

Critical Capabilities for Warehouse Management Systems

28 May 2025 - ID G00824369 - 78 min read

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Initiatives: [Logistics and Fulfillment Digital Transformation](#)

Choosing the right WMS can be challenging as its capabilities need to be aligned with the organization's operational complexity and sophistication. Supply chain technology leaders should use this research to assess, evaluate and compare WMS products against their specific complexity use cases.

This Critical Capabilities is related to other research:

[Magic Quadrant for Warehouse Management Systems](#)

[View All Magic Quadrants and Critical Capabilities](#)

Overview

Key Findings

- Warehouse management system (WMS) offerings' support for the extremes of the simplest Level 1 and most complex and automated Level 5 use cases contrasts vendor solutions dramatically.
- Innovation continues to distinguish WMS offerings. Newer capabilities gaining importance include robotics integration and multiagent orchestration (MAO), advanced analytics, employee engagement and gamification, various forms and use cases for AI and machine learning, and most recently, generative-AI-enabled query engines and conversational chatbots.
- Other capabilities are maturing, such as usability, adaptability, composability, implementation and integration tools, and material handling automation support.
- WMS systems/technical architecture has become a more important consideration for new buyers seeking flexibility, adaptability, composability, usability, ease of upgrades and affordability.

Recommendations

- Determine the people, process, organizational, data and technology needs of each warehouse operation and focus WMS evaluations on the appropriate use cases by applying Gartner's warehouse stratification model (complexity Levels 1 through 5).
- Target the solutions best suited to your distinctive WMS use cases by developing a right-fit shortlist of vendors and solutions using this research in combination with its companion WMS Magic Quadrant.
- Reconcile the competing interests of functionality versus less quantifiable characteristics, such as usability, adaptability, implementation support and simplicity, by assessing the relevant capabilities assessed here.
- Focus on the recently changed and defined capabilities of supporting technologies, systems/technical architecture and support for intralogistics smart robotics (ISR).

Strategic Planning Assumptions

Through 2027, companies will struggle to find packaged solutions that realistically support Level 1 warehouse operations.

Through 2027, systems/technical architecture will equal functionality in importance for new WMS buyers seeking flexibility, adaptability, composability, usability and affordability.

By 2028, 40% of yard and warehouse deployments will employ vision-AI-enabled autonomous data collection instead of RFID.

Through 2027, support for intralogistics smart robotics solutions will be a primary consideration across varying levels of complexity for WMS buyers.

By 2028, over 70% of WMS buyers will consider user experience as one of the top criteria in evaluations.

By 2028, 40% of large warehouse operations and distribution centers will have deployed employee engagement tools to motivate their workforce.

By 2028, 80% of warehouses and distribution centers will deploy some form of robotics and/or warehouse automation.

By 2028, agentic AI will be a critical area of product investment and development for the majority of WMS vendors.

What You Need to Know

Supply chain technology leaders should use this Critical Capabilities research to evaluate WMS products based on 11 key differentiating capabilities across five warehouse use cases defined by operational complexity. The companion [Magic Quadrant for Warehouse Management Systems](#) assesses the vendors offering these products and services, helping organizations balance product functionality with business and commercial needs.

Our analysis covers 20 WMS products from 17 vendors using data collected between November 2024 and March 2025. This includes formal vendor briefings, RFI surveys, product demos and user feedback gathered over the past year. The evaluation focuses strictly on commercially available WMS functionality at the time of assessment, excluding future features and third-party solutions such as labor or parcel management. However, the Magic Quadrant may consider how partner solutions extend a vendor's offering.

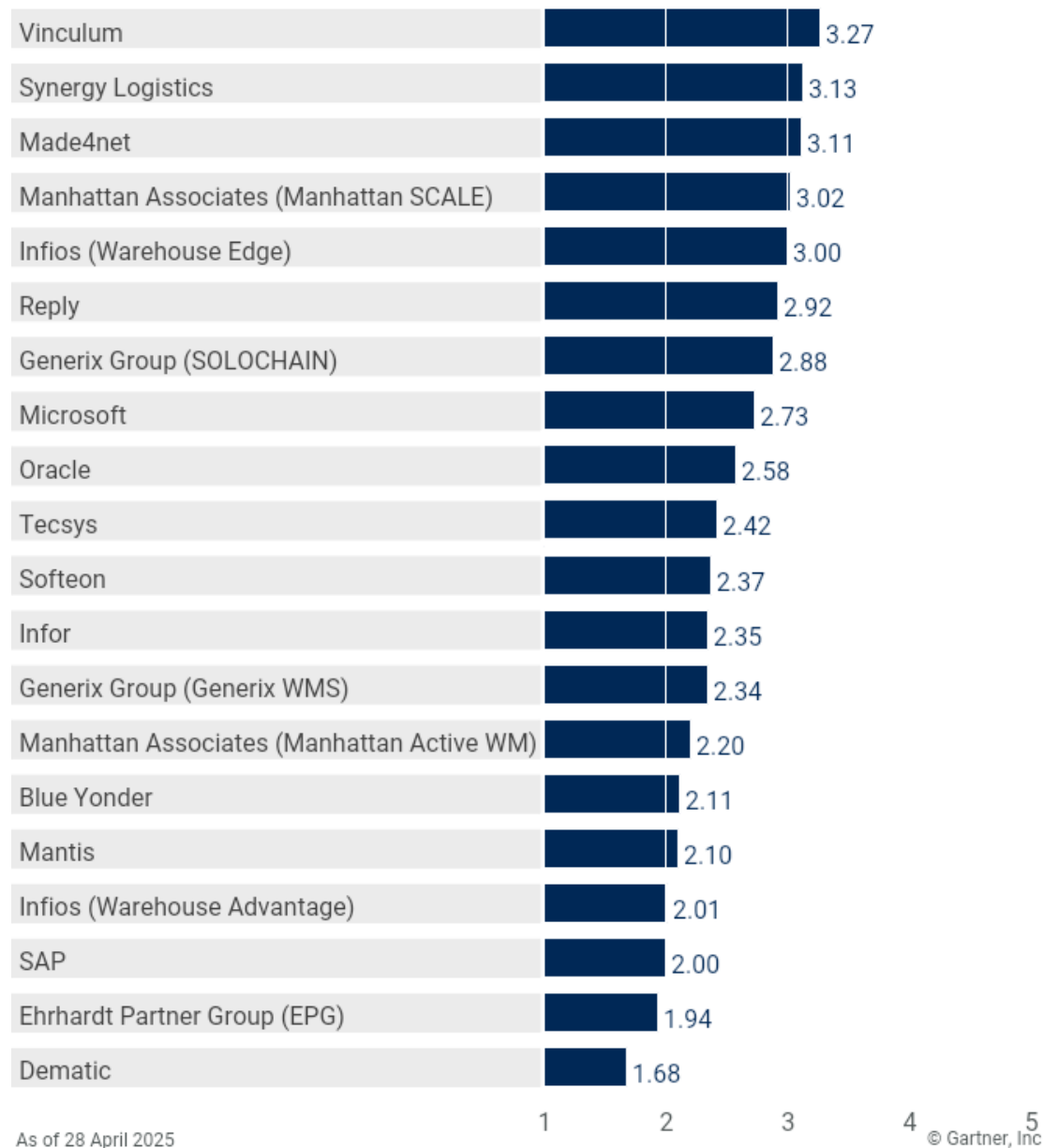
While warehouse operations share similarities, differences in complexity require careful consideration when selecting a WMS. Using Gartner's warehouse stratification model, we define five use cases — from basic (Level 1) to highly automated (Level 5) — and assess each product against 11 critical capabilities. Scoring reflects both the product's capability and its suitability for each use case (see [Apply an Architectural Framework to Stratifying Warehouse Management Systems](#) and [Tool: Stratify Your Warehouse Operations to Determine the Right-Fit WMS and Improvement Strategy](#)).

Analysis

Critical Capabilities Use-Case Graphics

Vendors' Product Scores for the Level 1 Warehouse Operation Use Case

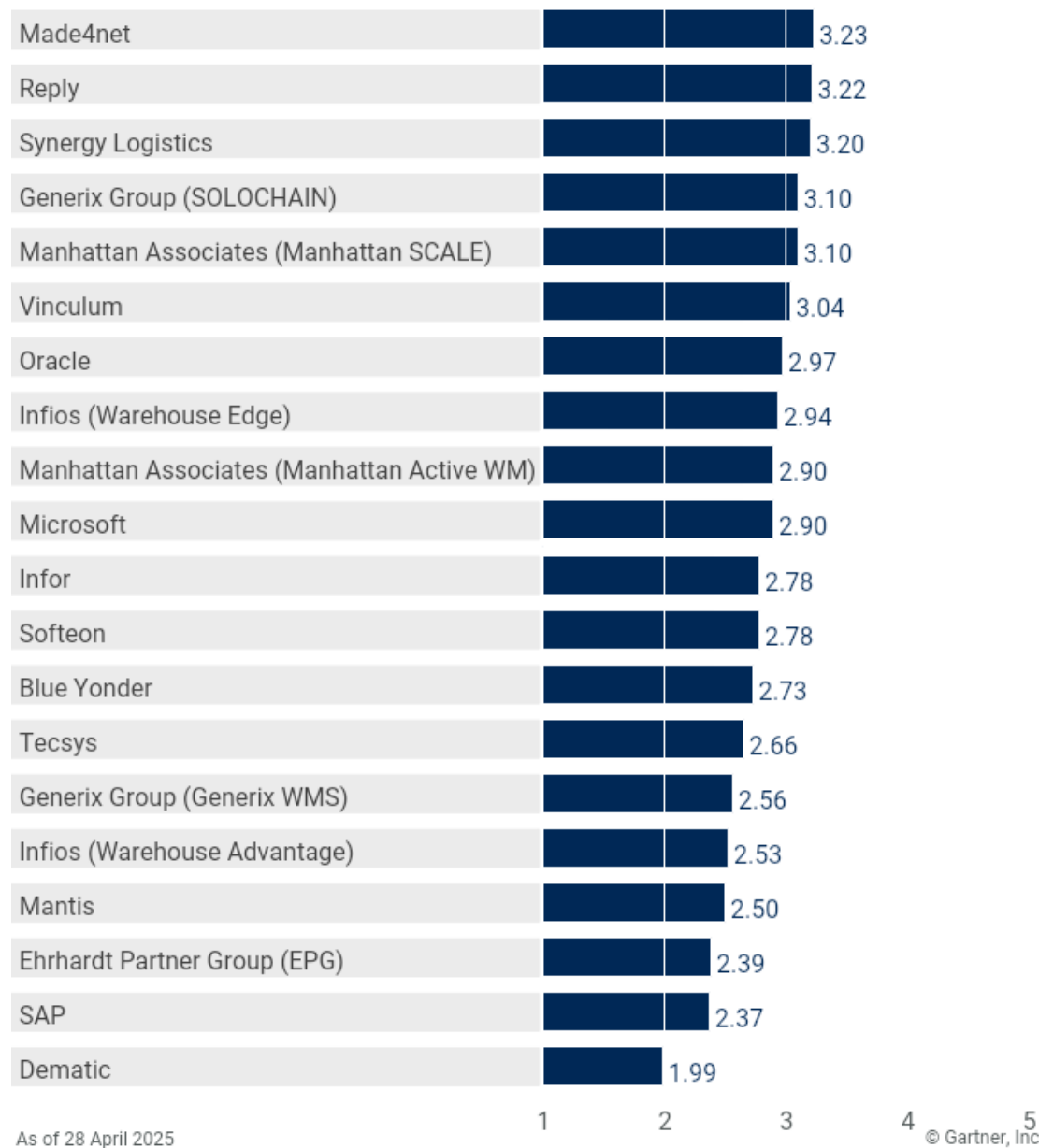
Product or Service Scores for Level 1 Warehouse Operation



Gartner

Vendors' Product Scores for the Level 2 Warehouse Operation Use Case

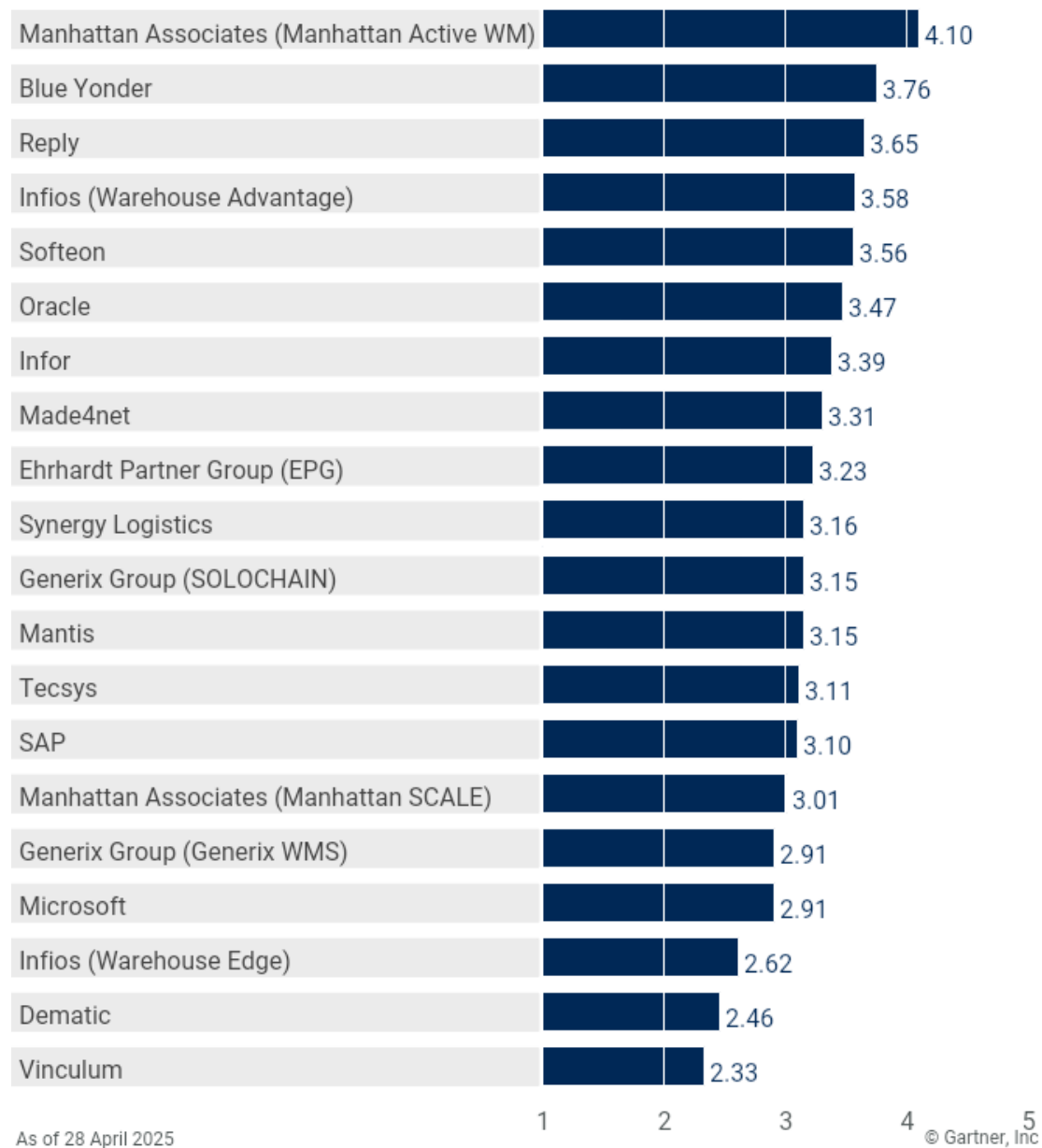
Product or Service Scores for Level 2 Warehouse Operation



