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# Relationship Between Inventory Management System and Company Performances

Bibhuti Bhusan Pradhan

***Abstract:*** *Inventory management system is software that helps hardware stores in companies, where store owners keep records of sales and acquisitions. Inventory management is a complex problem area for the management of the supply chain. In order to meet the customer demand, businesses need to have inventories to warehouses, while these inventories have holding costs which can be incurred by the frozen funds. The task of inventory management is, therefore, to determine the quantity of stocks that meets the demands, thereby preventing excess stocks. Inventory mismanagement means disappointed customers, excessive cash in warehouses and slower sales. This project removes the paperwork, human error, manual delay and the process is accelerated. Inventory Management Systems is an application designed for Windows operating systems that is based on the Inventory management area which produces the needed reports. Inventory Management Systems are able to track purchases and usable stock, tell a customer when it is time to reorder and how much to buy. Based on the inventory days and return of asset (ROA) analysis, the relationship between inventory management and company performance was estimated.*

***Keywords:*** *Company performance, Frozen funds, Inventory management system, Return of asset (ROA), Windows operating systems.*

## I. INTRODUCTION

Inventory is the supply of raw materials, partially finished products, which the organization maintains in order to satisfy its operational needs, known as progressive and finished goods. Inventory is characterized as an inventory of products that is kept for future demand by a corporation. The sum to which the stock is to fall to mean that an order needs to be placed to fill up an item.

Through expanding the traditional stock-dependent demand model, the goods that need early refilling are conveniently described. The optimum cycle time is largely dependent on the traditional trade between purchasing and holding expenses, while the reorder point involves a cost-benefit promotional viewpoint. The optimal approach provides substantially greater benefits than cost-based inventory strategies, which emphasize the importance of profit-oriented inventory management. Aggressive inventory management, consolidation of supply chain processes and updating performance to the perfect standard will help to achieve optimal order metrics [1].

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If statistics are to be revised, this would include cases sent vs. delivery of order in time, coordination of data, losses and unusable goods, delivery dates, order time period, and service quality.

Too large or too small amounts of inventory issues can lead to business failures. When a company has a critical stock item stored, production stops may result. The management of the inventory demonstrates the broad structure of inventory management [2]. The stock management methodology allows us to measure the optimal inventory level and to find solutions to security stock and lead time problems. Inventory management in most corporate entities has become highly developed to tackle the growing challenges, which reflects the fact that inventory is one distinct entity. Figure 1 shows the production of raw material into finished products.

