Management When Records Are Inaccurate Nicole DeHoratius, Adam J. Mersereau, and Linus Schrage The University of Chicago Graduate School of Business 5807 South Woodlawn Ave., Chicago, IL 60637 @ChicagoGSB.edu November 10, 2005.

2. Inventory Record Inaccuracy: An Empirical Analysis Nicole De Horatius 1 and Ananth Raman 2 August 2004.

3. Retail Inventory Management with stock-out based dynamic demand substitution: Baris Tann, Selcuk Karabati College of Administrative Sciences and Economics, Koc-University, Rumeli Feneri Yolu, Sarıyer, 34450 Istanbul, Turkey.

4. Inventory Management of a Fast-Fashion Retail Network: Felipe Caro Jérémie Gallien † August 2, 2007.

Management of Multi-Item Retail Inventory Systems with Demand Substitution

Operations Research

48(1):50-64

February 2000

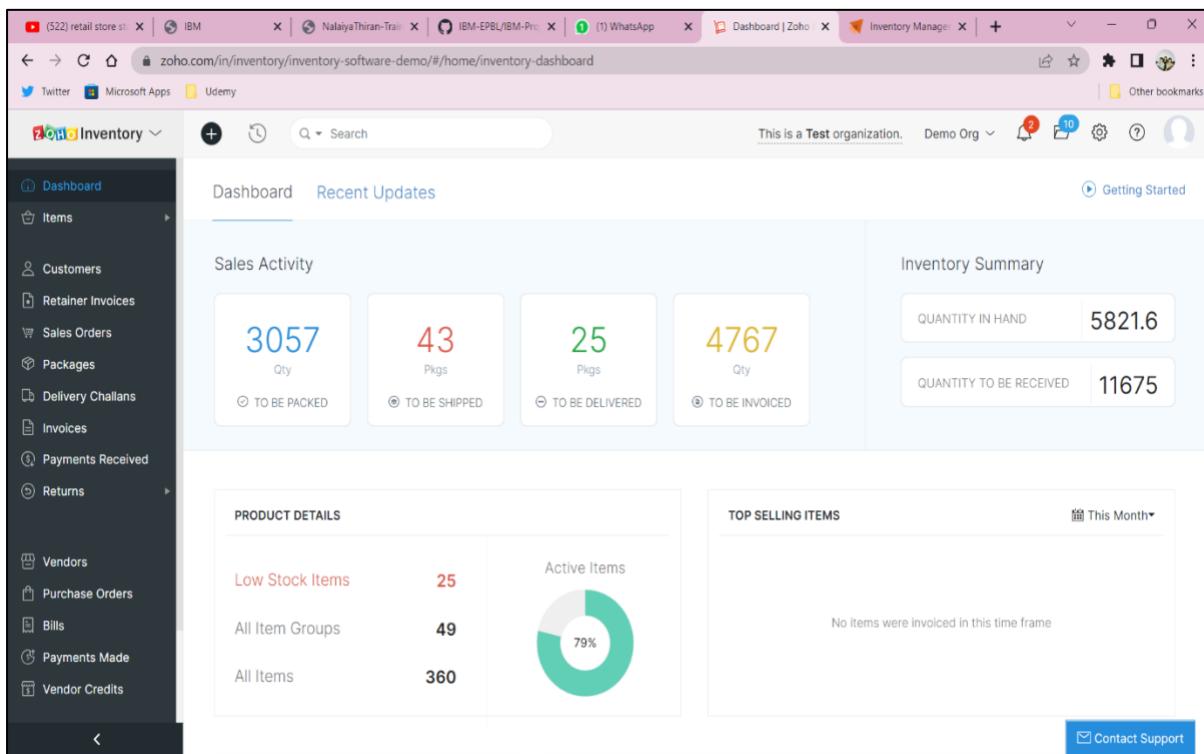
DOI:10.1287/opre.48.1.50.12443

Authors: Stephen A. Smith

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Smith, Stephen & Agrawal, Narendra. (2000). Management of Multi-Item Retail Inventory Systems with Demand Substitution. *Operations Research*. 48. 50-64.
10.1287/opre.48.1.50.12443.

This paper presents the problem of determining the optimal capacity of a storage system with respect to some specified criteria. It assumes that the storage system is subject to an input X and a release Y {1} at least one of which is a random variable following a known distribution function, so that the storage function Z is a stochastic process. The optimal capacity over a time horizon (0, T) is determined by maximizing the expected profit.



Stocking Retail Assortments Under Dynamic Consumer Substitution

Operations Research

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Authors: Siddharth Mahajan

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Mahajan, Siddharth & van Ryzin, Garrett. (2001). Stocking Retail Assortments under Dynamic Consumer Substitution. *Operations Research*. 49. 334-351.
10.1287/opre.49.3.334.11210.

Retail consumers might substitute if their initial choice is out of stock.
Retailer's inventory decisions should account for substitution effect
Consumers' final choice depends on what he/she sees available "on the shelf".
In most previous models demand is independent of inventory levels. Contribution of this paper: – Determination of initial inventory levels (single period) taking into account dynamic substitution effects