

RADAR

Digital Platforms for Industrial Edge Management in Europe 2025

SITSI® | Vendor Analysis | PAC INNOVATION RADAR

Positioning of Siemens

Lead analyst: Arnold Vogt
July 2025

PAC

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DOCUMENT INFORMATION

Author: Arnold Vogt (a.vogt@pacanalyst.com)
Publication: July 2025
Scope ID: Digital Innovation & IoT | Europe | 2025
Portfolio ID: SITS I | Vendor Analysis | PAC INNOVATION RADAR
Related reports: This document is part of a series of eight PAC INNOVATION RADAR reports.

PAC INNOVATION RADAR GRAPH

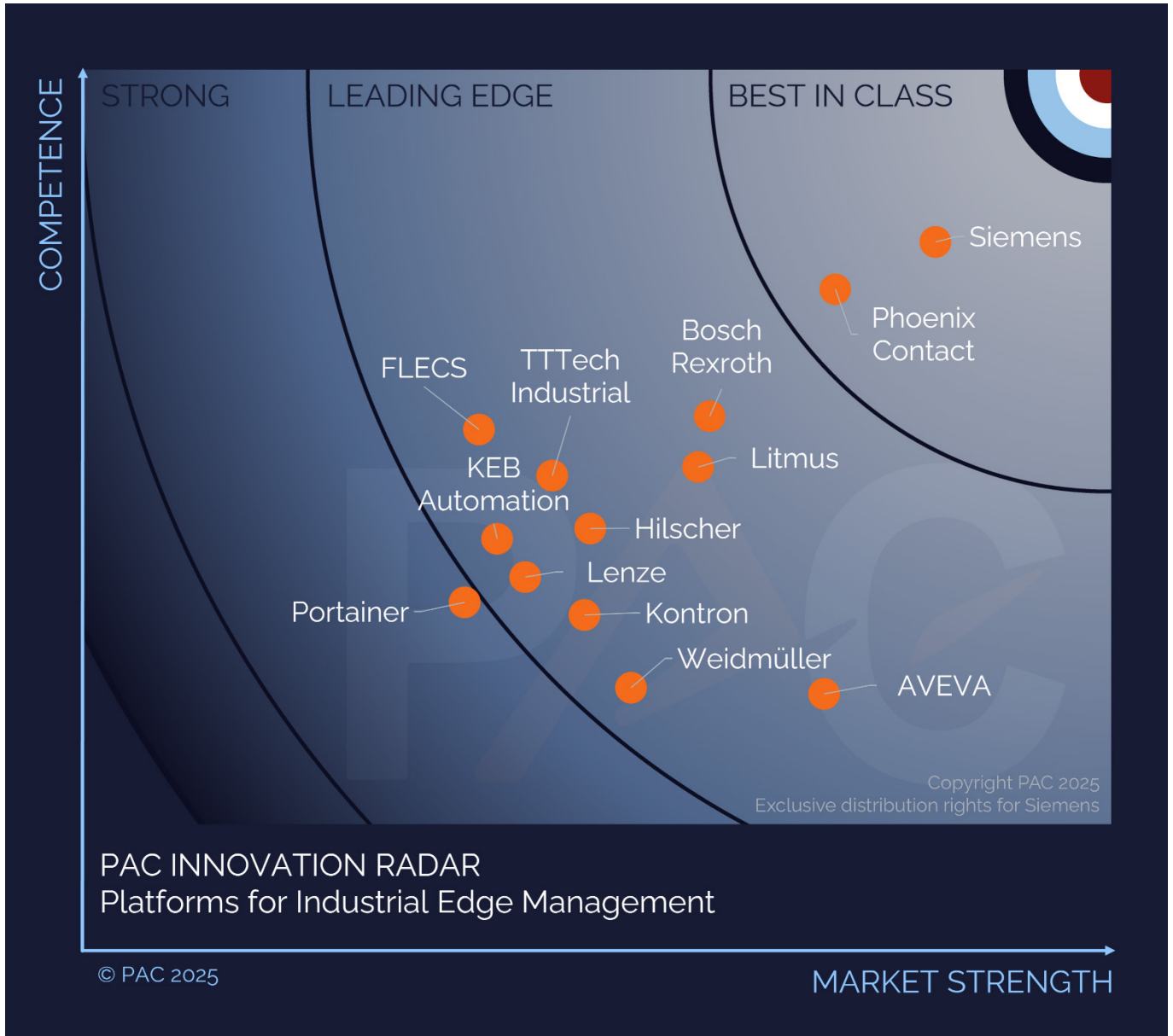


Fig. 1: PAC INNOVATION RADAR graph

Based on the scores in competence and market strength, the overall score is calculated (calculation: competence score plus market strength score, divided by two). From the resulting overall score, each provider receives their characteristic positioning within the PAC RADAR.

Here, the following applies: The closer a company is to the upper right corner, the closer they are to meeting customers' requirements.

THE BIGGER PICTURE: DIGITAL TRENDS SHAPING THE MANUFACTURING INDUSTRY TODAY (BASED ON PAC'S CXO SURVEY 2024/25)

Introduction & Methodology of PAC's Global CxO Survey 2024/25

In order to provide orientation in a highly dynamic IT landscape, PAC conducted the 2024/25 edition of its annual "SITSI® CxO Investment Survey," interviewing IT decision-makers in user companies covering PAC's SITSI® core markets to obtain their views on current IT trends, key requirements, and investment plans. The survey was carried out in October/November 2024. This chapter summarizes the key results of the study for the manufacturing industry.

