SAP Solution Brief | PUBLIC
SAP Digital Supply Chain | SAP Extended Warehouse Management

Enable Risk-Resilient and Sustainable Warehouse Management

THE BEST RUN **SAP**

Get the Most Out of Your Warehouse Operations

Rapidly evolving technology and business models challenge shippers and logistics service providers like you to streamline material flow by **improving warehouse and distribution center operations**. The risks of unprecedented disruptions and shortages require supply chains and warehousing operations to be agile and flexible. The SAP® Extended Warehouse Management application helps optimize your business with technology that provides transparency, maximizes fulfillment efficiency, and provides the digitalization you need for flexibility and improved customer service.

Get the Most Out of Your Warehouse Operations

E-commerce and omnichannel fulfillment drive the need for faster delivery, greater flexibility, and higher efficiency in logistics operations. In response, companies are moving toward Industry 4.0 and intelligent technologies to enhance the warehouse. But that's not enough, Now, it is imperative for intelligent enterprises to move toward integrated logistics processes, so they can automate and optimize operations and improve labor and resource productivity for better intralogistics performance.

SAP Extended Warehouse Management (SAP EWM) leverages robust automation technologies and optimization techniques in combination with logistics and fulfillment processes. The application covers the facets of warehouse and distribution management, including multichannel fulfillment and distribution, inventory management and control, cross-docking, labor management, and billing for companies of various sizes and industries.

Build a Platform Strategy for Supply Chain Execution

Warehousing operations can no longer succeed as a functional silo focusing solely on internal procedures. You need an integrated, comprehensive logistics solution so you can smoothly run your logistics processes, accelerate order fulfillment cycles, respond quickly to changes, and get a holistic view of orders and costs across the logistics chain.

Many vendors simply integrate disparate existing solutions. However, SAP solutions help your business run better by converging your processes with a dynamic platform strategy to integrate products and technologies. This strategy combines the capabilities of SAP EWM, the SAP Transportation Management application, and SAP Business Network for Logistics with the power of intelligent technologies including the

IoT, machine learning, and blockchain. Together, they help you orchestrate warehousing and logistics as part of a compelling, executable vision.

A single technology logistics platform from SAP helps you align your logistics processes to operate as a single entity. That means your customers get fast and agile fulfillment experiences. You can also optimize logistics operations, provide integrated analytics and cost visibility, and support growth and scalability to help achieve a low cost of ownership.

Synchronize logistics with the rest of your company and get accurate deliveries into the hands of your customers with real-time process integration. Keep everyone up to date with one, central data platform for each system, partner, and process.

Build a Platform Strategy for Supply Chain Execution

Orchestrate Goods Movement and Storage Processes

Intelligently Manage Inbound Processing

Direct Storage and Internal Processing

Fine-Tune Outbound Processes to Maximize Speed and Agility

Enable Process Optimization

Automate the Warehouse

Leverage Robotics for Flexibility and Resilience

Support Intelligent Warehousing with SAP S/4HANA

Orchestrate Goods Movement and Storage Processes

With SAP EWM, you can orchestrate inbound and outbound processing, as well as the storage and retrieval operations in between. The application helps you automate goods movement and manage inventory, addressing key requirements of complex processes and high-volume warehouses. You can consistently organize and monitor goods movement triggered by processes for procurement, shipping, production supply, and receipt and integrate them with quality management, transportation, and foreign-trade compliance.

The application provides visibility into inventory and logistics along with advanced capabilities such as value-added services, kitting, labor planning and management, yard management, and comprehensive analytics.

SAP EWM also includes functions for cross-docking, import and export, quality management, picking from goods receipt, and push deployment. You can integrate the application readily with the latest technologies for pick by voice, augmented reality, radio-frequency identification (RFID), material handling equipment, autonomous vehicles, and warehouse robots. With the application you can immerse your warehouse in accurate insight by providing context to operational data to your employees and robots on the floor.

The SAP Warehouse Operator mobile app can be added to smart devices that employees are familiar with and handle every day to take advantage of additional abilities and speed up the onboarding of resources.