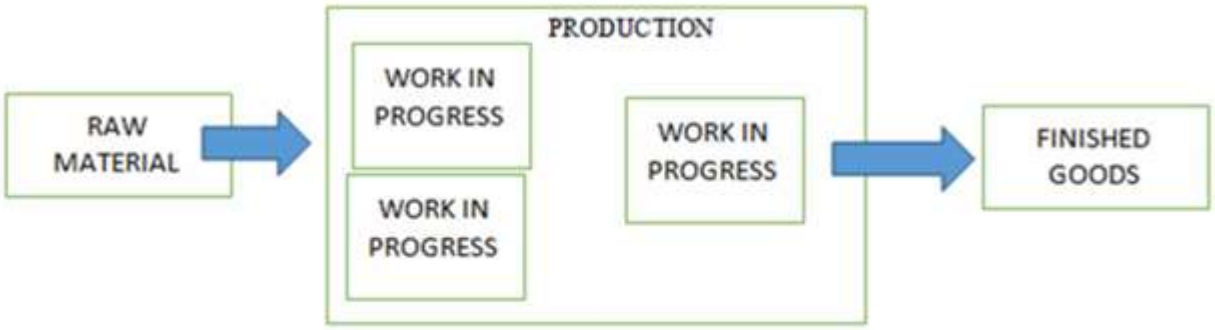


**Fig.1: Flow chart representation showing production of raw material into finished goods.**

For contrast with larger companies that have more physical space, for smaller companies items can go directly into the warehouse rather than into the receiving place, and the goods can be finished products rather than materials or parts if the company is a wholesale distributor. The goods are removed from the warehouse and shipped to the manufacturing plants in which the goods are produced. Inventory management uses a variety of data to track the items during the transit of the process, including several numbers, serial names, product prices, the volume of the goods and their date of transfer. The inventory management uses a number of data, including lot numbers and serial numbers [3]. About 60% of the cash in an undertaking is allocated to the stock. Material Management is identified in order to coordinate and schedule the creation movement in an integrative way for a mechanical undertaking, by arranging, securing, putting away and supplying the appropriate material, of right quality and right amount in the right place. Stock Management is primarily an association's process of buying, storage and production of goods and businesses which it must fulfill its goals. Techniques of stock management are crucial in monitoring and managing inventories of organizations [4]. Continuous business activities must be quantified in a timely and precise manner as stocks are routinely one of the main current resources on the accounting report of a company. Stock is an offshoot for products and materials or for those goods and products which are kept in stock by a company. The stock of bookkeeping is regarded as a benefit. Accounting for the customary and arranged course of generation against an arbitrary disturbing effect of material or merchandise is required in various areas within an office or within different areas of a delivery system [5].

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***I.I. Task Definition*:**

The management of stocks is not the new feature, but not all companies are using it to cut supply costs [6]. The inventory management job is to find out, how and when to order [7]. The purpose of the research is to assemble and sell microchips from raw material to consumers within the organization. Raw materials and finished goods warehouses are therefore available with inventories (figure 2).

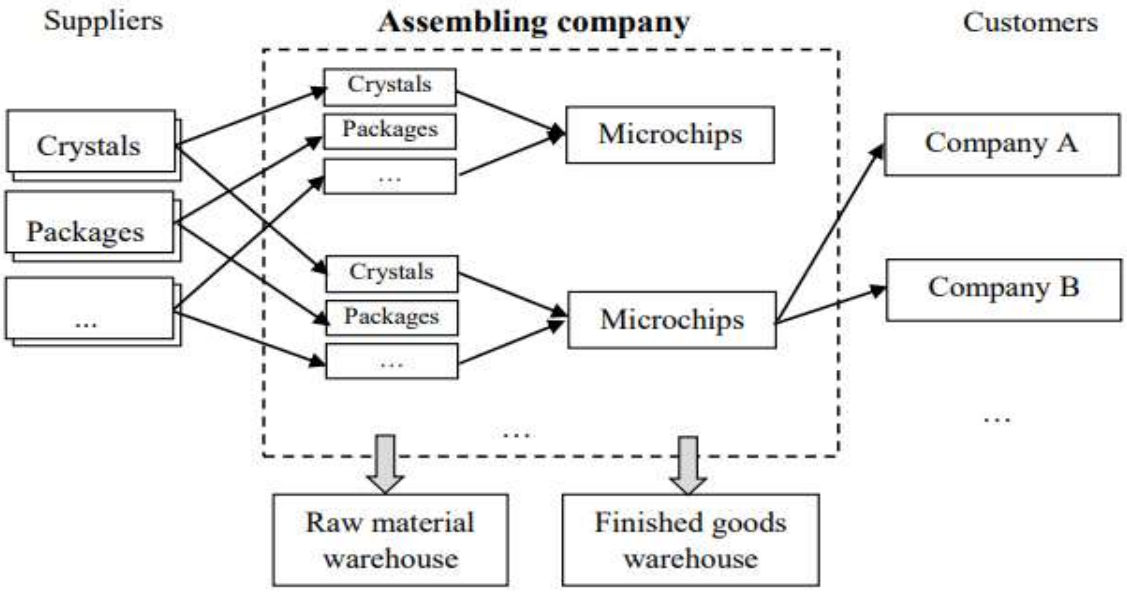


**Fig.2: Assembling company's inventories.**

According to the researchers, only 8% of companies have trained inventory management staff. To order to meet the demand, businesses are used to having a large security stock.