In the manufacturing industry, 647 organizations participated in the survey. The interviews were held with IT department managers and line-of-business managers who are involved in decisions concerning (local) IT budgets, IT investments, or IT sourcing. The survey sample was made up of companies of different sizes from all sub-industries.

Key Insights for the Manufacturing Industry from PAC's CxO Survey 2024/25

Adapt fast to a highly volatile economic world – The economic situation and fast-changing market environments on the one hand, and cost pressure and increasing competition on the other create a highly volatile and challenging market situation. Agility in innovation and cost management are key for manufacturing companies today. This creates a lot of headache in IT departments. The agility to adapt to new technologies, a shortage of skilled IT experts, and cost pressures are the top-three IT challenges for manufacturers worldwide.

Digital transformation projects are under review – Even though manufacturing companies are willing to increase their IT budgets in general, they acknowledge the need to react agilely to new situations. Manufacturing companies have even put some IT projects on hold because of the economic situation and/or shifted the focus of their transformation projects to process optimization (automation). The political situation is forcing them to prioritize data sovereignty and domestic technology providers. We expect some companies to put IT projects on hold to reevaluate their risk scenarios. Politics has an impact on IT projects in manufacturing today.

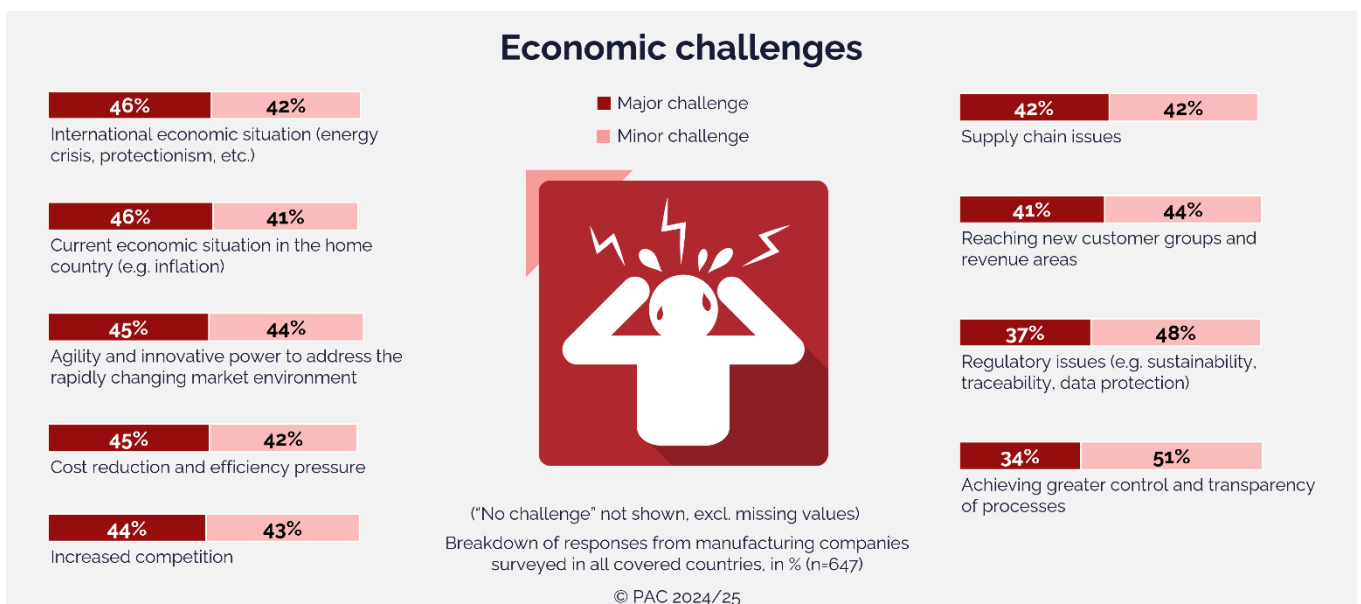
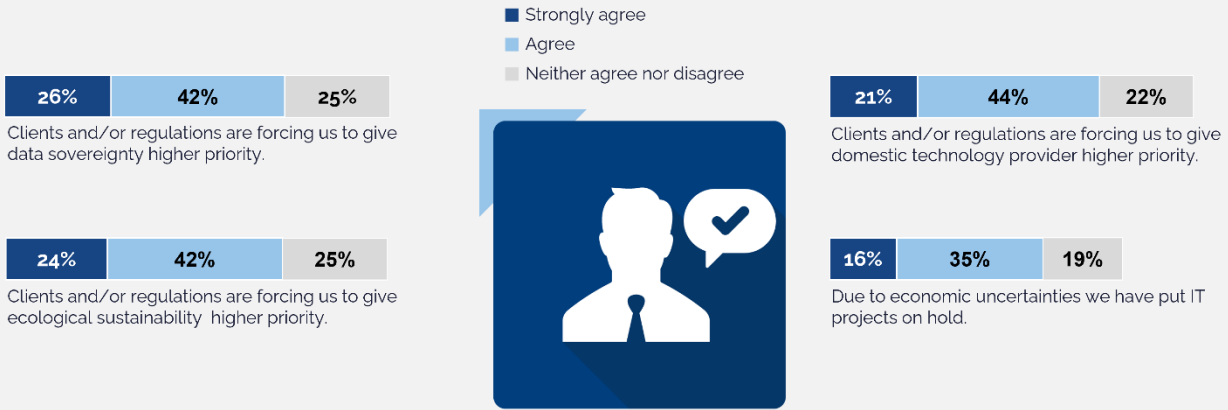


