Which SAP® Warehouse Management Application is Right For You?

Honeywell
Executive Summary

The supply chain is getting faster and more dynamic every day. The next level of performance improvement is not going to come from single best-of-breed solutions, but from streamlining the entire enterprise fulfillment process. This means that we can no longer look solely at the individual elements of the enterprise supply chain, such as the warehouse, but have to focus on the entire infrastructure—the fulfillment backbone.

This white paper is designed to provide an overview for both Operations and IT leaders to understand the most current features and functionality available within SAP Warehouse Management. It encompasses a detailed review of both the core SAP ERP Central Component SAP (ECC) functionality as well as an updated overview of some of the new features now available as standard in SAP Extended Warehouse Management (EWM).

The information provided will enable you to best understand which WM application is right for your organization, for SAP companies of all sizes and industries. This document is best suited for SAP companies evaluating:

- migrating from a legacy third party WMS application
- upgrading from an existing SAP environment (IM/WM)
- installing a new greenfield facility
- transitioning from a manual, paper-driven operation
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About the Author

Peak-Catalyst, has been a proven partner for SAP Supply Chain Management (SCM) implementation and consulting services for 15 years, with numerous successful SAP SCM implementations for companies of all sizes and industries. As a certified SAP services partner, Peak-Catalyst’s core focus is enhancing the SAP SCM suite, including products and services for:

- SAP Extended Warehouse Management (SAP EWM)
- WM (Warehouse Management)
- SAP Mobile Data Collection (ITSMobile/SAPConsole)
- SAP Logistics Assessments & Business Process Optimization
- Small parcel/LTL shipping
- Enterprise Mobility Solutions

In addition to our SAP Warehouse Management expertise, our logistics implementation experience spans across multiple industries such as: Pharmaceutical, Chemical, Manufacturing, Pulp and Paper Manufacturing, Food & Beverage, Retail, and High Tech. Peak-Catalyst is committed to the success of companies leveraging SAP as an enterprise-wide solution platform as well as satisfying all of your Supply Chain Execution requirements.

In addition to our ongoing SAP solutions for warehouse management and SAP EWM engagements, we have unique insight and experience with SAP Extended Warehouse Management, having conducted pre-release testing on multiple releases of SAP EWM in close conjunction with SAP AG Development Labs. We were also a key player in SAP’s internal, pre-release testing stage for TRM in Walldorf, Germany and successfully rolled out TRM to an SAP R/3 Enterprise ramp-up customer. Peak-Catalyst also played an integral role with pre-release testing of SAP’s native radio frequency data collection product, SAP Console, and were the first consulting company to implement the solution in North America.
Key Information Provided:

**What does the evolution look like?**
A brief overview on the past and future functionality of SAP Warehouse Management.

**What are some of the new SAP Functionality for WM?**
With the introduction of SAP Extended Warehouse Management (EWM), the functionality now available within SAP SCM has been vastly improved. Capabilities such as cross docking, dynamic cycle counting, slotting, yard management, labor management, kitting, integrated material handling functionality and task interleaving are now all standard functionalities within particular releases.

**Which WM solution is Right for You?**
A Summary Chart comparing various releases, features and functionality.

**Which SAP® Warehouse Management Application is Right For You?**

**What Does the Evolution of SAP Solutions for WM Look Like?**
SAP Supply Chain Management (SCM) enables companies of all sizes and industries to effectively manage a fully integrated supply chain on a single global platform. A central component of SCM is Logistics and Fulfillment functionality provided through SAP WM, which has evolved significantly since its initial release with the SAP R/2 suite.

**SAP Releases by Date**

<table>
<thead>
<tr>
<th>Release</th>
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<tbody>
<tr>
<td>SAP R/2</td>
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New SAP WM Functionality

Task and Resource Management
As of SAP release 4.7, Task and Resource Management (TRM) strengthens and completes the LES/WM solution by optimizing material flows via task execution and resource deployment. TRM breaks down material movements to a task and resource level and optimizes the sequence in which they are executed, ensuring that the right task is completed by the best resource at the most optimal time.

TRM helps you to manage your warehouse processes more efficiently because it achieves an unparalleled degree of process visibility within the system by tracking any activity performed on the warehouse floor. TRM uses a systemic model of the warehouse's physical layout to deploy resources according to the actual workload, the resource's qualifications and the current geographic positions of the resources. The efficient deployment of resources contributes to a considerable reduction of costs in material flow processing.

SAP Extended Warehouse Management

What Does the Evolution of SAP Solutions for WM Look Like?
SAP Extended Warehouse Management (EWM) was released with the SAP Supply Chain Management (SAP SCM) module. The terminology can be confusing, but there are really two different forms of EWM, depending on how they are being used. When SAP Warehouse Management is being used with SAP release SAP ECC 5.0 or higher, in the centralized mode, it is referred to as ERP EWM. When SAP solutions for WM is being used in the decentralized form in conjunction with the SCM module, it is referred to as SAP EWM.

