



Top 10 “Must Have” Warehouse Management Systems (WMS) Features

Introduction: Warehouse Management Systems (WMS) are increasingly becoming a technology that distributors and manufacturers rely on to automate warehouse movements in order to track inventory better including enhancements in performing a unified and efficient method for the proper flow on inventory. This document will focus on the top ten “must have” features within a best-in-breed WMS System. There is much more “layered” functionality within this technology. This report will give you an idea of a good foundation for WMS functionality and how WMS can help with operational improvements.

1. PICKING: The Picking functionality in warehouse management systems is a core functionality designed to move the paper picking process to a wireless device. Warehouses come in different shapes and sizes. Some are “wide open” in a square shaped space. Others are contained in buildings on multiple floors, utilizing elevators to transport materials. Warehouses will have varying ceiling heights. Some might have yard space.

Materials handling will differ by product shape and size. As a result, the warehouse

Racking infrastructure will vary by product size. Many warehouses keep large products in bulk stacks or pallet racks. While with small products, picking efficiency may be increased by storing smaller products in flow racking or static shelving.

Product velocity and order types also affect warehouse layout and consequently the picking strategies. Companies that ship single-sku pallets of product to customers will have significantly different warehouse operations than ones that ship trailer loads of mixed-sku pallets (grocery is a good example of this).

Even subtle differences in customer requirements for consumer products wholesalers will have substantial effects on the materials handling and picking. Operations that ship to retail distribution centers will have different fulfillment requirements than those that ship directly to stores.

Accellos One Warehouse, an example of a “best-in-breed” Warehouse Management System, has an abundance of picking styles that will accommodate a warehouse manager’s fulfillment strategy independent of warehouse layout, product size, velocity and order characteristics.

Some of the many picking styles are listed below:

- Wave Picking
- Batch Picking
- Product Picking
- One Scan Picking
- Scanner Picking

In addition to picking styles, there are numerous benefits for having warehouse picking systems including:

- Multiple pickers can pick in a single sales order
- Single picker can pick on multiple sales orders
- Password protection for skipping and shorting picks
- Configurable workflow prompts for bin, packsize, and carton
- Ability to generate a packing slip after last pick
- Ability to assign orders to a specific user
- Ability to repack item
- End of Line (EOL) workflow controls what additional processes happen to sales orders after they are fully picked
- And more, including additional advanced picking functionality



2. RECEIVING: Receiving is another key “must have” in any warehouse management system. Receiving is another functionality designed to migrate the paper receiving process to a wireless device. Once a purchase order has been entered into an ERP system, it is seamlessly transferred to the WMS (warehouse management software) where receivers await shipment. They are armed with wireless mobile computers that have integrated bar code scanners.

After an inbound shipment arrives at the warehouse, the receiving team will typically unload the truck and grab the paperwork to identify which purchase orders are being received.

The first job of the WMS Software is to receive items accurately into the warehouse and then reconcile the shipment against the original purchase orders entered into your ERP system. Rather than using pen and paper to reconcile physical receipts, the receiver will bring up the purchase orders on a handheld computer. Once this is done, the receiver only needs to start identifying the product that is being unloaded (in no particular sequence).

With “best-in-breed” WMS Software, the receiver counts down against items being received right off of the container. It validates items against multiple purchase orders in the background, and then seamlessly updates your ERP system. No more paperwork!

Because a receipt is recorded as soon as items are entered into the handheld, stock may be immediately put away to a bin location. Bin location assignment following receipt may be automatic; stock can be transferred to a temporary receiving location if receipts are to be staged prior to put-away.

Most of the time, stock will be put-away following goods receipt. If there are backorders waiting for product (standard or non-stock) or there is a “low stock alert,” stock may be put away directly to pick locations. Otherwise, stock handlers will move pallets into bulk locations (typically up in the pallet racks or on floor stacks).

Some of the highlighted benefits for accurate, efficient warehouse receiving include:

- Receive multiple orders simultaneously in no sequence, without paperwork
- Scan product bar code or use quick lookup functions to identify products as they are being received
- Print carton or pallet-ID labels as product is being received
- Receive multiple pack-sizes on the fly.
- Cross-dock non-stock items to forward pick locations
- Immediately put product away without staging



3. COUNTING: Another “Key” feature for better inventory control is counting. Counting should be a core module in any Warehouse Management System to accurately track all inventory. Any sort of Counting Functionality should ideally support both Cycle Counting (forced and manual) and physical inventory counting.