SAP solutions respond to emerging industry demands in warehousing, periodically introducing leading innovations that leverage cloud computing, Big Data and analytics, and smart warehouse operations.
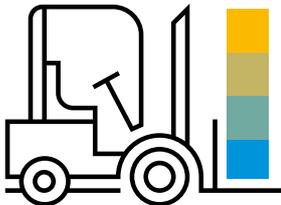
Intelligently Manage Inbound Processing

Streamline your core inbound processes to optimize receiving and dock management, as well as inventory placement. SAP EWM can help you enhance a wide array of core inbound processes, including:
• Receipt and validation for advanced shipping notifications (ASNs)
• Goods receipt and receipt optimization
• Determination for put-away and put-away bins
• Internal routing to allow for granular modeling and tracking of movements in the warehouse
• Deconsolidation to enable efficient put-away by sorting and packing goods in receiving

• Returns management (also for e-commerce) for efficient identification and disposition of returned goods to reinsert them into the supply chain
• Direct receipt from production
• Transportation unit management

With SAP EWM, you can schedule and turn around your goods receipts and order returns faster, reduce dock waiting times, and help ensure higher resource productivity while allowing flexible and automated handling of a large volume of items and orders, even as you scale your business.

Manage your warehouse resources with **intelligence** to enable greater productivity and efficiency.

Direct Storage and Internal Processing

Optimize the activities that help manage goods in inventory and move them within your warehouse, so you can track them even at the lowest level of detail and improve your facility utilization. SAP EWM helps you direct storage and internal processing, including:

- Physical inventory processes and record verification to reduce inventory counting efforts and manage inventory balances on an ongoing basis
- Slotting, replenishment, rearrangement, and stock consolidation capabilities to optimize storage and maximize facility utilization
- Kitting to stock and value-added services to accelerate speed to shelf and offer customized product kits and personalized deliveries to customers
- Automated warehouse billing to allow activity-based electronic billing of warehouse costs to customers and payment to warehouse vendors

Simplify storage and inventory control, boost warehouse facility utilization, and provide new value-added services for improved customer experiences and efficiency.

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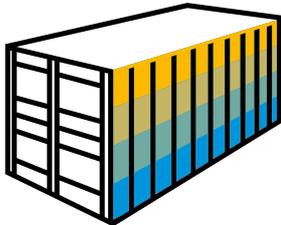Leverage Robotics for Flexibility and Resilience

Support Intelligent Warehousing with SAP S/4HANA

Fine-Tune Outbound Processes to Maximize Speed and Agility

Improve customer service, offer faster order turn-around, and reduce your picking, shipping, and billing errors and manual steps. Explore robust and advanced features for outbound processes in the warehouse, including:

- Transportation unit management to efficiently manage the flow of vehicles in the warehouse and support shipping and receiving operations
- Warehouse order creation, wave management, optimal route and picking bin determination, and optimal work assignment to help ensure timely planning and delivery of customer orders

- Picking, packing, staging, loading management, and goods issue
- Kitting to customer-specific orders
- Direct outbound delivery
- Production supply and production staging and consumption to allow synchronized material flows and accurate inventory visibility between the warehouse and production

With SAP EWM, you can improve your overall customer order fulfillment KPIs, reduce delivery lead times, and limit order inaccuracies while scaling to meet higher levels of demand and serve multiple fulfillment channels.

Reach your overall order fulfillment goals while scaling to **meet quickly changing demands** related to business growth.

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SAP EWM also offers additional cross-functional features related to material flow, such as opportunistic and planned cross-docking, management of stock-specific units of measure, and labor management. It includes built-in optimization for the creation of work packages, resource assignment, and stock consolidation. You can harness extended functionality for packaging specification and management of batches, serial numbers, catch weight, and dock appointment scheduling.

The application also includes rich cross-functional analytics and traceability. A comprehensive set of implementation tools helps you get up and running and accurately adjust your processes. You can expect sizable reductions to both total cost of operations and total cost of inventory.

The SAP Warehouse Insights solution further allows you to optimize, visualize, and analyze warehouse operations; improve resource utilization; and monitor the real-time status of resources using IoT services. Spot risks and avoid disruptions with instant comprehensive summaries of your logistics processes.

SAP Extended Warehouse Management provides you with a global warehousing and logistics powerhouse that helps **orchestrate your processes** from beginning to end.

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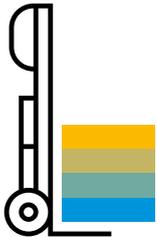
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Automate the Warehouse

The material flow system component of SAP EWM provides direct control and monitoring of automated storage and retrieval systems, as seen in **Figure 1** on the following page. Directly control programmable logic controllers for high-rack storage, small-parts warehousing, shuttle warehousing, and more. The built-in material flow system can help you control movement of units in automated systems, manage conveyor segments, and monitor at various levels.

The application also manages material handling equipment for distribution vehicles, sorters, and label applicators. It supports this functionality for pallets, containers, and cartons, as well as pick, pack, and pass technologies.

