ABI RESEARCH COMPETITIVE RANKING

PLM FOR LARGE MANUFACTURERS

ptc

OVERALL: 83.3 | INNOVATION: 81.0 | IMPLEMENTATION: 85.5 | RANK: 1

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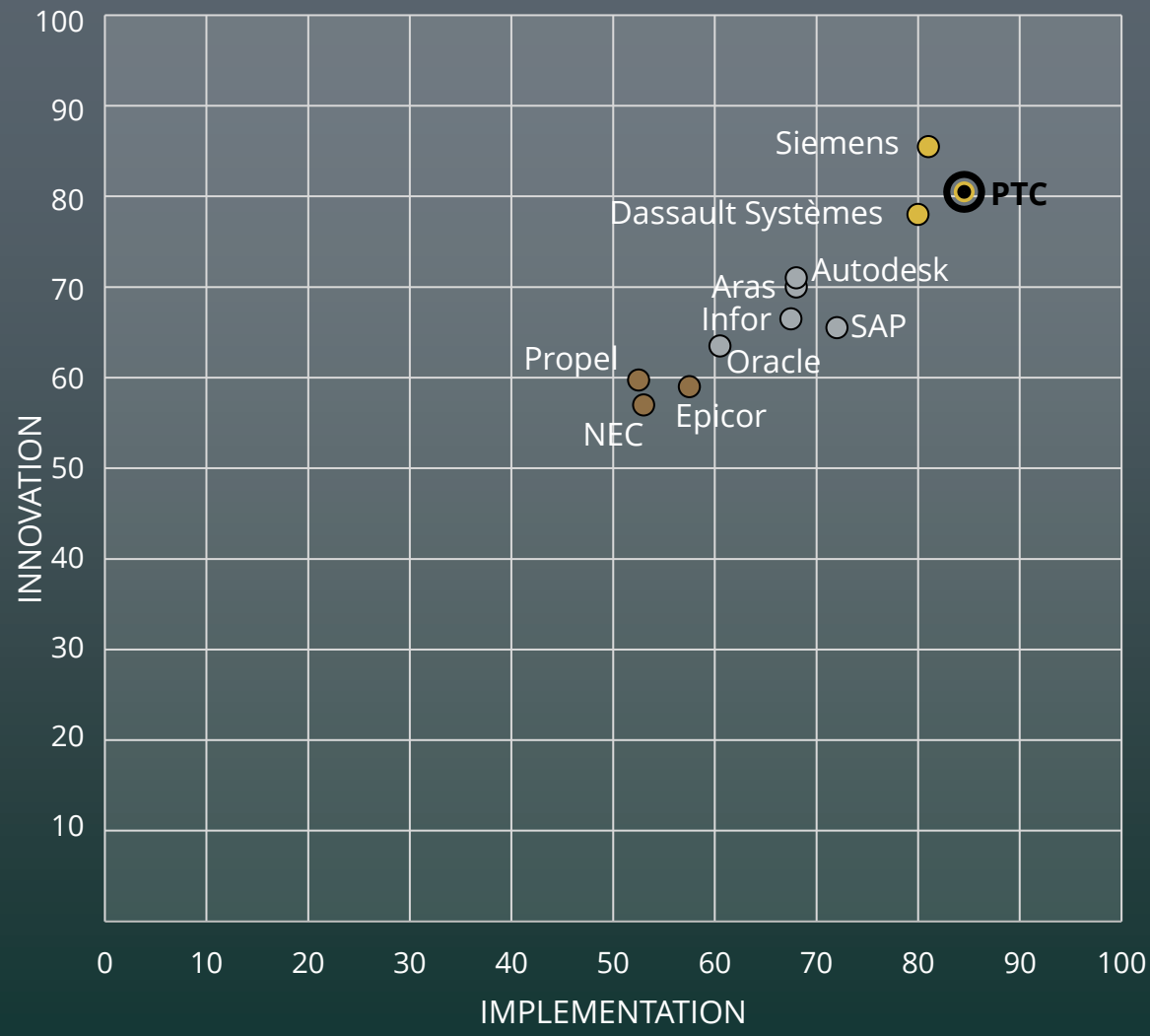
PTC
INNOVATION
VERSUS
IMPLEMENTATION
MATRIX