Gartner

Vendors' Product Scores for the Level 3 Warehouse Operation Use Case

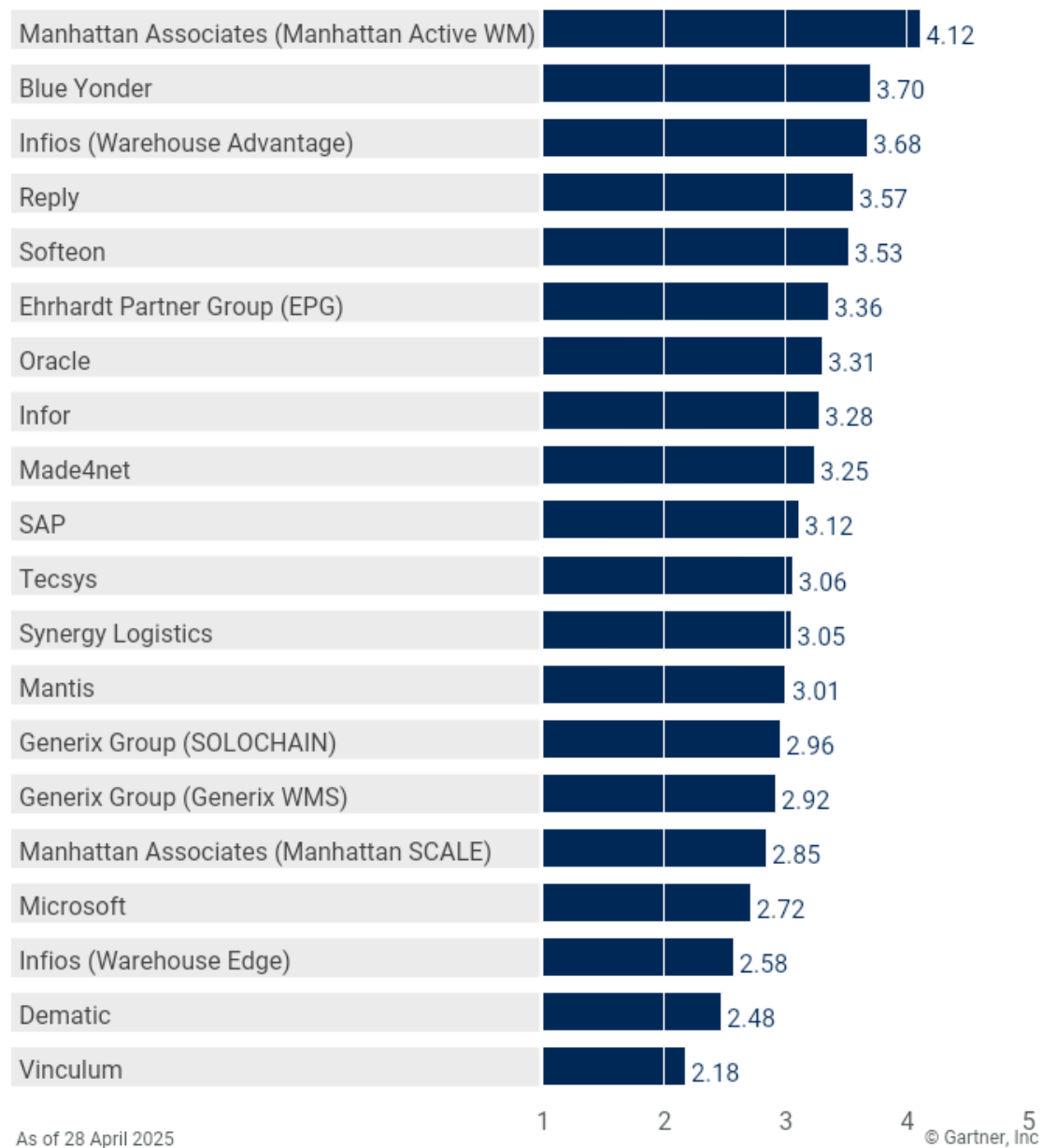
Product or Service Scores for Level 3 Warehouse Operation



Gartner

Vendors' Product Scores for the Level 4 Warehouse Operation Use Case

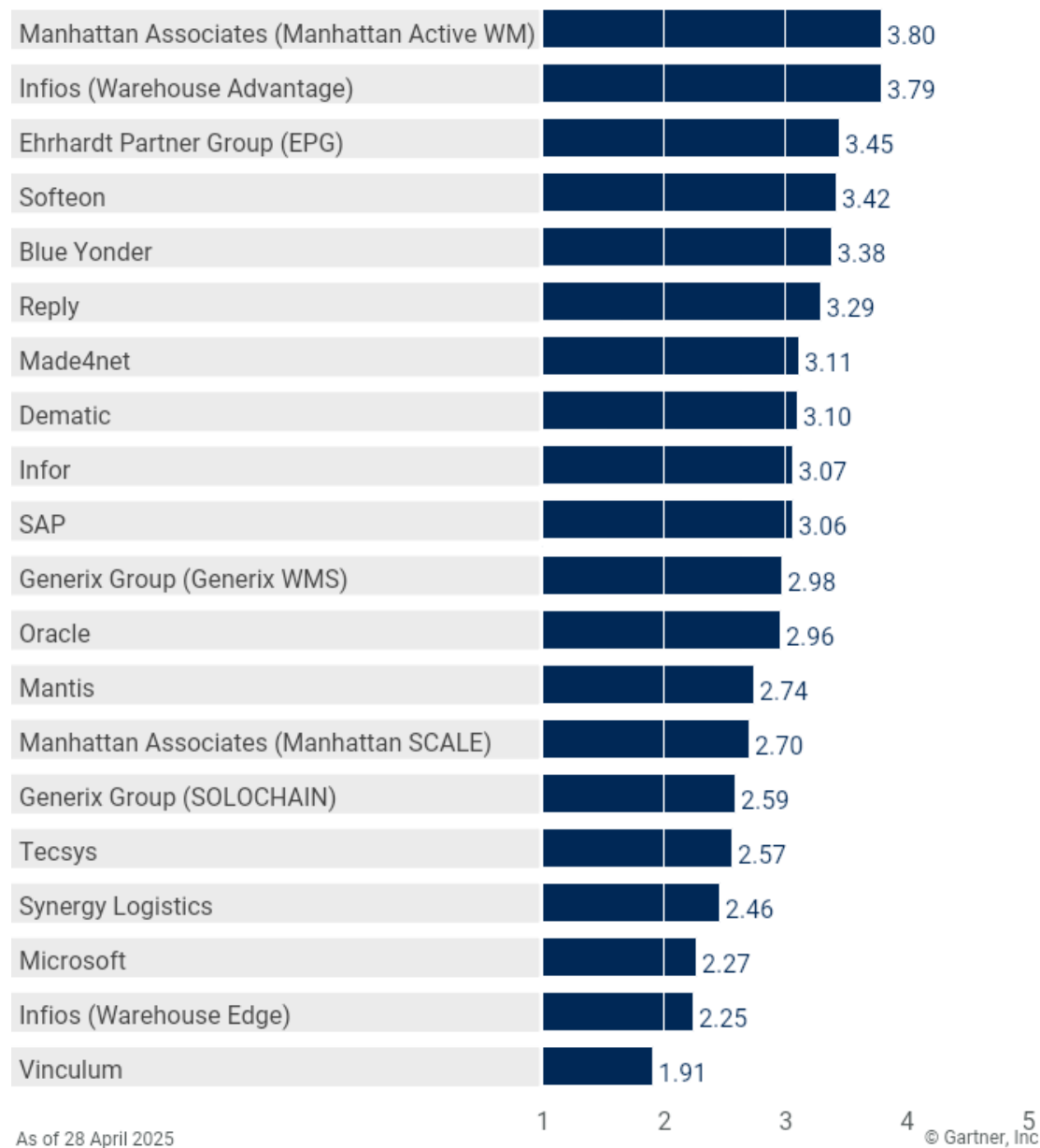
Product or Service Scores for Level 4 Warehouse Operation



Gartner

Vendors' Product Scores for the Level 5 Warehouse Operation Use Case

Product or Service Scores for Level 5 Warehouse Operation



Gartner

Vendors

Blue Yonder

Blue Yonder offers a supply chain management (SCM) solutions portfolio that includes warehouse management, workforce/labor management, transportation management, supply chain planning (SCP), retail planning and order management. It completed its shift of core WMS capabilities to a cloud-native architecture on Microsoft Azure in December 2024 and plans to go live with its first test customers in 2Q25. Blue Yonder delivers its WMS on dedicated/single-tenant cloud, leveraging multitenant services for machine learning (ML), platform services and non-mission-critical services. Blue Yonder's Warehouse Management is primarily used in Levels 3 and 4 warehouse operations but can scale from high Level 2 to Level 5 operations.

For Level 1 operations, Blue Yonder's WMS is not ideal due to a low simplicity score. It was designed for more complex facilities and is not a good fit for stand-alone Level 1 warehouses.

For Level 2 operations, its low simplicity is again a factor. However, its strengths include core capabilities (e.g., advanced configurations, rule-based workflows, lot/batch management); usability (e.g., new user tracking, supervisor visibility, shipment monitoring); and adaptability (e.g., visual training aids, photo display/capture, a page builder tool).

For Level 3, Blue Yonder is a leading solution driven by the depth of its core capabilities (e.g., cross-docking, replenishment, serialization, work orders, advanced inventory management) and strengths in extended capabilities. It also scores well in analytics, implementation, integration tools, usability and adaptability. Its supporting technologies are solid with a strong partner network.

For Level 4, Blue Yonder is a strong choice. It offers robust labor and workforce management, though some extended features (e.g., advanced slotting and parcel management) rely on partners. It also supports multisite warehouse rollouts and offers an Environment Management Toolkit to migrate configurations. It enhances adaptability via a workflow editor, low-code platform and test automation services through a partnership with Cycle Labs. Analytics capabilities are strong, with recent upgrades to its data as a service (DaaS) model enabling faster, cost-effective, near-real-time data exchange. Its partnership with Snowflake supports AI/ML-based decision making and collaboration using a unified data model. It also launched a GenAI-based multimodal conversational assistant for operational health analysis.

For Level 5, Blue Yonder has numerous customers with highly automated facilities. Its material-handling integration score is high but undifferentiated from other leading solutions. While it lacks its own warehouse control system, it integrates with third-party warehouse control systems (WCSs) and offers automation monitoring features such as live alerts for equipment charging, utilization rates and machine speed tracking. It continues to onboard vendors to its multirobot integration and coordination platform, the Robotics Hub. Its Robotics Hub and Warehouse Tasking features (e.g., advanced tasking and work reprioritization) are bundled under its warehouse execution system (WES) offering.

Dematic

Dematic, part of KION Group, specializes in material handling equipment (MHE) and software solutions targeting large enterprises with both automated and manual warehouses. Its current product, Dematic WMS (formerly Matflo), originated from the acquisition of Digital Applications International (DAI). Due to its historical focus on large-scale automation, most customer deployments currently remain on-premises. Most customers choose Dematic for highly automated Level 5 warehouse operations though many customers have site deployments that are manual Level 3 operations.

For Level 1 environments, Dematic is not ideal due to its low simplicity score, relatively low usability score and undifferentiated adaptability, although it demonstrates relatively strong core WMS capabilities.

For Level 2, Dematic WMS's score improves somewhat because of its robust core WMS capabilities. These include automated packing, order stream management, consolidation, product handling, advanced staging, fluid loading, replenishment and pull-based task allocation aligned with asset utilization.

For Level 3, Dematic WMS's overall suitability improves because of its relatively strong core WMS capabilities. Additional strengths include analytics (e.g., custom dashboards, embedded reporting) and solid implementation tools. Dematic WMS can be a reasonable fit for mid- to lower-complexity environments, particularly within networks that include highly automated sites.

For Level 4 operations, Dematic does not offer the broader, more mature extended WMS features other vendors have (e.g., yard and labor management). Still, it provides basic capabilities such as slot booking and Automated Gatehouse, and has some specialist capabilities in verticals such as apparel, grocery and store replenishment. It includes a device-agnostic workflow engine that supports manual task execution and automatic speech recognition (ASR)-enabled voice technology for user instruction and task completion. Its solid implementation and integration capabilities are powered by its Integrator framework, enabling API-driven, multisite automation monitoring and orchestration. Despite lower systems/technical architecture scores, largely due to limited cloud maturity, Dematic offers its own analytics tools, developed as part of its partnership with Google Cloud to deliver performance monitoring, system health tracking and predictive demand forecasting use cases. Its strong MHE integration and visualization capabilities also become more relevant in these environments.

For Level 5, Dematic substantially improves its score, primarily driven by its very high rating for MHE integration. It continues to expand MHE support with tools like the Dematic Virtual Facility for facility emulation, as well as tools to perform operational simulations, validating performance. While it supports various automation technologies, its robotics focus is mainly on autonomous mobile robots (AMRs) via its Global Standard AMR Software Stack.