Your users can flexibly access and execute their tasks across a wide array of mobile devices, including handheld RF terminals, tablets and smartphones, wireless scanners and printers, and wearable devices including voice headsets and smart glasses. This can help you streamline employee engagement and user efficiency by enabling your employees to succeed with technologies they are already familiar with and use in their personal, everyday lives.

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Figure 1: Extended Warehouse Management with Integrated Material Flow System

Order and inventory management	SAP S/4HANA®	SAP S/4HANA
Warehouse management	SAP EWM	SAP EWM (including material flow system)
Material flow control	Third-party material flow system	
Programmable logical controller (PLC)	PLC	PLC

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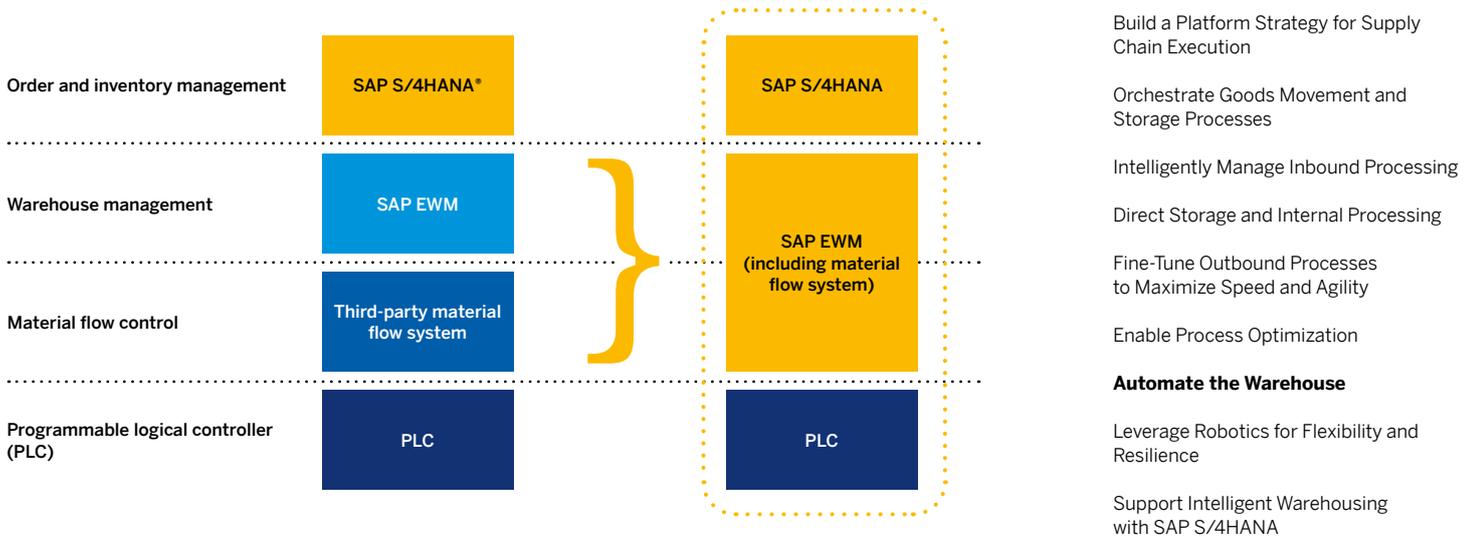Fine-Tune Outbound Processes to Maximize Speed and Agility

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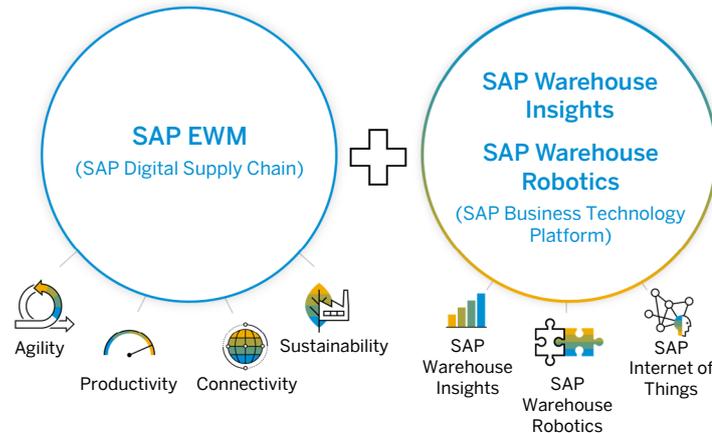Support Intelligent Warehousing with SAP S/4HANA

Leverage Robotics for Flexibility and Resilience

As autonomous mobile robots become affordable, there is an increasing demand to leverage them to automate warehouse processes, increase warehouse productivity, and deal with disruptions and labor shortages.