In its decentralized form, the capabilities of SAP EWM are expanded. Basically, ERP EWM has minor changes from the functionality that exists in SAP 4.7. With SAP EWM, the functionality includes what 4.7 Extension Set 2 can do as well as improved workflow, process integration and the various other features mentioned above (under evolution).

SAP EWM offers increased flexibility and capabilities beyond ERP EWM. Typically, EWM is a good fit for companies that have one or more of the following characteristics:

- high SKU and line item volumes
- very fast moving product
- complex cross docking requirements
- detailed packaging and shipping processes
- third party logistics services (3PL) on either the inbound or outside side, or both.
Inherently, SAP EWM should operate on a decentralized server for maximum performance and flexibility. While the foundation of EWM lies within the Service Parts industry, SCM is designed to work across multiple industries. It all depends on the functionality and business requirements that your organization needs to meet. This is discussed in more detail in the next section.

TRM offers unique features for optimized materials movement, a transparent view of warehouse processes and value added services support.

**TRM Features**

- Task Execution
- Value Added Services
- Prioritization
- Tracking and Monitoring
- Interleaving

Bottom line, TRM will optimize your supply chain management, improve your customer and partner relations and provide cost savings.
Functionality

Many of the underpinnings of TRM have been incorporated into the SAP EWM product (such as Tasks, Resources, 3-dimensional warehouse, etc). However, unlike TRM, the EWM product inherently offers this functionality as a part of the base product improving the user’s experience in day-to-day operations. Other functionality features of SAP EWM include:

**Deconsolidation** – Upon receipt, the products can be directed to a deconsolidation work area where like products can be separated off of the mixed pallet and put away as homogenous units.

**Handling Unit Management** – Handling Unit Management is defined at the storage type level versus the Storage Location level as in SAP ECC.

**Rules and Prioritization** – Increased flexibility in work assignment and prioritization of tasks. Task interleaving can be found as an offering in EWM 7.0. BAdl’s for interleaving are available in all releases.

**Explicit and Implicit Counting** – Used as part of the Quality Assurance process for counting goods upon arrival into the warehouse.

**Wave Creation and Assignment** – Improved tools in order to group and efficiently pick Outbound Orders.

**Kitting** – Kit to Order, Kit-to-Stock and Reverse Kitting. The functionality for Kit-to-Stock exists within EWM 5.1. Need SAP CRM and SAP APO in order to perform pieces of kitting. Supports complex kitting.

**Slotting** – SAP EWM has slotting tools available to determine the best location of product storage within the warehouse. It is broken into 2 pieces:

- Slotting – planning tool materials movement, a transparent view of warehouse processes and value.
- Rearrangement – the execution of the planning run added services support.

**Handling Units (HU)** – Similar to 4.7, however the logical HU is now replaced with a TU (transportation unit) Post Processing Framework (PPF)—formerly known as Output Determination. This provides additional functionality after a transaction has occurred (i.e. trigger messaging, TRM Features execute follow-on transaction, etc).

**Material Flow System** – Provides integration points to directly communicate with IP connected Programmable Logic Controllers for automated material handling systems, including a graphical status display to monitor material movement and system status.

**Labor Management** – Provides the capture of direct and indirect labor tasks and allows your customer/ partner relations and for integration with Engineered Labor Standards for warehouse tasks. Increase visibility into workload both planned and actual and integrates with SAP Business Intelligence (BI) for reporting.

**Graphical Warehouse Layout** – Provides a 2-D representation of the warehouse and the yard of the warehouse for both definition and re-warehousing efforts.

**Production Receiving and Supply** – Provides the functionality to perform Goods Receipt for Production Order in the EWM warehouse, then staging of parts for Goods Issue in a Production Supply Area. Production Supply is included in EWM 7.0.

**Cross Docking** – EWM provides multiple cross docking scenarios, including pass through transportation hubs, STO generation and transfers based on SAP APO drivers or updating open picking tasks to consider material on the receiving dock before putaway, if quantity and FIFO/FEFO requirements are met. Merchandise Distribution and Opportunistic Cross-Docking exist with EWM 7.0.
Which WM Application is Right for Your Warehouse?

Warehouse operations with a high level of distribution activity, volume, operational complexity and/or value added services typically are the best fit for SAP EWM and TRM. These attributes and other factors should all be considered when determining which application is a fit for your supply chain.

High Level of Distribution Activity & Materials Movement

SAP EWM and TRM were designed to benefit warehouse operations that are more distribution oriented as opposed to material storage oriented (e.g., a production supply facility). If efficient management, movement and distribution of materials are core competencies and critical success factors for your organization, EWM is a good fit and will significantly enhance your labor efficiencies and minimize your labor costs. The monitoring capabilities provide increased visibility into movement and material throughout the warehouse.

Parcel Shipping – Specific to outbound small parcel/LTL packing and shipping, Peak-Catalyst provides a native SAP shipping solution completely integrated with the leading global carriers, including FedEx, UPS, USPS, TNT, Canada Post etc. as well as numerous LTL carriers and freight forwarders.