Fig. 2: Economic challenges

Statements about digitization challenges



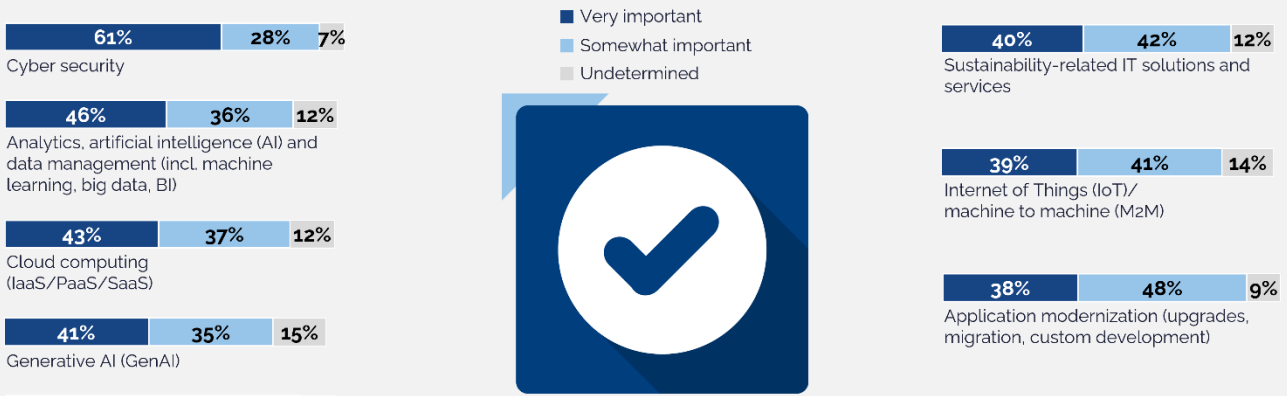
(“Disagree” and “Strongly disagree” not shown, excl. missing values)
 Breakdown of responses from manufacturing companies surveyed in all covered countries, in % (n=647)
 © PAC 2024/25

Fig. 3: Statements about digitization challenges

Security-first approach – Cybersecurity is the top priority due to the global political rivalry and the increasing number of cyber-attacks. Data analytics and cloud computing are further priorities to improve efficiency,

innovation, and competitiveness. GenAI is seen as relevant but often not as a general game-changer (except for GenAI in drug and material development).

Importance of topics on the organization's IT agenda



(“Less important” and “not important at all” not shown; excl. missing values)
 Breakdown of responses from manufacturing companies surveyed in all covered countries, in % (n=647)
 © PAC 2024/25

Fig. 4: Importance of topics on the organization's IT agenda

Cloud usage becomes more diversified – Public cloud is the main cloud deployment model today. However, European manufacturers in particular plan investments in

all other areas to overcome their dependencies. As cloud usage keeps growing, we will see more edge, hybrid and multi-cloud usage models.

