

## Case Study of Inventory Management using ERP system

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### Abstract

Inventory management systems are incredibly valuable to business owners because they allow stores to keep track of sales and purchases. Mismanaged inventory results in dissatisfied customers, slower sales, excess cash on hand, and warehouses. While speeding up the process, this inventory system reduces manual labour, human error, and manual delays. This inventory management system will be able to keep track of both sales and inventory. The Inventory Management System is an online application for Windows that manages inventory and sales clearance. It was designed to work with Windows-based operating systems. A variety of features are included in the inventory management system. This web application includes logical tools for determining ideal inventory levels and automatically identifying appropriate replenishment tactics. It also contains features that allow it to detect stock levels, calculate reorder points automatically, and alert users to imminent stock-outs. By avoiding delays, this strategy eliminates the risk of stock-outs of fast-moving commodities.

**Keywords:** Inventory Management, track sales, sales clearance, time saving, warehouse, stock-outs.

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### I. INTRODUCTION

Any item or resource used in an organization's inventory is known as inventory. Raw materials, work in progress, and finished goods are the three categories of manufacturing inventories (Fig. 1). There are various reasons why a competent inventory management system is required:

- To satisfy expected demand.
- To make certain that production requirements are met.
- To avoid running out of stock.
- To take advantage of order cycles.
- To hedge against price hikes or to take advantage of quantity discounts.
- To allow operations.
- To separate production-distribution system components



**Figure 1. Categories of Manufacturing Inventories**

Otherwise, production delays, shortages, and/or dissatisfied consumers will result. Inventory management is a contradiction in that it is necessary to have inventory, but it is not ideal to have inventory owing to inventory maintaining costs. As a result of this condition, inventory management is a difficult challenge to solve in supply chain management.

This article investigates ERP inventory management and how it may be used to create an inventory management system.

### II. OBJECTIVE

- Accurate Stock Status: Have accurate stock status available at any time, for raw material, components, and finished goods.
- Scientific production planning based on available Machine and Labor and the sales orders on hand.
- Monitor and Manage Machine Load: To be able to check the load on any machine at any time so that

decision can be taken to run additional shift if necessary to meet the customer delivery commitment.

- MRP: The solution should provide Material Requirement Plan (MRP) which will tell when to purchase the material to be able to meet customer demand.
- Finished Product Costing: The ability to compute an item's production cost as well as the production order. This will allow management to set proper sales prices and reduce the danger of losing orders due to overpricing or losing money due to underpricing.

### **III. LITERATURE REVIEW**

- This paper talks about the control measures taken by Brake manufacturing companies with the help of ABC analysis. It studies the steps taken by the company during the period of 2016 and 2017. Because of the proper forecasting there were increase in sales by at least 26 %. The ABC analysis found what class items the company needs to constitute for its fast-moving goods to keep control over the inventory to forecast for the demand.[1]
- The paper uses company's data on sales; inventories for the period of 2014 to discuss about the various methods the organization can apply to improve the sales of their products. The paper conducts two experiments to find the effect of the methods on its inventory and how it can improve the Inventory Management of the corporation. It concludes that, twofold improvement is proposed – to use inventory management with the aim to decrease company's inventory level and holding costs by avoiding overstocks and to apply the agent system to automate the inventory management processes and to timely react to demand deviations from the forecasted demand by making corrections in replenishment policies. [2]
- The paper studies the Inventory management of company called Linamar India Pvt. Ltd, Pune. The primary data collected by the finance executive and secondary data are used to study the effect of various techniques. It suggests that the company should use JIT (Just in Time) technique to reduce the inventory holding cost in the organization. In the conclusion it tells us that inventory turnover is showing is also showing an increasing trend which indicates that sales of the organization are increasing every year.[3]
- This is research paper discusses the alarm about the information section in the bill which in view of desktop application. It uses an example of straightforward desktop application and how the user can have knowledge about the stock level for his inventory beforehand. [4]
- The paper conducts two from of mathematical calculation based on ABC analysis and VED analysis for study purposes. The data is collected from a small steel industry and for in depth study of issue and sensitivity of variables a discussion with heads of the companies is done to keep the result approximately correct. [5]
- According to this analysis of inventory management literature published in major logistics journals, logistics scholars have contributed significantly to the vast corpus of inventory management knowledge. The literature has largely focused on two important themes: (1) incorporating traditional logistical tasks into inventory control models, and (2) collaborative inventory management. [6]

### **IV. PROBLEMS IDENTIFICATION**

- Proper item list does not exist.
- The item has not been coded.
- There is a lack of consistency in the item descriptions. As a result, you won't be able to sort by description to find duplicates.
- The excel sheet is not properly structured, hence cannot be used for any kind of processing.
- Material Receipts are not recorded in the system. Only the purchase invoice is recorded in the financial system for accounting and payable's purpose. So stock is not updated.
- No production order document is prepared to track the production order and the material consumption for the production.
- When material is issued for consumption by manufacturing dept, it is not recorded. Because of this stock is not being updated and the cost of production of that production order and the item cannot be determined. This also opens opportunity for misappropriation wastage and theft.
- Stock of components and their issue for manufacturing finished goods is not tracked. This leads to delay in completing production thereby delaying delivery to customer.
- There is no scientific production planning happening, considering the available machines, labour, and material.
- Because accurate cost of production cannot be determined, the company may lose business because of over quoting or may incur losses because of under quoting.

- There is shortage of staff. The production supervisor is too busy with supervising the production process. He does not have much time for production planning and inventory control. He needs an assistant to help him with production planning and inventory control.