Many distributors conduct an annual physical inventory. That is, they count the products in their facilities once a year. Unfortunately we’ve found that most physical inventories are a total waste of time and money. Why?

Usually anyone with a pulse is drafted to count inventory during the physical. Even people who are not familiar with your products (like the receptionist and her brother-in-law) will be sent out to the warehouse so that all of the products can be counted in the time allotted.

Workers do not enjoy the physical count process. They probably have better things to do with their weekend than spend it in a hot or cold warehouse counting products. In all probability their

actual objective is not to perform an accurate count, but to put down on the count sheet whatever management will accept so they can go home.

There is a tremendous time pressure to finish the count. Shutting down operations for a physical count is a very expensive process. Usually at the end of the time allotted, management will decide to accept the existing count as being as “accurate as possible” so that the company can return to the task of servicing customers. Many discrepancies between the computer’s perpetual inventory and the quantity counted may remain unresolved.

Even if an annual physical count is 100 percent accurate, how long does it stay accurate? A week? A month? Many distributors respond that on-hand quantities only remain accurate until they start shipping material again. For most distributors, cycle counting provides a much better tool for maintaining accurate stock levels than an annual physical inventory. Cycle counting is the process of counting a few products every business day throughout the year.

There are three common methods to determine what products to count on a specific day:

1. Random selection—Products to be counted are chosen at random. While this method keeps potentially dishonest employees on their toes, it does not ensure that all items in a warehouse will be counted on a regular basis.

2. Geographic selection—Products are counted in sequence. Starting at one end of the warehouse a certain number of products are counted each day until the counters reach the other end of the building. All products are counted the same number of times, even though some products are more susceptible to discrepancies than others.

3. Rank-based selection—Products that are sold most often (regardless of quantity) or have the highest cost of goods sold are counted most frequently. Slow-moving products and dead stock items are only counted once a year.

Of the three methods, we’ve found rank-based cycle counting to be the most effective at maintaining accurate stock levels. The more frequently an item is sold, the more chance for inventory inaccuracy. After all, every time someone fills an order or puts away a stock receipt is another opportunity for an error to occur. And the products that are requested most often are probably extremely important to your customers. In order to provide good service, it is critical that you have accurate counts for these items.

It is interesting that, for most distributors, relatively few products are responsible for the majority of product requests (also known as “hits”). You may have heard of the 80–20 rule or “Pareto’s Principle.” This theory states that 80 percent of your sales are derived from 20 percent of your inventory items. We’ve found this not to be true. Usually only 10–13 percent of a distributor’s inventory items are responsible for 80 percent of activity and 50 percent of items are responsible for 95 percent of sales.

We want to count the few items responsible for 80 percent of sales very frequently, perhaps four to eight times a year. Items with fewer hits can be counted less often. Let’s look at a typical rank-based cycle counting program. Items are sorted in descending sequence by hits. The items that are responsible for 80 percent of total activity are assigned to the “A” rank, products responsible for the next 15 percent of activity are assigned to the “B” rank, “C” rank products include the products that are responsible for the next 4 percent of activity, and “D” rank products

are responsible for the last 1 percent of activity. Products with a rank of “X” have no activity (they’re dead stock).

- Count the “A” rank products six times a year
- Count the “B” rank products three times a year
- Count “C,” “D,” and “X” rank products once or twice a year

Rank-based cycle counting ensures that your counting activity is productive. Spending just an hour or so a day counting can make the difference in maintaining an accurate perpetual inventory system. It takes a lot of discipline to implement and follow a program in which you count a certain number of products every business day. Many distributors have tried cycle counting and abandoned the program. They’ve been frustrated as other tasks have interfered with the process or they have not been able to complete counting all of the products scheduled on a certain day. The following ideas have helped many of our customers develop successful cycle counting programs. These companies are working “smarter” rather than “harder.”

Additional WMS Software Counting Functionality could include:

- Cycle Count by Bin
- Inventory Count / Recount
- Cycle Counting serialized items
- Configurable workflow prompt for bin
- Option to allow adjustments to inventory during Cycle Count based on discrepancies between expected qty and counted qty
- Option to hold adjustments created through Cycle Counting in a pending state, for supervisor review
- Ability to define bins to exclude from cycle counting
- Physical Inventory Wizard supports Multiple Warehouses
- Cycle Counting single-item license plates
- Stock Locator

4. STOCK LOCATOR: Another critical area of functionality in a “best-in-breed” Warehouse Management Systems (WMS) is Stock Locator or just called Locator functionality. This feature is designed to provide visibility into the physical location of goods in the warehouse facilitating the movement of those goods within the warehouse.

