OVERCOMING THE W_S ACRONYM OVERLOAD

ABSTRACT

WMS. WCS. WES. Let's face it: the industry faces a W_S acronym overload—to the point even the most seasoned warehouse professionals can find the software market a confusing scene.

After all, the lines that separate each system continue to blur and crossover in one way or another. Some WMS solutions try to bridge the gap to and provide WCS performance, while many WCS offerings now offer inventory management and other functionality in an effort to occupy the role of a WMS. Then there's the latest entrant – WES, which aims to be a true hybrid of WMS and WCS. But what does that really mean for operations looking to make the right investment? What if there was a way to simplify the warehouse software discussion, breaking out of the W_S acronyms with substantive discussion of what the software must do and how it must perform?

This white paper discusses the established software paradigm for warehouses and distribution centers and introduces an alternative approach – a modular package, customized according to the functions required by unique, high-performance operations.

DEFINING THE LABELS: WMS, WCS AND WES

To grasp the potential of a fresh approach to warehouse software, it's important to first understand the landscape.

A warehouse management system (WMS) is an application that controls inventory flow into, within and out of distribution centers and warehouses. By conducting a variety of tasks, from verifying receipts and directing inventory restock, to consolidating orders on docks and creating pack slips, the WMS ensures that inventory, orders and employee responsibilities are cohesively managed from the moment products enter the facility, to the when they ship.

A warehouse control system (WCS) manages automated equipment like AS/RS, conveyors and sorters, and the flow of individual items, cases and pallets that travel on them. The WCS sits between the automated equipment and the WMS. It determines the most efficient ways to route materials through automated equipment, can re-optimize order paths as business conditions change and even send updates to keep the WMS informed or report a routing error.

Then there's a new kid on the block – the warehouse execution system (WES). WES takes the approach of manufacturing execution systems – controlling multiple elements of the production process and making adjustments based on real-time conditions to improve output – and applies it to warehouses and distribution centers. WES combines equipment control of WCS with some of the functionality of a WMS, such as basic receiving, replenishment, parcel manifesting and pick management, but no order management, wave management or slotting capability.

LIMITATIONS OF THE W_S ACRONYM WORLD

This partnership between WMS and WCS has been standard operating procedure for automated order fulfillment operations for many years. But today's supply chains operate faster than ever, at a breakneck pace to serve the fast delivery, last-minute orders and quick-turn fulfillment demands of e-commerce. As such, speed and adaptability reign supreme, with warehouse professionals charged with pushing through individual high-priority orders at drop of a hat. The problem with the existing WMS-WCS paradigm is that the virtual handshakes between different software layers do not enable the agility and adaptability necessary to direct orders, labor and automation to meet the moving targets of e-commerce at great speed.

Additionally, there is no "one size fits all" solution. Some facilities may not be automated, so they only require WMS, while others may be highly automated, thereby relying heavily on WCS or WES. The integration of WMS, WCS and now WES varies so often from one warehouse to the next, that it is virtually impossible to determine how, when and where the systems should be assimilated.

Instead, simply consider the software modules necessary to fit business requirements. And while certain terms may seem to describe these requirements, sequestering functions into separate packages risks more layers, interfaces and support requirements. As businesses grow and their needs change, this complexity can become especially challenging, with even greater complexity and slow-moving, custom integrations necessary to bring overall capability up to speed.

AVOID WAREHOUSE SOFTWARE REDUNDANCIES

Only buy what you need. It's a common-sense principle that manifests itself throughout businesses. Even if buying more functionality or user licenses bring the unit cost down, the underutilization turns unit cost savings into waste.

But figuring out how to avoid waste in warehouse software packages is easier said than done, as confusion can hide behind common acronyms. For instance, some WCS solutions might include inventory management or order fulfillment features that a facility's WMS already handles. Likewise, a WES or WMS may have functions rendered redundant by an existing WCS package.

The lesson? There's more to a WMS, WCS and WES than the label. Avoid buying excess or redundant tools and make the most of software investments by looking deeper at what each platform actually does. This approach saves money and avoids the weighing down operations with bloated, bulky software.

UNDERSTAND THE BUILDING BLOCKS

What are common warehouse software capabilities that facilities must consider to meet business requirements? The first step to breaking through the various labels is to look at what software in the warehouse actually does.