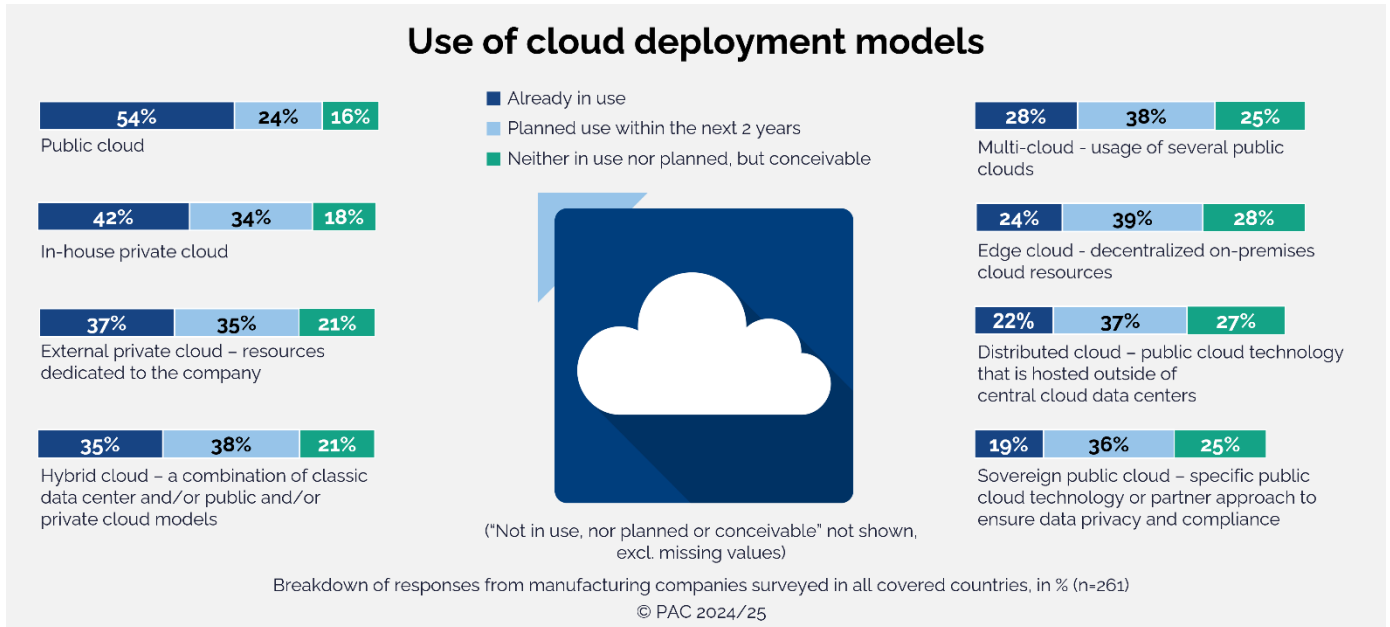


Fig. 5: Use of cloud deployment models

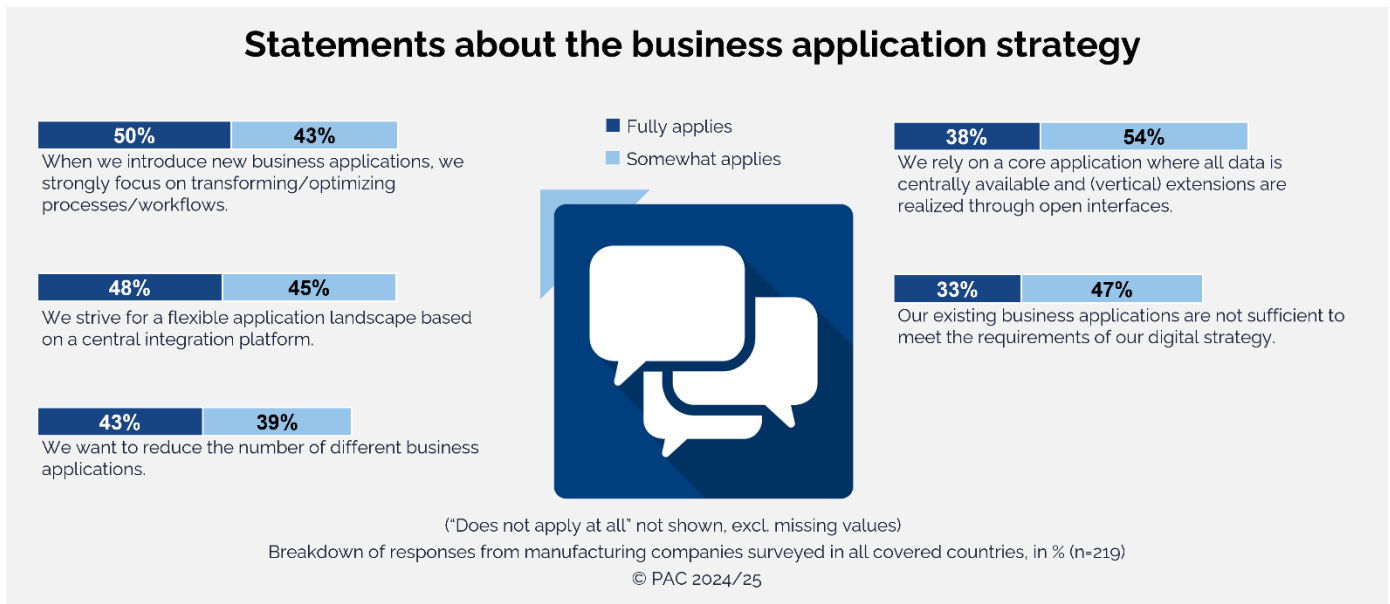


Fig. 6: Statements about the business application strategy

Integration platforms become the centerpiece of the business application landscape – SAP has been and will remain the leading business application platform for manufacturing companies. Workday is another investment

priority today. Most interestingly, almost one in two manufacturers aims for a flexible application landscape based on a central integration platform.

The data lakehouse concept becomes key for AI in manufacturing – Data virtualization, which is based on the data lakehouse concept, is a hot topic for the entire manufacturing industry, as is data preparation and shifting

data and analytics to the cloud. Especially the chemical and pharmaceutical industries are hot spots. These companies apply AI in the discovery and development of drugs and new materials.