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INNOVATION

INNOVATION SCORE: 81.0

PTC (founded in 1985) is a Boston, Massachusetts-based software provider of CAD, Application Lifecycle Management (ALM), the Internet of Things (IoT), AR, Service Lifecycle Management (SLM), and two PLM solutions (Windchill and Arena). Both solutions enable internal product teams and supply chain partners to design, manufacture, develop, deliver, and service products fast and effectively through a comprehensive digital thread consisting of interconnected enterprise software. To effectively create the digital thread, Windchill and Arena integrate internally with the PTC portfolio of solutions, along with external third-party software for further CAD, ERP, MES, Supervisory Control and Data Acquisition (SCADA), ALM, SLM, and simulation capabilities.

Windchill serves companies across industries, including deep success in industrial, A&D, automotive, electronics & high tech, and medical devices. Windchill is offered under both the on-premises and SaaS models. Arena serves manufacturers in the electronics & high tech, medical device, A&D, and green tech industries. Arena provides an open architecture with RESTful Application Programming Interfaces (APIs), including more than 40 different partner-provided integrations that connect PLM to CAD, ERP, Customer Relationship Management (CRM), MES, SLM, and Life Cycle Assessment (LCA) component libraries. Arena is offered solely as a cloud-native SaaS model.

Regarding tailored solutions, both Windchill and Arena offer industry-specific cloud deployment options for highly regulated industries, such as A&D and medical devices, in addition to those that meet certifications for regulated industries in the process manufacturing domain.

For new technologies, PTC PLM has features already deployed in the realm of AI and generative AI, including part classification and reuse. AR/VR is being used in Windchill through PTC Vuforia, making frontline work operations more efficient with AR work instructions automatically sourced from existing Three-Dimensional (3D) product data. AR/VR use cases and Proofs of Concept (PoCs) for Arena are currently being assessed.

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IMPLEMENTATION

IMPLEMENTATION SCORE: 85.5

PTC PLM has a strong customer base of large manufacturers, including Raytheon, the U.S. Navy, Volkswagen, Cummins, ABB, Johnson & Johnson, and Jabil using Windchill, along with Sonos, Nutanix, Nextracker, Enphase, and Square using Arena. Large manufacturers using Windchill and Arena have been able to reduce NPI cycle times by months, reduce costs, and enhance product quality by improving design reuse through eliminating manual data handoffs, and ensuring the availability of up-to-date product data for enterprise collaboration. For sustainability, specific capabilities allow manufacturers to reduce total emissions and move closer to sustainability targets through preferential suppliers, vetted contract manufacturers, and supply chain optimizations.

For scaled solutions, PTC has a structured approach to support PLM-driven product development across manufacturing maturity levels, including small, medium, and large enterprises. When the design for new products is set to kick off, manufacturers can increase PLM functionality such as choosing the most sustainable material, purchasing raw materials from listed suppliers, and the reuse of old parts that have already been designed for previous products. PLM improves the thread across engineering, manufacturing, supply chain, and service, enabling earlier and closer collaboration.

User experience is an area in which PTC excels, offering implementation, training, and support services for any deployment models. PTC provides in-person and online courses, videos, tutorials, and solution guidance. The average time to user proficiency for both Windchill and Arena can be as fast as 2 to 3 weeks due to the training videos and easily navigable UI. The company has the knowledge to execute repeatable industry-based implementation services to drive time-to-value for cloud and on-premises solutions.

PTC ranks third in 2023 PLM market share with 16.9%, falling shortly behind Dassault and Siemens.

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CONCLUDING REMARKS

With Arena and Windchill, PTC goes above and beyond the industry average for what a PLM solution can do , with highlights in the innovation criteria coming from PTC Vuforia's integration with Windchill for frontline worker training and operations. For implementation, PTC PLM scores highly across the board with a large user base for industrial manufacturers, providing scalable architecture for growing businesses, and the best-in-class user experience. This led to an overall score of 83.3. PTC scored the highest in implementation; however, it fell slightly behind Siemens for innovation. Hindering the innovation score is Arena PLM not using AR/VR technology from PTC Vuforia, along with the overall prioritization for discrete manufacturing verticals over that of process.