Stock Locator functionality can also include “limited multi-warehouse” functionality in which multiple warehouses can be defined. The WMS system can restrict sales order and purchase order processing based on the warehouse specified in the download from the Enterprise Resource Planning (ERP) System.

Simple bin-to-bin transfers can be used to move inventory between warehouses and all users can have full visibility to inventory and sales across all warehouses.

Further WMS Locator Functionality could include:

- One-Step and Two-Step Moves
- Hot Replenishment (Letdown and Fill Bin)
- Replenishment by Direct Move
- Reserving Stock / Moving Reserved Stock

- Sticky Bins, assigning and deleting permanent homes
- Decimal quantities
- Ability to enter Incidents via the handheld
- Hot Key to Miscellaneous Adjustments from Direct Move
- Ability to Associate Pack Size with SCC-14 Cross Reference Barcodes to bypass prompt on the handheld
- Replenishment Letdown by Quantity, Product, Pick Zone
- Ability to Print SCC-14 Labels from Product Label Printing
- Restrict Consolidation of Stock with different Expiry or FIFO Dates
- Auto-breakdown of Packsizes in Random Bins during Allocation

5. LOT/SERIAL NUMBER TRACKING Another “must have” with any Warehouse Management System is Lot/Serial Number Tracking; this feature is designed to extend the inventory management capability in the warehouse to include tracking discrete balances by lot and/or tracking specific serial numbered items

Detailed basic functionality could include:

- Bin-level tracking
- Capture at Receiving
- Validate during Picking, Cycle Counting, Direct Move
- Allocate host-specified Lots / Serials
- Allocate Lots by FIFO

Advanced Lot/Serial Number Tracking expands WMS software with more robust inventory management functionality such as single/mixed attributes and expiry allocation.



Single Attribute Allocation Restrictions means that for lot tracked items, the system can ensure that an entire order line is filled from a single lot (some warehouses deal with customer-imposed restrictions on whether shipments can contain mixed lots)

Furthermore, some Warehouse Management Systems (WMS) functionality offers support for scanning 2-dimension barcodes for capturing serial numbers (in picking)

6. ORDER ALLOCATION Basic Order Allocation is a rules-based mechanism for allocating the available inventory to outstanding sales and is another “must have” with any robust Warehouse Management Systems (WMS).

Prior to order allocation, a short discussion should be examined with the relationship between order management, your Enterprise Resource Planning (ERP) System and Warehouse Management Systems (WMS).

Sales orders placed by phone, fax or email are typically entered into your ERP system manually using some sort of WMS Sales Order Entry function. Orders may also be placed using a B2B (Business to Business) e-commerce web-site, remote sales through mobile devices or by EDI.

As a result of sales orders being entered into your ERP system, the warehouse management software is immediately updated.

The WMS Software is now responsible for orchestrating the order management activities. This is the prioritization of stock allocation and the assignment of work in the warehouse. The effectiveness of these tasks is critical to the efficiency of the warehouse and the service level that it provides.

Order management is a dynamic process that requires the flexibility to accommodate many different warehousing styles. Some sales orders need to be immediately released for today's pick run. Some may be held for a future date with or without stock reservations. Orders may be prioritized by backorder status, preferred customer status, fill rate, pick-up time, and truck route or by date. There are countless criteria by which orders are prioritized, allocated and released for picking.

Warehouse allocation is responsible for the logical reservation of product for sales orders. Allocation may be based on specific criteria such as FIFO, LIFO, FEFO, batch, pack-size, zone and warehouse.

As items are received into the warehouse, they are immediately available for order allocation, eliminating any time delay or sequencing issues between receipts, receipt Confirmation and pick-list creation.

While orders may be allocated on a first come first serve basis, the warehouse manager will more likely want to assert control over the warehouse process by prioritizing which orders are selected for allocation using a Sales Order Grid in the Warehouse Software.

After an order is allocated it will fall into one of several statuses, depending on the availability of inventory and where the inventory is located in the warehouse for example:

Held Short – There is not enough stock to satisfy the order

Ready to Wave – There is enough stock and the order is ready for picking

Held for Replenishment – There is enough stock, but there is not enough units in pick locations to fill the order, a replenishment task needs to be completed before the order can be picked.