## V. METHODOLOGY ADOPTED

### V.1 Master Data Preparation and cleanup

I. Prepared clean Items List in excel:

- Standardized Items description. The description of similar items differing only in size will begin with standard description followed by the size at the end
- Created Material Codes. Created item codes for Materials. For pipes here units of measure have been created.
- PC (for purchase)
- Meters (for BOM)
- KG (for purchasing)
- Created Material codes for components what are prefabricated.
- Categorized items into Raw materials, Components, Finished Goods

II. Created Bill of Materials for Components and Finished Goods.

### V.2 ERP software Identified

To meet the set objectives of the projects an ERP Application was required which is well known.

Three vendor products were identified,

- SAP
- Oracle
- Microsoft

## VI. PROPOSED SYSTEM

The Proposed system can be as following

a) Sales Process: The sales Process Can be shown in Fig. 2

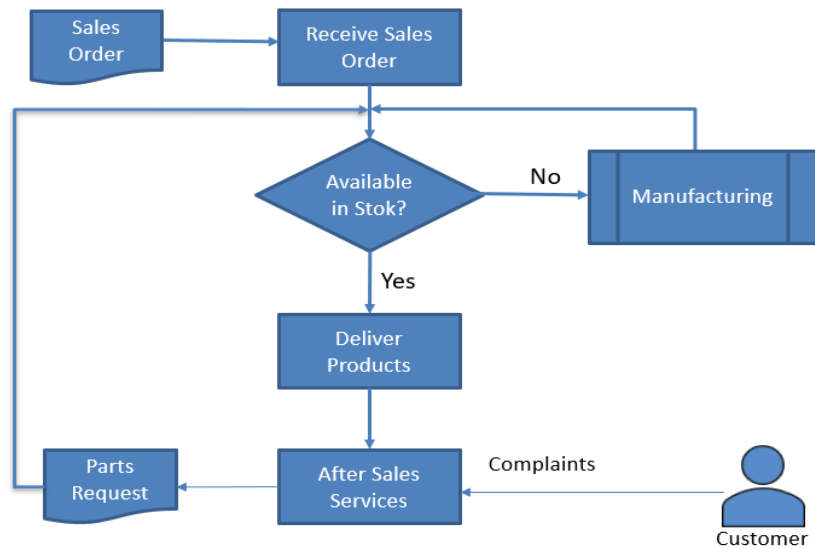


Figure 2. Sale Process Chart

b) Production planning: The Production planning follows the steps as shown in Fig. 3

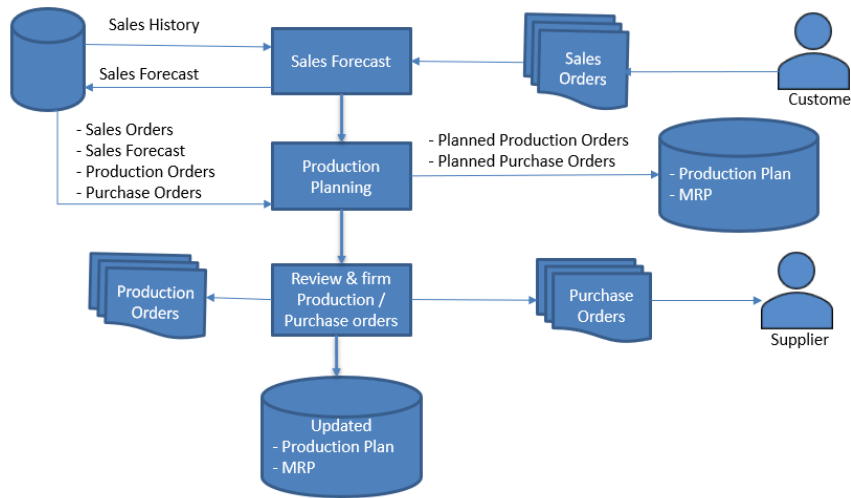


Figure 3. Production planning process

c) Manufacturing Process: The Manufacturing Process is the final phase of the system

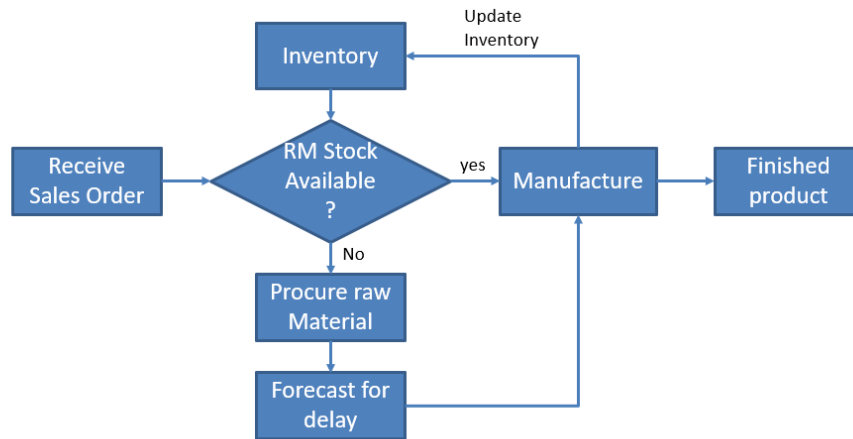


Figure 4. Manufacturing process

## VII. CONCLUSION

ERP systems use a range of data sources to assist businesses better analyses the performance of different SKUs, among other things. Organizations utilize this information to make better educated buying decisions and more accurate forecasts in order to fulfil future demand without overstocking.

Inventory management powered by ERP improves supply chain efficiency as well. It can reduce double-handling of commodities and automate daily chores like reordering as a centralized system.

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