

WHAT YOU NEED TO KNOW ABOUT WAREHOUSE MANAGEMENT SYSTEMS

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Every manufacturing business today is under pressure to reduce costs, increase profits, and meet ever-increasing service requirements from customers. In coatings companies cost reduction programs have focused primarily on reducing costs in manufacturing and administration. The challenge is to reduce costs while improving service to customers. An area that most coatings companies often overlook as an opportunity for reducing costs and improving customer service is the warehouse.

A Council of Logistics Management study showed that for manufacturing companies, warehouse and distribution costs can range from 7–15% of sales. These numbers are representative of a relatively simple warehouse and distribution network. As network complexity increases, these costs will increase as a percentage of sales.

While management is demanding reduced costs, customers are requiring shrinking order cycle times, faster response to order changes, and the ability to handle customer specific shipping and packaging requirements.

To meet the ever-increasing service requirements of customers and reduce warehouse costs, more and more companies are turning to warehouse management systems.



WHAT IS A WAREHOUSE MANAGEMENT SYSTEM?

A Warehouse Management System (WMS) is a group of software programs that help management to control the movement of materials in a warehouse environment. In other words, a WMS will help coordinate the day-to-day activities of the warehouse. While each WMS offers slightly different functionality, there are some functions that are standard. These include:

1. Managing storage locations;
2. Directing receiving and put away activities;
3. Directing picking and packing activities;
4. Preparing shipping documentation;
5. Measuring operator productivity in the warehouse;
6. Inventory control and cycle counting;
7. Automatic data collection/bar coding;
8. Reporting.

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WHAT ARE THE ADVANTAGES OF USING A WMS?

While not a cure-all, a properly designed and fully implemented Warehouse Management System can help companies reduce costs, shorten order cycle time, and improve customer service.

Reducing Labor Costs

One of the key benefits of a Warehouse Management System is that it helps companies cut labor costs. In our studies of warehouse operations without a WMS, order pickers only spend between 20–25% of the available time actually picking orders. The majority of the time, 60 to 75%, is spent traveling from one picking location to another and searching for available inventory. To the company this travel time *has no value*. A WMS can help reduce this travel time in two ways. First, a WMS will provide the data needed to organize the warehouse in the most productive way. For most coatings companies there are a relatively small number of products that are picked most frequently. By storing those products near the shipping area we reduce the amount of travel needed to pick those products. This is known as slotting. Another way that a WMS can reduce picking labor is by selecting a picking strategy that minimizes travel time. There are many different picking strategies. These include first in—first out, least number of locations, wave picking, batch picking, and zone picking. Some coatings companies already use a form of zone picking when gallons are picked by one order picker and 5's are picked by another.

Another opportunity for reducing labor cost using a WMS is in the back room. Most WMSs have the ability to take advantage of Automatic Data Collection (ADC). ADC eliminates the need to enter data into the computer system manually. As material is moved in the

warehouse, the transaction is recorded using a radio frequency terminal. This eliminates the need to enter the data manually and has the advantage of no delay between the physical movement of the material and the updating of the computer system.

Shorten Order Cycle Time

Customers are requesting ever shortening order cycle times, i.e., the elapsed time from when an order is placed until the customer receives the order. A Warehouse Management System can help shorten the order cycle time. It can do this in a number of ways. First, the WMS is often interfaced with an Order Entry System. Therefore order data is only entered once. The WMS determines if there is sufficient product available to meet the order and, if the product is available, it prepares a picking strategy. Depending on this strategy, the system may recommend picking multiple orders at the same time or may recommend that several different people pick parts of an order.

In some cases when using radio frequency terminals the system may interleave tasks. Interleaving occurs when an operator is directed through a series of tasks taking advantage of time, location, and equipment opportunities. For example, the first task may be to move a pallet of product from the manufacturing staging area to a location in the warehouse. When that task is completed, the system may then direct the operator to pick an item that is near his present location and take it to a staging area. This minimizes travel time. When an order is completely picked, the system will print all the necessary shipping documents.

Improve Customer Service

As customers try to simplify their own operations they require customer specific packaging and label-

ing. This means that companies must keep track of each individual customer's requirements. This is not difficult if you have just a few customers, but if you have several hundred or thousand customers, many with different requirements, this can become a nightmare. Fortunately, a properly implemented WMS ensures that all customer requirements are met and prints all the necessary labels and shipping documents.

HOW YOU TELL IF YOUR COMPANY NEEDS A WMS?