Ehrhardt Partner Group (EPG)

Ehrhardt Partner Group (EPG) is a WMS and logistics solution provider. Alongside its WMS solution, EPG LFS, it offers multiple supply chain execution applications and a native warehouse control system. EPG also offers LYDIA Voice independently from its WMS as part of its Supply Chain Execution suite (EPG ONE). Its WMS is most often used in Levels 4 and 5 warehouse operations, but it can scale from high Level 3. About 80% of customers have deployed or migrated to a dedicated cloud environment using EPG's private cloud services (EPX) but can also deploy with a customer-preferred hyperscaler.

For Level 1 operations, EPG's WMS is less suitable than others largely due to a low simplicity score. It is built for higher-complexity, automated operations. It offers light WMS for these environments to complement basic ERP warehouse management functionality through its alternative LYDIA Enterprise Solution (LES).

For Level 2, EPG's suitability improves somewhat because it performs relatively well in core WMS capabilities, usability and analytics. It also offers tools to streamline master data migration across multisite implementations.

For Level 3, EPG has shown year-over-year improvement. Its strong core WMS features include ideal pallet selection for outbound orders, enhanced mobile/voice-enabled packing, cartonization/palletization and AI-powered packaging optimization. It also offers strong extended capabilities, including dynamic workload and workforce scheduling and improvements in its multicarrier capabilities with its International Shipping System (ISS) offering. Additional strengths include analytics via its Supply Chain Intelligence suite, with predictive alerts based on sensory data, an SQL-based custom query manager, enhanced usability (e.g., navigation, layouts, touch controls, user-defined menus) and robust supporting technologies.

For Level 4 operations, EPG's strengths include extended WMS features like contract and billing, workforce management, dock scheduling, inspection tools and updates to its Greenplan solution (e.g., fair cost allocation, smart sectorization). It also has strong core WMS, MHE integration and supporting technologies. While usability and analytics are also relatively strong, they are less differentiated. However, its TIMESQUARE Cloud Analytics has been upgraded with new interfaces for ease of integration with external analytics and AI solutions. Adaptability has improved as well, supported by configuration wizards, a workflow editor, and the company has deployed a generative AI (GenAI)-driven chatbot to support its own code generation, testing and bug fixing.

For Level 5, EPG is a strong choice, with many customers operating highly automated facilities. It scores well in conventional MHE integration via its Automation Management Platform, integrated WCS, and features like 3D simulation, emulation, predictive maintenance and visualization. It further supports orchestration of automated guided vehicles (AGVs), forklifts and automation, including some AMR integration through what it calls its multiagent orchestration (MAO), formerly known as Suburbia. It also scores well for supporting technologies, including augmented/virtual reality, Internet of Things (IoT) and RFID support. LYDIA Voice can be used with or without wearable hardware and now features real-time voice translation powered by AI/ML.

Generix Group (Generix WMS)

Generix Group offers a portfolio of supply chain management solutions, including two WMSs (Generix WMS and SOLOCHAIN), transportation and yard management, logistics order and replenishment management, and electronic data interchange (EDI). Generix's WMSs are most often used in Levels 2 through 4 warehouse operations. This research evaluates Generix WMS, which scales to Level 4 and some Level 5 environments. More than 90% of its new contracts are SaaS, with 70% of Generix WMS customers now deployed on dedicated cloud and 30% of SOLOCHAIN customers, with Amazon Web Services (AWS) as the hyperscaler currently used for both WMSs.

For Level 1 warehouse operations, Generix WMS is undifferentiated due to relatively low scores in simplicity and adaptability, which lag behind other WMSs and SOLOCHAIN. Still, it may suit companies operating both large and small operations. Its SOLOCHAIN offering may be a better fit in such cases.

For Level 2, Generix WMS's lack of simplicity remains a key factor. Although it can fit a Level 2 environment, it is undifferentiated from a number of other solutions in this research. Strengths include a solid core WMS, usability improvements (e.g., launching external apps, contextual data handling, multilanguage support) and helpful implementation tools such as configuration wizards and industry templates.

For Level 3, Generix WMS's core capabilities have improved over last year's due to new features such as smart wave scheduling and enhanced serialization as well as improvements in picking, put-away, e-commerce fulfillment and unloading with quality control. Extended WMS capabilities (e.g., connections to last-mile platforms) and solid implementation tools (e.g., API catalog, digital learning platform) add value as well. Systems/technical architectural upgrades include better security and infrastructure, and AI-based service integration.

For Level 4 environments, its strengths include extended WMS functions (e.g., task interleaving, workload calculations, value-added services [VAS]/kitting traceability), relatively strong core WMS and solid usability. In 2024, Generix launched early-stage proofs of concept with customers using its new Resource Management Solution for ML-driven labor forecasting, capacity planning and performance monitoring. Enhanced analytics scoring and support for MHE integration also contribute to its Level 4 capabilities.

For Level 5, Generix WMS improves its score somewhat. It lacks a native warehouse control system for highly automated sites but provides standard connectors and engineering support for complex MHE integrations. One-third of its customers use automation, though Generix has limited partnerships and no built-in warehouse execution capabilities. Its strengths include MHE integration, an API designer for faster robotic connections and solid supporting technologies (e.g., voice, RFID, digital twins, computer vision). It has partnerships with robotics vendors such as Scallog and Locus Robotics and supports systems such as AutoStore and Exotec. However, its intralogistics robotics support capabilities remain undifferentiated.

Generix Group (SOLOCHAIN)

Generix Group offers a portfolio of supply chain management solutions, including two WMSs (Generix WMS and SOLOCHAIN) along with transportation and yard management, logistics order and replenishment management, and EDI. This research evaluates SOLOCHAIN, a contemporary WMS and manufacturing execution system (MES). It is primarily deployed via dedicated cloud and is most commonly used in Level 2 and Level 3 warehouse operations, with a growing presence in lower Level 4 environments.

For Level 1 warehouses, SOLOCHAIN is above average compared to other solutions in this research, supported by solid simplicity, a strong core WMS, high usability and strong adaptability and implementation tools.

For Level 2 environments, SOLOCHAIN is among the leading solutions. Its strengths include usability, enabled by tools such as a mobile workflow designer for WMS and MES, graphical role-based access control and adaptability. It also offers a comprehensive set of implementation tools, including its process, label and report designers as well as its warehouse mapper and an integrated implementation platform with project tracking and management features. Its core WMS is relatively strong, though not differentiated.

For Level 3 operations, SOLOCHAIN is in the midrange of solutions, despite a similar overall score to its Level 2 rating. This is largely due to the number of competing solutions with robust capabilities at this level. Its core WMS is solid but undifferentiated, though recent enhancements — such as for task interleaving, improved printing configurations and reusable tote traceability — strengthen the offering. High adaptability, usability and improved analytics also help maintain its competitive standing.

For Level 4 environments, SOLOCHAIN shows an undifferentiated core, limited depth of extended WMS functionalities and lower ratings for MHE integration. Nonetheless, it offers notable extended capabilities such as an integrated MES for manufacturing, improved task interleaving, inbound load tracking, trailer check-in/check-out, calendar-based yard and dock appointments, enhanced logic for scrap and kitting replenishment. It also offers access to the Generix resource planning/management system. SOLOCHAIN maintains high scores in adaptability and analytics, including features such as heat maps and customizable work progression dashboards. It also embeds its own voice functionality directly into its workflow designer, eliminating the need for separate interfaces or licenses.

For Level 5 operations, SOLOCHAIN shows relatively low scoring for material-handling-equipment integration and minimal presence in highly automated environments. While it remains undifferentiated in intralogistics and has low penetration in this space, its score has improved over the past year due to a partnership with a multiagent orchestration platform vendor to aid robotic and MHE automation integration. It is also rated higher for systems/technical architecture compared to a number of other solutions in this research and shows solid to strong scores in other areas relevant to Level 5 operations.

Infios (Warehouse Advantage)

Over the last year, Körber's supply chain software business has been undergoing a management restructure, and in March 2025, it rebranded as Infios, offering a portfolio of warehousing, transportation and order management solutions.

Infios offers four WMSs, including Warehouse Advantage and Warehouse Edge. It follows a cloud-first approach for new business, but adoption varies by product. Infios' WMSs are dedicated cloud-only with Oracle as the hyperscaler. This research evaluates Warehouse Advantage, which primarily fits Levels 3 and 4, with some presence in Level 5 operations.

For Level 1, Warehouse Advantage is not well-suited, mainly due to low simplicity scores. Despite strengths in core WMS, usability and adaptability, it's not ideal for basic operations.

For Level 2, it improves slightly. Its strong core WMS, adaptability and analytics contribute positively, though its simplicity rating remains a limiting factor.

For Level 3, Warehouse Advantage's strengths include core and extended WMS capabilities, analytics, integration and implementation tools, usability and adaptability. Tools like Advantage Architect, Infios Solution Designer and the rule engine enable both low- and high-code customization across UI, processes and APIs. Infios also leads in warehouse visualization and simulation via CLASS. It continues to modernize through microservices-based applications like CLASS and its AI-driven slotting engine Slotting.IQ along with ongoing enhancements to hosting and upgrade processes.

For Level 4, its strengths include analytics tools such as Infios Pulse Designer for dashboards, alerts and real-time insights. Its core WMS remains a strength, as do supporting technologies like quality audit tools, cloud document management, advanced voice and simulation features. Usability is relatively strong, and its extended WMS includes enhanced labor management, relatively advanced slotting and some native parcel management capabilities. Labor capabilities include features to account for learning curves, fatigue tracking and key performance indicators (KPI) reporting, further enhanced with the new Labor Command Center for real-time performance monitoring. Additionally, Infios has introduced a GenAI chatbot offering natural language support for product configuration tasks.

For Level 5, Warehouse Advantage is among the leading solutions and is deployed in highly automated warehouses. It has a strong rating for material handling integration — outperforming many other solutions in this research — and offers its own WCS. While warehouse execution capabilities are still emerging, Infios has expanded support for multiple classes of smart robotics. Infios remains in the early stages of aligning both robotic and conventional automation with its Unified Control System (UCS), which has seen incremental enhancements over the past year, improving its score for intralogistics support. The UCS aims to orchestrate tasks across diverse technologies, including robotics, traditional automation, voice and put walls.

Infios (Warehouse Edge)

Over the last year, Körber's supply chain software business has been undergoing a management restructure, and in March 2025, it rebranded as Infios, offering a portfolio of warehousing, transportation and order management solutions.

Infios offers four WMSs, including Warehouse Advantage and Warehouse Edge. It follows a cloud-first approach for new business, but adoption varies by product. Infios' WMSs are dedicated cloud-only with Oracle as the hyperscaler. This research evaluates Warehouse Edge, which is best suited to Level 2 and low Level 3 warehouse operations.

For Level 1 operations, Warehouse Edge's strengths include its solid simplicity score and relatively strong usability. Contributing features include responsive design, single sign-on (SSO), role-based access control and a consistent user experience across devices.

For Level 2 operations, Warehouse Edge offers a solid core WMS — featuring e-commerce-specific capabilities like order prioritization and smart waving — along with robust picking methods. Recent enhancements such as advanced cycle counting and multishipment transfer support have also strengthened its offering. While its adaptability, analytics and implementation tools are solid, they remain undifferentiated compared to other vendors.

For Level 3, Warehouse Edge's core and extended WMS capabilities, such as warehouse worker gamification through its collaboration with viabe from the broader Körber group, which become increasingly critical at this level, are solid but undifferentiated. Its analytics and implementation tools are also solid but undifferentiated, although its usability remains relatively strong. Despite this lack of differentiation, Warehouse Edge can still be a viable solution for some Level 3 operations, depending on customer priorities. It supports features such as stand-alone integrations to multiple ERP systems, parcel and less-than-truckload shipping, and configurable deployment options. Additionally, it provides support for voice and e-commerce-specific functions like order prioritization and smart waving, and offers slotting optimization for more complex small and midsize business (SMB) warehouses through its Slotting.IQ module.

For Level 4, operations with higher complexity, where more advanced and varied capabilities are required, are not a target for Warehouse Edge. It offers a solid but undifferentiated core WMS and has lower scores for extended WMS functionality. However, recent enhancements, including catch weight support and smart cart picking, offer incremental improvement.

For Level 5 operations, Warehouse Edge also scores lower, which aligns with its focus on less complex environments. This includes low scores in material handling integration and a lack of differentiation in other key capabilities needed for highly automated MHE environments. Nonetheless, customers aiming to introduce some automation may benefit from Infios' broader expertise and its relatively new UCS, which could extend automation capabilities within Edge deployments.

Infor

Infor is a business application megavendor with a broad portfolio that includes WMS and other SCM solutions embedded in or integrated with several of its ERP systems. Its SCM products range from planning applications to warehousing, labor management, third-party logistics (3PL) billing and transportation. Infor WMS is most often used in Level 3 warehouse operations, but it is making inroads toward more complex Level 4 and 5 environments.

For Level 1 operations, Infor WMS is undifferentiated. Although not rated in this research, Infor also offers Factory Track bundled with some ERP systems and sometimes with Infor WMS. It provides simplified Level 1 and low Level 2 capabilities for customers who don't need the full depth of Infor WMS.

For Level 2 operations, Infor WMS shows higher scores than for Level 1. This improvement is driven by a relatively strong core WMS, including visual warehouse capabilities, and strong usability, supported by a modern, consumer-grade UI, smart help portal and user-configurable themes. It also scores well for analytics and business intelligence (BI).

For Level 3, Infor's scores increase again. Strengths include improved core and extended WMS capabilities, such as rainbow pallet build, production order waving, waveless batch picking and robotic process automation (RPA)-enabled features like automatic inbound packlist scanning and discrepancy resolution. New additions include real-time monitoring, enhanced document management, cloud-based remote printing and put-to-store support. The solution continues to score well in adaptability, usability and implementation tools. Analytics performance has improved, supported by Birst, Infor AI and a data architecture enabling near-real-time access and data fabric services.

For Level 4, extended WMS features include Visual Yard, labor management, third-party billing and advanced kitting. Some capabilities, like slotting, are add-ons and lack depth compared to others; however, adaptability and extensibility are strong, with no-code tools for end users and full-code options for technical staff and consultants. Supporting technologies are solid but undifferentiated, though it is strong in voice and RFID. It also scores well for systems/technical architecture, with a relatively mature multitenant cloud offering and has enhanced scalability and resiliency. It is also introducing GenAI use cases, including a query-based support assistant, knowledge repository, facility health monitoring and shift-startup reporting.