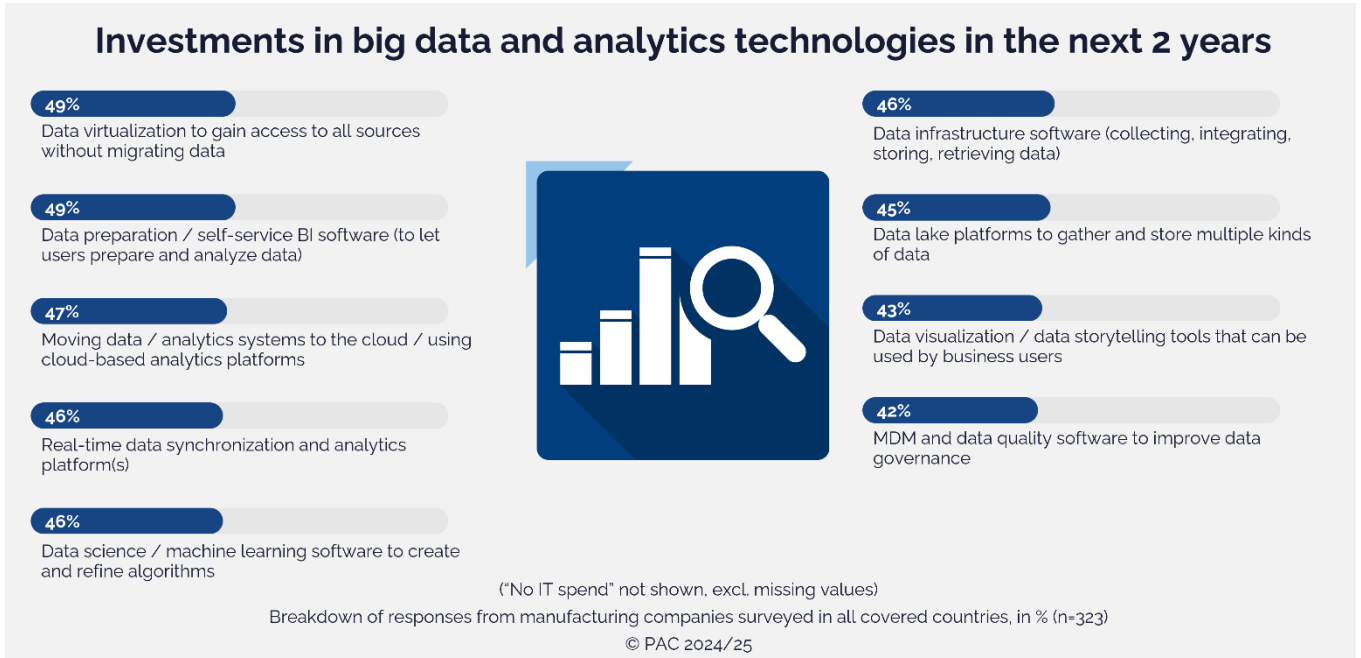


Fig. 7: Investments in big data & analytics technologies

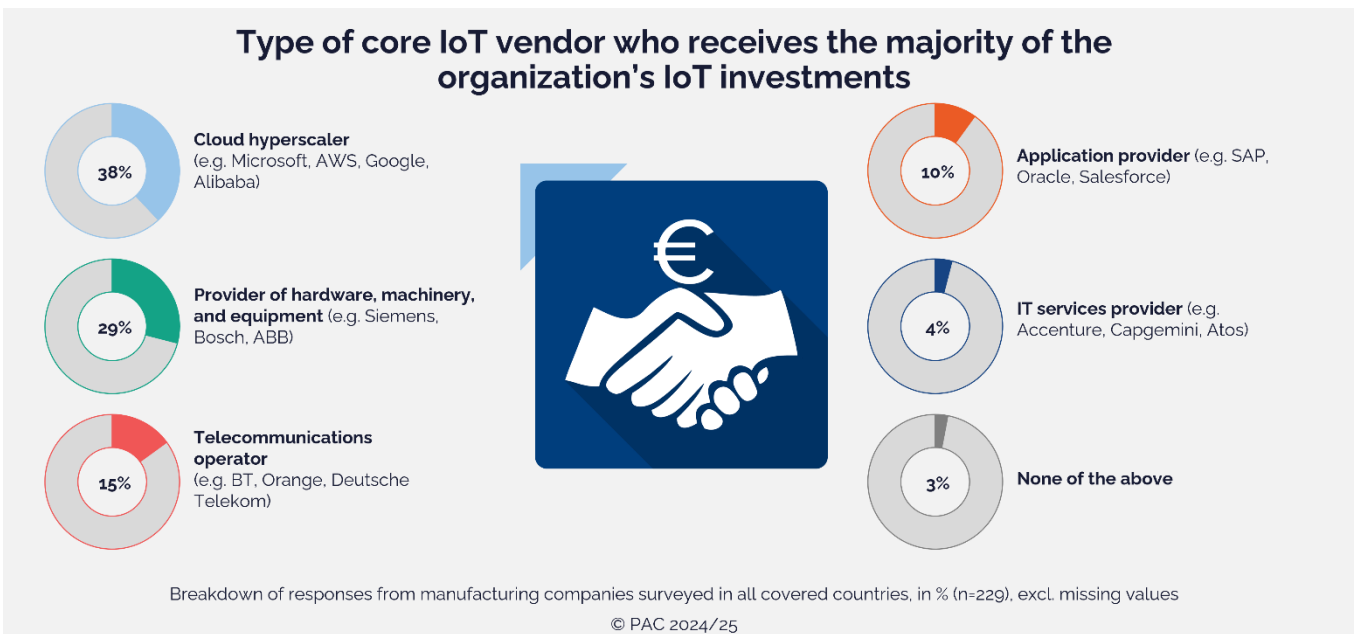


Fig. 8: Selection of IoT vendors

Industrial IoT reaches a certain maturity level, while cooperation of large IT and OT vendors continues in this field – Around 50% of manufacturers have reached at least a moderate maturity level across various categories of IoT

use cases. This confirms that IoT is a standard capability today. The battle continues between hyperscalers and OEMs to become the core IoT vendor for their customers.

