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PERFORMANCE AND PROFIT INCREASING BY USING MRP IN INDUSTRIES

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ABSTRACT

Materials in the industries are to be made available at the proper place, time and price for smooth running of the organization. This is to be made possible by proper maintenance of the inventories. Improper maintenance results in very large amount of inventories in industries and the consequent higher production cost. In order to avoid unnecessary investment in the inventories, continuous monitoring tends to be slow expensive and error prone. The M.R.P. system developed in the current work offers a variable alternative.
M.R.P. is a technique that converts the Master Production Schedule for end products into detailed schedule of components and raw materials used in the end products. The detailed schedule identifies the quantity of each component and raw materials. It also identifies when each item must be ordered or delivered so as to meet the MPS for the end products. The MSP provides the overall production plan for the end products in terms of period-by-period delivery.
MRP is often thought of as a method of inventory control, while it is also an effective tool for minimizing unnecessary inventories. MRP is also useful in production scheduling and purchasing of materials.
The concept of MRP is relatively straightforward. The application of MRP techniques tends to become complicated because of magnitude of data to be processed, unless solved on a computer. Each of the end products in the MSP may contain hundreds of components. The components are assembled into simple subassemblies and so on until end product is assembled.
To develop MRP Visual Basic 6.0 is used, as it is easy to develop commercial application. Other analysis tools in the form of reports will also be made available; inventory can be updated from time to time whenever required. Online information parts list, inventory status can be viewed.

INTRODUCTION

The basic objective of business is to satisfy the customer. Managers have to ensure that there is a continuous flow and optimum utilization of materials. Manufacturing organization must schedule the simultaneous availability of appropriate materials and work capacity so that the materials will be transformed into good/service that will provide the necessary functions required by the customer. Material management is concerned with management functions supporting the complete cycle of material flow, from the purchase and internal control of production materials to planning and control of work in process, to warehousing, shipping and distribution of the finished product. An effective materials management process ensures that the right kinds of materials are at the right place whenever needed.
Material management is concerned with planning, directing and controlling the kind, amount, location, movement and timing of various flows of material used in and produced by the process.

LITERATURE REVIEW

Sung and Yang (1993) have define MRP as computerized materials/production planning and control system for production only. The majority of Egypt companies indicate that the MRP system is regarded as a tool for planning and control production.

Salaheldin, Arthur Francis (1998) states MRP is a time series analysis tool which used to plan purchasing and production to meet customer demand. The majority of Egypt companies indicate that the MRP system is regarded as a tool for planning and control production . This tool is really helpful because it will determine the entire components at a right time, right part and right quantity. Furthermore MRP also will provide a time schedules to order a parts or raw material.

Silver et a &Ali Hassan (1998) have suggested, a company's fate depends on how it manages its inventory. Inventory is a complex problem area owing to the diversity of real life situations. Successful inventory management requires sophisticated methods to cope with the continuously changing environment. Inventory is also to keep balance between the lost due to non- availability of an item and cost of carrying the stock item. These decisions are about how much to order, when to order to replenish inventory to an optimal level in order to get customers satisfaction in term of punctuality in delivering order and lead time (time to wait after ordering until the product deliver to customer). The ideal inventory and proper merchandise turnover will vary from one market to another. Average industry figures serve as a guide for comparison. Too large an inventory may not be justified because the turnover does not warrant investment. On the other hand, because products are not available to meet demand, too small an inventory may minimize sales and profits as customers go somewhere else to buy what they want where it is immediately available. Minimum inventories based on reordering time need to become important aspects of buying activity. Carrying costs, material purchases, and storage costs are all expensive. Other than that, the damaged of item in inventory also must be responsible by the company. However, stock-outs are expensive also. Because of that, the applying of inventory is to maintaining optimum level of stock of goods required by the company at minimum cost. Bad inventory management enables to make the organization loss their profit. All of those costs can be minimized by efficient inventory management.

