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TECHNOLOGY REPORT

WAREHOUSE MANAGEMENT SYSTEMS

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Choosing the Right WMS for Your Needs

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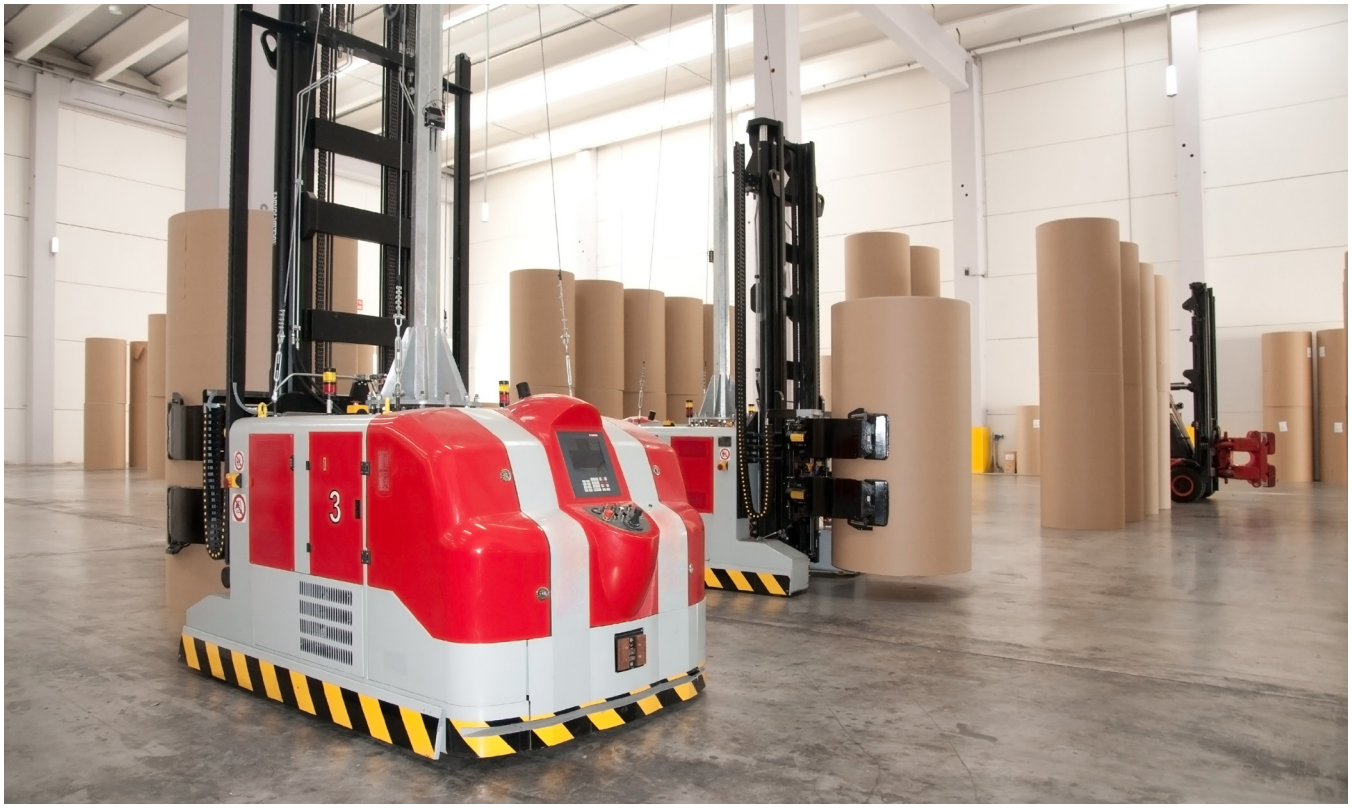


You have an order management system (OMS), enterprise resource planning (ERP) system or retail management system (RMS). All have warehousing functionality. Many businesses, especially small- to moderate-sized companies, run quite well with warehousing functionality provided by such systems.

How can you determine what benefits a warehouse management system (WMS) can bring to your business? One simple answer: A full function WMS provides greater control of inventory and management of labor within the four walls of the fulfillment center. In contrast, the legacy and strengths of an OMS and an ERP are in other functions, such as customer service, accounting, etc. This report will define what functionality you should consider is to define what functionality you should consider while you research implementing a WMS in your fulfillment operation.

The departmental warehouse functions controlled by a WMS include receiving and quality assurance, put away, replenishment of forward pick storage, picking, packing, shipping, returns and inventory control.