Goals regarding the customer experience

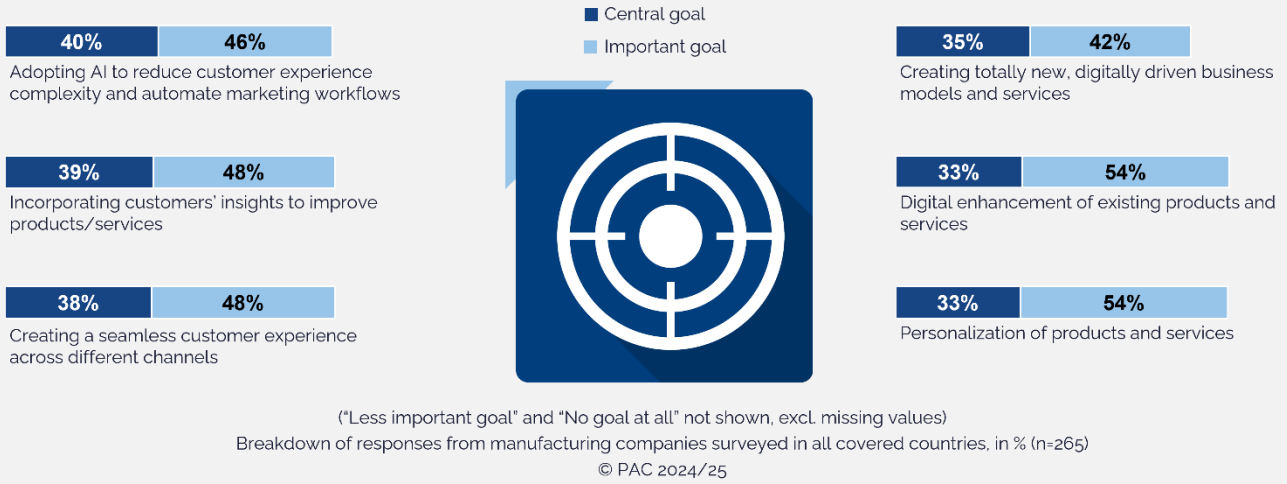


Fig. 9: Goals regarding customer experience

Applying AI to improve digital customer/user experience and gaining more customer insights – Applying AI to improve the digital customer/user experience is key. Manufacturing companies predominantly want to gain

more insights into how customers perceive customer services. Moreover, they hope to gain more insights into customer requirements and product usage.

OUR RESEARCH APPROACH: TRENDS IN MANUFACTURING ARE SHAPING THIS PAC INNOVATION RADAR'S AGENDA

Innovations in IT are increasingly shaping the OT world. Feedback from user companies suggests that they are looking for digital platforms and service providers with key capabilities around very specific and innovative industrial use cases to take their IT/OT integration to the next level. For this, PAC creates transparency in the vendor

landscape for specific industrial use cases at the intersection of IT and OT. PAC is continuously expanding the scope of this PAC INNOVATION RADAR towards emerging areas at the interface of IT and OT to address fast-evolving user needs.

RADAR TOPIC

RELATED TOP TRENDS IN MANUFACTURING

Digital platforms for industrial edge management

- Cloud use is becoming increasingly diverse
- Security-first approach

Digital platforms for an industrial data lakehouse

- The data lakehouse concept is becoming key for AI in manufacturing

Digital platforms for an integrated digital thread

- Integration platforms and business applications to establish a digital thread

Digital platforms for connected workers

- Increasing worker efficiency with digital technology

Digital platforms for AI-advanced industrial robotics

- Use of AI to make industrial automation solutions more adaptable and flexible

Platform-related digital service providers for industrial data lakehouses

- The data lakehouse concept is becoming key for AI in manufacturing

Platform-related digital service providers for the industrial metaverse

- Applying AI to improve digital customer/user experience

Platform-related digital service providers with multi-PLM platform expertise

- Managing a heterogeneous and ever-evolving application landscape

MARKET SITUATION: DIGITAL PLATFORMS FOR INDUSTRIAL EDGE MANAGEMENT

Research Scope

Without doubt, the public cloud has become an important deployment model across all industries today. The above-mentioned CXO Survey underlines the fact that the manufacturing industry is no exception in this context. However, we also see the trend has reached a turning point, where manufacturing companies are focusing more on hybrid, multi and edge cloud deployments. In fact, 39% of manufacturing companies in the survey confirmed to plan edge cloud deployments (decentralized on-prem cloud resources) in the next two years. This is more than for any other cloud deployment option. In consequence, cloud usage is becoming increasingly diverse over the coming years, and edge computing helps manufacturing companies to balance their dependencies on individual cloud vendors.

Edge computing is certainly not a competing concept to the cloud, but a complementary one. The combination of edge and cloud computing provides the best of both worlds. Edge computing is a must-have to enable real-time capabilities and ensure the productivity of digital factories against network issues (interruptions and network latency). Guaranteeing the availability of production systems and related software is a core requirement for reliable factory operations. Edge computing is certainly not new. We have seen the usage of IT technology within the OT world for many years. New is the fact that more and more IT technology is required to optimize factory operations, which also leads to the increasing integration of edge and cloud capabilities. Platforms for industrial edge management build an integration layer for IT and OT, and allow the combination of edge and cloud computing capabilities. These platforms use concepts from the IT world, such as container and virtualization technology, to build edge clouds step-by-step. This helps to optimize infrastructure and application management at the industrial edge (OT world) and become ready for growing workloads around industrial AI, machine vision and virtual PLCs. Machine builders and factory managers use these platforms to manage industrial controllers and IT equipment (PLCs, IPC, HMIs and Servers) across their installed base of machines and factories. This clearly shows that industrial edge management platforms form the basis for smart digital services around industrial machinery and equipment. This includes, for example, software updates for security reasons, offering new analytics capabilities and providing asset-centric recommendations for predictive maintenance or performance optimization.

