

What is a Warehouse Management System?

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Warehouse Management Systems (WMS) are IT software applications that were initially developed in the late 1970's to support the management of the daily operations of warehouses and distribution centers. Warehouse management systems are connected with company business systems to receive information from and report warehouse activities regarding the movement and status of inventory.

There are many companies offering warehouse management systems, sold separately and as modules attached to larger business systems. Warehouse management systems are sold and integrated into business systems by manufacturers, systems integrators, and consultants. Most warehouse management systems are designed to handle broad and general application requirements, while others have a unique industry focus and experience. And each system has its own native hardware platform including SaaS, and operating systems, etc.

Warehouse management system development has been driven by its powerful database to support warehouse management at two levels of warehouse operation: the management of the warehouse as a department serving its company and supply chain, and the performance of individual functions and tasks within the warehouse.

At the level of the management of the warehouse or distribution center as a whole, the WMS receives, organizes, and presents summary information describing the daily workload requirements data, i.e., orders – inbound and outbound. Managers use the summary information by comparing it with historical patterns to determine the staffing requirements, and develop and enter a plan for the performance of the work. The WMS then organizes the workload to optimize the utilization of the warehouse physical resources, and directs and controls the performance of the work.

At the level of the functions and tasks, within the four walls, the WMS:

1. Directs and controls the basic functions and tasks of the warehouse activities including receiving, picking, shipping, etc., for example,
 - a. Scheduling receiving arrivals at the dock;
 - b. Documenting receipts;
 - c. Directing put-away;
 - d. Replenishing forward pick positions;
 - e. Directing picking or order selection;
 - f. Predetermining repack shipping carton size requirements;
 - g. Assembling orders on the shipping dock;
 - h. Scheduling outbound carriers arrival and loading at the dock;
 - i. Cycle counting;
 - j. Etc.; and
2. With add-on software providing greater functionality or methods to direct and control these and additional tasks within the warehouse, e.g.

- a. Distribution of MSDS data sheets
 - b. Tracking the distribution of controlled items;
 - c. Increasing the effective cube or weight capacity utilization of shipping vehicles;
 - d. Process returns;
 - e. Track and report labor productivity, and
 - f. Etc., and
3. Electronically communicates with staff and equipment performing tasks, directly and via Radio Frequency, including the
 - a. Automatic identification data collection regarding materials movement and status (e.g., bar code scanning, RFID, etc.);
 - b. Providing interactive direction to staff (e.g., via portable data devices providing digital display, voice, voice and visual data);
 - c. Interactive direction, control, and verification of task completion with automatic material handling equipment (e.g., ASRS, dispensers, carousels, pick-to-light, conveyor sortation, warehouse control systems, etc.).

The material handling industry continues to develop additional software and hardware that can connect with a WMS, to increase the capabilities of the WMS to support managers and staff in the performance of their tasks.