In general, we see these improved functions gained by implementing a full-function WMS:

- Control the movement and storage of materials and product (e.g., management of slotting, inventory location control, cube utilization, inventory accuracy, etc.);
- Improved accuracy, timeliness and overall throughput of customer orders for the above functions;
- Improved warehouse labor management through tracking and control;
- Flexibility in handling different order and product profiles (e.g., ecommerce small orders versus case pick to stores);
- Better control of production, assembly and costs of kits/sets and assembled product;
- Visibility to warehouse activities

and access to data (e.g., reporting, analysis and dashboards)
- Interface to warehouse control systems (WCS) for material handling equipment (e.g., conveyors, sortation, etc.).

There are hundreds of WMS on the market with a wide variety of price tags. But not all of them are created equal. Use these generalizations about the advantages of a WMS to help you determine how they will benefit your business.

1. Identify what additional functions will increase productivity, control inventory, improve customer service and reduce warehouse costs. Do these functions require a WMS over and above your current system?
2. Identify the return on investment and the benefits that management will want to see for its investment.
3. Use a formal RFP process. Write your user requirements, conduct vendor demonstrations, make reference calls and visit customer sites of your finalists, etc.

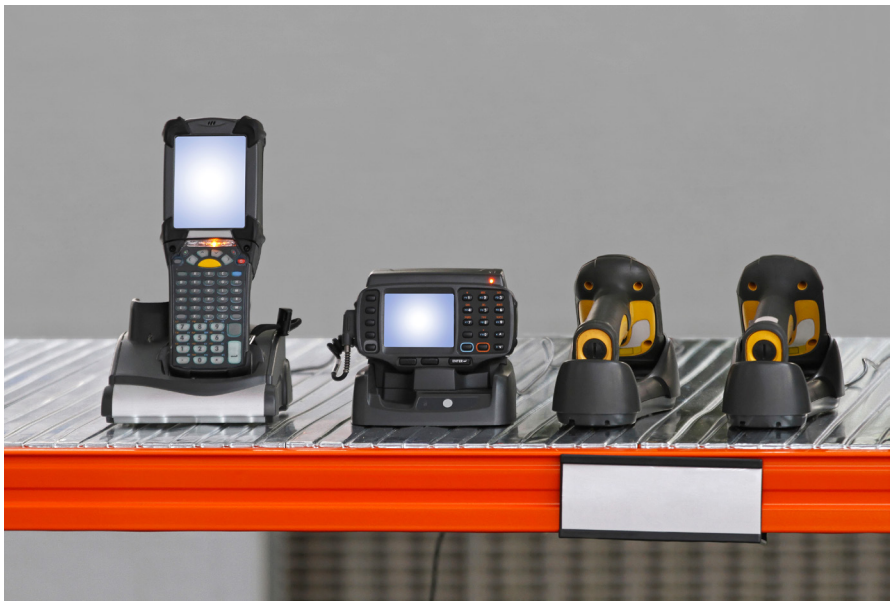
The results of an objective assessment will determine the benefits a WMS brings to your company.

Direct-to-Customer

Many WMS' specialize in various industries but are not prominent in the omnichannel or direct-to-customer marketplace. They often lack the direct-to-customer orientation (e.g., interface to ecommerce order processing; small order pick, pack and ship options; weighing scale and manifesting to expedited carriers, etc.). It behooves you as you start your search to create a short list of WMS providers with demonstrated direct-to-customer clients and dedication to developing more functionality for this marketplace.

Return on Investment

There are tangible savings from implementing a WMS in many companies. Some of these areas of improvement are increased warehouse productivity, identification of and reduction in errors, improvement in inventory accuracy to 99.9%-plus, and reduced training, especially with voice-enabled technology, wide range of analytics, and so on. Other intangible benefits are managing multiple warehouses and stock locations including stores, reduced order processing time to customer, scalability and increased operations agility improving turnaround in receiving, put away, order processing and returns.



Determine Requirements First

Start with determining what your current and future warehouse system requirements are. What improved functionality does your warehouse need to better service the customer (e.g., faster turnaround and order accuracy)? Increased inventory accuracy (e.g., eliminate warehouse back orders, location control, cycle count accuracy, etc.)? Increased efficiency labor usage? What are your requirements?

Next, develop a request for proposal (RFP) with these detailed requirements. From the vendors' responses, match your requirements to their functionality. If you deal with warehouse functions at a high level, any WMS will look like it can meet your needs.