High Level of Volume

SAP EWM offers the most value to those facilities with a high level of material flow velocity (typically characterized by the number of transfer orders or line items), high transaction volume, a high number of warehouse associates per shift and multiple types of material handling equipment. For example, if you have 50 trailer loads a day, you will reap a much higher benefit from the system than if you only have five.

Operational Complexity

SAP EWM offers strong functionality for complex material flows, such as the use of special equipment that cannot physically make certain material moves efficiently, but instead uses pick and drop locations. The system’s decomposition of TOs into tasks offers an advantage for these complex scenarios. Other operational complexities such as pallet decomposition and other warehouse work center operations are handled much better in SAP EWM.

Level of Value Added Services

SAP EWM also offers strong functionality for value added services such as special labeling, pricing, packaging, and hazardous materials notes on shipping documents. The higher the level of services you offer, the better the fit with these solutions. Many pharmaceutical organizations require additional quality checks on random, product or origin parameters and this functionality can be leveraged effectively for this purpose.
Current User and Decentralization

Current users of SAP WM may find an independent systems configuration audit and warehouse operational review beneficial prior to undertaking the implementation of SAP EWM. Companies currently running WM and considering an implementation of EWM, should evaluate external consulting support, particularly for the rollout to the first few sites. SAP EWM has different features and functionality that require a different and unique skill set versus the core WM module. Other factors that should be weighed when considering the implementation of SAP EWM is the organization’s ability to decentralize the WM/ SAP EWM system as well as the use of storage units or handling units.

The decentralized WM architecture is strongly recommended for TRM and is assumed for those who want SAP EWM because of the heavy processor load that SAP EWM can pose for your core system. HUs or SUs work very smoothly with TRM and make task processing more efficient. HUs are necessary when considering SAP EWM. Implementing decentralized WM and choosing whether or not to use HUs or SUs should be considered a prerequisite to implementing TRM. Companies with more than one Distribution Center, geographically separated, can also benefit from a decentralized architecture.

If the connection from the central SAP ERP instance is broken, SAP EWM can continue to operate as normally, working on the Inbound and Outbound Deliveries already sent down to EWM. Once the connection is restored, the interface will synchronize the two systems. This also allows for maintenance on the ERP system without impacting all Distribution Centers.

New Terminology

Activity Area – logical grouping of bins that are used to facilitate activities such as picking, putaway and physical inventory. These assist in Queue assignment and Warehouse Order creation.

Warehouse Task – Equivalent of a Transfer Order (TOs no longer exist).

Warehouse Order – Groups together Warehouse Tasks. The warehouse order is the document the end users execute upon.

Stock Identification – Unique number for a segment of stock. It includes attributes such as material, quantity, batch and stock type. It technically replaces an SU (storage unit), but the advantage of a stock ID is that it can exist in an interim location.
Conclusion:  
Which SAP Application is Right for Me?

SAP EWM delivers value by optimizing labor utilization and providing warehouse process monitoring and controlling functionality. Bottom line, SAP EWM enables warehouse activities to be executed better, faster and cheaper than possible without a warehouse optimization engine.

When determining which solution is the right fit for your organization, it is important to consider that SAP EWM best benefits warehouse operations with high levels of distribution activity, volume and operational complexity. Companies who decide to implement SAP EWM will gain the benefit of an accelerated supply chain, improved customer service, improved partner relations and overall cost savings.

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<tr>
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<th>ERP WM</th>
<th>Standard dWM</th>
<th>TRM</th>
<th>SAP EWM</th>
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<tr>
<td>Distribution Activity</td>
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<td>High Volume</td>
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<td>Operational Complexity</td>
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<td>Value-added Services</td>
<td>Good Fit</td>
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<tr>
<td>Slotting</td>
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<tr>
<td>Tighter Integration to QM</td>
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<tr>
<td>Tighter Integration to EH&amp;S*</td>
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<tr>
<td>RF Capability (SAP Console/ITS Mobile)</td>
<td>Better Fit</td>
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*Environmental Health and Safety*
About Peak-Catalyst
Peak-Catalyst, a Division of Peak-Ryzex, Inc., is a SAP consulting and software partner that helps companies optimize business processes from the warehouse, through the extended supply chain and out to the mobile workforce ultimately improving the flow and efficiency of business. Peak-Catalyst specializes in SAP Supply Chain Management (SAP SCM) and SAP Extended Warehouse Management (SAP EWM) applications and features a comprehensive suite of software solutions for SAP business applications including enterprise printing, track and trace, mobile workforce, parcel shipping, and labor tracking. For more information on the new Peak-Catalyst, visit www.peak-catalyst.com

About Honeywell
Honeywell Scanning & Mobility is a leading manufacturer of high-performance image-and laser-based data collection hardware, including rugged mobile computers and bar code scanners. Our product portfolio is one of the broadest in the AIDC industry, providing you with solutions for vertical markets such as retail; healthcare; supply chain; and transportation and logistics. We complement our innovative products with advanced software, service and professional solutions that enable customers to effectively manage data and assets. Honeywell products are sold worldwide through a network of distributor and reseller partners.