For Level 5, Infor WMS earns a solid score for material handling integration due to incremental developments of its Automation Agent. However, support for intralogistics robotics remains undifferentiated, relying mainly on partner interfaces. Through the Infor OS integration layer, expanded REST APIs and a library of existing integrations, it supports connectivity with both traditional MHE and robotics systems. It also offers strong adaptability, analytics, core WMS, usability and relatively strong extended WMS capabilities.

Made4net

Made4net is a WMS and supply chain execution (SCE)-related solutions vendor. In May 2023, Ingka Investments, the investment arm of Ingka Group, the largest owner and operator of IKEA stores in 31 countries, acquired Made4net to improve its order fulfillment landscape, deploying Made4net in its first store in June 2024. Made4net continues to operate as an independent subsidiary.

Made4net's SCExpert Suite includes WMS, transportation, delivery management, yard and labor management, all running on a single common technical platform. Made4net's WMS is most often used in Level 2 and Level 3 environments, but it has customers extending into Level 4 environments and some in Level 5 and Level 1 environments.

For Level 1 warehouse operations, Made4net is well-suited. This is primarily due to its strong usability, including an improved HTML5-based responsive UI, simplified label printing via radio frequency (RF) devices and workstation activity history monitoring for better visibility. The solution also features strong adaptability and solid, improving simplicity.

For Level 2, Made4net is a leading vendor and offers strong core WMS enhanced by features like advanced quality control, cross-docking, inventory management and replenishment. Usability is bolstered by tools such as a visual warehouse viewer. Its strong adaptability, solid simplicity, relatively strong analytics and capable implementation tools, such as industry templates, simulation tools and data cloning, contribute to its strengths.

In Level 3, Made4net shows strong or solid ratings across most key capabilities. Features include task interleaving, advanced picking and put-away rules for e-commerce and mature lot/batch management for grocery environments. The platform supports user-personalized deployment, with no-code tools like screen generators, interface configurators and workflow designers. It also delivers strong integration through packaged connectors and has strong document and labeling functionality.

For Level 4, Made4net has an above-average score, with reasonably strong extended WMS capabilities. Although not all features are differentiated, it provides advanced functions such as 3PL billing, a 3PL customer portal and an expanding ecosystem of partnerships and go-lives with downstream technologies. These include pick-by-vision, voice, RFID and robotics, which have helped raise its supporting technologies score over the past year.

For Level 5, while Made4net is not yet widely deployed in highly automated environments, it does offer embedded WCS capabilities within its WMS, also available as a stand-alone solution. A portion of customers in automated warehouses use AutomationExpert plug-ins to integrate with third-party material flow control systems or external WCSs if not using Made4net's own. The vendor continues to build partnerships with material handling equipment and robotics providers. It supports technologies such as voice, pick-to-light and put walls, and has implemented its WMS with various classes of intralogistics smart robotics. However, advanced warehouse execution or explicit multiagent orchestration capabilities have not been observed. Made4net also partners with an augmented reality (AR) vendor and supports optical character recognition (OCR).

Manhattan Associates (Manhattan Active WM)

Manhattan Associates offers a broad portfolio of SCM solutions covering logistics, omnichannel commerce, supply chain planning and supplier enablement. Its core applications comprise WMS, TMS, distributed order management (DOM), SCP and point of sale (POS), all delivered on a common microservices multitenant cloud architecture. This research evaluates Manhattan Active Warehouse Management (WM), which is a unified WMS and WES built on a common technical platform designed for high-volume, high-velocity and automated warehouse environments. While the vendor states it is cloud-provider-agnostic, it utilizes Google Cloud Platform (GCP) for most customers but uses AliCloud for those in China. Manhattan Active WM is most often used in Level 4 and 5 warehouse operations, though it scales from Level 2 to Level 5.

For Level 1, it is not well-suited for stand-alone Level 1 environments as it caters to complex and highly automated environments, which impacts simplicity – a key requirement at this level.

For Level 2, it is also not well-suited for stand-alone Level 2 environments, but it has strong ratings across most capabilities and a strong core WMS, generating an above-average score for this use case.

For Level 3 environments, it retains a high score. Its very strong core WMS includes recent upgrades such as optimized shipment planning, e-signature capture, pick reassignment, load building and improved cycle counting. Its extended WMS features — like unified appointment scheduling, flexible shipment planning and dynamic dock heat map — score well, as do its analytics and implementation tools. Usability has improved through interfaces like the Shipment Progress UI and Wave Summary screen. Implementation is supported by a configurable component library and tools like the Configuration Director and ProActive, which allow custom extensions without disrupting the core WMS. Adaptability also remains a strength due to its microservices architecture, which supports continuous upgrades, a common code-base across customers and cross-functional workflows through Manhattan TMS and DOM. This offers the opportunity to build unique flows cross-functionally, which some customers have begun to implement. ProActive has also been enhanced with more extension points and a developer hub platform.

For Level 4, the solution shows significant differentiation, combining strong core WMS capabilities with deep and broad extended WMS capabilities. This includes advanced slotting, labor and resource planning, wave/waveless execution, unified distribution planning, VAS and evolving parcel management through new multicarrier partnerships. Yard management is also advancing, with capabilities like flow-through optimization and dynamic trailer interleaving.

For Level 5, Manhattan is strong in highly automated settings. While it lacks a native WCS, its embedded, vendor-agnostic WES supports integration with various MHE and robotics systems. Manhattan was one of the first vendors to embed ML and AI in WMS with Order Streaming, which dynamically orchestrates tasks based on real-time demand. It has since added ML-based predictive task estimation and is advancing toward delivering several GenAI use cases. Manhattan continues to blend orchestration across manual, automated and hybrid environments and supports multiple classes of intralogistics smart robotics.

Manhattan Associates (Manhattan SCALE)

Manhattan Associates offers a broad portfolio of SCM solutions covering logistics, omnichannel commerce, supply chain planning and supplier enablement. This research evaluates Manhattan SCALE, which is a WMS built on a Microsoft platform, deployable in both dedicated and multitenant cloud environments. While sometimes referred to as Manhattan Active SCALE, it is distinct from Manhattan Active WM in both architecture and application. It caters to the SMB and 3PL WMS markets with Level 2 and Level 3 warehouse environments. Manhattan SCALE can be deployed in either a dedicated or multitenant cloud environment hosted on Microsoft Azure.

For Level 1 operations, Manhattan SCALE offers strong core WMS coverage and reasonable simplicity. Key contributors include implementation tools like Fast Track deployment, industry templates for multisite deployment and an updated configuration wizard with an intuitive UI for guided workflows. Activity Architect enhances mobile UI flexibility and configuration, improving usability and adaptability.

For Level 2, SCALE offers notable usability improvements such as advanced search and metadata configurations, as well as deployment flexibility — SaaS multitenancy, dedicated cloud or on-premises. It includes a robust core WMS, enhanced with features like outbound quality checks, e-signature and mobile image capturing. It also has relatively strong analytics capabilities, with features such as multisite performance tracking and labor monitoring to optimize operational efficiency.

For Level 3, where complexity increases, SCALE does not score as high as other solutions, including Manhattan Active WM, for several capabilities. However, SCALE still supports Level 3 with a strong core WMS, solid extended WMS capabilities and robust implementation and integration tools. Recent partnerships with an enterprise integration platform as a service (iPaaS) provider further enhance its integration capabilities, enabling smoother connections to third-party systems and applications. The SCALE Extend toolkit, including Activity Architect, Insight Architect, Developer Hub and API Swagger, supports customizations and API-driven development. These tools allow users to build custom screen layouts, repurpose mobile screens and extend system capabilities.

For Level 4 and Level 5, SCALE holds a similar ranking, but the gap in scores widens somewhat because it lacks the breadth of extended WMS capabilities for Level 4.

For Level 5, it lacks the depth of MHE integration and optimization capabilities provided by other solutions. However, it continues to make strides in enhancing its robotics partnerships. It has also been increasing its intralogistics support, improving its robotics integration and task optimization over the past year. Additionally, SCALE is continuing to enhance its support for automation integration.

Mantis

Mantis is a WMS suite provider, acquired by ecovium in 2022. Mantis provides the Logistics Vision Suite (LVS) WMS. This research evaluates LVS, not the legacy ecovium WMS. LVS is most commonly used in Level 3 and Level 4 warehouse environments, but it scales from Level 2 to some Level 5 operations. Mantis' customer base is primarily deployed on-premises, but it has a small number of customers in dedicated public cloud environments on Microsoft Azure.

For Level 1, despite its strong core WMS, LVS is not well-suited due to its relatively low simplicity scoring, which is affected by its highly rated adaptability — a minor factor in Level 1 environments.

For Level 2, because simplicity is still a highly weighted factor, LVS is undifferentiated. However, its overall score is improved from Level 1, given its strengths in other areas like core WMS.

For Level 3 environments, LVS improves significantly, where its strong core and solid extended WMS and very strong adaptability are more of a factor. It offers enhanced features for process integration, data expandability and implementation tools. New connectors to marketplaces and improvements to its voice server — which supports multiple sites — also contribute to its success. LVS is a strong choice for organizations looking to leverage advanced visual workflow configurations and 3PL billing capabilities. It also provides robust e-fulfillment features like advanced order batching, nested wave picking and inbound VAS. Its advanced upstream and downstream traceability capabilities support compliance with industry-specific requirements, including EU TPD (tobacco) and EU FMD (healthcare), as well as offering nested serial support for the electronics and telecom sectors.

For Level 4, its strengths include its core and extended WMS, such as enhanced slotting capabilities. Its analytics rating has improved and includes a data mart and self-service visualization tools offering customers ready to use visualization, analytics measures, dashboards and performance metrics. Its strong adaptability — with visual workflows and scripting tools — is a differentiating factor. LVS has a higher rating for supporting technologies than most of the solutions in this research, given its voice, vision and RFID (VVR) developments and focus. Its systems/technical architecture rating is affected by limited public cloud maturity, with only a small percentage of customers recently hosted in a dedicated public cloud environment.

For Level 5, LVS shows a relatively low but improving score in materials handling integration and undifferentiated support for intralogistics robotics. Despite these challenges, its solid analytics, adaptability and other capabilities allow it to maintain strong positioning. LVS offers proprietary technology for integration with various systems, including pick/put to light, voice solutions, vision picking, smartglasses and RFID. It also includes a module to ease integration with MHE vendors' WCSs and material flow control systems (MFCs) and has enhanced its support for integration with sorters, built integrations with Autostore through Element Logic as well as enhanced SSI SCHAEFER shuttle system deployments.

Microsoft

Microsoft Dynamics 365 Finance and Supply Chain Management is an integrated cloud ERP with WMS and SCM capabilities. Dynamics 365 Supply Chain Management, not Business Central, is assessed in this research. Microsoft serves customers in over 19 industries, including retail, consumer packaged goods (CPG), distribution, manufacturing and automotive. In June 2024, Microsoft released its warehouse-only mode in Dynamics 365 Supply Chain Management, providing customers an option to only buy this mode to use its WMS, and enabling integration with third-party ERPs and order management systems (OMSs). This mode allows the setup of a legal entity dedicated to WMS, supporting third-party integrations.

For Level 1 warehouse operations, Microsoft's simplicity score is undifferentiated, but it exceeds many other solutions in this area. Its strong usability and core WMS help, and its warehouse mobile app, with customizable user guides and views, supports ease of use in various settings.

For Level 2 operations, Microsoft offers a solid core WMS that has been improving with features like multiple reservation rules and quality checks. Strong usability, implementation tools, responsive UI, mobile app design and drag-and-drop workflows boost its overall score.

For Level 3, Microsoft's scores improve, while its position remains relatively low. It is well-suited for midcomplexity environments. The core WMS adds value when coupled with robust implementation and integration tools, including multisite deployment support, guided and human-driven workflow, native integration and packaged connectors. Integration with Microsoft's broader technology ecosystem, such as Azure, Power BI and Power Platform, to aid rapid deployment of custom extensions and applications, benefits customers. Additionally, Microsoft offers scalable user options and a mature cloud architecture with database elasticity, scalability, upgradability and a low-code extensibility framework.

For Level 4, Microsoft's scores are fairly low, where other solutions offer advanced core and extended WMS capabilities. However, it does offer a solid set of core WMS, including pick-and-pass, support for GS1 and order reallocation, and extended WMS features such as load planning and appointment scheduling. Strong scores in areas like systems/technical architecture, analytics (e.g., embedded Power BI, dashboards), usability and adaptability (with configurable workflows, wizards and setup guides) help its ranking. Microsoft also leverages Copilot (GenAI) for warehouse training, guided configurations, conversational help and mobile app support.

For Level 5 environments, Microsoft is less suitable than competitors due to undifferentiated MHE integration and limited but growing presence in these environments. While it supports automated MHE integration through MHAX, it lacks advanced WCS, warehouse execution and orchestration capabilities. However, it does support integrations and work orchestration capabilities through independent providers such as FORTNA. Microsoft is also expanding its integrations with robotics and MHE vendors like Honeywell, Kardex, Knapp, Autostore and Zebra/Fetch Robotics.

Microsoft declined requests for supplemental information. Gartner's analysis is therefore based on other credible sources.

Oracle

Oracle offers multiple WMS products, but this research focuses exclusively on its primary WMS, Oracle Fusion Cloud Warehouse Management. From its inception, this solution has been a pure multitenant SaaS/cloud WMS and is deployed on Oracle Cloud Infrastructure (OCI) Gen2. It is integrated with Oracle's other cloud SCM offerings: Oracle Fusion Cloud Supply Chain Management & Manufacturing, Oracle NetSuite and Oracle Retail Merchandising Operations Management Cloud. Oracle claims its warehouse management customers are spread well across Levels 2 through 5 warehouse operations, with the largest concentration in Level 3.

For Level 1 warehouse operations, Oracle's WMS scores relatively well. However, for simpler operations, Oracle Fusion Cloud Inventory Management may be a better fit, especially with its newly released Mobile Inventory, using the Redwood design.

For Level 2 environments, it offers a strong core WMS. Recent enhancements include task-based put-away and advanced constraint model cubing. Usability is also a strength, supported by the rollout of Redwood Mobile, which features camera-based bar code scanning, item image display and intuitive touch controls. Continued desktop enhancements based on Redwood design principles have further boosted usability scores over the past year.