What's the best approach for a small to moderate company versus a mega-company? Let the WMS requirements, ROI and your budget be the guiding criteria.

Warehouse Processes Need Flexibility

As businesses—retailers, distributors, wholesalers, manufacturers—adopt direct-to-customer fulfillment, their product and order profiles change dramatically. This has a huge impact on the warehouse because ecommerce orders are characterized by small orders, different outbound carriers, higher returns, and kitting of unique products, etc. The order profile is significantly different from pallet or carton-oriented orientation seen in most warehouses processes. These new profiles and processes require flexibility in warehouse operations.

WMS flexibility will assist in the multi-warehouse environment where the product and order profiles and processes may need to be unique. A WMS can provide more flexibility to the number of bin/slot locations and warehouses that the same product can be located in.

Third-party fulfillment (3PF) companies service dozens of companies and brands with variability of unique

company, brand, product and order profiles, as well as product dimensions, sales velocity and processes. In support of the client billing by transaction types and activities, there are WMS providers that have 3PF-oriented strengths.

Receiving, Quality Assurance and Marking

Warehouse functions may start with advance shipping notices (ASN) or EDI allowing carrier scheduling of dock appointments and better scheduling of receiving and put away personnel. This functionality is available in many WMS, or as an add-on module or service.

Other functions include:

- The capability to record carrier and/or vendor damage claims upon receiving;
- Creating barcode license plates for pallets and carton labels;
- Identifying forward and bulk locations as product is received and quantity on hand;
- Options for both paper and paperless receiving;
- The ability to identify special processing of product before put away;
- Cross docking from receiving to packing without going through the put away
- Status reporting of incoming receipts to warehousing and merchandising staff for resolution.

What QA functions do your operations need?

- Ability to store vendor/product/SKU sample testing criteria;
- Ability to store product specifications for QA;
- Support for vendor compliance program and reporting vendor "scorecard" of key metrics, on-time delivery, errors in shipment and receiving, etc. Status reporting of problem receipts to warehousing and merchandising staff for resolution
- Marking in retail, direct and wholesale customer print and ticket formats.

Put Away

Once inventory is received, product needs to either be cross docked to packing stations to fill back orders or put away. A WMS will greatly assist with put away tasks by identifying open bin/slot locations, storage type, cubic capacity, and so on, as well as the profile characteristics and cube required. An advanced WMS may have "directed put away" options based on system rules, storage parameters, product, velocity, etc.

Replenishment to Forward Pick

A WMS automates replenishment of primary or forward pick storage from bulk before the next wave of orders is sent to the floor for picking. It also eliminates warehouse back order costs and lost time. In addition, sales velocity data in a WMS will help plan the size of the forward pick storage by item to reduce the number of replenishment tasks. Recommended stock movement is triggered for a product by min/max or demand replenishment functions.

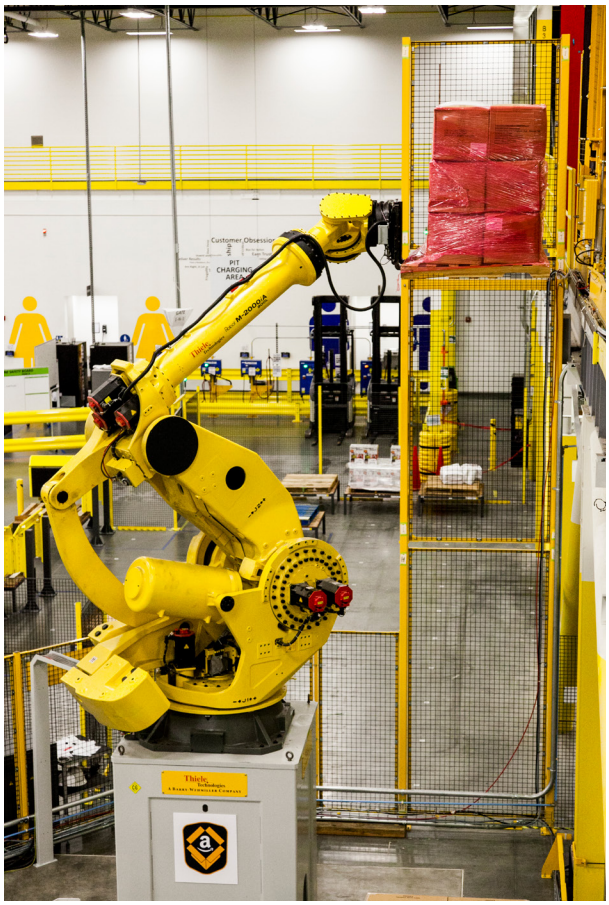
Slotting

One of the values of a WMS is how it will assist in slotting product—the process of assigning SKUs to picking locations based on various criteria, such as sales velocity, size, weight and category, among others.