Dr.Vassilis Moustakis (2000) states MRP represent an innovation in the manufacturing environment. Thus, its effective implementation requires explicit management action. Steps need to be clearly identified and necessary measures be taken to ensure organizational responsiveness to the technique being implemented.

"Cookbook" like models for implementing MRP does not exist. Each organization poses a unique environment and that means that specific actions need to be taken with due regard to environment specifics.

We approach MRP as an organizational innovation and identify the necessary measure which management should adopt in implementing it. Motivational influences underlying MRP implementation include: 1. Recognition of business opportunity for the timely acquisition of MRP. 2. Recognition of technical opportunity for the timely acquisition of the technologies supporting MRP implementation. 3. Recognition of need for solving manufacturing and/or inventory problems using MRP.

L. Qiang, T.C. Khong, W.Y. San, W. Jianguo, C. Choy, 2001 a good scheduling system should ultimately cater to the company's needs and available resources. Thus, a tailored scheduling system should be the best option when it is available. There is a module that is called the Materials Requirement Planning (MRP) which manages the material level to be stored and to be ordered.

Saad T. Hassoon (2007) has stated Material Requirement Planning is an effective method to determine the quantity and timing of material requirements. It will be more effective and useful technique with the use of the available version of WINQSB program. Each company can easily maintain priorities updated and valid, requirements change, customers change order quantities and / or timing, and suppliers deliver late, unexpected scrap results from manufacturing, and Equipment breaks down. MRP technique can now be evaluated without long hand calculations or equations representation. The available program will perform any required calculations internally to give valid useful reports. Such process will be implemented by assigning the entered values through the screen menus to the required variables in the suitable model equations. MRP helps in planning production to layout the right materials in the suitable place at the required time. MRP programs used to fixes the latest possible time to produce goods.

STATEMENT OF PROBLEM

As for now, in industries not a following any systematic method of classification of parts such as:
1.Cost—quantity
2.Criticality
3.Mobility

The present classification is only based upon the price level of items. Further they are not maintaining any particular level of inventory .Right now following thumb rule according to demand. In short they do not have any inventory status. This results into either too much or stock or sometime stock out conditions. Hence scientific approach and mathematical modeling process is there .online information regarding the inventory status cannot be observed The in house transaction that take place for the particular section are very complicated The present database is maintained to different section and is not collective .so this creates a problem for taking overview and further analysis .Thus it Results into improper Ordering and Scheduling Process. Hence the Holding cost and Carrying costs are very high .due to non –scientific ordering procedures, the ordering cost is also quite considerable.
The forecasting procedure presently followed is done manually. So every time large no of calculations has to be done. This the process complicated and time consumine.also unavoidable manual error in calculation can affect the process in negative way.
All these processes require somewhat more man hour, thereby increasing the idle time of the system and adding to the operating cost. All together the total Material Information is not available collectively, up to date and in an efficient manner. Many records are stored on paper which requires too much of space and record papers get degraded for long time span

RESULTS

The software is tested and verified, it is up to the satisfactory level.All the reports are printed and verified.The results achieved by accomplishing this work are:
1) Information regarding how to much to order and when to order can be judged.
2) Critical items are found our easily.
3) Efficient storing ,purchasing and accounting for materials is observed .
4) Timely action for replenishment is genetated , thus reducing the inventory control problems.
5) Stock control is accurate.
6) Economy in purchasing.
This software can be extended to other products also.

CONCLUSION

The A-B-C Analysis done in this project will help the management to have better control over the critical items in the inventory .The stock of items,contributing maximum to capital invested in the inventory can be kept as low as possible. The items needing least attention are separated ,as cclass items. Bclass items will require moderate attention.
Further the Material Require Planning System developed will scope with situations where the demand or lead-time will fluctuate. It provides a signal for the replenishment action Decisions regarding what to order,when to order can be made efficiently.

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