

# WAREHOUSE MANAGEMENT SYSTEM

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**Abstract-** *The “WAREHOUSE MANAGEMENT SYSTEM” is the answer to reducing inventory cost and improving degree of customer satisfaction, which means a great deal to enterprises. With the competition of logistic industry becoming severe, the need of promoting performance of WMS increases rapidly. This paper discusses the design and implement of WMS based on aspect oriented programming (AOP), which simplifies its system structure, increases its agility, expansibility and maintainability by reengineering business logic, and thus adapts itself well to current warehouse management. We also describes how AOP was applied and how does it work in our system through an example of stocking in. Applying AOP to WMS benefits to solve some existing problems in current WMS, for example complex structure, poor maintenance and poor adaptation.*

**Keywords-** Management information system(MIS), Warehouse management system , Barcode.

## I. INTRODUCTION

The “warehouse management system” benefits implementing a WMS can help an organization reduce labour costs ,improve stock accuracy, improve flexibility and responsiveness ,decrease errors in picking and shipping goods and improve customer services.

An efficient warehouse management system helps companies cut expenses by minimizing the amount of unnecessary parts and products in storage (not too much in stock.) a warehouse management system’s main purpose is to maintain the proper balance of stock.

The main goal of the system is to provide details of admin, manager, sales.it balances the need for product availability against stock holding and stock handling process. this system helps the user to update the stock automatically using crone method which is available in a spring in java. During authentication daily this method will be called as it will update the stock in presence of started server automatically.no need to handle updating during shift scheduling manually.

## II. LITERATUREREVIEW

Literature review reveals that organisations must be capable of fast, radical changes and those that aspire to be best must lead in changes. According to Oxley (1990) efficient management information system means (a) Quickly and fast response to change, (b) Accurately, (c) Minimum clerical effort, (d) Up-to-date, and (e) Available where and when needed. Benefits realised from information technology communication are information availability, labour pricing and material tracking (Peters, 1994). Boyson, et al (1999, p. 14) reported benefits from a more open information flow as (a) Improve planning, (b) Develop active operations, (c) Smooth product flows, (d) Time cost, and (e) Improve service. Benefits realised from information technology communication are information availability, labour pricing and material tracking (Peters, 1994). Boyson, et al (1999, p. 14) reported benefits from a more open information flow as (a) Improve planning, (b) Develop active operations, (c) Smooth product flows, (d) Time cost, and (e) Improve service. Yaoa and Carlsonb (1999) concluded that better inventory control reflected in increased inventory accuracy and timeliness of real-time data permits the distribution activities to be performed with confidence and improved profitability. Barut, Faisst and Kanet (2002) measure the magnitude and the effectiveness of logistics information to firms in both directions of the supply chain. Ahmad and Schroeder (2001) analyses on the benefits gained from electronic data interchange (EDI) usage. Helo and Szekely (2005) review software applications for their functionalities and resulted benefits in relation to supply chain management (SCM). Murphy and Simon (2002) incorporate intangibles e.g. improved customer service into traditional cost benefit analysis in an ERP project. Kuo and Smits (2003) identify factors that improve the performance of integrated supply chains performance, while Evans, Towill and Naim (1995) concluded that SCM could be enhanced through Business Process Re-engineering (BPR) characteristic of not afraid to be radical with respect to internal integration and continually search for step change improvement ideas. Attaran (2004) examines relationships between information technology (IT) and BPR, arguing that those aspiring to do BPR must begin to apply the capabilities of IT to reap benefits for successes.

## III. METHODOLOGY

Single-case study approach is applied in this study to understand the system being examined in the period of time

available. The primary aim of this paper is to analyse indepth to provide description and interpretation of business performance improvement in multi-perspectives that is induced by implementation of warehouse management system. Evidence of data is collected from multiple sources including documentation, archival records and direct observation.

Inventory Management Features are (a) real-time storage usage, and (b) security through user passwords and access authority levels. Stock take will be performed for the entire warehouse. The scanner will allow entry of a location reference via the scanner. Bar codes would then be scanned and either a quantity entered or further bar codes scanned.

