

ERP FEATURE

Warehouse Management Systems 101



IQMS
Manufacturing ERP

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At the most basic level, a warehouse management system (WMS) is a computerized program for controlling and managing the movement and storage of input materials and finished goods in your warehouse. WMS software guides inventory receiving and put-away, optimizes picking and shipping of orders and advises on inventory replenishment. In the end, the overall goal of a WMS program is to achieve a paperless environment that directs your employees automatically on the optimal picking, put-away and shipping of your products.

The breadth of WMS functionality can vary greatly, from basic best practices in pick, pack and ship functionality to sophisticated programs coordinating advanced interactions with material-handling devices and yard management. Most WMS systems are third-party, standalone packages that must be integrated with the rest of your business management software (such as ERP). While integration of external programs can work, the process is often fraught with challenges such as duplicate data entry, information delays and silos, interface issues and customization expenses.

Fortunately, some ERP vendors offer a warehouse management system that is built into their ERP solution. The benefits of a native ERP solution are extensive. Can your bolted-on WMS software automatically alert you to order changes from incoming EDI documents, display on-hand inventory quantities and their locations and keep you up to date in real time of the number of parts left to manufacturer before the order is filled and ready for shipment? With a native WMS program, you gain business-wide traceability,

Through scan guns and barcodes, you can move from pen and paper to a digital WMS environment that eliminates re-keying of data and the unavoidable human entry error that accompanies it. The benefits of a comprehensive warehouse management system are great:

- Reduced fulfillment time
- Increased inventory accuracy
- Improved customer service
- Greater space utilization
- Increased warehouse productivity
- Reduced labor cost

When deciding to implement a WMS program (or upgrade to a more robust one), how do you determine which system is best for your facility? Each warehouse management tier, from basic to advanced, offers a greater level of control. Below is an overview of the three most common WMS tiers, with a specific focus on shipping, receiving and put-away and inventory replenishment capability:

Tier 3 - Basic: At the entry level, a tier three WMS program's data collection tools will help you automate your warehouse. By assigning grid numbers to locations

and bins in your warehouse, your computer can record where every item is located. But that is the cap on the level of complexity your system can handle.

Since the WMS only verifies an item's location, put-away is unguided and seemingly random. Order picking is based on packing slip and managed without any built-in logic. Inventory record quantities are based on receipts from purchase orders and inventory replenishment is calculated from simple minimum and maximum order level algorithms.

Tier 2 - Intermediate: WMS programs at this tier offer directed pick and put away logic to allow you to optimize your warehouse space and employees' time. For example, instead of simply verifying where material has been placed, a tier two WMS will use slotting optimization to evaluate a combination of item, location, quantity, unit of measure and order details to tell you where you should be stocking the inventory. Due to their greater depth of functionality, tier two WMS programs are typically implemented by medium to large enterprises.

WMS packages at this level offer directed task monitoring to help you determine where to stock materials, where to pick and even the sequence in which to pick something. When inventory is received, a tier two WMS offers guided put away based on the speed of movement of the inventory to help eliminate expired materials. Tier two WMS also supports more complex picking (task interleaving and milk runs for JIT pick up), including advice on optimal pallet and carton configurations based on unique customer requirements. Shipping is pre-determined by the customer and can be better managed with staging and dock scheduling tools.

Tier 1 - Advanced: Only the largest and most complex fulfillment centers or warehouses (think Amazon) benefit from tier one WMS systems. Unlike the previous two tiers, which are designed more for "captive" warehouses that manufacturer on site and distribute only for themselves, Tier 1 WMS programs are for wholesale distributors and warehouses that store and ship product from multiple companies.

Tier one systems offer robust versions of the tools in a tier two WMS, plus the added benefit of interacting with automated material handling equipment such as conveyor belts, sorting equipment, and automatic storage and retrieval systems. Tier one WMS software supports wave picking, allow for queuing subsystems and handle complex yard management.

Now that you are armed with knowledge of the different tiers of warehouse management systems, it is time to take stock of what exactly your warehouse needs. Begin by calculating the frequency of your inbound and outbound products. Warehouses that ship only a few times a day will have different WMS requirements that a manufacturer who fulfills an order every four minutes. What exactly are you asking of your warehouse on a daily basis?



Finally, when selecting your WMS tier, don't forget to evaluate future growth. WMS implementations do not occur often, so select software that will serve your company well in five or ten years (instead of only fitting where your company is now). A good way to start is to look over the specification sheet of an overly robust Tier 1 WMS package and pick out the features that fit your business needs. Then seek out the comprehensive ERP solution that offers that functionality and you will be on the road to success.

If you would like to learn more about IQMS' comprehensive ERP solution, please visit www.iqms.com.