The chart below lists common warehouse software functions for equipment control, inventory management and order fulfillment, along with the platform on which they typically reside. Please note, with such variability between systems that go to market under the same label, the designations are an approximation.

Capability	Description	WMS	WCS	WES
Equipment control				
High-speed sortation	Use scanning, RFID or other technology to keep orders moving in high throughput DCs with a high level of speed and precision		✓	✓
Case and pallet conveyor	Direct critical transportation arteries to keep items and loads moving to support warehouse processes		✓	✓
Palletizers	Direct outgoing product for palletizing, interface with creation software and direct finished unit loads		✓	
AS/RS	Manage crane- and shuttle-driven systems, with logic to optimize inventory storage and retrieval processes		✓	✓
Merges and singulators	Prepare inventory to move efficiently through downstream automated systems		✓	✓
Weigh scale interface	Precisely record and transmit relevant information to inform downstream shipping processes		✓	
Print-and-apply interface	Print and adhere critical information labels to keep downstream systems running efficiently		✓	
Automated Guided Vehicles (AGV)	Interface with mobile robot navigation technologies to have them function as part of integrated systems	✓		✓

Capability	Description	WMS	WCS	WES
Inventory management				
Full DC inventory	Maintain inventory visibility and manage all functions throughout the entire facility	✓		
Equipment-level inventory	Get a more precise, real-time view of inventory as it moves through automated infrastructure – not just process or wave information			✓
Replenishment	Ensure pick and storage locations are stocked and in the right locations to keep pace with incoming demand	✓		✓
Cycle counting	Keep track of inventory with counting parameters based on data from warehouse software to optimize fast and slow movers	✓		
Order fulfillment				
Wave management	Group orders based on time to process, delivery requirements and more to reduce overall fulfillment and loading time	✓		
Pick-to-light/ put-to-light	Communicate with light-direct systems to ensure pickers can fulfill time-sensitive orders with clear instruction	✓		✓
Voice pick	Direct labor resources to handle picking and other tasks, and update operational data accordingly	✓		✓
Order management	Prioritize stock allocation and assignment of work for efficient movement that meets high service levels	✓		
Route management	Optimize order movement through pick modules and automated infrastructure to minimize congestion and order cycle time		✓	✓
Goods-to-person	Maximize labor efficiency in high-throughput operations with well-coordinated, fast moving inventory from storage to fulfillment	✓		

BREAKING OUT OF SOFTWARE SILOS

Warehouses and distribution centers now have the choice to break out of these established W_S silos, accessing a wide range of modules running on a single software platform, designed to work together in any number of configurations to fit what each individual operation needs. Such consolidation can improve overall control, resulting in greater efficiency, flexibility, visibility and precision.

Consolidating such broad functionality onto a single platform requires no integrations and digital handshakes, enabling the agility that modern e-commerce-driven supply chains require. No integrations and digital Package routing on automated systems can be continuously optimized based on real-time traffic conditions to find the least congested path. Labor can be adjusted in fulfillment workflows based on high volumes in certain areas or delays in automated systems bringing inventory to certain locations.

This ability to adapt to changing conditions quickly means operations can accommodate those eleventh-hour orders with ease and power through peak volumes, getting more orders out the door faster, with fewer errors.

KEEP AN EYE ON TOMORROW

E-commerce is characterized by change and fast growth. Startups and established players alike are applying the e-commerce model to a wide range of industries, from grooming products and apparel to even food and alcohol delivery.

As these companies and the businesses who help support them grow, their supply chain infrastructure must adapt. For example, while operators roaming pick aisle with pick lists may work in the near term, new workflows like goods-to-person fulfillment and technologies like voice and lights may be appropriate as growth dictates.

Warehouse software should be able to scale with the business, handling the necessary changes to processes and technology without costly new platforms or complex reconfigurations.

WAREHOUSE SOFTWARE BASED ON FUNCTION

The old software paradigm goes from the outside-in, applying established W_S solutions to fit operations, oftentimes with complex integrations and crooked roads to scalability.

But today, businesses can take a more open-ended approach that builds a balanced, best-fit package of capabilities around their operation. A lean package of powerful modules that puts the end user in control to define necessary functionality, with the ability to easily scale and change as business dictates.