7. WAVE PLANNING: Designed to provide a flexible, user configurable method to build waves of orders to be picked in the warehouse: wave planning is a critical feature in any Warehouse Management System (WMS).

Once an order is ready to pick, it may be issued for picking using the Wave function.

The warehouse manager will typically sort and select order groups for picking using a sales order management function, then issue the orders for picking using the wave function. As a result, warehouse managers have unlimited flexibility when determining their picking strategies. Such as:

Order lines may be split by pack-size for optimal productivity (pallet quantities picked from pallet locations, units from pick-bins)

Customer specific labels may be printed for EDI / ASN compliance and integrated into the pick process. UCC128 serial container codes are created and scanned to build a detailed pallet or carton level ASNs.

Orders may be grouped together for picking directly into serialized shipping cartons.

Batch pick documents may be issued to enable the picking of multiple orders simultaneously with subsequent break-down in an order staging area.

Paper pick-tickets may be printed for paper picking, with scanpack validation.

Pick documents may be printed in multiple zones for simultaneous zone picking.

One label per unit/carton/pallet may be printed with a bin location for 'label picking'

Once the pick strategy has been determined, a Warehouse Management System will print picking documents according to the configured rules; pickers will be directed to the pre-assigned pick locations that were automatically assigned during the allocation process.

To guarantee accuracy, hand held computers should be used during the picking process to validate the picked product and its bin location as well as the shipping container / sales order.

Finally, packing slips are printed as a result of the workflow defined in Accellos One Warehouse. Packing slips may be printed after the last item on the order has been picked or once the shipment has been scanned before loading on to a truck.

Some Wave Planning Features could include:

- Waving from HH (Hand Held) or Web
- Printing Pick Tickets, Compliance Labels
- Calculate Number of Labels and print based on Zone,
- Generate Wave Labels, Pre-Packslip Labels, Packing Planner Labels,
- Paper Pick Tickets
- Pack & Hold, Ship With Other Goods

Wave Picking



The Wave Picking function allows a picker to gather multiple orders simultaneously on a pick run. Orders are picked directly into serialized shipping cartons.

The advantage of Wave Picking is that orders are picked and packed and checked in a single handling step using bar code scanners.

Wave picking is very effective for operations that pick to cart when there is an average of one or two shipping cartons per order. It is also effective for high volume operations that pick product out of flow racking to conveyor belts that whisk away boxes after they have been filled.

Cartonization

The cartonization function is a companion to wave picking. Cartonization automatically determines the number of shipping cartons required for a single order based on product and carton dimensions. It also takes into account the weight tolerance of both cartons and shippers. Pickers are then instructed to place product into the specific shipping carton that was pre-determined by the cartonization function.

The advantage of cartonization is that orders being shipped by common carriers like UPS or FedEx can be picked into their final, labeled shipping containers. Even if there are multiple boxes on a shipment, there is no need to consolidate the order in a staging area prior to shipment.

In addition, warehouses may be configured to automatically ship and manifest sales orders without any additional physical handling by shipping staff

Batch Picking

There is a subtle difference between Batch Picking and Wave Picking. Rather than picking multiple orders directly into shipping cartons, Batch Picking does not prompt the picker to specify the sales order during the gathering process. The result is a “Batch” of product for multiple orders is gathered, and then sits in a staging area until distributed into the individual order pallets or cartons for shipment.

The advantage of Batch Picking is that more product cube can be gathered in a single pass of the warehouse. However, warehouses need to ensure that they have enough space to stage the orders that have been batch picked.

Batch picking is effective for operations that will benefit from maximizing order consolidation, especially in larger warehouses where the amount of travelling required to gather orders would be substantially decreased by maximizing the cube gathered in a single pass. Operations with limited picking equipment resources (like man-up or narrow-aisle equipment) should consider batch picking to maximize equipment utilization.

Simultaneous and Sequential Zone Picking

Warehouses may be broken down into logical areas or zones. The picking function can be set up to span multiple zones, allowing the operation to have multiple pickers picking the same orders either simultaneously or sequentially. Zones may be set up in warehouse for many different reasons.

Materials handling infrastructure -Pallet racks in one zone, static shelving in another

Product Classification – Flammables in one zone, durables in another

Item Segregation – Customer specific packaging configurations, defective products, refurbished product.

ABC stratification – Separate fast moving items from slower moving items to allow multiple picking styles (Batch pick ‘C&D’ items, Wave pick ‘A’ items).

Load balancing – Multiple zones set up across a stretch of picking area (like flow-racking).

