



An integrated warehouse management system is essential to an efficient manufacturing facility, says Thomas R. Cutler

In any warehousing or manufacturing operation, errors can creep in at all stages of the process, the most common cause being human error. Whether in putting a product away in the wrong location, or picking the wrong product or an inaccurate quantity of the right product, the root cause of problems in the warehouse can almost always be traced back to something involving an error on the part of an individual.

Short of having a fully automated receipt, movement, pick and ship warehouse, no system will ever completely eliminate the human

component of warehouse operations. However, systems can help to significantly reduce the opportunity for human error and, at the same time, improve overall productivity throughout the warehouse.

One of the most common warehouse problems is a large scale write-on or write-off of inventory at year-end. This occurs because of three factors. First, the control of the movement of inventory within the warehouse is not adequate to insure that material movement of any kind in the facility is accurately tracked. Second, there are inadequate

controls over the receipt of material to insure that the quantity received is accurately recorded. Finally, the controls over the shipping process are similarly inadequate, resulting in shipping of either the incorrect product or the correct product in incorrect quantities.

Material in the warehouse is often not located where the system thinks it is. This is a common problem which, unfortunately, results in a significant loss of productivity. When product cannot be found where it is supposed to be, the individual needing the material must spend

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time searching for it. Non-productive time like this is waste.

Another warehouse issue arises where items are not stored in the most appropriate areas to maximize productivity opportunities. This takes several common forms. Firstly, high volume items are not located to minimize the transit time required to both put them away from receiving and pick them for shipping. The second common problem is that high volume items are often stored in areas of the warehouse not readily accessible from the floor. Both of these situations result

in significant loss of productivity.

Hand written tags help workers put away received goods, move product from one location in the warehouse to another, and, later, pick them for shipment or use in a manufacturing operation. Inevitably, there will be mishaps which require restocking of the wrong items and picking and redelivery of the correct ones. This creates additional labor and shipping costs for processing or returns and replacements, as well as testing the continuing good will of the customer.

The solution to these, and

numerous other warehouse related problems, lies in the implementation of the Enterprise Warehouse Management System. The system is a complete warehouse management system that includes receiving, put away, locating, order pool management, picking, replenishment, and shipping. In addition, physical and cycle counts as well as vendor returns, license plating, warehouse labor allocation, and product specific multiple storage types provide the tools necessary to truly manage your inventory. Moreover, each of these

Distinguishable characteristics of effective integrated WMS technologies:

Fully barcode and RF enabled	Private or public
Directed put away and picking	Various pick methods
Employee labor optimization	Multi-level license plating
Yard management	Transportation module
Fill the truck capabilities from o/e	Customer specific documentation
Storage types for organics, perishable items, and cross contamination	Complete lot and serial tracking from raw material through production and shipment to end use customer

functions is completely RF and bar code enabled within the application. The entire system also extends to a level of detail that includes both serialization and lot controlled items.

Warehouse Management Systems (WMS) are now assuming different functionality from five years ago. WMS was generally purchased in a more stand alone environment; today the best Enterprise Resource Planning (ERP) packages already have a fully integrated WMS package.

With more manufacturers taking on a distribution role (due to globalization), WMS has kept up with this changing dynamic, according to Rebecca Gill, vice-president of Technology Group International. "Distributors need to provide value to differentiate themselves," she says. "This must come from key deliverables to the customer. From high quality, compliance labeling, to correct advanced shipment notifications (ASNs), and near perfect fill rates, a distributor must show value. There is much more emphasis placed on the distributor's services."

Another key element in assessing the efficacy of a WMS system is tight inventory control. Sending a package

overnight from China due to poor inventory management is costly and not viable on an ongoing basis. The distributor must have solid inventory management in place and have extremely strong order policies. DRP elements such as "min/max" levels and activity based safety stocks are key to long-term success.

With so many WMS bolt-on solutions the lean efficiencies are lost. When ERP systems are updated, the bolt-on solutions require upgrading. When the bolt-on WMS systems are updated, new integration issues often arise with the ERP system. Gill argues that the integration of ERP and WMS functionality is vital as more manufacturers straddle the distribution role; enterprise-wide solutions must include their own fully enabled WMS module; not an add-on and not a separate module that is added to the sell price. "The system must be part of the core package and fully interconnected to all other modules. From order management through production, the user must have complete access to strong WMS functionality."

Some of the metrics to assess the

productivity and accuracy achieved through an effective integrated WMS include order fill rates, line item fill rates, carrier performance, and employee performance.

Product specific multiple storage types are not a common feature found in all WMS packages. Examples for usage would be refrigerated versus dry stock, allergens (peanuts), or organics. This feature helps to separate food types to ensure no cross contamination. Product and locations are both given storage types and they must match for electronic put away or movement.

Many ERP companies claim to have WMS. In actuality it is often a third party bolt-on solution or is an extra module that manufacturers and distributors have to pay for incrementally at the time of purchase. Buyer beware! Many enterprise systems offer WMS, but few have their own WMS functionality fully integrated and enabled out of the box without additional modules. For an optimized organization from start to finish, integration is required; a lean operation means fully integrated functionality and this must include WMS. ■

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