Trends in the Vendor Landscape

While most platform vendors have a clear focus on application deployment (like Kontron, Hilscher and KEB Automation), other vendors provide combined solutions for application development and application deployment (TTTech, Siemens, Phoenix Contact, and Bosch Rexroth). From PAC's perspective, the combined approach has two advantages: It allows to integrate and automate processes between development and operation (DevOps) and provides a more holistic system to reach compliance with the upcoming Cyber Resilience Act (CRA). The CRA is an EU law designed to improve the cybersecurity of products with digital elements. The implementation of the CRA is to be implemented in stages from 2024 to 2027. To become CRA-ready, the IEC 62443 standard plays a critical role for manufacturing companies, as it covers many of the cybersecurity aspects required by the CRA. IEC 62443 is a series of international standards addressing the cybersecurity of industrial automation systems. IEC 62443-4-1 covers the process-related aspects, a secure product development lifecycle, and IEC 62443-3-3/IEC 62443-4-2 take care of the technical aspects of overall systems and their individual components. Therefore it is no surprise to see that vendors of industrial edge management platforms currently have a clear focus on becoming CRA-ready and passing the IEC 62433 certification process.

“Edge management capabilities are essential for secure, IoT-connected devices at the industrial edge. For good reasons, compliance with the CRA is mandatory, and the time to act is now.”

Arnold Vogt, Head of Digital & IoT, PAC

As mentioned in the 2024 report, vendors of industrial edge management platforms typically start with a more closed version of a platform (a limited number of supported devices and apps), but they also express the clear ambition to become more open over time. In fact, it is true to say that industrial edge management systems are slowly becoming more open on the hardware and software side. They start to offer more hardware choices, various apps and also vPLCs. However, we also have to acknowledge that the vendors' business models are still more focused around their own hardware and software. One reason is that some industrial edge use cases require deterministic real-time behavior of systems, which limits

the openness on the hardware side. Another reason is that open app store models have so far shown only very limited business success in the industrial world and customers prefer more trusted and secure systems with a tightly curated app store.

“While customers prefer open systems in general, current market forces like cyber resilience and lack of IT skills in their workforce push them to favor more integrated and closed systems, which are typically easier to use and more secure.”

Arnold Vogt, Head of Digital & IoT, PAC

Over the last 12 months, we have recognized several shifts in the vendor landscape for industrial edge management platforms. First, we have included KEB Automation and their NOA (Next Open Automation) platform into the vendor landscape. Their offering became available during the SPS fair in November 2024.

Second, while we have planned to include Schneider Electric with its new EcoStruxure Edge Apps Manager into the vendor landscape this year, we learned that Schneider Electric has postponed the launch of its platform to January 2026 (initial plan was 2024). PAC believes that the delay is directly linked to the slow progress of the Margo project. Margo, a new initiative by the Linux Foundation (launch in April 2024), is aimed at enabling edge interoperability for industrial automation ecosystems. Founding members are leading IT and OT vendors, such as ABB, Capgemini, Microsoft, Rockwell Automation, Schneider Electric, and Siemens. Margo has the ambition to establish an open interoperable edge standard. The first deliverables were initially planned to become available in 2024, but at the time of writing (end of May 2025), nothing had been published. PAC has doubts that Margo is making good progress as Hannover Messe in April 2025 passed without any clear commitments regarding deliverables. A similar example in this context is the Open Industry 4.0 Alliance (OI40A), where we see that different vendors of industrial edge management platforms, such as Hilscher, Lenze, Flecs, and TTTech, are collaborating. However, and again similar to Margo, the progress and the level of collaboration around this initiative also seem rather limited today.

“I’m a big fan of open-source initiatives, but Margo and the Open Industry 4.0 Alliance show that they often struggle with a joint vision, collaborative work, and real outcomes. Too often they lose momentum, while everyone is waiting for common standards.”

Arnold Vogt, Head of Digital & IoT, PAC

Third, we are observing new vendors emerging on the horizon, notably Red Hat, WAGO, and Software Defined Automation. In May 2025, Red Hat introduced the Red Hat Edge Manager as a technology preview. A specific launch date is not yet available. As Red Hat is another member of the Margo project, we anticipate that the product launch will depend once again on deliverables from Margo. Also in May 2025, Software Defined Automation announced a private preview of its new Industrial DevOps platform for automation engineers. We have to wait and see how fast this offering will become publicly available. WAGO Device Sphere is another product in the pipeline. The beta phase is expected to conclude at the end of June 2025. Therefore, we plan to include it in our upcoming market analysis in 2026.

Fourth, we have excluded Rockwell Automation from this report. The company was a latecomer to this market, having launched its product in November 2022, and their FactoryTalk Edge Manager quietly disappeared from their software portfolio during 2024. As Rockwell Automation is another member of the Margo initiative, PAC expects that the company will return to the market with a new, Margo-based offering as soon as the Margo deliverables become available.

