

Ideation Phase

Literature Survey

Date	1 October 2022
Team ID	PNT2022TMID39206
Project Name	Inventory Management System for Retailers

1. Problem Statement:

To create an inventory management system that will allow retailers to satisfy demand from customers without running out of inventory or holding too much on hand.

2. Need for the application:

Products are regarded as the company's business resources. This involves handling the product in a proper manner so that it may be reviewed as necessary. The existing method is manual, requiring users to keep ledgers, books, etc. to record data on suppliers, inward shipments, deliveries, and returns of goods. Historical data maintenance is quite challenging. Estimating the need for additional raw materials, dealing with the creation of purchase orders, purchase invoices, sales invoices, and debit notes are some of the crucial business procedures. A group of competent workers who are quick with financial computations and have a good memory do all of these tasks. Although the activities are managed effectively, the process takes a long time and is prone to human mistake. A computer-based IMS (Inventory Management System) that can produce reports, keep track of the stock balance, and provide information on purchases and sales made by the company is therefore essential. A big retail business could run out of an essential item if the inventory isn't controlled properly. The wholesaler will be informed when it is time to record by a reliable inventory management system. Automatically tracking large shipments requires the use of an inventory management system. Stock recording mistakes are decreased with an automated inventory management system. Effective retail inventory management really reduces costs and improves knowledge of sales patterns. Tools and techniques for retail inventory management provide merchants with additional data to manage their companies.

3. Literature survey:

1) Paper name:

Inventory Management System

Author name:

Sahari, Salawati, Tinggi, Michael & Kadri, Norlina.

Published year:

2012 (Jan)

Abstract:

Raw materials, products still during production, and fully produced commodities are all regarded to be inventories, which make up the percentage of a company's assets that are currently or soon will be available for sale. One of an industry's top priorities is creating an appropriate inventory model. The earliest scientific studies on inventory control were conducted in the second decade of the 20th century. Nevertheless, there is still a lot of interest in this field of science today. Once again taking the credibility is a crucial component of the research efforts for any process. Some factors' values are extremely difficult to define or nearly unreal in these circumstances, fuzzy inventory management models assume a key location. This study examines potential inventory control model parameters that are already in use. With a focus on descriptions of the traits and varieties of inventory control models that have been established, an attempt is made to offer a current evaluation of the body of literature.

Methods / implementation technique:

- Handle sales, purchase, and stock balance information
- Manage Stock
- Takes care of any production organization's daily demands.

Limitation:

- Produce easy reports.
- Only one admin panel.
- A little producing company.

2) Paper name:

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

Author name:

Panigrahi, Ashok K.

Published year:

2013(March)

Abstract:

A great business management strategy must include effective inventory management. Inventory is a crucial component of current assets, particularly in industrial companies. Huge sums are invested in stocks to maintain a steady flow of manufacturing to satisfy customer demand. In addition to opportunity costs, holding or carrying costs are also involved in inventory maintenance. Maintaining inventory at a desirable level with an effective inventory management system assures continued output. By not hoarding the commodity, it also reduces capital expenditure and inventory expenditures. A productive and efficient inventory. Along with capital intensity, I experimentally analysed the connection between inventory management and company performance. They selected 82 Malaysian construction enterprises from the years 2006 to 2010 as a sample for their study. They came to the conclusion that inventory management is favourably connected with company performance using the regression and correlation analysis methodologies. The findings also suggest a favourable relationship between inventory control and capital intensity.

Methods / implementation technique:

This research proposes that order quantity, inventory localization, and optimization are the main concerns of the systems, techniques, and tools.

Limitation:

It is crucial to note that owing to their high installation and maintenance costs, not all shops may be able to use these technologies. This seems to be major setback for this technique.

3) Paper name:

Inventory management and firm performance along with capital intensity.

Author name:

Soni, Anita.

Published year:

2013(June)

Abstract:

An in-depth examination of inventory management procedures used in Punjab's engineering products sector the investigation was conducted utilising a panel data set and a sample of 11 firms during a five-year period, from 2004 to 2009. The success of an industry is determined on the appropriate and prompt flow of inventories. She came to the conclusion that while current assets and net working capital expanded throughout the time, inventory size only slightly did so. Half of the working capital was made up of inventories, which were overstocked as a result of low inventory turnover, particularly for completed items and raw materials. Increased sales and favourable market circumstances caused inventory levels to grow. Additionally, it was implied that sales rose faster than inventories.

