

# Determining Your Fit: Warehouse Considerations in Microsoft Dynamics AX 2012 R3

While evaluating the overall process to migrate to Microsoft Dynamics AX 2012 R3, it is important to best understand how AX 2012 R3 works and its capabilities and complexities. Because AX 2012 R3 has several different options, a strategy is required to best utilize the software. In addition, key setup elements, such as activating advanced warehouse management (WHS) in a specific warehouse, cannot be changed after beginning the process. It is imperative to make correct decisions at the start. Here are the top considerations to aid you in this process:

## Operational Complexity

### *Order fulfillment Strategy*

When thinking through the best fit with AX 2012 R3, a great place to start is with a well-defined order fulfillment strategy. During the fulfillment process, several methods should be considered for picking. If it is a simplistic operation, then AX 2012 R3 WMS I capabilities can be used. For a little more operational control, some key WMS II capabilities should be considered, as this provides key capabilities while minimizing the level of effort in system setup, maintenance and overall project timeline. While WMS II is not supported past its current release, many AX customers are finding success with this viable functionality for R3. For more complicated approaches or a desire for system-directed operations, AX 2012 R3 WHS should be considered. Below is a table that can provide some guidance in making decisions in this area:

Functional Considerations	WMS I	WMS II	WHS
Basic Order Picking	X	X	X
Basic Order Staging		X	X
Basic Order Loading		X	X
Order Consolidation		X	X
Outbound Pallets		X	
License Plating			X
Wave Management			X
Multi-step Staging			X
Cluster (cart) Picking			X
Batch Case Picking			Gap

In AX 2012 R3, leveraging the flexibility of Location Directives provides user-defined capabilities that help identify pick and put locations for inventory movement. Using this capability can be setup in a simplified manner; however, providing true functional capability within your operation can make this far more complex. Making decisions to leverage zones, location profiles, or other criteria are important for key operational efficiencies, but also are important for system performance, regardless of the R3 option you choose.

It is also important to dig into the logic on how WHS determines location capacity. Your business must determine if you will leverage usable dimensions or a specific location volume to determine the capacity. In order to do that, you might need to import the height, width and depth

of locations. With this, even if your operation is able to gather all unit of measure dimensions for product, the Location Directive Engine takes time to calculate location volume and may have some performance degradation. Leveraging stocking limits by item or pack size category may provide a solid compromise between detailed dimensional data vs. more effective putaway methods.

### *Sales Reservation Strategy*

Similar to order fulfillment, your sales reservation strategy has a lot to do with the final decision. Within Dynamics AX, we have found that the reservation process historically has been challenging. It becomes more complex when you need to track batches or other more detailed item variants. While basic order picking in WMS I or WMS II is effective for many organizations, if you need a more flexible reservation that does not tie to the location, that indicates WHS.

This approach provides the ability to reserve without creating the challenges of tying up a particular location, batch, or serial number. Having this flexibility is a more effective way to manage reservations within the system-directed system.

### *License Plating*

Utilizing license plating is often a debated topic on each project. Whether you plan to use License Plating or not though, is key in the decision process, as this is a requirement for WHS.

License plating can be used to track inventory at a more detailed level (such as bulk locations, staging areas, etc). This is also needed for effective use of system-directed concepts (unless a list is provided for Work ID). Keep in mind that utilizing license plating can be turned on at a location profile level. License plates can also be created 'behind the scenes,' which may be more useful in some areas.

If you don't have a need for License Plating, the use of the Pallet ID dimension can be used for basic movement of product within AX 2012 R3 functionality for WMS II. Utilizing the 'Picking Pallet' approach for pick routes also provides some fundamental warehouse functionality. If you do plan to use it, AX 2012 R3 WHS provides item dimensions leveraging license plating (rather than Pallet ID).

## **Operational Culture**

### *User-Directed vs. System-Directed*

As with any operation, it is important to understand the operational culture; some are driven by simpler processes and user-based decisions, while others are fully automated and direct the warehouse personnel for every move. In our experience, if you try to implement a system-directed solution like WHS but don't have a culture that effectively embraces the system decisions, it will lead to failure. Having executive leadership and on-floor management involved in these decisions is critical.

While AX 2012 R3 WHS was designed to be fully automated and direct all warehouse personnel, there are more simplistic methods and approaches that have been used in implementing the system. Doing so does give the warehouse personnel more flexibility;

however, if the system is properly setup for full operational optimization, then a simpler implementation may lose a number of key efficiencies.

### *Implementation Approach & Cost*

Since all WMS capabilities are embedded into Dynamics AX, it correctly has been assumed that WMS I and WMS II solutions are a relatively small effort to setup and implement. The setup capabilities in those options are often days or weeks of effort (depending on the functionality and operational complexity). With WHS, we have found that the effort is 700-1,500 hours of services. This is because the design is built around true and deep WMS capabilities. Having this flexibility often leads to complexity.

### **TMS Considerations**

As companies evaluate AX 2012 R3 capabilities, it is helpful to also understand the needs for transportation capabilities. While the system is not designed as a full-blown Transportation Management System, it does have solid Transportation Execution capabilities. Some capabilities include rating, routing, freight reconciliation, and appointment scheduling.

However, because the line between WMS and TMS is blurred, you can still leverage the Load Building Workbench without the significant TMS setup. Alternatively, you can leverage rating capabilities within the TMS without implementing WHS capabilities.

One disappointment that currently exists is leveraging the capabilities of parcel labeling and manifesting. While Microsoft has acquired the code that contained the rate engines and integration that retrieves rates from other systems (like FedEx, UPS, or ConnectShip Toolkit leveraging Prologistics AMP), it is not available in any upcoming release. However, Microsoft has made the code available to the partner community through Partner source.

### **Hardware Considerations**

One final consideration with AX 2012 R3 is in regards to hardware. This critical component often does not get the same amount of attention when it comes to the complexity of a business solution, but as an enabling component, there are intricate operational details to think consider. These of course include the technology and hardware selection, but also site surveys, connectivity, labeling requirements, warehouse media/signage, and printing.

If AX 2012 R3 WHS is the right fit, basic RF technology is included in the cost of the system. With the included RF though, telnet is not supported, so customers with older hardware will need to buy new devices. In addition, the basic RF does not support barcode parsing, and provides limited labeling capabilities.

In summary, AX 2012 R3 steps into new territory, introducing license plating, system directed rule engines and a flexible reservation hierarchy. This added functionality increases the need for experience in warehouse operational knowledge during the implementation.