Not every warehouse needs a WMS. A simple operation with just a few SKUs and a few customers probably does not need a WMS. To determine if a WMS might be advantageous to your company, begin by asking yourself the following questions:

- Do you have multiple warehouses or distribution centers?
- Do I stock more than 100 SKUs?
- Do my customers have special packaging, labeling, or shipping instructions?
- Would improving my inventory accuracy be beneficial?
- Would having shorter order cycle times increase sales?
- Is the utilization of warehouse labor a concern?
- Do I constantly have charge backs or fines for claimed shortages?
- Am I constantly in a crisis mode just to ship my customer orders on time?

If you answered yes to two or more of the above questions, a WMS may be advantageous to you.

WHAT FUNCTIONS SHOULD I LOOK FOR IN A WMS?

The most difficult task when selecting any software package is to understand the difference between functions and features. A function either duplicates or replaces the way

you perform a particular task today. An example of a function would be receiving product from the factory. A feature is something the software does to enhance a function. A common feature of WMSs is the ability to enter data into the system using bar codes. It is still possible to receive goods without having the bar code reading feature but it makes the task easier, faster, and more accurate.

The key functions in most Warehouse Management Systems are:

INVENTORY CONTROL: This Inventory Control module is the heart of the system. It is used to store information on what products are in the warehouse and where they are located. It will also usually include support for stock rotation, batch tracking, and audit trails. The audit trails function is useful for understanding what has happened in the warehouse. It answers questions like, "Where is the product located?", "Who moved it there?" and "When was it put there?" If there is a problem, this allows management to understand the root causes and implement corrective actions.

STORAGE LOCATION MANAGEMENT: The Storage Location module contains the logic for assigning storage locations. It will take into consideration frequency of picking, size, weight, flammability, and many other variables. For example, tote tanks and five-gallon pails have different storage requirements than ladders and color cards.

RECEIVING: This module is used to receive product into the warehouse. This can be from the plant or external suppliers.

STOCK PUT AWAY: The Stock Put Away module uses the data contained within the Storage Logic module to identify the optimum location for storing a particular prod-

uct. It balances put away time and picking efficiency. Many stock put away modules will assist in consolidating partial pallet quantities that may exist in the warehouse.

PICKING AND PACKING: The Picking and Packing function will prepare picking documents based on the agreed picking strategies and optimize travel paths for productivity. This function also allows for the assignment of multiple or single batches to an order in the case of coatings companies.

SHIPPING: The Shipping module produces the required shipping documents and can in many cases transmit advance shipping notifications to the customer.

WHAT FEATURES SHOULD I LOOK FOR IN A WMS?

There are a number of features in a WMS that can make the system easier to use.

AUTOMATIC DATA COLLECTION: Automatic Data Collection (ADC), through bar codes, OCR, or voice interaction, is the capability to allow operators to enter data into the system at the time the event occurs. This eliminates the need for back office staff to manually enter data into the computer system therefore reducing labor costs. Using radio frequency (RF) terminals, pickers enter data directly into the system. These terminals are often paired with bar coding on product labels and racking locations to increase data accuracy. This is especially important in the coatings industry for the accurate control of batch and production codes. RF devices can also be used to direct work activities.

OPERATOR PRODUCTIVITY ANALYSIS AND REPORTING: Many Warehouse Management Systems include the ability to track and record operator performance automatically. The sys-



tem measures the number of units and line items handled for any period of time. Productivity reports can be produced showing individual operator performance or graphs comparing operator performance over a period of time.

STANDARD AND ENHANCED REPORTING: Knowing exactly what reports an individual company is going to need is difficult. It is important, therefore, to be able to create new reports on the fly. Some examples of reports that are useful include:

- (1) Product availability by warehouse, batch code, location, or SKU;
- (2) Shipping volumes;
- (3) Fill rates;
- (4) At risk inventory;
- (5) Order cycle times;
- (6) Results of cycle counts;
- (7) Pre-shipment planning and scheduling.

These are just a few of the reports that are useful when managing a warehouse and distribution network.

CONCLUSION

In the coatings industry our customers are becoming more and more demanding. Requirements for special labeling and packaging and for shorter order cycle times are placing additional demands on our warehouse and distribution departments. At the same time, we are under pressure to continually reduce costs. Warehouse Management Systems are one key tool that managers can use to help make warehouse operations efficient and cost effective, while meeting increasingly complex customer demands. **CT**