Slotting functionality improves productivity by reducing picker travel time and recommend changes in bin/slot size, requiring less replenishment, and so on. Velocity reporting allows personnel to re-slot primary locations to gain the additional space and/or relocate fast-selling items to the "hot pick" bin/slot locations. More advanced operations may use dynamic slotting functionality; add-on systems are also available.

Production/Assembly

A variety of WMS functions are possible—work orders, kitting, assembly control of labor and material costs, inventory control at component and finished good levels, kit within a kit—all are options. Options also include single level bill of material (BOM) or a multi-level BOM and the management of assigning the component inventory through a work order process. Tracking inventory usage and sales at the finished kit and component level, track labor usage by work order and



assembled product, and work in process reports are also options. ERPs often have comparable function, whereas this is generally not an OMS strength.

Picking Options

Picking is one of the major labor expenses. A WMS will generally expand your picking options.

Depending on the complexity of your operation and functionality of each WMS, what are your requirements?

Some options include: paper and paperless pick systems, RF directed, pick to list, pick to box, pick and pass, zone picking, batch and wave picks, cluster pick, pick to cart, label pick and confirm, pick to tote, case picking, pallet picking, bulk, carousel, ASRS, robotic, perfect pick, guided picker systems, voice pick, RFID, FIFO, LIFO, lot number and date, pick to light, and put to light.

Options also include the ability to view the order queue by various types of orders and profiles; carrier level of service, single line item versus multi-line orders, special handling orders, down to selecting a single specific order. It can also allow more control over "order waves" being released to the floor and picker skill levels.

In general, OMS and ERPs have fewer options for the larger, more sophisticated warehouse operation.

Packing

Packing is a major expense. To gain customer order accuracy of picking and, therefore, customer satisfaction, consider "pack confirm" verification. Missed picks and incorrect order quantities are caught through the pack confirm process and pulled aside for correction. This should also allow the ability to provide print-on-demand customer documents, assembly directions, shipping labels, and support selective insertion of promotional materials.

Shipping and Manifesting

Determine what shipping and manifesting system options are available from the vendors. Are they certified for the carriers you use? How well do they interface to your carriers? Is this their system or another commercial system requiring another vendor relationship?

Determine the options the WMS affords you for supporting different configurations for printing shipping papers, carrier indicia, and so on.

An enterprise shipping system with high-speed capacity can run many pack lines in multiple facilities for large operations.

Inventory Control

Accuracy and control of warehouse inventory is a WMS strength and essential to processing customer orders quickly and accurately.

One of the major benefits is the ability to track inventory location and usage throughout the warehouse operations. The benefits also Include kitting, production and WIP controls, as well as tracking of component and finished goods i.e., functions that allow you to better utilize cubic space.

It also maintains a solid audit trail of every warehouse bin/slot location and items that have been stored from receipt through shipping by transaction type—sales, return, adjustment, etc., as well as the flip side or by product, where has this item been located. All transactions are operator, date and time stamped.

Cycle counting without requiring suspending system functions or after hours counting is recommended. This improved accuracy has allowed some companies to eliminate expensive and time-consuming year-end inventories.

Labor Tracking

As previously noted, labor usage and tracking is one area where WMS packages stand out from OMS/ERP. Labor is as much as 70% of the total fulfillment cost per order, when you consider all costs excluding outbound shipping. There isn't space to list the many labor functions that will become computer assisted and the manual operations eliminated.

A company's first WMS often brings the first comprehensive production reporting. It helps with capturing, reporting and analysis of department and individual hourly productivity, and performance to standards.

Add-on systems may be required for labor and budget planning and more advanced analysis.

On-Premise License versus SaaS/Cloud Systems

Evaluate in-house, on-premise installations versus subscription (or pay

as you go" cloud or software as a service (SaaS).

Over a realistic time horizon, what's the total cost of ownership for a licensed model (including the infrastructure, licenses, hardware, software, maintenance, professional services and IT staffing) versus the subscription price and implementation costs with SaaS or cloud providers?

Are all companies on the same version in cloud or SaaS service? Does your operation require customizations? Can they be accommodated and upgraded through time?

