



Analysing inventory management system in e-commerce

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Abstract : Successful inventory management is essential to the operation of any online store. E-commerce companies, in contrast to traditional brick-and-mortar retailers, have particular difficulties in forecasting demand, handling a greater range of products, and guaranteeing effective fulfillment over potentially large geographic distances, effective inventory management is no longer a luxury but a necessity. This essay explores the difficulties associated with inventory management in the digital age, which is marked by erratic demand, a wide range of products, and a global presence. The study investigates how e-commerce companies can optimize their supply chains and reach ideal stock levels by putting a strong emphasis on a data-driven methodology. We look at methods such as data analytics-based demand forecasting, ABC categorization for inventory control prioritization, and the tactical application of safety stock and Just-in-Time (JIT) tactics. This essay examines the fundamentals of inventory management in e-commerce, the difficulties presented by the digital environment, and different approaches to reaching the ideal amounts of inventory

I. INTRODUCTION

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Retail has been changed by the rise of e-commerce, which provides customers with ease access to a greater selection of goods. However, good inventory management is essential for companies that operate in this changing market. Keeping an excessive amount of inventory can result in expensive storage expenses, obsolescence, and trouble adjusting to shifting market trends. As e-commerce grows, so does the difficulty of effectively managing inventories to satisfy consumer demand while cutting expenses and optimizing earning. Holding too much inventory can lead to high storage costs, obsolescence, and difficulty in adapting to changing market trends

Challenges of e-commerce inventory management

Inventory management systems have difficulty monitoring the location, accuracy, and shifting demand of their supply. This may result in inefficiencies such as late fulfillment, overstocking, or stockouts, which could eventually affect profits as a result of wasted resources and disgruntled clients.

3.1 Overselling and Overstocking Inventory

For operators of e-commerce stores, overstocking and overselling are the two biggest problems. Since they are managing the inventory by hand, it is challenging to keep track of these two. Bookings coming in from various channels are difficult to follow while managing all the metrics by hand. The likelihood of overpricing the item rises. After they have placed an order, no client likes to be informed that the product is out of stock. The client experience is impacted by such a circumstance. However, it's also not a good idea to overstock the product in order to prevent running out of it in the event that you oversell it. It's possible that you won't sell the majority of them at times.

3.2 Inadequate Technology

Managing several sales channels and warehouses would be quite problematic. Technology deficiency can cause shipping cycle disruptions, increase the risk of product spoiling, and cost a business money. Your clients will not be satisfied if you are unable to deliver sufficient service on time. A dissatisfied consumer might damage the reputation of your business. Sales figures are directly impacted by this issue.

3.3 Managing Multiple Channels & Warehouses Manually

In the early phases of your business, as an owner of an online store, you may just have one sales channel and one warehouse to hold all of your inventory. To handle the stockpiles, the ins and outs of products, and everything else, you can use spreadsheets or pen and paper. With time, you would most likely extend your sales channels in order to grow your business. Additionally, you would

need extra warehouses to satisfy demand as your sales rise. It will be challenging to handle if orders are coming in through several channels and things are being stored in several warehouses every day.

How much spreadsheet management experience do you have? Manually managing warehouses and sales channels becomes unfeasible as a business grows. It is unclear and causes misunderstanding. It may completely disrupt your supply chain. Additionally, it may result in a poor client experience, which can swiftly reduce sales.

3.4 lack of data insights

Gaining access to your inventory data is one thing; comprehending and utilizing it to its fullest potential is quite another.

For example, while knowing the current stock level of a certain item can be useful, understanding how that item's availability varies over time, between channels, between warehouses, and other factors is far more beneficial. Gaining deep insights into the data of your organization can help you identify e-commerce trends and seize possibilities that require quick action, among other advantages.

3.5 Recognizing and Tracking Obsolete Products

Certain products frequently become outdated after their demand declines noticeably. Sadly, these outdated products are frequently forgotten about until a need emerges and are left abandoned in warehouses. Inventory managers may order new products during certain periods, leaving the old stock unused and resulting in a loss.

Strategies for effective e-commerce inventory management

4.1 Demand forecasting

It's also sometimes called "demand planning" or "demand forecasting." Working out what you'll have, when you'll have it, what you'll need, when you'll need it, and so on makes a massive difference when it comes to inventory management. Good inventory forecasting can keep your supply chain running smoothly. Demand forecasting techniques play a critical role in inventory management. If you can accurately forecast market demand, you can take action to ensure you hold the correct stock to maximize sales and profit. However, producing an accurate inventory demand forecast is no mean feat. In this post, we uncover eight top demand forecasting techniques and best practice tips that you can't be without. Forecasting inventory can be as easy or as hard as you make it. As a simple rule, the more difficult your inventory forecasting techniques, the more accurate your predictions will be. Correct inventory forecastings allow you to efficiently serve customers' needs without investing capital in large amounts in stock, effectively helping you lower your overall operational costs. However, inventory forecasting can be challenging to undertake without the right guidance, so starting with basic forecasting techniques is advisable.