***I.II. Data Analysis:***

Statistics on sales and warehouse assets of the company have been evaluated for 2014. The study of the fluctuation in the quantity of the microchips in the previous year found that in 2014 there were no products in stock. The findings on these things were as follows: 16.69% of the total inventory in warehouses (end of 2014), 3.95% of the total inventory was decreased due to time limit, 5.13% of the total stocks which had not been sold for 2014 increased by production of new stock. There were also products with an amount produced greater than those sold, while a large quantity was stored in stock (figure 3). In the meantime the company had purchased a new stock and the inventory level was thus higher than the annual sales volume at the end of 2014.

The inventory levels were also found to be too high for items, which were below the level of their safety stock on monthly sales (figure 4).

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Furthermore, a level of inventory for one object was found to drop to zero, which revealed a condition outside of the stock. Inventory management for this company was therefore highly recommended.

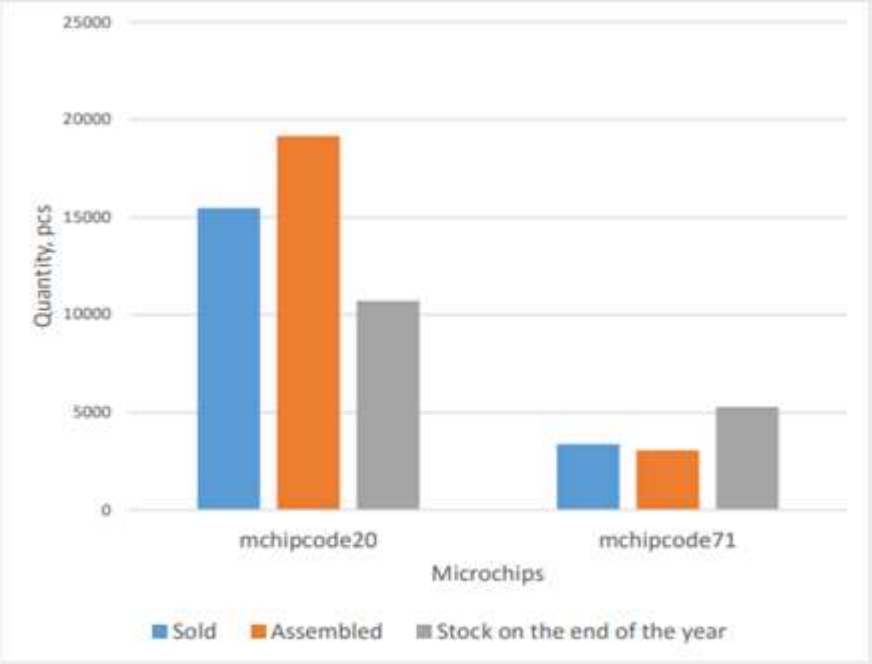


**Fig.3: Annual operations of two microchips.**

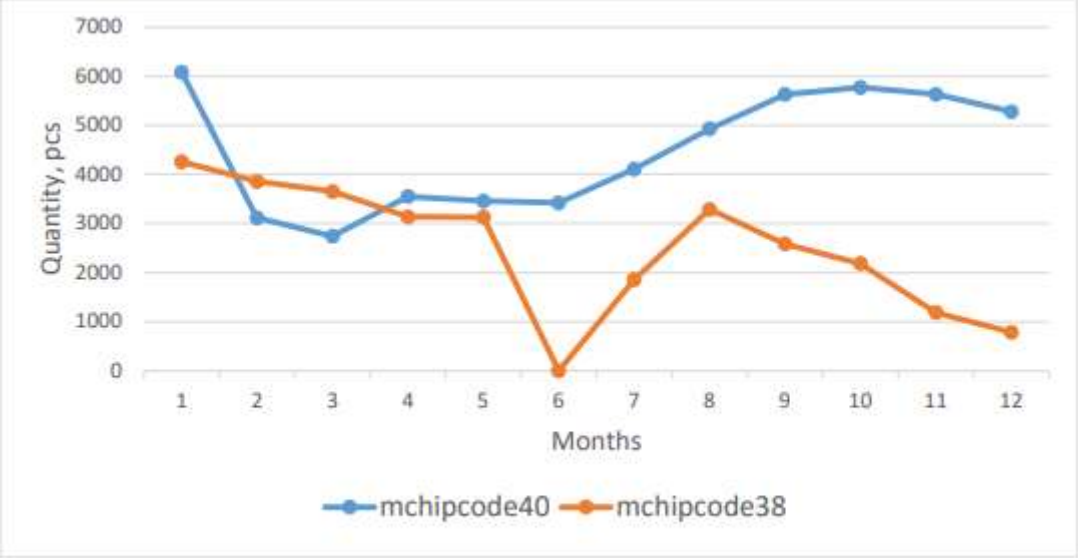


**Fig.4: Inventory levels of two microchips.**

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***I.III. Invoice generator:***

With the aim to consolidate information into one table structure, the researchers retained the subtle elements of invoice administration. Every one of the subtle elements can be discovered by the owner of this organization. In this perspective, the entire stock section should be updated so that the need can be refreshed as wise each time.

***I.IV. Print invoice*:**

The invoice template can be printed from the printer module. It is possible to convert it into a PDF file to generate the customer's invoice.

***I.V. View invoice*:**

The owner of the company can then look at the one-listed information of all the clients they buy for a day, week or month, so that they can decide the item they need to settle down the tag and various deals, both for the consumer and for the bookkeeping.

***I.VI. The proposed solution*:**

In order to improve the current inventory control situation, it was initially proposed that inventory management be used for inventory control and, secondly, that the inventory management agent program be introduced. ABC classification, algorithms of forecasting demand and reclosure policies consist of efficient inventory management [8]. Whereas, an agent system can automate inventory management and respond promptly with revision policies on demand deviation from the expected demand. The program proposed may be implemented in two modes: fully autonomous mode, when an agent carries out all inventory management operations: ABC classification of inventories, future request forecast, policy specification and order assembly, or when a human inventory manager performs all activities as decision support systems except for ordering by providing the achievement [9].