Methods / implementation technique:

To determine the ideal quantity of goods to order at a certain period. Based on the scale of the project, the kind of structure, and the current management principles, research inventory management solutions in the construction sectors.

Limitations:

For our merchant, creating backup data is a crucial step in a project. Therefore, when there is a lot of editing, the processing time might cause us to lose control.

4) Paper name:

Inventory Management System.

Author name:

Madishetti, Srinivas & Kibona, Deogratias.

Published year:

2013(Jan - May)

Abstract:

On "Inventory Management in the Commercial Vehicle Industry in India," analytical research was undertaken. For the study, a sample of five businesses was chosen. The analysis found a strong correlation between inventory and sales for all of the commercial vehicle industry's units. An organization's health must be maintained and improved through effective inventory management. The profitability of the company will increase with effective inventory management.

Methods / implementation technique:

- They must offer fundamental services pertaining to the provision of replacement parts in order to keep their PRE-SO.
- Details of the (Supply Order) and POST-SO.
- Regardless of the software engineering paradigm, software is developed in the technical centre of the process.

Limitations:

Manual data entry mistakes cannot be reviewed; only the validation necessary in connection to the proposed system may be checked. SQL Server is the database utilised, and each database has a stack limit.

Benefits:

1. It helps to maintain the right amount of stocks: [7]contrary to the belief that is held by some people, inventory management does not seek to reduce the amount of inventory that you have in stock, however, it seeks to maintain an equilibrium point where your inventory is working at a maximum efficiency and you do not have to have many stocks or too few stocks at hand at any particular point in time. The goal is to find that zone where you are never losing money in your inventory in either direction. With the aid of an efficient inventory management strategy, it is easy to improve the accuracy of inventory order.

2. It leads to a more organized warehouse: with the aid of a good inventory management system, you can easily organize your warehouse. If your warehouse is not organized, you will find it very difficult to manage your inventory. A lot of businesses choose to optimize their warehouse by putting the items that have the highest sales together in a place that is easy to access in the warehouse. This ultimately helps to speed up order fulfilment and keeps clients happy.
3. It saves time and money: an effective inventory management system can translate to time and money saved on the part of the business. By keeping track of the product that you already have at hand, you can save yourself the hassles of having to do an inventory recount in order to ensure your records are accurate. It also allows you to save cash that would have otherwise been spent on slow moving products.
4. Improves efficiency and productivity: inventory management devices like bar code scanners and inventory management software can help to greatly increase the efficiency and productivity of a business. They do this by eliminating the manual way of doing things thus allowing employees to do other more important things for the business.
5. A well-structured inventory management system leads to improved customer retention: for customers to keep patronizing you, you will need to always have the goods they want, at the amount they want, and at the time they want it. Inventory management helps you to meet up this demand by allowing you to have the right products all the times so that you and your customers are never stranded.
6. Avoid lawsuits and regulatory fines: like mentioned previously, inventory management allows you to keep your warehouse or facility in order. If it is not kept in order, it can result in lawsuits, injury and fines associated with not following regulatory guidelines and rules. In addition, proper inventory management (Including keeping records of your staff activities) helps document your actions in the event of an undesirable situation.
7. Schedule maintenance: once you get hold of a new appliance, you can begin to schedule routine and preventative maintenance, issue work order to your staff and track that the maintenance was actually carried out. This will help to elongate the life span of that particular asset.
8. Reduction in holding costs: yet another benefit of an efficient management system is that it helps to save on inventory cost. These types of cost can be large and can be detrimental to a healthy profit margin. These types of costs are financing costs, warehouse rent, warehouse staff salaries, electricity bills, security et al. The key to keeping these costs in check is to have only the amount of

inventory that you need at a particular time. With an inventory management program that assists you to make good forecasts, you can avoid over stocking and thus over pay on holding costs. Furthermore, having confidence in your forecast will mean that you will not have to hold a lot of “safety stock”.

9. Flexibility: a good inventory management strategy will allow the manager to be flexible and adapt to situations as they arise. The business world is dynamic and often unpredictable, and the same can also be said for inventory management. There is a plethora of problems that could come up such as incorrect shipments, warehouse accidents, manufacturing issues, theft et al. It is usually not possible to foresee or predict with certainty when they could happen, but if they happen, the best-case scenario will be for the manager to know at once so that he or she can rectify the issue.