The SAP Warehouse Robotics solution allows scalable integration with heterogeneous vendors of robots, lowering costs, increasing accuracy, providing flexible automation, avoiding vendor lock-in and capacity risks, and driving innovation.

Figure 2: Smart Warehousing with SAP Digital Supply Chain and SAP Business Technology Platform

SAP EWM
(SAP Digital Supply Chain)

SAP Warehouse Insights

SAP Warehouse Robotics
(SAP Business Technology Platform)

Agility

Productivity　　Connectivity

Sustainability

SAP Warehouse Insights

SAP Warehouse Robotics

SAP Internet of Things

Gain insights from logistics processes across the supply chain

Adapt tools and processes to suit your business needs

Connect processes to break down functional silos

Support Intelligent Warehousing with SAP S/4HANA

SAP EWM is a part of SAP S/4HANA, which allows you to simplify your IT landscape while enabling speed and performance. You can leverage innovations such as in-memory analytics and innovative user experiences. With SAP EWM, you have the choice of either a decentralized deployment for large and high-volume warehousing or an embedded component for smaller and midsize enterprises. SAP EWM is offered in a cloud deployment model, which further reduces total cost of ownership and offers scalability and faster time to value.

SAP Best Practices packages offer preconfigured solutions and building blocks for SAP EWM, which can accelerate your SAP EWM implementation.

Additionally, SAP offers flexible licensing for deploying SAP EWM as an embedded application, with varying functionality depending on the individual business requirements.

Basic warehouse management focuses on stock transparency and control. It offers features for inventory management, inbound and outbound processing, movement of goods in the warehouse, and reporting. Advanced warehouse management helps you optimize your warehouse processes and adds functionality for material flow control, yard and labor management, value-added services, kitting, cross-docking, and warehouse billing. The two levels serve as stepping stones to supply chain convergence in SAP S/4HANA.

Tally the Benefits of SAP EWM

With SAP EWM, you gain a global warehousing and logistics powerhouse that can help orchestrate your processes from planning and storage to picking, packing, and shipping. It can boost your readiness, throughput, and agility and help you achieve the flexibility and resilience needed to manage supply chain risks and volatility.

SAP EWM brings you a wealth of significant business benefits. You gain enhanced flexibility for modeling your warehouse layout and processes, with high visibility into stock and operations. You can optimize storage planning, improve space utilization, and increase throughput through automatic wave planning, for example. Sophisticated warehouse order management and work package creation enables efficient process execution. You can utilize value-added services such as creating kits and modules and directly control automated warehouses.

Take advantage of comprehensive analysis and monitoring functions, including real-time strategic and operational reporting, without the need for IT support. Upgrades are much simpler, with multiple extensibility options and reusable templates to standardize and harmonize your software land-scape. You can simplify processes through tight integration with sales, production, and financial processes.

The application also helps you meet the challenges of multinational regulatory compliance with robust functionality to meet international trade process-ing and sustainability requirements.

Tally the Benefits of SAP EWM

Summary

From simple warehouses for raw materials to high-volume and automated distribution facilities, the SAP® Extended Warehouse Management application supports streamlined processes. It offers flexible, automated support for managing stocks and processing their movements, allowing you to handle large volumes, complex process variations, and IoT connections.

Objectives

- Enable a comprehensive logistics process integrated with core sales, manufacturing, and finance, plus transportation and returns
- Achieve faster fulfillment while optimizing resources and mitigating problems efficiently
- Spot risks, manage disruptions, and gain real-time insight into operations with stock, resource, and process transparency
- Connect with a range of devices leveraging a built-in material flow system and integration with robotics and mobility solutions

Solution

- Comprehensive warehousing solution
- Cloud or on-premise deployment
- Direct control of warehouse automation equipment
- Integration with SAP S/4HANA® with advanced functions
- Integration with the SAP Warehouse Insights and SAP Warehouse Robotics solutions
- Centralized or decentralized deployment

Benefits

- Reduce warehouse costs, including inventory and labor
- Improve customer service
- Increase productivity and accuracy
- Enhance flexibility and scalability
- Boost transparency of stock, processes, labor, and warehouse automation
- Help ensure compliance for international trade and sustainability
- Make your warehouse more risk resilient

Learn more

To find out how SAP Extended Warehouse Management can help you achieve greater efficiency, visit us **online**.

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