IDC MarketScape: Worldwide Discrete Manufacturing Execution Systems 2023 Vendor Assessment

Lorenzo Veronesi   Mark Casidsid   Wai Yee Lee   Ravikant Sharma
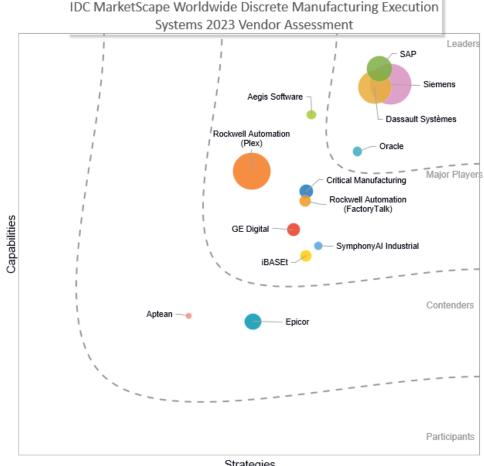
Jan Burian

THIS IDC MARKETSCAPE EXCERPT FEATURES SAP

IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape: Worldwide Discrete Manufacturing Execution Systems 2023 Vendor Assessment

Source: IDC, 2023

Please see the Appendix for detailed methodology, market definition and scoring criteria.

IN THIS EXCERPT

The content for this excerpt was taken directly from IDC MarketScape: Worldwide Discrete Manufacturing Execution Systems 2023 Vendor Assessment (Doc # US49435422). All or parts of the following sections are included in this excerpt: IDC Opinion, IDC MarketScape Vendor Inclusion Criteria, Essential Guidance, Vendor Summary Profile, Appendix and Learn More. Also included is Figure 1.

IDC OPINION

The current emphasis on discrete manufacturing is to create experience ecosystems that transform the focus from designing, selling, and servicing complex products to one in which the product becomes the platform through which new digital products and services are delivered. Nevertheless, the importance of the factory stays crucial. Discrete manufacturing companies must develop the necessary production capabilities to compete in a digital economy.

This accelerated disruption in discrete manufacturing amplifies the need for manufacturing execution systems (MES) that can collect and analyze data in a granular way to increase productivity, agility, and resilience. The need to coordinate shopfloor processes in the context of quickly evolving value chains to achieve shopfloor to top-floor visibility requires the deployed MES to act in concert with other enterprise and manufacturing-centric applications. Given the broad range of solutions available, it is essential to choose a MES that addresses the peculiarities of production processes and industries, can be easily deployed to achieve quick wins, and at the same time are future proof. The MES space is a rapidly evolving segment, and while the priority is to invest in a solution that addresses urgent business objectives, it is important to consider one that can adapt to changing business needs. Innovative concepts continue to emerge, therefore it is important to choose a vendor that can continuously push innovation in the long term, while satisfying business requirements.

The emergence of the 3rd Platform and Innovation Accelerators such as cloud, edge analytics, Industrial Internet of Things (IIoT), and cognitive systems continue to shape the evolution of MES. In recent years, there is an evident acceleration of cloud deployment to complement or address the limitations of on-premises MES solutions, affording companies with greater flexibility and scalability. Extensibility and user experience are also gaining more attention with low-code/no-code and plug-and-play concepts embedded in vendors' solutions. With companies putting more focus on sustainability, MES is also increasingly deployed to support energy management as well as broader sustainability goals.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

This vendor assessment includes software providers in the MES market serving the discrete manufacturing industry This document is part of a four-report series that includes the following three other reports:

- *IDC MarketScape: Worldwide Engineering Intensive Manufacturing Execution Systems 2023 Vendor Assessment*
- *IDC MarketScape Worldwide High-Tech and Electronics Manufacturing Execution Systems 2023 Vendor Assessment*
- *IDC MarketScape Worldwide Process Manufacturing Execution Systems 2023 Vendor Assessment*

For this IDC MarketScape, vendors should be active in at least two of the global regions of Americas, Asia/Pacific, and EMEA. They should have presence in specific discrete manufacturing subindustries that includes industrial machinery and equipment (MTS, MTO), automotive and tier 1 suppliers, medical devices, and metal fabrication (discrete assembly). Their MES applications should have a broad coverage of the entire range of plant-floor-specific processes. Vendors active in this market should have a strategy in place to adopt a range of modern IT technologies (such as cloud and edge) and game-changing plant floor technologies (such as Internet of Things and AI) as it applies to manufacturing execution systems.