**i) ABC classification:**

ABC classification (or ABC analysis) is the basic supply chain technique often performed by inventory controller's / material management and the starting point for inventory control. This allows management time and financial capital to be the allocated priorities [10]. The study of the ABC depends on an interpretation of Pareto that notes that 20% of products make up 80% of sales. This means that a small number of inventory items contribute to high sales (Table I). Typically, fewer than 20% of the class A items contribute to up to 80% of the income. The next contribution to sales from Class B products is 15 percent (80%–95%). The last 5% revenue is generated from products listed as Class C.

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**Table 1: ABC Classification**

| | Number of items | Number of annual sales revenue |
|---|---|---|
| **Class A items** | About 20% | About 80% |
| **Class B items** | About 30% | About 15% |
| **Class C items** | About 50% | About 5% |

**ii) Demand forecasting methods:**

Market forecasts are used to assess the number of products or services to be bought in the near future by consumers. Demand forecasting methods fall under these categories:

- **Qualitative forecasting:**

The numbers and amounts sold in the past are used for quantum forecasting approaches to determine how much is sold in the near future. This prediction generally provides sums for the following revenue year. Some examples of quantitative prediction methods are demand for the last period multiple seasonal indicators and plain, weighted moving averages. Such approaches use past data in various types of statistical forms to assess how many goods or services will be sold in future simultaneously. The accuracy of the prediction can be determined by prediction errors defined as the difference between the true demand amount and the expected demand. Some prediction accuracy metrics are as follows: Mean Absolute Deviation (MAD), Mean Absolute Percentage (MAPE), Mean Squared Error (MSE), RSFE – means that a forecast bias or a forecast tendency is gradually greater or lower than the true demand. Signal Monitoring –defines whether the prediction is within acceptable limits of control. If the tracking signal exceeds the control limits, the prediction method is predetermined and the way in which predictions are generated is guaranteed to be evaluated.