For Level 3 and Level 4 operations, Oracle performs well. This is attributed to its strong core and extended WMS capabilities, such as kitting, labor capacity planning and employee live location traceability. While adaptability and configuration are relatively strong yet undifferentiated, Oracle enables scalable WMS configurations to fit business requirements. It exposes most business entities via RESTful APIs, allowing extensibility and smoother integrations with other enterprise systems.

It rates high in systems/technical architecture due to its mature cloud infrastructure, support for continuous upgrades, near-zero downtime, enhanced security measures and the Oracle Autonomous Database. Integration with other Oracle products has improved, thanks to prebuilt integrations with Oracle Cloud SCM via the Oracle Integration Cloud (OIC) subscription offering. Customers can also customize OIC integration recipes to meet specific needs.

Oracle benefits from its megavendor ecosystem, leveraging tools like Oracle Machine Learning and OCI Vision for Optical Character Recognition (OCR). AI/ML capabilities in the WMS are expanding with use cases such as market basket analysis and predictive order cycle time, made more accessible due to easy access to historical data.

For Level 5, Oracle is undifferentiated. While it lacks packaged WCS and warehouse execution systems, it supports rule configuration for MHE. However, MHE integration remains service- and vendor-driven. Oracle typically integrates MHE via web services using Oracle WMS Automation Cloud, mapping the MHE vendor's WCS to its WMS. The solution is present in environments using a range of technologies like voice, conveyor sortation, pick/put to light, automated storage and retrieval systems, robotic vehicles and drones.

Reply

Reply offers an array of IT services, with a primary focus on consulting, digital services and cybersecurity. It has two WMS offerings. Click Reply is its on-premises WMS. This research evaluates LEA Reply, which is a multitenant cloud WMS developed in a contemporary microservices architecture deployed on AWS globally, including in China, and can also be deployed via other cloud providers on request. LEA Reply is most often used in Level 2 and Level 3 warehouse operations. However, it can scale up to low Level 4 operations and has a growing presence in Level 5 warehouses.

For Level 1 warehouse environments, LEA Reply scores relatively well due to its above-average simplicity, strong core WMS, usability and adaptability. While not focused on stand-alone Level 1 warehouses, it is a good option for customers with robust warehouse networks that include some Level 1 sites. Its composable architecture allows deployment of lite functionalities to serve simpler operations when needed.

For Level 2, LEA Reply is a leading solution, as usability and core WMS carry more weight. Its strong adaptability, enabled by its microservices design and improving implementation tools, contributes to its high scores.

For Level 3, it is among the top performers. A key factor is its improved core WMS, with enhancements that include task orchestration, waveless fulfillment, anomaly tracking and picking substitution. It also has some specific capabilities for Level 3 warehouses in industries like food and beverage, manufacturing, distribution and e-commerce, with notable capabilities for dedicated e-commerce for supermarkets and grocery stores.

For Level 4 environments, LEA Reply scores high. While its extended WMS isn't a clear differentiator, it is relatively strong and enhancements include appointment calendar upgrades, interactive yard maps and machine-learning-based demand forecasting for better workforce planning. Its strong systems/technical architecture, driven by the LEA Reply Digital Platform and its microservices framework, supports the deployment of new-generation supply chain execution applications that expand the potential of extended WMS. LEA Reply also offers high adaptability, a solid core WMS, strong supporting technologies, usability and cohesive implementation tools. It includes prebuilt connectors to various ERP systems, e-commerce platforms, robotics, parcel carriers and web stores. The suite has been expanded with modules for last mile, smart planning and dropshipping. It also provides relatively strong analytics, with AI-driven features like pick path optimization and advanced cartonization. GaliLEA, part of its second-generation release of the LEA Reply digital platform, supports natural-language-based issue reporting, assisted problem solving and on-demand data access.

For Level 5 environments, LEA Reply loses a little ground but scores relatively well. While it lacks some features found in WMSs built specifically for heavy automation, it shows growing adoption in highly automated environments and strong scores across various Level 5-weighted capabilities. It continues to enhance its WCS integration and LEA EDGE automation capabilities to support these advanced use cases.

SAP

This research focuses solely on SAP Extended Warehouse Management (EWM) Advanced and does not evaluate EWM Basic or other SAP alternatives. Most EWM customers are on-premises (over 80%), with almost 15% on dedicated cloud (hosted) and only 5% on its newer multitenant, public cloud offering. EWM is cloud-deployed across four hyperscalers (Azure, AliCloud, AWS, Google) and SAP cloud services. SAP EWM is most often used in Level 2 and Level 3 warehouse operations but can scale to Level 5.

For Level 1, EWM is less suitable due to low simplicity and limited ease of implementation and adaptability. It is considered too complex for basic operations. Existing users of WM may choose alternatives like Stock Room Management instead of implementing EWM. Additionally, S/4HANA Cloud WM, a lower complexity multitenant WMS, may be more suitable for simpler sites or existing SAP users.

For Level 2, EWM holds a similar position. While it has a strong core WMS, usability is undifferentiated and can be hindered by too many configuration options. However, it scores better than in Level 1 due to higher weighting of core WMS. Organizations with multiple SAP-connected sites may still consider it, especially as SAP has improved harmonization of product profiles between SAP's ERP system (SAP S/4HANA Cloud and S/4HANA) and EWM. It also features native integration with global trade, manufacturing, transportation and track-and-trace processes and order integrations with materials management (MM), sales and distribution (SD), and logistics execution delivery (LE-DLV) modules.

For Level 3, EWM's scores improve. It offers strong and, in various areas differentiated, core WMS capabilities. Enhancements include improvements to wave management, cross-docking, batch and serial management, and kit-to-order/kit-to-stock. Its extended WMS includes updates to labor management and warehouse billing. However, adaptability remains below average, lacking the flexibility found in other solutions, especially for environments needing lightweight implementation.

For Level 4, EWM improves due to robust extended WMS features like catch-weight management and emerging AI-based slotting, and various options to integrate manufacturing with warehouse execution. It supports optimization for plant maintenance and works well with SAP Manufacturing Execution System (MES), production planning, quality and global trade. SAP also provides process mining use cases with SAP Signavio to detect process inefficiencies in EWM. Its relatively strong MHE integration starts to matter more at this level. It benefits from an above-average supporting technologies rating. In SAP cloud services dedicated cloud deployments, SAP now offers features such as latency checks, volume testing and network monitoring, improving its systems/technical architecture rating. It has also expanded Core Data Services (CDS) to speed up queries and analytics, and handle larger datasets.

For Level 5, EWM shows average scores. A key strength is its integrated WCS, which allows SAP to directly connect with many MHE programmable logic controllers (PLCs), or to MFCs. SAP also has a traditional warehouse control unit (WCU) interface. Over 350 customers use various levels of MHE automation, largely through its Material Flow System. However, its position is affected by the comparative growth in capabilities of other vendors. Following SAP's removal of its native SAP Warehouse Robotics offering, which provided a solution for integration with smart robotics, these capabilities are now delivered through its partner network, with certified options available via the SAP Store.

Softeon

Softeon's portfolio includes WMS, Distributed Order Management (DOM), some transportation, direct store delivery and planning on a common technical platform; however, the majority of its business is WMS. Softeon is most often used in Level 3, but has a high proportion of customers in Level 4 and Level 2 warehouse operations and can scale to Level 5. The vendor combines WMS and WES on a unified platform, supporting both manual and highly automated environments. It offers the same software as either dedicated, single-instance cloud or multitenant cloud. About 95% of its business is dedicated cloud with AWS as the preferred hyperscaler.

For Level 1, Softeon is undifferentiated with a relatively low simplicity score. However, improvements in usability, aided by its new Pulse app for mobile workflow design, help its performance.

For Level 2, its score is stronger due to higher weight given to its strong core WMS and strong adaptability. It is a viable choice for businesses looking to scale capabilities over time or expand into more advanced warehouse environments.

For Level 3, Softeon's scores are among the highest, driven by deep core WMS capabilities and broad extended WMS (e.g., a billing management system that can be deployed independently). Additional offerings include WES, DOM, returns management and direct store delivery — all available on a single platform. It has reasonable ratings in systems/technical architecture and supporting technologies, including integrations for voice and RFID, and support for wearables, pick-to-light and dimensioning systems.

For Level 4, it retains a similar score. Its adaptability rating improved this year with the release of SLICE, a framework for externalizing scripts and SQL to enhance or replace APIs. Softeon also offers relatively strong implementation tools, including a differentiated single-pane integration monitor and a configuration wizard. Its analytics tools include an ad hoc report writer. AI/ML use continues to expand, particularly for slotting and workload optimization. It has strengthened healthcare logistics capabilities with the U.S. Drug Supply Chain Security Act (DSCSA) serialization support, controlled substance handling, and HITRUST certification. It is also piloting GenAI for WMS integration support and conversational troubleshooting to reduce issue resolution time.

For Level 5, Softeon's relatively high rating for material handling integration is impactful, despite not offering a full WCS. It includes an embedded WES, which can be deployed independently. Key strengths include native integration and optimization for technologies such as voice and manual/robotic pick-to-cart. It also has a high rating in intralogistics smart robotics and has expanded support for mobile robots and put walls. Its WES, combined with LUCA, which enables technical and process integration among robots, people and systems, supports faster integrations and continuous routing and balancing, evolving toward Softeon's concept of Streaming Fulfillment.

Synergy Logistics

Synergy Logistics focuses exclusively on WMS and related products such as mobile robots. Its WMS, SnapFulfil, is commonly used in Level 2 and Level 3 warehouse operations but can scale from high-end Level 1 to moderately complex Level 4 environments without extensive extended WMS capabilities. Synergy is one of the longer-tenured cloud WMS providers, offering a rapid deployment SaaS and dedicated cloud solution through its infrastructure partner 11:11.

For Level 1, Synergy has one of the highest scores, driven by its simplicity, rapid implementation, robust implementation tools, remote deployment capabilities, and strong usability and adaptability.

For Level 2, Synergy retains a similar score. SnapFulfil is built around a robust and flexible rule engine, enabling noncode adaptability to support unique processes and vertical needs. This flexibility underpins Synergy's fast implementation methodology, suited particularly for fast-growing or resource-constrained operations, as it reduces the need for large IT teams.

For Level 3, Synergy shows average scores, reflecting strong but undifferentiated core and extended WMS features. However, strengths in ease of deployment, integration and adaptability continue to benefit customers at this level. Synergy supports verticals like perishables with features such as minimum shelf life on receipt, temperature tracking and workflow-based quality checks. It has enhanced its SnapData analytics platform, improving access to operational insights and reporting and giving customers more control and access to their data for better decision making.

For Level 4, Synergy shows similar but slightly reduced scores compared to Level 3. Compared with other vendors, it lacks advanced extended WMS functionality. However, its performance is bolstered by improvements in 3PL billing, including an enhanced portal and robust cost tracking. Integration capabilities have also improved through new partnerships with middleware providers specializing in logistics and e-commerce. The vendor has upgraded labor management, dock scheduling and dynamic replenishment tools. It was rated relatively high for adaptability and implementation tools. Its dedicated cloud infrastructure ranks relatively well, offering solid performance and security assurances, contributing to a better-than-average systems/technical architecture score.

For Level 5, the highly automated environments are not a traditional target for Synergy, and it lacks differentiated conventional MHE integration. However, its low score in this area is offset by SnapControl, a stand-alone robotics integration and orchestration layer that can also be embedded in the WMS. Over the past few years, Synergy has expanded robotics partnerships, supporting faster onboarding and deployment. This has improved its score in intralogistics smart robotics, surpassing many competitors. While this doesn't fully lift its Level 5 standing, it positively impacts its score for Levels 2 through 5.

Tecsys

Tecsys is a vendor of warehouse management and companion supply chain execution capabilities, including core and extended WMS, demand forecasting, procurement, distributed order management, point-of-use and pharmacy inventory management. It is mostly used in Level 3 and low Level 4 environments, but it can handle Level 2 operations with some specialized Level 1 capabilities, notably in healthcare. Historically, most of Tecsys' deployments have been on-premises, but cloud/SaaS is the only option available for new deals, with cloud penetration over 90%. All cloud deployments are dedicated, single-instance cloud with AWS as the preferred hyperscaler.

For Level 1 environments, Tecsys shows average performance due to its average simplicity rating, expedited implementation capabilities, strong core WMS and relatively strong usability.

For Level 2, it offers a strong but undifferentiated core WMS with recent improvements in receiving, cycle counting and container reusability. Its simplicity and strong adaptability also impact its score.

For Level 3, its score improves further, with a strong extended WMS. While it doesn't match leading vendors' traditional extended capabilities, it offers unique features. These include compliance support for DSCSA pharmaceutical track and trace regulations, U.S. Health Insurance Portability and Accountability Act (HIPAA) compliance for patient-sensitive data, U.S. 340B support, flexible granularity for high-precision units of measure, and better management of dimensional products like reels and cables. It directly embeds compliance data and regulations into its WMS, improving efficiency and reducing compliance risks. It also supports medical procedural pack management, integrating demand planning, warehousing and delivery operations. Its healthcare license verification provides serialization and lot control support, which extends to firearms, controlled drugs and alcohol industries.

For Level 4, Tecsys shows average performance but demonstrates its strong and unique extended WMS capabilities and strong core WMS and solid usability. This includes a more intuitive UI, enhanced desktop menu, 3D heat map for visualization and new picking control tower for real-time monitoring of pick work anomalies. Although its rule engine and workflow management are powerful and flexible, they are complex and better-suited for advanced IT users. Tecsys offers extensibility through its Itopia platform, providing embedded low-code features and API-based integration for custom requirements. Recent improvements have enhanced its support for extended technologies, such as electronic shelf labels and expanded use cases for RFID and text-to-speech workflows. It continues to improve integration with data middleware vendors. Most other Level 4 capabilities remain undifferentiated.

For Level 5, Tecsys showed a lower score. It lacks its own warehouse execution system, WCS, or similar capabilities for MHE integration in highly automated environments. However, it offers an in-house interface layer for specific carousels and PLCs and has experience with equipment like weigh-in-motion scales. It also partners with SVT Robotics, a multiagent orchestration vendor providing access to a large library of intralogistics smart robotics integrations. It also partners with Matthews Automation and TraceLink for healthcare specifics.