10. Increased information transparency: a good inventory management helps to keep the flow of information transparent. This information includes when items were received, picked, packed, shipped, manufactured et al. You also get to know when you need to order more of any good, when you have too much stock or too little stock.

Challenges:

1. Bureaucracy: even though inventory management allows employees at every level of the company to read and manipulate company stock and product inventory, the infrastructure required to build such a system adds a layer of bureaucracy to the whole process and the business in general. In instances where inventory control is in-house, this includes the number of new hires that are not present to regulate the warehouse and facilitate transactions. In instances where the inventory management is in the hands of a third party, the cost is a subscription price and a dependence on another separate company to manage its infrastructure. No matter the choice you go for, it translates to a higher overhead cost and more layers of management between the owner and the customer. From the view point of the customer, a problem that requires senior management to handle will take a longer period of time before it will be trashed out.

2. Impersonal touch: another disadvantage of inventory management is a lack of personal touch. Large supply chain management systems make products more accessible across the globe and most provide customer service support in case of difficulty, but the increase in infrastructure can often mean a decrease in the personal touch that helps a company to stand out above the rest. For instance, the sales manager of a small manufacturing company that sells plumbing supplies to local plumbers can throw in an extra box of washers or elbows at no charge to the

customer without raising any alarms. This is done for the sake of customer relations and often makes the customer feel like he is special. While free materials can also be provided under inventory management, processing time and paper work make obtaining the material feel more like a chore for the customer or even an entitlement.

3. Production problem: even though inventory management can reveal to you the amount of stock you have at hand and the amount that you have sold off, it can also hide production problems that could lead to customer service disasters. Since the management places almost all of its focus on inventory management to the detriment of quality control, broken or incorrect items that would normally be discarded are shipped along with wholesome items.

4. Increased space is need to hold the inventory: in order to hold inventory, you will need to have space unless the goods you deal in are really small in size, then you will need a warehouse to store it. In addition, you will also need to buy shelves and racks to store your goods, forklifts to move around the stock and of course staff. The optimum level of inventory for a business could still be a lot of goods and they will need space to be stored in and in some cases additional operational costs to manage the inventory. This will in turn increase cost and impact negatively on the amount of profit the business makes.

5. Complexity: some methods and strategies of inventory management can be relatively complex and difficult to understand on the part of the staff. This may result in the need for employees to Undergo training in order to grasp how the system works.

6. Some inventory management systems such as the fixed order period system compels a periodic review of all items. This itself makes the system a bit inefficient.

7. High implementation costs: some inventory management systems can come at a high price because the business needs to install specialized systems and software in order to use them. This can be problematic for large businesses which operate in difficult locations. Even after installing the costly system, it still needs to be maintained and upgraded on a regular basis, thus incurring more costs.

8. Even with an efficient inventory management method, you can control but not eliminate business risk.

9. The control of inventory is complex because of the many functions it performs. It should thus be

Viewed as a shared responsibility.

10. Holding inventory can result to a greater risk of loss to devaluation (changes in price).

Conclusion:

This article describes an inventory control system that keeps track of sales information for a particular desktop application. Information may be updated and verified at the shop using this straightforward desktop programme, which connects to the real distribution centre. It is a safe programme that guards against data corruption while being stored in the warehouse. On a daily, weekly, and monthly basis, it also gives sales data. Inventory management is simple using this system. The inventory management system will lead to increased revenue and profitability, a better working environment for employees, and an overall rise in customer happiness.

Reference:

- [1] Sahari, Salawati, Tinggi, Michael & Kadri, Norlina. (2012 firms: Impact on performance. *SIU Journal of Management*, vol.2,iss.1, pp.59–72.). Inventory management in Malaysian construction.
- [2] Panigrahi, Ashok K. (2013). Relationship between inventory management and profitability: An empirical analysis of Indian cement companies. *Asia Pacific Journal of Marketing & Management Review*, vol.2,iss.7, pp.107–120.
- [3] Soni, Anita. (2012). Inventory management of engineering goods industry in Punjab: An Empirical analysis. *International Journal of Multidisciplinary Research*, vol.2,iss.2, pp.247–261
- [4] Madishetti, Srinivas & Kibona, Deogratias. (2013). Impact of inventory management on the Profitability of SMEs in Tanzania. *International Journal of Research in Commerce & Management*, vol.4,iss.2, pp.1–6.