IDC MarketScape

# IDC MarketScape: Worldwide Advanced Production Planning and Scheduling 2025 Vendor Assessment

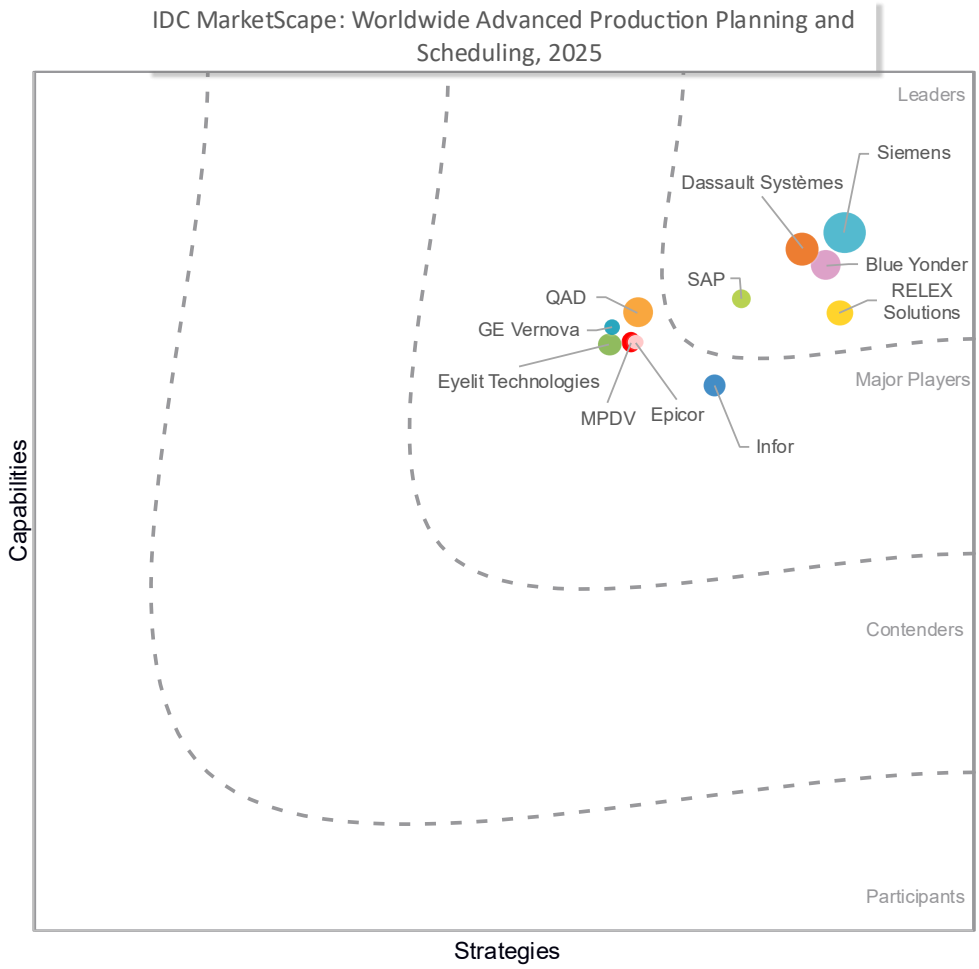
Lorenzo Veronesi

## THIS EXCERPT FEATURES SIEMENS AS A LEADER

## IDC MARKETSCAPE FIGURE

**FIGURE 1**

**IDC MarketScape: Worldwide Advanced Production Planning and Scheduling, 2025**

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

## ABOUT THIS EXCERPT

The content for this excerpt was taken directly from IDC MarketScape: Worldwide Advanced Production Planning and Scheduling 2025 Vendor Assessment (Doc # US52988825).

## IDC OPINION

Advanced planning and scheduling (APS) is a long-standing technology in manufacturing, but its practical impact has grown sharply with the rise of real-time data. In the past, many plants were too complex or fast changing for APS to add value, since schedules often relied on slow or incomplete data, limiting what could be achieved.

The situation has changed with widespread adoption of Industrial Internet-of-Things (IIoT) devices, sensors, cameras, and real-time location systems. These tools provide up-to-date information about machines, materials, and people, allowing APS to factor in real shop floor conditions and quickly adapt to disruptions or sudden changes in demand.

APS is now tightly integrated with core business systems such as MES, ERP, supply chain, and inventory management. Instead of sitting alone, APS helps connect planning and execution, supporting synchronized, end-to-end decision-making across the manufacturing process.

Artificial intelligence is starting to expand the role of APS from static optimization to more dynamic, self-adjusting scheduling. While fully autonomous APS is not yet common, new features such as predictive analytics, simulation, and recommendations are becoming standard. As these technologies mature, APS systems will continue to improve manufacturers' ability to respond fast, optimize resources, and manage complex production environments.