#### IV. CASE ANALYSES AND DISCUSSION

Radio Frequency WMS that utilises bar code technology have many advantages. The following is a list of the most common benefits that directly result from implementing a WMS. Leveraging RF-based bar coding technologies and seamless integrating with order entry, WMS tightly orchestrates these activities. WMS provided better workload control for view of completed and upcoming activities. While checking in received good, it is prepared for shipping directly to the awaiting customer if the item is needed to fulfil a customer backorder, while eliminating the introduction of transcription errors. It reduces labour costs and increases productivity. In average incoming cycle has been reduced from average 3.71 days to 1.02 days. It was observed that the lead-time has been reduced by 73% in the period. The final phase of receipt and put-away processing is the automated update of purchase orders and inventory information into SAP that eliminates manual intervention and errors, while providing accurate and up-to-date inventory control. It reduces safety stock, stock shrinkage and spoilage. Administrative is improved because the work of printing and distributing picking lists or labels is contained, as is the task of keying in picking confirmations and picking amendments. WMS offers a streamlined shipping solution that produces shipping labels, picking slips, carton content labels and advanced shipping notices eliminating errors in transcription from customer order. The Outbound lead-time for air freight (AF) for subsidiaries has been reduced from 9.94 days to 4.29 days, which is a reduction of 57%. The WMS provides a fast order handling process to keep distribution costs to a minimum. WMS also provides detailed audit trail that measures performance levels objectively, ensures employee accountability and allows material flow to be easily traced. It was found that the operations procedures at the warehouse have been overhauled to adapt to new warehouse management system. Business Process Reengineering (BPR) has taken place. Maintenance department was established for independent cycle

counting process. The WMS promotes knowledge sharing. It is clear the usage of the logistics system have been embraced at all stages of operations. The system has fundamentally improved the warehouse's services, internal and external relationships reflected in the performance measures to help the warehouse gain a competitive advantage. They are able to alter the way in which the firm conducts its business or the very business of the firm itself. These flexibility and enterprise-wide approach has brought real agility to the business, supporting strong business growth. The bottom line of a WMS is the ROI it provides. By improving on warehouse procedures, WMS makes the distribution centre more competitive and profitable. There are constraints faced by the distribution centre. For the demand forecasting, poor demand forecasting processes can result in excess inventory, stock-out and back orders, and unable to forecast early-lifecycle and end-lifecycle parts accurately. In term of inventory management, the distribution centre experienced limited collaboration into demand lead to poor inventory deployment, as the result of lack of integration into sales data. At the lower stream flow of operation in distribution and logistics, there is challenge of inefficient distribution flow, logistics and warehouse management processes that can result in long lead-time from suppliers to customers and expensive total cost of distribution. There is also bottleneck created by sub-optimal processes and lack of end-to-end integration within.

#### V. MANAGEMENT REPORTING

- View storage utilisation in real-time
- Detailed Locations Report
- Receiving order status
- Shipping order status
- Export to text, Excel and CSV text files

#### V. CONCLUSIONS

To maintain competitiveness, customer requirements are met consistently, which are achieved by, among others, enabling of more flexible processes with deployment of radio-frequency technology, improved scope of delivery with provision of same day delivery services, shorter delivery lead time especially airfreight mode, increased customer satisfaction with less complaints, inventory visibility with higher inventory accuracy and cost efficiencies with higher labour productivity while minimising inventory investment which includes inventory handling. Procedures have been established to monitor and measure WMS activities. This system has to do with keeping accurate record of goods that are ready for shipment this often means having enough stock of goods to the stock total as well as subtracting the most recent shipment of

finish goods to buyers. when the company has return policy in place ,there is usually a sub-category contained in the finished goods inventory to the account for any return goods that are reclassified or second hand quality.

Warehouse management is important is for keeping costs down while meeting regulation. supply and demand is delicate balance, and warehouse management hopes to ensure that the balance is undisturbed good trained and high quality software will help make warehouse management a success and on over all increase of customer satisfaction.

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