4.2 ABC ANALYSIS

It classifies inventory items into three categories based on their value and importance to the business: A (high-value items), B (medium-value items), and C (low-value items)

ABC Analysis can also be used to prioritize inventory items for reordering. By focusing on the A items, businesses can ensure that they are always stocked and that their stock levels are not too low. This helps to reduce the risk of stock outs and improve customer satisfaction

ABC Analysis is a popular inventory optimization technique used by businesses to prioritize inventory items. It helps businesses identify the items that are most and least valuable and focus on managing those items accordingly. ABC Analysis can be used in a variety of ways in inventory management.

For example, it can be used to prioritize inventory items for ordering. By focusing on the A items, businesses can ensure that they are always stocked and available. This helps to reduce stock outs and improve customer satisfaction.

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ABC Analysis can also be used to prioritize inventory items for replenishment.

4.3 Safety stock

Safety stock is an extra quantity of a product which is stored in the warehouse to prevent an out-of-stock situation. It serves as insurance against fluctuations in demand. Safety stock helps eliminate chances of running out of stock. If you hold sufficient safety stock, you needn't rely on your suppliers to deliver quickly or turn away customers because of depleted inventory levels. Safety stock is important for your business as it can protect you against demand spikes, sudden surges, and inaccurate market forecasts that can happen during busy or festive seasons. It serves as a cushion when the products you've ordered take longer to reach your warehouse than you expected. It can also prevent price fluctuations, which can be due to a sudden scarcity of raw materials, an increase in price of raw materials, unexpected demand surges in the market, new competitors, or new government policies.

4.4 Just in time inventory management

Just-in-time, or JIT, is an inventory management method in which goods are received from suppliers only as they are needed. The main objective of this method is to reduce inventory holding costs and increase inventory turnover. Goods are received in the exact amount of inventory they need, right when they need it. This strategy solves the common commerce issue of overspending on materials that are not yet needed. Let me use an example to explain how it works, let's say a computer manufacturer previously used historical data to estimate the amount of stock needed for a new quarter. Using traditional methods, they may overestimate the amount of materials needed and end up overspending. But with JIT inventory, materials are only ordered when they're needed.

4.5 Drop shipping

Dropshipping is a retail model that allows business owners to sell products without holding any physical inventory. Instead, the seller maintains a storefront and acts as a middleman between the customer and the supplier. When your customer places an order, you simply forward the order to your supplier, who will then deliver the product to your customer directly. This means you don't have to worry about inventory-related tasks, and instead work on more important aspects of your business like bringing in new customers. As a retailer, you purchase goods from a supplier and advertise them through your e-commerce website, or your eBay or Amazon store. When a customer places an order, it's your dropshipping partner who packages and ships the product directly to the customer. The advantages of this model are plenty, easy setup and its low cost comes first. With dropshipping, you don't need to manufacture, store, or deliver products to customers. This means you don't have to invest in a warehouse to store products, hire staff to run operations, or employ vehicles and staff to deliver your products. You can use all this saved capital to invest in building your brand and customer base. All you need is a computer and an internet connection. Geographic advantages also allow you to take orders from anywhere.

Benefits of the IMS in e-commerce

5.1 Cost reduction

Costs are minimized with a highly integrated inventory management system. Costs like repetitive costs, additional costs and external audits. With integrated management systems, your business may maximize resources and processes and conduct thorough audits and reviews. You can reduce the time it takes to do specific operations, prevent disruptions, and ultimately save costs by integrating these solutions. Also costs like employee wages, transport and insurance are cut.

5.2 Better customer services

Approximately 60% of customers are pushed away by overpriced goods on e-commerce platforms. Having a crystal-clear presentation of your inventory, making sure that no overselling and thus, satisfied customers. Plus by monitoring the amount of product inventory that gets shipped and what's left behind you can track your customers' preferences. Providing a positive online shopping experience to your clients is essential if you want to succeed in the cutthroat e-commerce market of today. Satisfied customers are more likely to repurchase, and positive word-of-mouth marketing and reviews can help you boost conversion rates. Effective inventory management enables the timely and precise processing of intricate customer orders.

5.3 An improved business plan

Using an in-house inventory management strategy can help you get the business insights required to scale your business or improve operations further for easy business analytics. Implementing features like barcode scanning and using a central data warehouse enables you to easily transfer data and monitor the happenings of your business. It helps with certain questions which can improve your business like what do customers want and expect from you, and what makes your business better.

5.4 Improves accuracy

Real-time inventory tracking helps you improve inventory management and ensures that you have optimal stock available to fulfill orders. However, for most retail businesses, the inventory accuracy is merely approximately 56%. With accurate inventory tracking, you can eliminate over-stocking, and in turn, reduce the cost and manual efforts required in holding it.

5.5 Saves Time

You can automate your inventory management process to save and optimize the pick-pack process by leveraging robotics and AI. As you automate these tasks, you provide employees with ample time to work on more important tasks and devise strategies for business growth.

Conclusion

6.1 Summary

Summary: Effective inventory management is crucial for e-commerce businesses' success. This enhances customer satisfaction, operational efficiency, and financial performance.

Recommendations: E-commerce companies should adopt integrated inventory management systems, leverage technologies, and build strong supplier relationships. Embracing sustainable practices and staying abreast of emerging trends will further improve inventory control.

Future Research: Further studies on the impact of emerging technologies, such as blockchain, on inventory management and the development of more advanced predictive models.

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