Therefore, as the APS solution landscape reaches a new stage, it is crucial to invest in solutions that meet immediate business needs and adapt to evolving requirements. As innovative concepts continue to surface, choosing a vendor committed to long-term innovation while fulfilling business demands is vital. With a wide array of solutions available, it is essential to select an APS vendor that caters to the specific characteristics of production processes and industries, can be deployed swiftly for immediate benefits, and is designed to remain relevant in the future.

## IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

This vendor assessment includes software providers in the MES market serving the manufacturing industry.

For this IDC MarketScape, vendors should be active in at least two global regions (Americas, Asia/Pacific, and EMEA) within the manufacturing industry (process and discrete). They should also satisfy the following criteria:

- The vendor should have a specific off-the-self APS solution (i.e., not limited to supply chain scheduling, manufacturing execution, materials requirements planning, or factory layout planning solutions) and have ideally at least 10 customers in the space.
- The company should have at least $5 million in revenue for its APS value proposition. Newly/established vendors or vendors with a cloud-only solution may be exempted from this criterion.
- This IDC MarketScape does not evaluate APS functionalities that are specific to pharmaceutical, mining, water and wastewater, nuclear, and oil and gas industries. A vendor's APS applications should have 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 IoT and AI) as they apply to manufacturing execution systems.

## ADVICE FOR TECHNOLOGY BUYERS

To maximize success with an APS implementation or upgrade, manufacturers should focus on the following guidance:

- **Define requirements and build stakeholder consensus.** Start with a thorough analysis of planning and scheduling priorities across the business. Engage production managers, planners, IT staff, and other key stakeholders early in the process to ensure that the APS system selected matches actual operational needs. Clear alignment helps avoid mismatches between solution capabilities and business objectives.
- **Invest in data quality and integration.** Prioritize efforts to ensure that data being fed into the APS system is accurate, timely, and comprehensive. Assess the readiness of existing systems for integration — such as MES, ERP, and inventory management — and address gaps in connectivity. Build a strong foundation of real-time, reliable data to enable the APS solution to generate meaningful and actionable plans.
- **Commit to training and change management.** Establish structured training programs and ongoing support for all users involved in APS processes.

Encourage active participation from end users and make change management a central component of the project. Continuous skills development is critical to drive adoption, unlock advanced system capabilities, and capture sustained operational improvements.

## 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 criterion outlined in the Appendix, the description here provides a summary of each vendor's strengths and opportunities.

### Siemens

Siemens is positioned in the Leaders category in this 2025 IDC MarketScape on worldwide advanced planning and scheduling software providers.

Siemens delivers advanced production planning and scheduling capabilities through its Opcenter APS portfolio, Opcenter APS (formerly known as Preactor), which benefits from a 30-year foundation in finite-capacity scheduling and is now part of the Siemens Xcelerator portfolio. The platform encompasses strategic planning and tactical scheduling solutions that optimize production efficiency across complex manufacturing environments. Opcenter APS enables finite-capacity scheduling with constraint-based optimization, multiplant coordination, and real-time dynamic rescheduling capabilities. Recently released Opcenter X enables flexible containerized or SaaS deployment.

Siemens' APS offering features comprehensive BOM planning, interactive Gantt chart visualization, what-if scenario analysis, and advanced schedule optimization using proprietary algorithms. Recent innovations include CO2 emissions modeling, GenAI-powered help systems, and research into AI-based scheduling algorithms.

Siemens' partner strategy leverages regional centers of delivery excellence, a broad ecosystem of certified SIs, and technical alliances with cloud providers such as AWS.

Pricing accommodates annual or monthly subscriptions, concurrent licensing, and scalable user tiers. Siemens' pricing supports a wide customer spectrum, from SMBs to large enterprises.

### Strengths

Siemens has a long history in digital thread integration capabilities through its broad Siemens Xcelerator ecosystem, enabling seamless connectivity between PLM, MES, ERP, and supply chain applications. The platform's proven heritage and Siemens industrial core enable a very deep industry specialization with vertical expertise across automotive, aerospace, electronics, pharmaceuticals, and food/beverage sectors supported by dedicated customer reference implementations.

The solution's configurability stands out through its support for custom scheduling algorithms, user-defined database schemas, and flexible constraint modeling capabilities that adapt to unique operational requirements. Multiplant coordination features enable centralized scheduling across distributed manufacturing networks with role-based permissions and collaborative planning tools. Customer satisfaction metrics reflect strong market acceptance, seen across product functionality, reliability, and support quality measures. Innovation leadership encompasses active AI research initiatives including genetic algorithms, Monte Carlo tree searches, and autonomous scheduling capabilities integrated with plant simulation tools.

Other differentiators include flexible deployment — on-premises, hybrid, or full SaaS via the Opcenter X platform — and scalable support from single-site to multiplant global rollouts.