A graph of inventory with predicted results is shown in figure 5 for one class A microchip. The prediction accuracy measurement calculations have provided the required prediction algorithm for this type of microchip.

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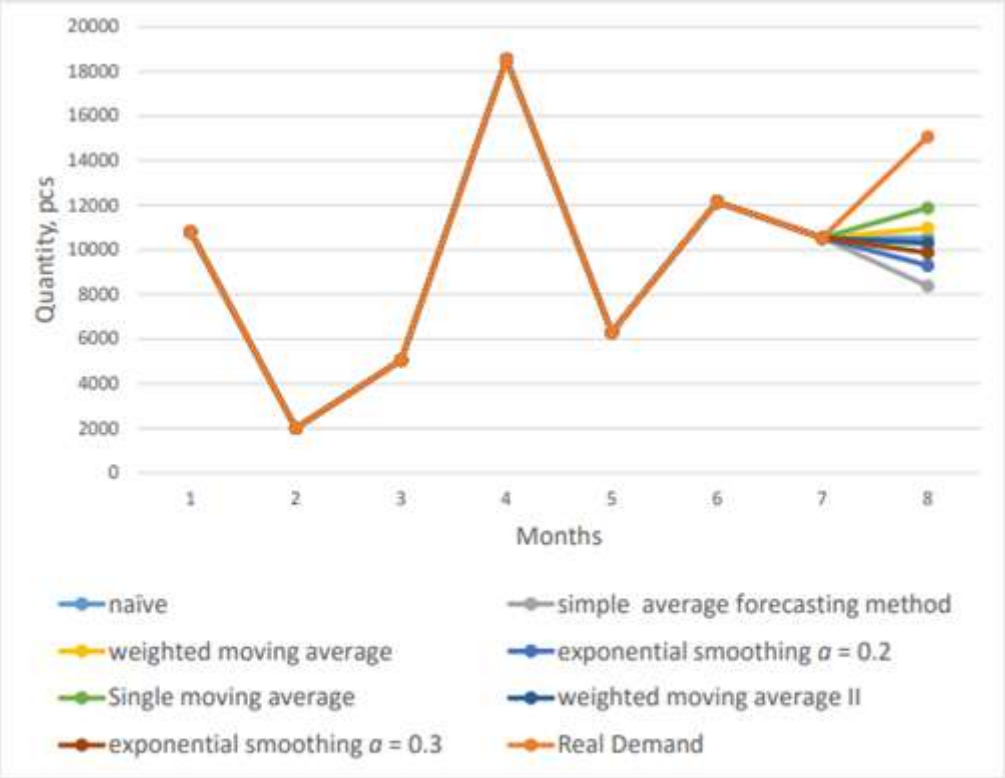


**Fig.5: The real demand and forecasted demand for one microchip.**

## II. CONCLUSION

For every company, inventory management is important. Industries must have stocks, but to avoid excessive stock and unnecessary stock situations. Inventory management improves the existing situation of company inventory control and reduces the company's costs. Agent program, on the other hand, proposes the automation of this mechanism, may support many methods for forecasting and respond to environmental changes. This paper analyzes the existing situation of inventory management, proposes double improvement-using stock management to minimize the inventory level of the organization and to control costs by reducing over stocks and implementing the agent method for automating inventory management processes and to respond to demand anomalies promptly by fixing the expected demand. The management of inventories is related to the accurate record of ready-to-use finished goods. This often means that the production of new goods is included in the inventory and the latest shipments of finished products are subtracted from purchasers. If a return policy is in place, the inventory of finished goods normally contains a sub-category that accounts for any returned goods that are reclassified or second class.

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