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OVERALL RANKING

LEADERS		
ptc	1	83.3
SIEMENS	2	82.5
DASSAULT SYSTEMES	3	79.0

MAINSTREAM		
AUTODESK	4	69.5
aras	5	69.0
SAP	6	68.8
infor	7	67.0
ORACLE	8	62.0

FOLLOWERS		
EPICOR	9	58.3
propel	10	56.2
NEC	11	55.0

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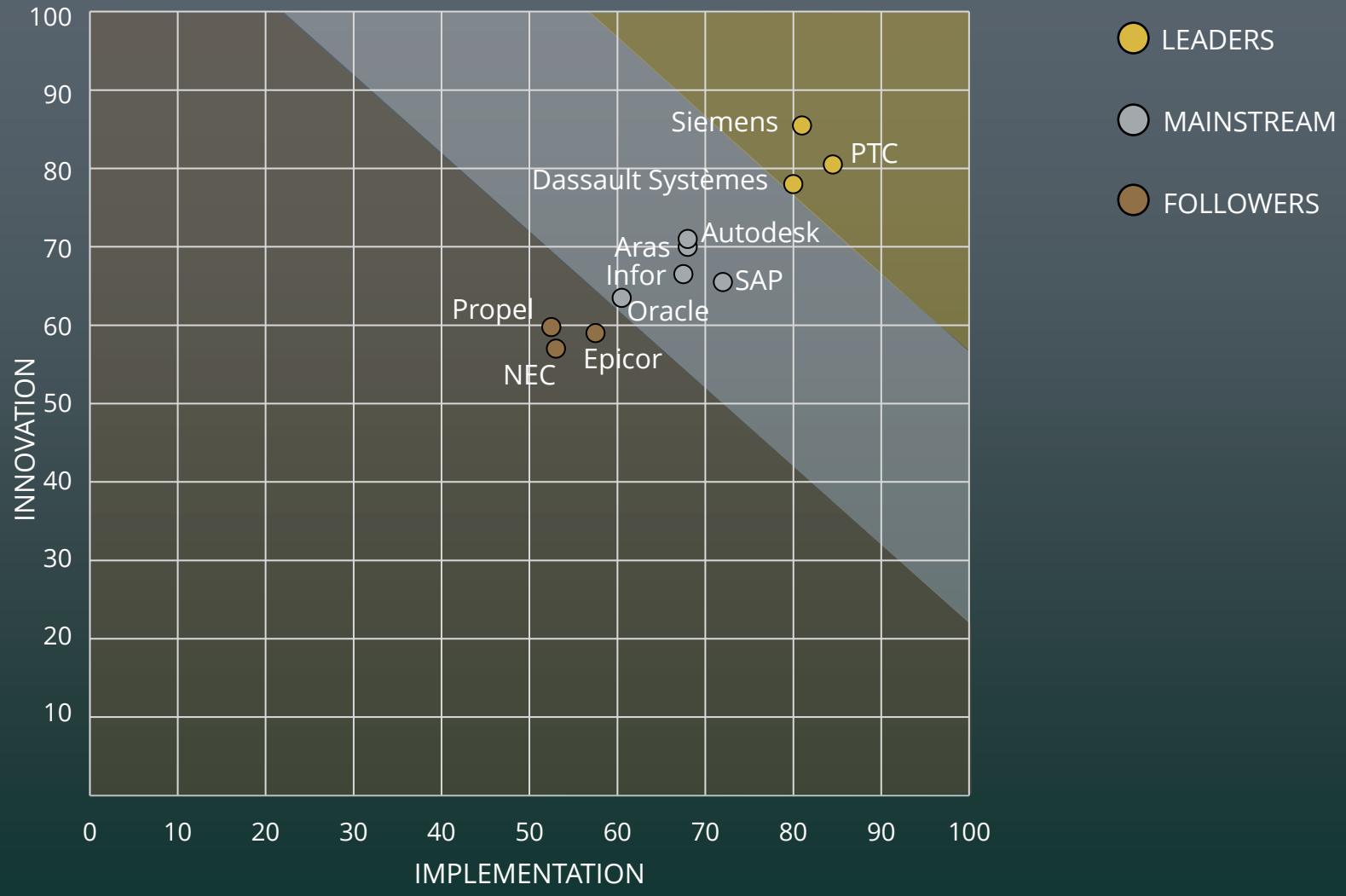
OVERALL RANKING MATRIX