Vinculum

Vinculum offers cloud/SaaS-based solutions aimed mainly at e-commerce and omnichannel retail, enterprises going through digital transformation, darkstore/backstore fulfillment and retail-focused 3PLs. Most customers are multitenant cloud, with the rest dedicated cloud for more complex environments. All customers are on AWS, but Vinculum is conducting a trial with GCP. It can be purchased as a stand-alone solution, but buyers typically receive both the WMS and OMS, even if they don't plan to use the OMS. The WMS is best suited for paper- or mobile-based manual warehouse operations (Levels 1 to 3) and includes a web-based store inventory tool for Level 1 operations.

For Level 1 warehouses, Vinculum's WMS is a leading solution mainly due to its simplicity and ease of adoption. Many customers still rely on paper for tasks like picking, despite the availability of mobile technology. Its usability is strong, thanks to its adaptive UI, although its adaptability is not differentiated.

For Level 2, it retains a reasonable score where simplicity is still a heavily weighted factor. It integrates with over 80 marketplaces, 200 web stores, brand distribution centers, last-mile delivery apps and 3PLs via APIs. It also offers self-onboarding guides and simple configuration tools. Its recent improvements in core WMS, including wave management, have also aided its position. Additionally, its accelerated implementation contributes to its strong performance at Levels 1 and 2.

For Level 3, it shows lower scores due to a lack of advanced WMS capabilities offered by other vendors. However, it provides some extended WMS, such as 3PL billing and a client portal, kitting and specialized grocery-focused VAS. It has made incremental improvements in inventory management, carrier integrations, reporting and picking processes. Its solution supports multiuser/multisite access control and rapid B2C scaling via marketplace connections. It also provides strong functionality for its Asia/Pacific (APAC) customer base, including support for local tax compliance and integration with local carriers, which adds to the flexibility for businesses expanding across regions. It has enhanced its D2C, B2B and prebuilt integrations, support for nondelivery returns processing and pick-to-light capabilities.

Vinculum claims it is beginning to expand into Level 4 and 5 warehouse operations through partnerships with third-party task, labor and yard management solution providers. It also collaborates with intralogistics smart robotics vendors like Addverb, Mowito, Locus and GreyOrange. While its warehouse operational analytics are limited compared to competitors, it offers good insights into inventory across a network and is working to enhance reporting to better support higher-level operations.

For Level 5 environments, Vinculum's multitenant cloud maturity and AWS collaboration improve its systems/technical architecture rating. However, it lacks differentiation in materials handling automation and other capabilities important for Level 5 operations. It has deployed video tracking for pick-and-pack processes to enhance transparency and support voice through a partnership with Vocollect.

Context

Gartner's [Magic Quadrant for Warehouse Management Systems](#) is an evaluation of the WMS market and the leading WMS vendors in that market. Although WMS product capabilities are an important consideration in a Magic Quadrant, they are not the only ones, nor are they singularly important ones. Evaluation of other factors, such as global scope, sales and marketing track records, customer satisfaction, operations and vendor viability, contributes to a vendor's placement on the Magic Quadrant, and some vendors have multiple WMSs. Conversely, this Critical Capabilities research for WMSs focuses specifically and exclusively on the capabilities of the highlighted WMS products. There are two dimensions to the Critical Capabilities research.

Critical Capabilities

We have identified 11 critical capabilities considering core and extended functionality, usability, analytics and performance management, implementation/integration tools, adaptability, supporting technologies, intralogistics smart robotics, systems/technical architecture, materials handling integration, and overall simplicity of use and operation. Due to the evolution of customer demand and vendors' capabilities, one of the existing capabilities (supporting technologies) has been adapted, and two new ones have been added, systems/technical architecture and intralogistics smart robotics support since last year.

Use Cases

Not all critical capabilities are equally important, depending on certain predefined use cases. Each critical capability is weighted by use case, and vendor offerings are scored by critical capability and use case. As a result of the different level of importance, or weighting, attributed to each critical capability in each use case, a particular solution may score well for one use case and not for others. This evaluation considers the qualifying WMS offerings across the strata of warehouse environments, ranging from small, simple operations to complex and highly automated facilities.

As part of the evaluation, we determine how many users have committed to using the solutions in various operational environments. For three of the WMS vendors with multiple products, we also address where their offerings best fit the environments and how vendors decide which product to offer. To account for the evolution of the market and solutions, and the addition of two new capabilities, weightings have been significantly adjusted from the previous year.

Market Definition

Gartner defines a warehouse management system (WMS) as a software application that helps manage and intelligently execute the operations of a warehouse, distribution center (DC) or fulfillment center (FC).

WMS operations natively exploit mobile devices along with bar codes and potentially RFID or other scanning/sensing technologies, to form the transactional foundation of warehouse management. This enables efficiencies of directed work activity (optimization) and the delivery of accurate information in near real time. Core WMS capabilities address, among others, the needs to receive, put away, store, count and pick, pack and ship goods. Gartner also includes additional integrated functionality offered by WMS providers beyond core WMS. These extended WMS capabilities can include more advanced capabilities, such as managing labor or optimizing the locating of inventory within a facility.

Mandatory Features

- Receiving
- Inspection/quality
- Put-away
- Cross-docking
- Stock locating
- Inventory management
- Location management
- Replenishment
- Order allocation
- Picking

- Wave planning/management
- Staging
- Packing
- Truck loading
- Manifesting
- Cycle counting
- Shipping
- Automated material handling equipment (MHE) interfaces

Common Features

- Workforce/labor management
- Task interleaving
- Slotting
- Yard management
- Dock appointment scheduling
- Voice picking
- Parcel manifesting
- Value-added services, such as light manufacturing/kitting
- Third-party logistics (3PL) billing

Product/Service Class Definition

Gartner defines a WMS as “a software application that helps manage and intelligently execute the operations of a warehouse, distribution center (DC) or fulfillment center (FC).”

Gartner has intentionally chosen not to use terminology like Tier 1, Tier 2 or Tier N warehouses to delineate various strata of warehouse operation. There are several reasons for this. Tiering is often assumed to relate primarily to the size of the organization rather than the operational conditions of a warehouse. Larger Tier 1 enterprises can run simple warehouses, which Gartner might call Level 1 or Level 2, and midsize enterprises can sometimes operate robust and sophisticated warehouse operations, which Gartner might call Level 4 or even Level 5.

Although the WMS market is well-established and highly mature, it continues to undergo significant transformation driven by evolving customer expectations and technological advancements. Vendors are increasingly adapting their offerings to remain competitive and meet the changing needs of modern supply chain operations. Several key trends are currently shaping the strategic direction and market positioning of WMS providers:

- **Adoption of multitenant cloud architectures with composable microservices:** To support scalability, rapid deployment and continuous innovation, WMS solutions are moving toward cloud-native platforms built on modular, composable microservices. These architectures allow for more agile upgrades and customized configurations, enabling organizations to respond quickly to dynamic business requirements.
- **Advanced workforce planning and labor optimization:** As labor availability and productivity remain top concerns in warehouse operations, vendors are enhancing their labor management capabilities. This includes predictive workforce planning, real-time performance tracking and optimization tools designed to increase efficiency while supporting employee well-being.
- **Enhanced user experience and supervisory interfaces:** Inspired by consumer-grade design principles, modern WMS platforms are offering more intuitive and visually engaging user interfaces. These improvements extend to supervisory tools that provide better visibility, exception handling and decision-making support.
- **Robotics integration and cross-technology orchestration:** The rise of warehouse automation is driving the need for seamless integration with a wide range of robotics and automation technologies. Leading WMS solutions now include orchestration capabilities that enable coordinated workflows across disparate robotic systems and equipment.
- **Embedded analytics and AI capabilities:** AI, machine learning and GenAI are increasingly embedded within WMS platforms to facilitate smarter decision making, automate rule configuration and accelerate system implementation. These technologies are also enhancing predictive insights and operational agility.

- **Support for material handling automation and system interoperability:** As warehouses adopt more advanced material handling systems, interoperability between WMS software and diverse automation hardware is becoming a critical requirement. Solutions that can effectively communicate with conveyors, sorters, AGVs and other equipment are gaining a competitive edge.
- **Employee engagement and gamification:** To address workforce retention and motivation, WMS platforms are incorporating employee engagement features such as gamification, personalized dashboards and feedback mechanisms. These tools aim to foster a more productive and satisfying work environment.
- **Generative AI for accelerated configuration and knowledge management:** Generative AI is emerging as a transformative capability within WMS platforms, enabling faster system configuration, documentation generation and knowledge transfer. By leveraging large language models, GenAI can automate the creation of user guides, training materials and workflow definitions, significantly reducing onboarding time and implementation effort. Additionally, it empowers users with conversational interfaces for querying system data, troubleshooting issues and exploring best practices, enhancing both productivity and self-sufficiency across operational roles.

Together, these trends are reshaping the competitive landscape of the WMS market, emphasizing flexibility, intelligence and user-centric design in meeting the demands of modern logistics operations.

Critical Capabilities Definition

Core WMS

Core WMS functionality includes receiving, inspection, put-away, cross-docking, inventory management, location management, cycle counting, picking, replenishment, packing and shipping, as well as support for radio frequency/mobile technology, in conjunction with bar codes.

All WMSs that qualify for this research can handle core WMS capabilities to one degree or another. Solutions are differentiated by the depth of capabilities in each of the core functions and where there are advanced and enhanced capabilities across these functions. Solutions can also be differentiated by unique attributes, such as configurability, that support the management of core WMS functions. Finally, some consideration is given, where appropriate, to vertically specific core functionality that might be needed for specific industries, such as product traceability.

Extended WMS

Extended WMS functionality includes functions adjacent to core WMS. These include task/work planning and optimization, labor management/planning, slotting, yard management/dock appointment scheduling, VAS, work planning, 3PL billing/cost to serve, and parcel management.

Vendors' solutions are rated in extended WMS functionality based on how broadly they cover each of these and other extended functions and based on the richness of the features they offer in each area. These functions become increasingly important as warehouses move from Level 3 to Level 4 warehouse operations.

Usability

Usability, or user experience, includes responsive UI design, workflow management tools, visualization capabilities and UX differentiated among operators, supervisors, back-office and managerial roles. It also considers multiple interaction modes, such as mobile, voice and augmented reality (AR).

Users are now placing greater emphasis on the usability of the WMS across different classes of employees. Issues such as personalization, user onboarding and capabilities to make the system appeal better to new and different types of users are important. Look and feel, navigation and process streamlining leveraging a consumer-grade mobile look and feel are also considered.

Analytics & Performance Management

Analytics considers the level of standard reporting provided, ad hoc report creation capabilities for users, activity visibility and visualization, track and traceability, simulation, basic analytics (descriptive and diagnostic), and advanced analytics (predictive and prescriptive) capabilities.

Gartner research finds that users are looking beyond basic warehouse task execution. Basic reporting and descriptive and diagnostic analytics are now standard requirements, and most vendors offer basic capabilities, whereas more advanced predictive or prescriptive analytics, modeling and simulation are differentiators. Users place more importance on the capabilities that a WMS can deliver to provide better transparency into what is going on in and around the warehouse and what capabilities the WMS offers to enhance decision making. Adoption of various forms of analytics, such as predictive or prescriptive analytics, or embedding AI capabilities, such as ML, are of interest. This is in addition to basic mechanisms to access and visualize information in the WMS.

Adaptability

Adaptability features address how responsive a system is to change, considering the availability and ease of use of tools such as rule engines, configuration capabilities, workflow management, no-code/low-code development and scripting languages.

WMS buyers now place more emphasis on the adaptability of WMSs they are considering, especially when contemplating cloud deployments. Although Gartner recommends that customers strive for a zero-modification WMS implementation, this is not always possible. There are different ways vendors and WMSs can accommodate customization and personalization. This research assesses the tools provided to address the need for agility. It considers whether these tools are available to and used by only the vendor, or whether these tools are available for customers to use on their own.

For further information, see:

- [Multisite WMS Transformations: Technical Design Strategies](#)

Implementation/Integration Tools

Implementation and integration tools are embedded capabilities provided in the WMS that facilitate and accelerate WMS implementations and multisite deployments. These include wizards and workflows to aid configurations, upgrades and integrations.

WMSs have been notoriously time-consuming and expensive to implement, deploy and support across one or more warehouses. Upgrades have also proved time-consuming, and many companies were often stuck many releases back on aging versions of the WMS. Implementation and integration tools in this context are not things used outside the system to support consulting endeavors. The focus is not on implementation methodology or service but instead on what tools and capabilities are delivered in the system to facilitate implementation, multisite deployments, ongoing technical and application support, and enhancements. Integration capabilities, such as integration accelerators and experience with integrating and interfacing with multiple upstream systems (e.g., ERP and OMS) are important. Related applications, such as a TMS, multicarrier parcel management systems and downstream systems (e.g., scales, labeling systems and dimensional systems) are also considered.

For further information, see:

- [Multisite WMS Transformations: Technical Design Strategies](#)

Supporting Technologies

WMSs are rated based on the number of different types of technologies supported, the length of time they have been in operation, and the level of penetration and maturity.

Certain supporting technologies, such as RF/mobile technologies, are now ubiquitous, but numerous emerging technologies can enhance WMSs. These can be wearables, smartglasses, indoor locating technologies, computer vision, new approaches to voice, such as conversational agents, chatbots, and integration with certain technologies, such as robots, smart carts and put walls. Solutions are also assessed for new approaches to how existing technologies, such as mobile devices, may be managed.

For further information, see:

- [Technology Trends Transforming Warehousing – Part 2: Handling Volatility and Complexity](#)
- [Technology Trends Transforming Warehousing – Part 3: Labor Challenges](#)

Intralogistics Smart Robotics

Support for intralogistics smart robotics considers the tools, capabilities and methodologies WMS providers offer to address integration with and orchestration of work between the vendor's solution, other software applications and heterogeneous fleets of operational robots.

Gartner research finds that a high percentage of supply chain organizations are investing or plan to invest in intralogistics smart robotics. This is increasing the demand for WMS providers to offer capabilities to support their needs. As companies expand their use of robotics, most will eventually have heterogeneous fleets of robots from different vendors performing various tasks that will require capabilities that will help companies embrace a variety of agents and robot platforms. This is an emerging capability, but solutions should ultimately be able to orchestrate and assign work and integrate with, monitor and coordinate the activities of diverse fleets of robots.

