

Key Trends in Warehouse Management Systems

Better Suite Integration, SOA, Support for Manufacturing Logistics Among the Developments

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For companies that are considering a Warehouse Management System to help them reduce logistics and distribution costs in 2009, there have been a number of developments over the past few years that are worth considering when looking at different technology options and vendors.

Below, we highlight several of these key trends.

Better Suite Integration

The reality is that when the integrated logistics product suites were first introduced to market earlier in the decade, the result was more vision than reality. Suite components were often built using different technologies, and true integration between the different modules was rarely robust enough to really drive operational value.

That has clearly changed. While there is always room for more progress, and the level of integration will vary by WMS vendor and specific module, the story has changed dramatically in the past few years. Most WMS vendors have made better integration among suite components a top priority in their R&D spend. This means, for example, that in many solutions there is a much improved ability to plan labor resources and balance workloads across the DC through better integration of the WMS with the labor management module. It can also mean improved inbound and outbound management as a result of better integration between the WMS and dock door scheduling modules.

Service Oriented Architecture

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a current IT-industry buzzword, there really is something different and important about so-called “Service Oriented Architecture.”

In summary, WMS and SCE solutions built upon an SOA foundation should be much easier to modify than those developed with traditional approaches. They should also be easier to integrate with any other systems, especially those also developed from an SOA approach, such as SAP’s NetWeaver and Oracle’s Oracle Fusion integration platforms and most Enterprise Application Integration tools.

How is this possible? The short, mostly non-techie answer is that the functionality in a WMS and related modules is “exposed” as a service that can be called internally by the WMS itself (making modifications easier), or externally by other programs such as an order management system. Logistics data can also be passed back and forth between applications in a vendor’s suite in a much easier way than previous approaches to software.

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Increased Smarts

Across the board, Warehouse Management Systems are getting more intelligent, in parallel with the need to optimally manage larger, more complex distribution operations.

This manifests itself in several ways. Certainly, as discussed above, the increased integration of Warehouse Management with other components such as labor management, slotting, transportation management, etc., has the effect of enabling the WMS to make better decisions. But WMS providers are also putting more real smarts into the core application.

One area where this manifests itself is in the ability of the WMS to balance work across different pick and processing areas in the DC. Vendors have added a variety of tools to solve this consistent challenge, such as giving wave planners better information about workload by zone before order release to the floor. But increasingly, leading WMS providers have developed the smarts to release specific orders to different zones that will automatically better balance work across different picking areas.

Similarly, leading WMS are using better intelligence to improve overall distribution center flow. One area where this is clearly happening is in better replenishment of forward pick areas. Vendors are not only offering an increasing assortment of configurable replenishment options, but many are now doing a better job of tying that replenishment activity to real-time inventory and picking activity.

WMS providers have also added new capabilities that improve DC flow by metering work sent to

downstream activities. For example, the WMS may hold the release of orders to a pick zone if the area is already busy with vehicle activity. Or, it may recognize what is going on with final pack stations, and send a message to a conveyor control system to release work to pack stations which are most available.



Simulation capabilities are also starting to move into WMS, again sometimes in concert with labor management systems. This would enable, for example, a DC manager to estimate the effect of a change of picking strategies, warehouse layout or automation systems in terms of labor cost and processing time.

The future of WMS is ever more intelligent processing, and vendors have made significant strides in this area in the past 2-3 years.

Support for Ancillary Technologies

In just a few years, the industry has gone from seeing very little “out of the box” support for voice technology, for example, to one where now most vendors can offer a direct, real-time integration with leading voice system providers.

Additionally, some WMS vendors are building more standard support for integration with a wide variety of material handling equipment, reducing project risk and the costs for an area that typically has still required quite a bit of costly customization even as the general functionality in the base packages themselves became much more robust.

This support for automation is taking two forms: some WMS vendors are building more robust and standard overall frameworks for dealing with automation systems,

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an approach often made possible by the SOA technology underpinnings.

Second, individual WMS vendors are reaching out to provide standard support for specific materials handling technologies and vendors, such as Automated Guided Vehicles.

Manufacturing Logistics

In some cases there is increased blurring of what is manufacturing and what is distribution, as companies deploy such techniques as postponement and even traditional manufacturing sites operate at ever greater velocity. As a result, several WMS vendors have added additional support for manufacturing logistics proc-

esses. In some cases, this includes functionality that borders on that offered by traditional Manufacturing Execution System (MES) vendors.

That would include such capabilities as adding real-time inventory and location control for raw materials and components, adding "task management" capabilities to materials movement in the factory, support for production line replenishment, electronic Kanban, and other capabilities.

On-Demand Solutions

While "on-demand" or "Software as a Service" was late coming to the WMS world for a number of reasons, the market has recently seen several new on-demand market entrants, and the larger, established providers are in some cases also looking at on-demand offerings, especially for smaller distribution sites.