Annual maintenance of on-premise installations is between 18% and 22% annually and may require extensive IT planning and upgrade time. Compare this to cloud-based solutions, which software versions are upgraded more frequently, and are generally included in the "pay as you go price."

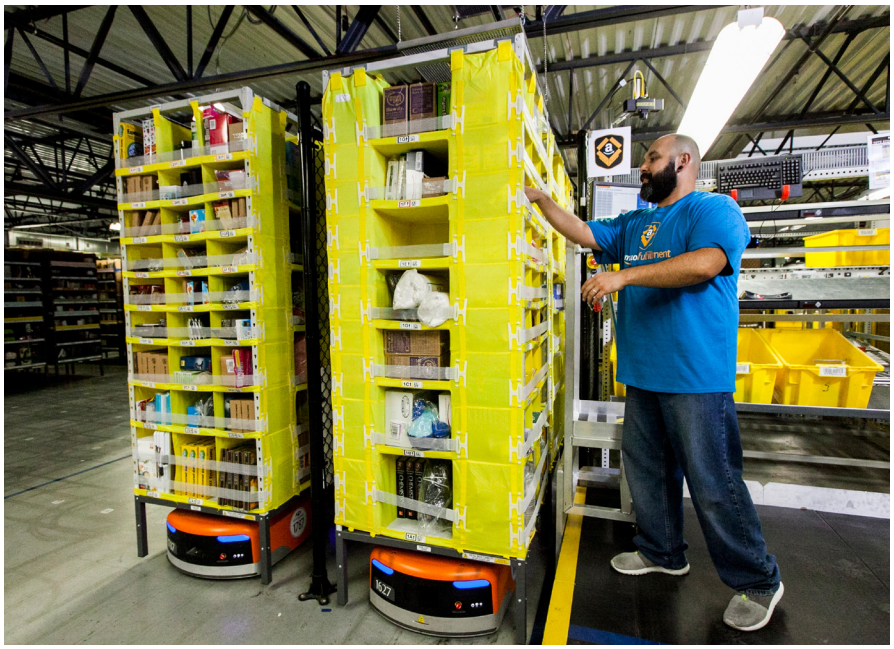
On-premise implementations compete for capex expenditures with other company projects and may be delayed. With SaaS/cloud your company is dependent on acceptable response time and availability of the WMS service. With on premise you may feel you have more control.

Determine what the pros and cons are of both for your business.

Technologies Should Include Voice Enabled Applications

Part of your WMS investigation should include where in fulfillment processes implementing technology will save money, improve accuracy and timeliness of transactions and serve the customer better.

Barcode marking, scan, wireless and RF technologies are very advantageous. Voice-enabled technologies also bring tremendous benefit in conjunction with WMS. Voice-enabled technology is no longer just for picking. It is rapidly being used throughout all fulfillment processes, including receiving, inventory control, cycle counting, retail stores omnichannel fulfillment, and so on. Voice-enabled applications increase the work pace, reduce errors, translate system codes to preferred languages, reduce training time, and reducing need for batch keying. Voice enabled is also available on less expensive devices such as handhelds and tablets, as well as voice PCs and wearables.



The use of wireless technology and Wi-Fi in centers allows you to utilize smartphones, iPads, tablets and any other wireless device that has the capability of reading a barcode or using voice-enabled technology. The costs of these wireless devices are far less than the traditional RF gun costs.

Best of Breed Systems Interface

Interfacing a standalone WMS system to your order management system is known as implementing "best of breed" systems. As you explore system functions, delve into what data is exchanged between the order processing system and the WMS (e.g., customer orders dropped to the WMS have in-stock products). Additionally, what is the direction of the data flow and frequency (e.g., nightly after shipping ship confirmation of a customer order back to the WMS and into the customer service functions of the OMS or ERP). Are these standard interfaces or custom? Be aware of development costs.

Interface to Material Handling Systems

Many warehouses are conventional in nature and do not require automated interfaces between the warehousing functions and any automation. However, if your warehouse uses material handling equipment, such as conveyors, sorters, carousels, palletizers, etc., then a control system, such as a warehouse control system (WCS) or programmable logic control (PLC), is needed to control the real-time activities of WMS and the automation. At the same time, a WCS generally does not have the four walls functionality of the WMS. It is less common to see OMS and ERP driving material handling equipment. What are your requirements?

Other Supply Chain Offerings

Another point to consider is that many WMS vendors offer additional functionality for supply chain, vendor and trading partner, inbound and outbound transportation management, container management, yard management and cube utilization. ■

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