For further information, see:

- [Use the Right Software to Support Warehouse Automation and Robotics](#)
- [Technology Trends Transforming Warehousing – Part 2: Handling Volatility and Complexity](#)

- [Technology Trends Transforming Warehousing – Part 3: Labor Challenges](#)
- [Hype Cycle for Robots and Drones](#)

Systems/Technical Architecture

Systems/technical architecture capabilities consider methodologies and components such as cloud deployment options and microservices to facilitate composability, flexibility and secure deployments, ensuring ease of upgradability, scalability and extensibility.

Some WMS vendors already offer composable product architectures built entirely or incrementally on the cloud by using independent building blocks, such as microservices and APIs, to enable ease of application delivery and upgradability, while others still plan to do so. Systems/technical architecture also considers WMS vendors' differentiated capabilities in the product application and database layers, and support for advanced AI/ML computations for process optimization.

For further information, see:

- [Technology Trends Transforming Warehousing – Part 1: Improving Upgrades](#)
- [Technology Trends Transforming Warehousing – Part 2: Handling Volatility and Complexity](#)

Material Handling Integration

Material handling integration considers whether the vendor's WMS natively provides a WCS and its experience and tools for integrating with MHE. Also considered is whether special functionality, such as WES is natively provided with the WMS, which enhances the use of automation.

Customer interest and adoption of large-scale conventional material handling automation is increasing. Conventional bolt-it-to-the-floor automation such as conveyors, storage retrieval and sortation systems remains a strong market. Primarily, this capability relates to Level 5 warehouse operations, but some smaller-scale adoption is also occurring in lower-level warehouses. This rating focuses on the vendor's approach to handling WMS coexistence and integration with conventional automation, specifically "productized" capabilities, not implementation or service approaches to integration.

For further information, see:

- [Use the Right Software to Support Warehouse Automation and Robotics](#)
- [Technology Trends Transforming Warehousing — Part 2: Handling Volatility & Complexity](#)

Simplicity

Simplicity is rated based on how easy the most basic capabilities are to learn, use, configure, implement and maintain. Nearly zero training and onboarding time is the aspirational goal here.

Many companies now support very simplistic warehouse operations where the functional requirements are uncomplicated but the need for very easy-to-learn and to operate WMS capabilities is mandatory. Workers can often be temporary or nonlogistics people, so an intuitive, near-zero-training user experience is valuable.

Companies are pursuing increasingly distributed, hyperlocal and pop-up warehouse networks driven by consumer expectations for timely, personalized service. Networks are expanding and the users in these small, uncomplicated environments are typically not skilled logisticians, so simplicity reigns. Simplicity, however, is not just valuable to small warehouse environments; it is also increasingly important in many environments driven by employee turnover and desires for employee satisfaction and productivity. Can end users operate the application with zero training? Does the application have a consumer-grade mobile UI? Is it intuitive and effortless to use? Can new sites be provisioned with almost no effort? Is there minimal, if any, maintenance burden for every site? Are process steps minimized and simplified (e.g., one-click operation)? Are functional options limited to reduce confusion?

Use Cases

Level 1 Warehouse Operation

Level 1 warehouses typically involve rudimentary bin tracking or single storage location systems with most processes being performed manually and not system-directed.

Level 1 warehouses need very basic WMS and inventory management functions, such as perpetual inventory, receiving, storage, picking and shipping/requisitioning, but the depth of these capabilities is very limited. Many users do not even call Level 1 operations true WMSs. Because of the nature of these systems, they are appropriate in places such as storage or stockrooms, service depots or retail stores. Also, they can be used in simple manufacturing environments where the common denominator is the storage location, which is predefined and typically fixed.

Most of the WMS vendors and products covered in this research do not focus specifically on Level 1 warehouse operations. However, some offerings include specialized capabilities within their larger WMS that accommodate these operations; these capabilities are primarily for customers using the vendor's complete WMS in other higher-level warehouse operations. For example, a company might have several Level 3 or Level 4 warehouses but numerous Level 1 facilities. And it will scale back the capabilities of the WMS to the bare minimum to use in its Level 1 facilities. This is what we rate in this research, and it's why few vendors are identified as excelling in this area. (See [Choose the Right Software and Services for Low-Complexity and Pop-Up Operations](#) for some alternatives.)

Level 2 Warehouse Operation

Level 2 systems are appropriate for undemanding facilities that need basic WMS capabilities. Level 2 is the first level at which multilocation inventory storage is introduced.

Level 2 operations are typically supported by a rudimentary stock locator capability, where the system directs some work activities, such as put-away. Core WMS functions (e.g., receiving, storage, picking and shipping) are supported, but the depth of coverage is limited to a few simple options (e.g., order pick, pallet movement and put-away zones). These warehouses are often paper-based and looking to add mobile devices with more work verifications (e.g., scan-based pick or ship verify).

Level 3 Warehouse Operation

Level 3 warehouses are more complex and require capabilities that intelligently and automatically direct work.

There is a focus on improving physical warehouse execution processes, productivity and efficiency.

This level demands more options and greater levels of inherent flexibility, such as introducing advanced rule-based locators that provide tailoring through rule definitions, workflows or scripting languages (not coding). The systems also offer work management capabilities to intelligently group and direct user activities to help users more effectively perform tasks (e.g., wave planning or task interleaving). Depth of features/functions is also greater than at Levels 1 and 2, with more options and sophistication in processes (e.g., cross-docking, multiple pick and put-away methodologies, serial/lot control, pallet/case license plating, packing and cycle counting).

Although the differences between a Level 2 and Level 3 environment are typically ones of scale of complexity, the differences in solution capabilities can sometimes be profound. For example, some products are stronger at low Level 2, whereas others can be stronger at higher Level 3. To accommodate the more comprehensive needs of Level 3 environments, more weight was placed on the depth of functionality for both core and extended warehouse capabilities. For Level 2 environments, more emphasis was placed on simplicity and usability. In Level 3, the newer capabilities of support for intralogistics smart robotics and systems/technical architecture are given a greater weighting than at lower levels.

Level 4 Warehouse Operation

At Level 4, emphasis shifts to automating, improving and enhancing processes by adding value-added, “extended” decision support capabilities.

At this level, capabilities include task, labor and yard management, slotting, BI, visibility, and traceability. Operations are notably more complex and sophisticated, with higher volumes of work, more items and more complicated processes, such as light assembly or kitting. The goals driving new system evaluations are often to improve performance and throughput while adding more decision support capabilities that can further improve efficiency and productivity.

These operations must move beyond simply automating basic physical work processes. Agility also becomes paramount at this level because the combination of high levels of complexity with rapid business change demands adaptable systems. First, Level 4 operations need to improve, extend and enhance warehouse processes by adding value-added decision support capabilities (e.g., task and labor management, advanced wave or waveless planning, slotting optimization, and work planning). Next, these types of operations typically need more advanced operational capabilities, such as multicarrier parcel management, yard management, advanced dock appointment scheduling, VAS and billing for 3PLs. Finally, because of their sophistication, these operations demand better managerial support (e.g., dashboarding, business intelligence, visibility and traceability).

To address the complexity and sophistication of Level 4 operations, the breadth and depth of extended WMS capabilities take on significantly more weight for this use case. Offerings were evaluated for capabilities they deliver directly, whether they use partner solutions, and their track record deploying extended capabilities — not just whether a vendor has a customer that might qualify as Level 4 operations. Only commercially available capabilities were considered, as we did not take into account future roadmap plans.

Level 5 Warehouse Operation

The previous levels focus primarily on people-driven processes, while the emphasis at Level 5 shifts to the extensive use of material handling automation systems.

Although Level 3 and Level 4 operations might have limited automation (e.g., pick to light, or carousel storage and retrieval), or even widespread pockets of isolated automation, Level 5 operations are the most automated. In extreme cases, entire facilities are engineered to support highly automated operations (e.g., extensive use of conveyors, sortation, automated storage retrieval and robotics). As the level of automation grows, the software emphasis shifts from people-centric WMS processes to material handling integration (WCS) and, increasingly, optimization (WES).

WCSs are the middleware that sits between the WMS and the MHE. A WCS translates business-oriented instructions into forms that are meaningful to material handling automation. WESs combine capabilities from both WCS and WMS that enhance the operations of the warehouse. The WES builds on the WCS's near-real-time insight into what's happening in the automated warehouse, but it adds business process logic to this layer, communicating directly with the automated equipment to execute the instructions.

Virtually any WMS can be integrated with some material handling automation and might minimally fit a Level 5 operation. However, this research highlights that most WMSs are not well-suited to larger-scale Level 5 warehouse operations. Approximately half of the 20 solutions fall into this category. Some vendors, such as Infios, Oracle and Reply, might also have other WMSs not covered in this research that would be well-suited or even better-suited to highly automated facilities.

For further information, see [Use the Right Software to Support Warehouse Automation and Robotics](#).

Vendors Added and Dropped

We review and adjust our inclusion criteria for Critical Capabilities as markets change. As a result of these adjustments, the mix of vendors in any Critical Capability may change over time. A vendor's appearance in a Critical Capability one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. It may be a reflection of a change in the market and, therefore, changed inclusion criteria, or of a change of focus by that vendor.

Added

No vendors were added this year.

Dropped

Deposco, Mecalux and SSI SCHAEFER were dropped as they did not meet this year's increased inclusion criteria.

Inclusion and Exclusion Criteria

In this Critical Capabilities research, we include WMS products from each vendor included in the companion [Magic Quadrant for Warehouse Management Systems](#). Most vendors have only one WMS highlighted in this research, even if they have multiple WMSs. We have chosen what we consider to be the vendor's primary, although not exclusive, go-forward product to evaluate herein. We do, however, highlight two products from three vendors — Generix Group, Infios and Manhattan Associates — in which each vendor's two solutions have maturity in the market and specifically target different strata of warehouse operation. Two cases, Infios and Manhattan Associates, actually have more than two WMSs, but these overlap with the vendors' WMSs being evaluated in this research. In no case was the choice of WMS a negative value judgment about the solution not selected for inclusion in this research. In some cases, the solution not evaluated here might be the best alternative for a particular customer.

The inclusion criteria for the companion Magic Quadrant and this Critical Capabilities research were as follows:

- A vendor must have a holistic and credible WMS suite that fundamentally supports all core WMS capabilities and minimally supports some extended capabilities.
- The vendor must exhibit a vision for WMS in at least moderately complex warehouse environments.
- Vendors must demonstrate a consistent and compelling market presence through new sales, WMS revenue and the numbers of their installed customers. The most prominent megasuite vendors also qualify due to user interest.
- Vendors must exhibit some global presence by generating at least 15% of their revenue and customer base outside of their home geography as well as having sales and implementation resources in three or more geographic regions.
- Additionally, a vendor can qualify if it has a demonstrably differentiated and unique focus and market position in a specific vertical industry.

For the detailed inclusion criteria, see [Magic Quadrant for Warehouse Management Systems](#).

Not included: We do not include stand-alone, specialist component providers of solutions. This includes yard management, slotting, labor management, parcel manifesting, optimization tools, RF, voice, RFID, WCSs, robotics integration solutions or warehouse execution systems that are the middleware between the WMS business application and MHE.

This research focuses on independent WMS offerings, so a vendor must routinely sell and implement its WMS separate from other non-software-related services or products the vendor offers. However, we do consider a WMS vendor if it offers a native WCS as part of its WMS offering. In addition, because they are not relevant as stand-alone WMSs, we do not evaluate every ERP, MHE, OMS or suite vendor's WMS capabilities, even though these might address a particular customer's WMS needs. Some vendors with strong WMSs, but with businesses that are principally in a single geography or targeted to a specific segment, did not qualify for this research.

This, in particular, affected a number of WMS vendors based in Europe and the APAC region (see [Europe Context: Magic Quadrant for Warehouse Management Systems](#) and [Asia/Pacific Context: Magic Quadrant for Warehouse Management Systems](#)). See also [Automated Material Handling Equipment Provider Context: Magic Quadrant for Warehouse Management Systems](#) and [Midmarket Context: Magic Quadrant for Warehouse Management Systems](#).

Table 1: Weighting for Critical Capabilities in Use Cases

(Enlarged table in Appendix)

Critical Capabilities ↓	Level 1 Warehouse Operation ↓	Level 2 Warehouse Operation ↓	Level 3 Warehouse Operation ↓	Level 4 Warehouse Operation ↓	Level 5 Warehouse Operation ↓
Core WMS	10%	15%	25%	15%	5%
Extended WMS	0%	0%	10%	25%	5%
Usability	10%	15%	10%	10%	5%
Analytics & Performance Management	0%	5%	10%	10%	15%
Adaptability	5%	5%	10%	10%	10%
Implementation/Integration Tools	5%	10%	10%	0%	0%
Supporting Technologies	0%	0%	5%	5%	0%
Intralogistics Smart Robotics	0%	2%	10%	10%	5%
Systems/Technical Architecture	0%	3%	10%	10%	10%
Material Handling Integration	0%	0%	0%	5%	45%
Simplicity	70%	45%	0%	0%	0%
As of 28 April 2025					

Source: Gartner (May 2025)

This methodology requires analysts to identify the critical capabilities for a class of products/services. Each capability is then weighted in terms of its relative importance for specific product/service use cases.

Critical Capabilities Rating

Each of the products/services that meet our inclusion criteria has been evaluated on the critical capabilities on a scale from 1.0 to 5.0.