ADVICE FOR TECHNOLOGY BUYERS

MES has immense potential to generate valuable production data, improve visibility over workflows, and add value to decision making. To fully leverage this potential, organizations should assess and streamline their internal production processes and choose suitable vendors based on their specific needs. Companies should also have a clear understanding of their requirements. Internal processes vary by product and industry, and these unique details will impact the solution choice. In addition, while an MES aims to address broad areas of performance, quality, and availability, companies will have to identify the driving principles that they would like to focus on to single out the optimal solution.

This will be critical because it is important to sell the solution within the organization and get buy-in from all stakeholders. Top management must be committed and drive this effort, but organizations should not overlook the importance of training schemes and knowledge-sharing platforms to support technicians using the solution on the shop floor.

The following are key elements to consider for MES buyers:

- Ensure your assets and production equipment are integrated. It is crucial for organizations to invest in integrating their assets and production equipment, enabling data collection from all nodes to gain a holistic picture of the entire shop floor.
- Consider how MES integrates with other applications. Companies, depending on their size and needs, should evaluate if they could benefit from a vendor offering a full suite of solutions (from shopfloor to enterprise level) which could be costlier but lowers integration costs. The downside of this approach is less flexibility to choose a MES solution that addresses specific business needs.
- Look to standardize processes. Based on the data that they gather, the MES can offer insightful information, but for this information to be utilized in the value chain, businesses must establish lean environments with few redundant processes. Using process streamlining techniques could significantly lessen the difficulties in implementing changes across the entire manufacturing shopfloor.

VENDOR SUMMARY PROFILE

This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of each vendor's strengths and opportunities.

SAP

SAP is positioned in the Leaders category in this 2023 IDC MarketScape on Worldwide Discrete Manufacturing Execution System Software Providers.

SAP is a provider of enterprise solutions that has an extensive presence in the manufacturing industry. SAP's value proposition for MES is now centering around SAP Digital Manufacturing, a cloud-based, data-driven manufacturing execution solution that integrates seamlessly with SAP ERP ECC, S/4HANA, and S/4HANA Cloud using the SAP Business Technology Platform. This solution is delivered in addition to its heritage solution for discrete manufacturing (ME - Manufacturing Execution).

SAP Digital Manufacturing for discrete is a data-driven shopfloor manufacturing execution solution delivering traceability, process enforcement, non-conformance management, resource orchestration, modular production, advanced analytics, and integration to SAP S/4HANA and S/4HANA Cloud ERP Systems.

The following are key features of SAP's value proposition:

- **End-to-end integration**. Using the SAP Business Technology Platform, SAP Digital Manufacturing integrates with SAPECC, S/4HANA, and S/4HANA Cloud as a standard part of the solution. The solution includes SAP Digital Manufacturing for insights for shopfloor to top-floor visibility. This way, customers can implement top-floor to shopfloor scenarios to react quickly to unexpected events by monitoring the entire manufacturing process, in addition to optimizing resources and increasing execution speed with the help of built-in intelligence.

- **Continuous product innovation**. With SAP Digital Manufacturing being a cloud-based solution, innovation is delivered to the customer with four releases per year. By leveraging hyperscalers for infrastructure, SAP can deliver robust 24 x 7 operations through hybrid and edge processing. The solution has a harmonized and contextualized data platform for insights and extensibility. For example, SAP developed a flexible user interface that can be easily modified in a drag-and-drop production operator dashboard (POD) designer.

- **Embedded AI/ML**. SAP has a strategic commitment to embed AI, ML, and analytics into its solutions. These AI/ML models can support shopfloor operators to execute visual inspection tasks, recording nonconformance to ensure defective parts are handled as business requires. Operator can capture images with connected cameras or can inspect images from industrial cameras provided by the data collection API.

SAP Digital Manufacturing is a cloud-based application supporting process and discrete manufacturing requirements in a single data model and solution. Utilizing the latest technologies for UI and extensibility, SAP has delivered the next generation of manufacturing execution solutions to support Industry 4.0 initiatives.

SAP has a scalable pricing model based on resources.

The company has a very broad partner ecosystem including major SIs (Syntax, MHP, Fujitsu, Accenture, Capgemini, Deloitte, Foreverwin, among others) and hyperscalers (Microsoft Azure, Alibaba, and AWS).