8. KITTING: Another “must have” in any robust Warehouse Management System is the ability to perform kitting functionality-especially if your wholesale distribution company has any light manufacturing operations.

WMS Kitting Functionally provides a formal warehouse process for building production orders that are downloaded from the Enterprise Resource Planning System (ERP). This functionality is useful for warehouse operation that requires light manufacturing based on a Bill of Materials(BOM) that can be maintained and downloaded by the ERP.

Functionality could include production orders containing the finished item and BOM are downloaded from the ERP and built using Kitting functions on the Handheld.

Further functionality could include:

Supporting Explode on Download kits

Build to Stock (based on BOM downloaded from the ERP) kits

Build to Order kits

*each ERP system supports kitting a little differently

9. DIRECTED PUTAWAY: Another best-in-breed Warehouse Management Systems functionality is directed putaway. Directed putaway provides slotting functionality for the optimal placement of products within the warehouse. Useful to optimize warehouse layout and maximize picker productivity by ensuring high-volume products are stored in the best possible bin. Also, unique product handling requirements and/or restrictions (for example, freezer, hazardous materials)

Functionality within Directed Putaway could include:

The ability to determines optimal bins for putaway based on velocity, handling codes, size locations primary locations, alternate locations and overflow locations.

Material handlers in Receiving, Direct Move, and Fill Bins are directed to the optimal putaway bin based on pre-defined algorithm

Slotting Reports that can be used to recommend product moves to improve productivity

System-directed moves. Handheld functions that let warehouse staff manage an electronic queue of reslotting tasks.

Incremental Slotting Report shows where products should be reslotted (displayed as ‘pairs’ of moves); also used to populate the Directed Move task queue.

10. DIRECTED ADVANCED ALLOCATION: In Warehouse Management Systems any sort of Advanced Allocation can significant add functionality to sales orders, purchase orders, and better inventory management overall in the warehouse.

Enhanced functionality in warehouse operations can expand to many areas including picking, receiving, stock locator, counting, order allocation, and wave planning enhancements: Some of the various functionality inside Warehouse Management Systems (WMS) with Directed Advanced Allocation could include:

Picking Enhancements:

Ability to enable User-Defined Prompts when sales orders are waved, when users start picking a wave or when users pick an item.

Hazmat Restrictions

- Carton restrictions based on weight, cube or value
- Ability to Capture box size during picking
- Ability to Repack Order, Repack Carton, Relabel Carton, Combine Cartons, Swap Serials
- Ability to create an Incident when pickers indicate bins are not empty

Receiving Enhancements:

- Configurable workflow prompts for bin, carrier, packing slip, receive date, freight status, comments, weight, cube
- Ability to enable User-Defined Prompts when purchase orders are waved, when users start receiving a wave or when users receive an item.
- Validate quantities upon PO Completion
- Ability to send internal email notifications when orders are received
- Ability to check UPC Barcode during Receiving

Stock Locator Enhancements:

- Decimal quantities
- Ability to enter Incidents via the handheld
- Replenishment Letdown by Quantity, Product, Pick Zone
- Restrict Consolidation of Stock with different Expiry or FIFO Dates
- Auto-breakdown of Packsizes in Random Bins during Allocation

Order Allocation Enhancements:

- Infinite Stock
- Background Allocation
- Ability to Define and Schedule Allocation Templates
- Ability to print Packing Slips for Nuked Sales Orders
- Allocation and replenishment based predefined packsizes
- Only ship goods in pre-defined packsizes
- Days to Expiry Allocation

Wave Planning Enhancements:

- Generate Wave labels, Pre-packslip labels, Packing Planner labels,
- Paper Pick tickets
- Pack & Hold, Ship with Other Goods, Order Consolidation at Waving
- Ability to Define and Schedule Wave Planning Templates
- Sort Full-Case (Slapper) Labels
- Set End-of-Line and Carton Type during Waving

About iCepts Technology Group, Inc.

We are a 100% employee owned technology company that has been working with Wholesale Distribution and Manufacturing companies for over 30 years. Our goal is to provide technology solutions to help your organization's supply chain become more efficient and your company more profitable!

We hope this information gives you an idea of the functionality and benefits of a "best-in-breed" Warehouse Management System (WMS). As mentioned before, there is much more technology within warehouse automation system. Every warehouse is unique and it is best to contact us with any additional question with your unique warehouse management needs

We look forward to helping your company as well.

Sincerely,

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