Table 2: Product/Service Rating on Critical Capabilities

(Enlarged table in Appendix)

Critical Capabilities	Blue Yonder	Dematic	Ehrhardt Partner Group (EPG)	Generix Group (Generix WMS)	Generix Group (SOLOCHAIN)	Infios (Warehouse Advantage)	Infios (Warehouse Edge)	Infor	Made4net	Manhattan Associates (Manhattan Active WN)	Manhattan Associates (Manhattan SCALE)	Mantis	Microsoft	Oracle	Reply	SAP	Softeon	Synergy Logistics	Tecsys	Vinculum
Core WMS	4.3	3.0	4.3	3.8	3.0	4.0	3.0	3.5	4.0	4.5	3.5	3.8	3.0	4.3	4.0	4.3	4.3	3.0	3.5	2.5
Extended WMS	4.0	2.5	4.0	3.5	3.0	4.0	2.8	3.3	3.5	4.5	3.0	3.0	2.3	3.3	3.5	3.8	4.0	3.3	3.5	1.8
Usability	3.8	2.5	3.5	2.8	4.0	3.3	3.5	3.5	3.8	4.5	3.5	3.0	3.8	4.0	4.0	2.5	3.0	3.5	3.0	3.5
Analytics & Performance Management	4.0	3.0	3.3	3.0	3.5	3.8	3.0	4.0	3.3	3.8	3.0	3.5	3.5	3.0	3.8	3.0	3.3	3.3	2.8	2.5
Adaptability	4.0	1.8	2.5	2.5	4.3	4.3	2.5	4.0	4.0	4.0	3.3	4.0	3.0	3.5	3.8	2.5	3.8	3.8	4.0	2.0
Implementation/Integration Tools	3.8	2.5	2.4	3.0	4.3	3.0	2.5	3.8	3.3	3.8	3.8	3.3	3.0	3.5	3.5	2.8	3.8	3.8	3.3	2.3
Supporting Technologies	2.5	2.3	3.0	2.0	1.5	2.8	1.8	2.5	2.3	3.3	1.8	2.8	2.3	2.2	3.2	2.0	2.3	1.5	2.3	1.2
Intralogistics Smart Robotics	3.5	1.8	2.3	1.8	1.8	3.5	1.5	2.0	2.0	3.5	1.8	1.8	1.5	2.0	2.5	2.3	3.5	2.8	2.3	1.5
Systems/Technical Architecture	2.5	1.8	2.0	2.0	2.3	2.5	2.0	3.3	2.0	4.0	2.0	2.0	3.3	3.5	3.8	2.3	2.3	2.8	2.3	2.8
Material Handling Integration	3.0	4.0	4.0	3.3	1.8	4.0	1.8	2.5	3.0	3.5	2.5	2.3	1.3	2.5	2.8	3.3	3.5	1.5	2.0	1.3
Simplicity	1.3	1.3	1.3	2.0	2.5	1.3	3.0	1.8	2.8	1.3	2.8	1.5	2.5	2.0	2.5	1.5	1.8	3.0	2.0	3.5
As of 28 April 2025																				

Source: Gartner (May 2025)

Table 3 shows the product/service scores for each use case. The scores, which are generated by multiplying the use-case weightings by the product/service ratings, summarize how well the critical capabilities are met for each use case.

Table 3: Product Score in Use Cases

(Enlarged table in Appendix)

Use Cases	Blue Yonder	Dematic	Ehrhardt Partner Group (EPG)	Generix Group (Generix WMS)	Generix Group (SOLOCHAIN)	Infios (Warehouse Advantage)	Infios (Warehouse Edge)	Infor	Made4net	Manhattan Associates (Manhattan Active WM)	Manhattan Associates (Manhattan SCALE)	Mantis	Microsoft	Oracle	Reply	SAP	Softeon	Synergy Logistics	Tecsys	Vinculum
Level 1 Warehouse Operation	2.11	1.68	1.94	2.34	2.88	2.01	3.00	2.35	3.11	2.20	3.02	2.10	2.73	2.58	2.92	2.00	2.37	3.13	2.42	3.27
Level 2 Warehouse Operation	2.73	1.99	2.39	2.56	3.10	2.53	2.94	2.78	3.23	2.90	3.10	2.50	2.90	2.97	3.22	2.37	2.78	3.20	2.66	3.04
Level 3 Warehouse Operation	3.76	2.46	3.23	2.91	3.15	3.58	2.62	3.39	3.31	4.10	3.01	3.15	2.91	3.47	3.65	3.10	3.56	3.16	3.11	2.33
Level 4 Warehouse Operation	3.70	2.48	3.36	2.92	2.96	3.68	2.58	3.28	3.25	4.12	2.85	3.01	2.72	3.31	3.57	3.12	3.53	3.05	3.06	2.18
Level 5 Warehouse Operation	3.38	3.10	3.45	2.98	2.59	3.79	2.25	3.07	3.11	3.80	2.70	2.74	2.27	2.96	3.29	3.06	3.42	2.46	2.57	1.91
As of 28 April 2025																				

Source: Gartner (May 2025)

To determine an overall score for each product/service in the use cases, multiply the ratings in Table 2 by the weightings shown in Table 1.

Evidence

Gartner used multiple data sources to analyze and assess each solution in this research. These sources included:

- **Vendor presentations and demonstrations to the Gartner analyst team:** Specifically, to support this research, each vendor is allotted time in a live environment to present information about its company and solutions. Each vendor is allotted the same amount of time for this research, but Gartner also conducts interactions with vendors and their customers throughout the year as part of normal and ongoing relationships with user and vendor clients. In addition to the live presentations and demonstrations, each vendor provided a prerecorded, 60- to 75-minute demonstration of its core WMS, basic configuration, systems/technical architecture, implementation accelerators and extensibility tools per offering.
- **Research and data collection:** Each vendor is also asked to respond to and fill out a survey that investigates, in more detail, factual information about its company and WMS offerings. This includes current operations, solution sets, strategic directions, technology vision, and market and industry focus. Also, as part of this exercise, Gartner reviews customer references on Gartner Peer Insights submitted during the past 12 months.
- **Customer inquiry:** Throughout the year, Gartner takes more than 1,700 client inquiries on various topics related to WMS and WMS vendors. This information supplements, but does not replace, the core information collected during this research.

Critical Capabilities Methodology

This methodology requires analysts to identify the critical capabilities for a class of products or services. Each capability is then weighted in terms of its relative importance for specific product or service use cases. Next, products/services are rated in terms of how well they achieve each of the critical capabilities. A score that summarizes how well they meet the critical capabilities for each use case is then calculated for each product/service.

"Critical capabilities" are attributes that differentiate products/services in a class in terms of their quality and performance. Gartner recommends that users consider the set of critical capabilities as some of the most important criteria for acquisition decisions.

In defining the product/service category for evaluation, the analyst first identifies the leading uses for the products/services in this market. What needs are end-users looking to fulfill, when considering products/services in this market? Use cases should match common client deployment scenarios. These distinct client scenarios define the Use Cases.

The analyst then identifies the critical capabilities. These capabilities are generalized groups of features commonly required by this class of products/services. Each capability is assigned a level of importance in fulfilling that particular need; some sets of features are more important than others, depending on the use case being evaluated.

Each vendor's product or service is evaluated in terms of how well it delivers each capability, on a five-point scale. These ratings are displayed side-by-side for all vendors, allowing easy comparisons between the different sets of features.

Ratings and summary scores range from 1.0 to 5.0:

1 = Poor or Absent: most or all defined requirements for a capability are not achieved

2 = Fair: some requirements are not achieved

3 = Good: meets requirements

4 = Excellent: meets or exceeds some requirements

5 = Outstanding: significantly exceeds requirements

To determine an overall score for each product in the use cases, the product ratings are multiplied by the weightings to come up with the product score in use cases.

The critical capabilities Gartner has selected do not represent all capabilities for any product; therefore, may not represent those most important for a specific use situation or business objective. Clients should use a critical capabilities analysis as one of several sources of input about a product before making a product/service decision.

Recommended by the Authors

Some documents may not be available as part of your current Gartner subscription.

[How Products and Services Are Evaluated in Gartner Critical Capabilities](#)

[Magic Quadrant for Warehouse Management Systems](#)

[Apply an Architectural Framework to Stratify Warehouse Management Systems](#)

[Use Gartner's Model to Understand the 10 Dimensions of Warehouse Complexity Before Evaluating WMS Solutions](#)

[Technology Trends Transforming Warehousing — Part 1: Improving Upgrades](#)

[Technology Trends Transforming Warehousing — Part 2: Handling Volatility & Complexity](#)

[Technology Trends Transforming Warehousing — Part 3: Labor Challenges](#)

[Market Guide for Multicarrier Parcel Management Solutions](#)

[Choose the Right Software and Services for Low-Complexity and Pop-Up Operations](#)

[Tool: Stratify Your Warehouse Operations to Determine the Right-Fit WMS and Improvement Strategy](#)

[Market Guide for Yard Management](#)

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Table 1: Weighting for Critical Capabilities in Use Cases

<i>Critical Capabilities</i>	↓ <i>Level 1 Warehouse Operation</i>	↓ <i>Level 2 Warehouse Operation</i>	↓ <i>Level 3 Warehouse Operation</i>	↓ <i>Level 4 Warehouse Operation</i>	↓ <i>Level 5 Warehouse Operation</i>	↓
Core WMS	10%	15%	25%	15%	5%	
Extended WMS	0%	0%	10%	25%	5%	
Usability	10%	15%	10%	10%	5%	
Analytics & Performance Management	0%	5%	10%	10%	15%	
Adaptability	5%	5%	10%	10%	10%	
Implementation/Integration Tools	5%	10%	10%	0%	0%	
Supporting Technologies	0%	0%	5%	5%	0%	
Intralogistics Smart Robotics	0%	2%	10%	10%	5%	
Systems/Technical Architecture	0%	3%	10%	10%	10%	

<i>Critical Capabilities</i>	↓ <i>Level 1 Warehouse Operation</i>	↓ <i>Level 2 Warehouse Operation</i>	↓ <i>Level 3 Warehouse Operation</i>	↓ <i>Level 4 Warehouse Operation</i>	↓ <i>Level 5 Warehouse Operation</i>	↓
Material Handling Integration	0%	0%	0%	5%	45%	
Simplicity	70%	45%	0%	0%	0%	
As of 28 April 2025						

Source: Gartner (May 2025)

Table 2: Product/Service Rating on Critical Capabilities

<i>Critical Capabilities</i>	<i>Blue Yonder</i>	<i>Dematic</i>	<i>Ehrhardt Partner Group (EPG)</i>	<i>Generix Group (Generix WMS)</i>	<i>Generix Group (SOLOCHAIN)</i>	<i>Infios (Warehouse Advantage)</i>	<i>Infios (Warehouse Edge)</i>	<i>Infor</i>	<i>Made4net</i>	<i>Manhattan Associates (Manhattan Active WM)</i>	<i>Manhattan Associates (Manhattan SCALE)</i>	<i>Mantis</i>	<i>Microsoft</i>	<i>Oracle</i>	<i>Reply</i>	<i>SAP</i>	<i>Softeon</i>	<i>Synergy Logistics</i>	<i>Tecsys</i>	<i>Vinculum</i>
Core WMS	4.3	3.0	4.3	3.8	3.0	4.0	3.0	3.5	4.0	4.5	3.5	3.8	3.0	4.3	4.0	4.3	4.3	3.0	3.5	2.5
Extended WMS	4.0	2.5	4.0	3.5	3.0	4.0	2.8	3.3	3.5	4.5	3.0	3.0	2.3	3.3	3.5	3.8	4.0	3.3	3.5	1.8
Usability	3.8	2.5	3.5	2.8	4.0	3.3	3.5	3.5	3.8	4.5	3.5	3.0	3.8	4.0	4.0	2.5	3.0	3.5	3.0	3.5
Analytics & Performance Management	4.0	3.0	3.3	3.0	3.5	3.8	3.0	4.0	3.3	3.8	3.0	3.5	3.5	3.0	3.8	3.0	3.3	3.3	2.8	2.5

Adaptability	4.0	1.8	2.5	2.5	4.3	4.3	2.5	4.0	4.0	4.0	3.3	4.0	3.0	3.5	3.8	2.5	3.8	3.8	4.0	2.0
Implementation/Integration Tools	3.8	2.5	2.4	3.0	4.3	3.0	2.5	3.8	3.3	3.8	3.8	3.3	3.0	3.5	3.5	2.8	3.8	3.8	3.3	2.3
Supporting Technologies	2.5	2.3	3.0	2.0	1.5	2.8	1.8	2.5	2.3	3.3	1.8	2.8	2.3	2.2	3.2	2.0	2.3	1.5	2.3	1.2
Intralogistics Smart Robotics	3.5	1.8	2.3	1.8	1.8	3.5	1.5	2.0	2.0	3.5	1.8	1.8	1.5	2.0	2.5	2.3	3.5	2.8	2.3	1.5
Systems/Technical Architecture	2.5	1.8	2.0	2.0	2.3	2.5	2.0	3.3	2.0	4.0	2.0	2.0	3.3	3.5	3.8	2.3	2.3	2.8	2.3	2.8
Material Handling Integration	3.0	4.0	4.0	3.3	1.8	4.0	1.8	2.5	3.0	3.5	2.5	2.3	1.3	2.5	2.8	3.3	3.5	1.5	2.0	1.3
Simplicity	1.3	1.3	1.3	2.0	2.5	1.3	3.0	1.8	2.8	1.3	2.8	1.5	2.5	2.0	2.5	1.5	1.8	3.0	2.0	3.5
As of 28 April 2025																				

Source: Gartner (May 2025)

Table 3: Product Score in Use Cases

Use Cases	Blue Yonder	Dematic	Ehrhardt Partner Group (EPG)	Generix Group (Generix WMS)	Generix Group (SOLOCHAIN)	Infios (Warehouse Advantage)	Infios (Warehouse Edge)	Infor	Made4net	Manhattan Associates (Manhattan Active WM)	Manhattan Associates (Manhattan SCALE)	Mantis	Microsoft	Oracle	Reply	SAP	Softeon	Synergy Logistics	Tecsys	Vinculum
Level 1 Warehouse Operation	2.11	1.68	1.94	2.34	2.88	2.01	3.00	2.35	3.11	2.20	3.02	2.10	2.73	2.58	2.92	2.00	2.37	3.13	2.42	3.27
Level 2 Warehouse Operation	2.73	1.99	2.39	2.56	3.10	2.53	2.94	2.78	3.23	2.90	3.10	2.50	2.90	2.97	3.22	2.37	2.78	3.20	2.66	3.04

Level 3 Warehouse Operation	3.76	2.46	3.23	2.91	3.15	3.58	2.62	3.39	3.31	4.10	3.01	3.15	2.91	3.47	3.65	3.10	3.56	3.16	3.11	2.33
Level 4 Warehouse Operation	3.70	2.48	3.36	2.92	2.96	3.68	2.58	3.28	3.25	4.12	2.85	3.01	2.72	3.31	3.57	3.12	3.53	3.05	3.06	2.18
Level 5 Warehouse Operation	3.38	3.10	3.45	2.98	2.59	3.79	2.25	3.07	3.11	3.80	2.70	2.74	2.27	2.96	3.29	3.06	3.42	2.46	2.57	1.91
As of 28 April 2025																				

Source: Gartner (May 2025)