INNOVATION
VERSUS
IMPLEMENTATION
VENDORS



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CRITERIA AND METHODOLOGY

VENDOR MATRIX

Methodology: After individual scores are established for innovation and implementation, an overall company score is established using the Root Mean Square (RMS) method:

$$Score = \sqrt{\frac{innovation^2 + implementation^2}{2}}$$

The resulting overall scores are then ranked and used for percentile comparisons.

The RMS method, in comparison with a straight summation or average of individual innovation and implementation values, rewards companies for standout performances.

For example, using this method, a company with an innovation score of nine and an implementation score of one would score considerably higher than a company with a score of five in both areas, despite the mean score being the same. ABI Research believes that this is appropriate as the goal of these matrices is to highlight those companies that stand out from the others.

RANKING CRITERIA

Leader: A company that receives a score of **75 or above** for its overall ranking

Mainstream: A company that receives scores **between 60 and 75** for its overall ranking

Follower: A company that receives a score of **60 or below** for its overall ranking

Innovation Leader: A company that receives a score of **75 or above** for its innovation ranking.

Implementation Leader: A company that receives a score of **75 or above** for its implementation ranking.

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INNOVATION CRITERIA

Deployment Offerings: PLM deployments come in many forms, with the most common being on-premises, where data are stored on-site, and updates are initiated from the installation manufacturer. Newer deployment methods include hybrid (on-premises with cloud) and SaaS, which allows greater collaboration between designers, engineers, and factory floor operators through web deployment and real-time updates. To achieve a good score for this criterion, solutions deployed on-premises, hybrid, and SaaS must be offered with a comprehensive benefit to using the new deployment methods of hybrid and SaaS.

Tailored Solutions: Does the PLM solution provide templated architectures that are tailored toward specific industries in discrete and process manufacturing? This criterion examines how customizable the Out-of-the-Box (OOTB) PLM solution can be in order to tackle the independent PLM requirements for large manufacturers in different industries.

Use of New Technology: This criterion assesses the use of new and upcoming technologies such as generative AI and Virtual Reality (VR)/Augmented Reality (AR) to aid in the development of new products, as well as tracking data.

Compliance Adherence: To what extent are PLM solutions aiding companies in complying with industry regulations and tracking sustainability goals? Solutions will score highly if regulations are consistently updated to reflect up-to-date codes, along with how rigorous the tracking of sustainability metrics can be.

External Software Integration: This criterion examines the depth at which PLM solutions can integrate with other enterprise applications. With a larger partner ecosystem, PLM software is more desirable, as alternative applications such as MES and ERP will not have to change for the manufacturer and can feed data directly into the PLM software.

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IMPLEMENTATION CRITERIA

Tangible Impact: Examining case studies to assess the business effect of adopting PLM software and how impactful it has been to increasing working efficiency, minimizing mistakes and speeding up NPIs.

Industry Penetration: This criterion looks at how the PLM solution caters to the incumbent discrete manufacturing users, along with new entrants in areas such as, but not limited to, chemical and pharmaceutical manufacturing. Good scores will be awarded to solutions that have low/no-code configured dashboards, along with a growing client base of process manufacturers.

Software Scalability: This criterion examines how the PLM solutions can be scaled both upward and downward for manufacturers that fluctuate in size and need. Good scores will be awarded to solutions that can alter the number of user seats, along with enabling or disabling added functionality within PLM solutions on an ad-hoc basis.

User Experience: The user experience criterion factors in both PLM provider capabilities and client engagement. Notably, how effectively does the provider assist in setup, installation, or help tutorials, along with how quickly the client can adapt to a new application in regard to User Interface (UI) and work productivity.

Market Share: Current market share of PLM revenue.

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