Strengths

SAP MES solutions have been in the market for more than 30 years, and the company has built a reputation as an integrated solution provider for a wide range of industries. In addition, the company's rollout of Digital Manufacturing – which tightly integrates with SAP S/4HANA, S/4HANA Cloud, and the SAP ERP application, along with built-in AI- and ML-enabled analytics – strengthens its value proposition for manufacturing customers.

Challenges

To benefit from the full breadth of SAP capabilities, customers will have to embrace the "one SAP" philosophy, which can limit SAP's ability to deliver value for customers with diverse supplier ecosystems. In addition, SAP is steering all its customers toward its cloud vision, and for this to succeed, it will have to outline the potential benefits to avoid disruptions in their journey.

Consider SAP When

SAP Digital Manufacturing is best suited to companies that require broad implementations, comprehensive implementation, and strong integration with other SAP business applications.

APPENDIX

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here and now. Under this category, IDC analysts will look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis or strategies axis indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represent the market share of each individual vendor within the specific market segment being assessed.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market.

IDC analysts base individual vendor scores – and ultimately vendor positions on the IDC MarketScape – on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

Market Definition

Manufacturing execution system is the software platform that covers all operational processes across a network of factories. Making a reference to the MESA Model (mesa.org/en/modelstrategicinitiatives/MESAModel.asp), the MES platform comprises the following MESA functions: product tracking and genealogy, resource allocation and status, performance analysis, process management, data collection acquisition, dispatching production units, quality management, labor management, warehouse management (logistics focus: transportation management system [TMS], warehouse management system [WMS]), maintenance management (asset reliability focus: enterprise asset management [EAM], computerized

maintenance management system [CMMS], and operations and detailed scheduling). The MES platform is a common platform for multiple plants worldwide, and as such, it enables the standardization of operational processes and KPIs across the network of factories. The MES platform also includes enterprise manufacturing intelligence (EMI) functionalities to measure and analyze the performance of the network of factories. The MES platform must include standard integration procedures with plant floor controls (ISA-95 level 2 and below) and critical IT business applications, particularly ERP and PLM. Advanced MES platforms also rely on the 3rd Platform: cloud, social business, mobility, and big data and analytics.

The MES platform analyzed in this 2023 IDC MarketScape on MES specifically covers the needs of the discrete manufacturing industry that comprises sectors such as industrial machinery and equipment (MTS, MTO), automotive and tier 1 suppliers, medical devices, and metal fabrication (discrete assembly).

LEARN MORE

Related Research

- *IDC Market Glance: Smart Manufacturing, 1Q23* (IDC #EUR149928222, March 2023)
- *Should We Dispel the Myth That Cloud is Not Suitable for Mission-Critical Shop Floor Workloads?* (IDC #EUR149056722, May 2022)
- *The Status of Operational Data Management in the Manufacturing Industry* (IDC #EUR148984022, April 2022)
- *IDC MarketScape: Worldwide Manufacturing Execution System 2019 Vendor Assessment* (IDC #US42720518, February 2019)

Synopsis

This IDC MarketScape examines software providers in the MES market serving the discrete manufacturing industry, which includes industrial machinery and equipment (MTS, MTO), automotive and tier 1 suppliers, medical devices, and metal fabrication (discrete assembly). This document is part of a four-report series that includes the following three other reports:

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- *IDC MarketScape Worldwide High-Tech and Electronics Manufacturing Execution Systems 2023 Vendor Assessment*
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The current focus in discrete manufacturing is to create experience ecosystems that transform the focus from designing, selling, and servicing complex products to one in which the product becomes the platform through which new digital products and services are delivered. Nevertheless, the importance of the factory stays crucial. Discrete manufacturing companies must develop the necessary production capabilities to compete in a digital economy.

"The factory is crucial in this sector," said Lorenzo Veronesi, associate research director, IDC Manufacturing Insights. "Therefore, it is essential that factory leaders evaluate their future manufacturing execution systems, leveraging expert information to make the best decisions."

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

IDC U.K.

IDC UK
5th Floor, Ealing Cross,
85 Uxbridge Road
London
W5 5TH, United Kingdom
44.208.987.7100
Twitter: @IDC
blogs.idc.com
www.idc.com