## Challenges

Portfolio complexity creates potential market confusion through multiple scheduling product tiers spanning Standard, Professional, Ultimate, and emerging Opcenter X offerings, which may overwhelm buyers seeking straightforward solutions. The ongoing platform transition to Opcenter X introduces uncertainty regarding feature parity timelines and migration strategies for the few remaining legacy Preactor installations in place. Premium positioning within the broader Siemens ecosystem may present pricing challenges against standalone APS solutions from vendors focused exclusively on production scheduling.

Siemens provides additional advantages when a customer decides to pursue an integration strategy with the wider Siemens' portfolio; organizations not seeking enterprisewide digital transformation initiatives can miss out on these benefits.

Implementation complexity for highly configured environments can extend deployment timelines and require substantial change management investments.

## Consider Siemens When

Organizations should evaluate Siemens particularly when seeking enterprise-scale APS capabilities with digital thread integration. This is especially relevant for manufacturers seeking complex multi-constraint scheduling scenarios that require extensive configurability and industry-specific functionality across global manufacturing operations.

# 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 vendors, publicly available information and end-user experiences to provide an accurate and consistent assessment of each vendor's characteristics, behavior and capability.

## Market Definition

Advanced planning and scheduling (APS) refers to a class of solutions designed to optimize production, resource allocation, and manufacturing operations for complex and modern enterprises. APS leverages advanced algorithms, artificial intelligence, and predictive analytics to synchronize demand, supply, and manufacturing capacities across the entire value chain. APS systems go beyond basic production planning by handling constraints such as materials, labor, machine availability, and changeover times, enabling users to create efficient, feasible schedules that maximize throughput and minimize costs and delays. Key functionalities analyzed for the study are:

- **Master production schedule (MPS) creation.** Establishes a detailed production plan aligning demand forecasts with manufacturing capacity over time

- **Bill of materials (BOM) planning.** Supports planning across complex product structures with assemblies and subassemblies (multilevel)
- **Finite-capacity scheduling.** Plans production considering actual resource limits (machines, labor, tooling) to avoid overloading
- **Constraint-based scheduling.** Incorporates multiple constraints such as material availability, labor shifts, equipment, and process rules
- **Order-based multi-constraint scheduling.** Schedules individual orders considering all relevant constraints for realistic delivery promises
- **Real-time data integration and dynamic rescheduling.** Adapts schedules automatically based on real-time shop floor and supply chain changes
- **Make-to-order (MTO) planning.** Supports customer-driven production strategies
- **Make-to-stock (MTS) planning.** Supports forecast-driven production strategies
- **Interactive schedule visualization.** Provides graphical tools (Gantt charts, calendars) with drag-and-drop capabilities for easy schedule adjustments
- **What-if scenario analysis.** Enables simulation of alternative schedules to evaluate impacts before committing changes
- **Advanced schedule optimization.** Uses AI algorithms to minimize changeovers, reduce lead times, and optimize resource utilization.
- **Material requirements planning (MRP) integration.** Links scheduling with material procurement and inventory management for just-in-time availability
- **Assembly process visualization.** Graphically represents assembly sequences and dependencies to improve coordination
- **Capacity and resource utilization reporting.** Tracks and analyzes resource usage to identify bottlenecks and improve efficiency

These systems empower businesses to rapidly respond to disruptions or changes in demand, run what-if scenarios, and support collaborative, data-driven decision-making. APS integrates seamlessly with ERP, MES, and supply chain solutions, providing visibility from strategic planning through to shop-floor execution. By unifying and automating planning and scheduling, APS improves agility, delivery performance, resource utilization, and overall operational resilience, serving as a foundation for an optimized production floor.

## LEARN MORE

## Related Research

- *IDC PlanScape: Connected Frontline Worker Platforms* (IDC #US53493025, August 2025)
- *Key Takeaways from Hannover Messe 2025* (IDC #EUR153298025, April 2025)

- *IDC MarketScape: Worldwide Manufacturing Execution Systems 2024–2025 Vendor Assessment* (IDC #US51813624, November 2024)

## Synopsis

This IDC MarketScape analyzes software providers in the advanced planning and scheduling (APS) market serving the manufacturing industry.

APS is now tightly integrated with core business systems such as MES, ERP, supply chain, and inventory management. APS helps connect planning and execution, supporting synchronized, end-to-end decision making across the manufacturing process.

"Real-time data and AI are revolutionizing advanced planning and scheduling, enabling manufacturers to optimize resources, adapt swiftly, and thrive in complex production environments," said Lorenzo Veronesi, associate research director, IDC Manufacturing Insights.

## 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. With more than 1,300 analysts worldwide, IDC offers global, regional, and local expertise on technology, IT benchmarking and sourcing, and industry opportunities and trends in over 110 countries. IDC's analysis and insight helps IT professionals, business executives, and the investment community to make fact-based technology decisions and to achieve their key business objectives. Founded in 1964, IDC is a wholly owned subsidiary of International Data Group (IDG, Inc.).

## 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

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