Fifth, we are observing that vendors like Lenze and Kontron have begun to reposition and rebrand their offerings in the market. Besides market exits (like Rockwell Automation) and the slow progress of newcomers (like Schneider Electric), this typically serves as another sign of market consolidation. Lenze is repositioning NUPANO from an open automation platform to a software suite. Edge management capabilities still exist, but the scope has been limited to an add-on capability for deploying the Lenze software suite around Lenze equipment. Kontron has rebranded K-PORT to KontronGrid and repositioned it towards a closed and secure system encompassing both hardware and software at the telco and energy edge.

“We are seeing that vendors are beginning to verticalize their offerings in this space, with a clear focus on attractive markets and their own home industries. This can be seen today at Kontron, Siemens, and Phoenix Contact.”

Arnold Vogt, Head of Digital & IoT, PAC

Important Capabilities of Leading Platforms

Machine builders and factory managers who want to centrally manage distributed IT infrastructures of PLCs and/or IPCs within a factory or across different factories especially benefit from six aspects: First, ease of use. Factory people benefit from simplified application lifecycle management. This spans application development, deployment and continuous management. It also includes low-code/no-code capabilities, to enable clients to develop their own apps in a fast way.

Second, cyber resilience. Manufacturing companies need effective tools to improve their cyber resilience and become ready for the upcoming CRA. An integrated approach for application development and deployment is an advantage in this context.

Third, factory users still value openness. This includes openness on the application side, but especially openness on the hardware side and the ability to use devices from different vendors.

Fourth, product updates. Keep the speed around new product capabilities. It is a proof point that customers can expect fast product enhancements today and tomorrow.

Fifth, customer success. New customer references are very relevant to prove the value of offerings to prospects. Sixth, a strong ecosystem of partners and developers underpins that the platform is tightly connected to a broad user base and adapts fast to evolving market demand.

Leading Vendors

“Siemens is the pacemaker in the industrial edge market, while Phoenix Contact becomes more focused on specific market segments, we see that Bosch Rexroth loses momentum and falls back, and many others wait for Margo-based standards.”

Arnold Vogt, Head of Digital & IoT, PAC

Siemens

PAC considers Siemens as the market-leading vendor in the PAC INNOVATION RADAR 2025 for industrial edge management platforms.

Offering description – Siemens started into the edge management field with the launch of its Industrial Edge platform in 2018. Today, the Siemens Industrial Edge solution combines the Industrial Edge Platform (including the Industrial Edge Hub as a centralized repository of all available edge apps from Siemens and other app providers, Industrial Edge Management for on-premise management of all devices, apps and users, and the Industrial Edge Runtime, which executes containerized apps on industrial devices), Industrial Edge Devices (IPCs, HMIs, virtual systems and certified edge devices from third parties), Industrial Edge Apps from the Industrial Edge Marketplace, and the Industrial Edge Ecosystem for edge devices and apps.

Siemens' positioning as a best-in-class vendor in our analysis is primarily based on the following aspects:

Product enhancements – No other vendor has shown more product-related progress in the last years and a comprehensive product roadmap for further improvements in the coming period. Siemens Industrial Edge today offers, for example, connectivity to more than 2,400 OT devices through a suite of connectors. Another example in this context is the support of the DevOps cycle around edge AI. For this purpose, Siemens Industrial Edge provides various tools, such as an AI model manager, an AI model deployer, a vision AI connector, an AI inference server, and an AI model monitor. Siemens has a special focus on vision AI today. This includes vision AI solutions from Basler and MVTec in the industrial edge marketplace and a newly launched NVIDIA GPU-powered edge device (SIMATIC IPC BX-59A with AI accelerator) to support more complex industrial use cases around vision AI.

Openness – Like other vendors, the Siemens platform started as a rather closed system, but Siemens demonstrates a clear willingness to add more and more openness to the system. Regarding application development, customers can use Siemens engineering tools, but also other tools like Python, MATLAB, Mendix, Node-RED, and Java, for example. Regarding apps and hardware, the Industrial Edge Marketplace today contains around 120 components (hardware, software and services), and has shown solid growth over the last years (around 20% y/y; while 75% has come from Siemens and 25% from third parties). In fact, Siemens shows the most progress in becoming more open on the hardware side. Besides edge hardware from Siemens, devices from Weidmüller, Novakon, Dynics, Faytech, Polywell Computers, and Neosys are available today. In addition, Siemens offers a virtual edge device that can run on a virtualized server (Industrial Edge Virtual Device), a virtual PLC (SIMATIC S7-

1500V), which is a hardware-independent controller provided as an edge app, and supports customers with a validation process to check if their existing hardware equipment (x86-based) can be used as a Siemens industrial edge management component (Siemens Industrial Edge Own Device). No other hardware vendor in our analysis has shown more willingness to disrupt their existing hardware business.

Customer success, go-to-market, and new partnerships –

Siemens continues to deliver strong proof points for market success. Today, Siemens claims to serve more than 2,000 paying customers, which means they have doubled the number of customers within one year (the second year in a row). According to Siemens, they support industry leaders in automotive (Audi, Volkswagen), food & beverages (P&G, Coca-Cola, Perfetti Van Melle) and machinery & equipment (Schuler, Koerber, SSI Schaefer) to implement edge management solutions at scale. Siemens has started to expand its footprint into other verticals, such as pharma, electronics or aerospace & defense. In the strategic partnerships space, the latest steps with Accenture, Microsoft, and Snowflake are particularly noteworthy. While Accenture announced a new Siemens Business Unit with 7,000 employees, Siemens Industrial Edge represents one core component of joint solutions they plan to deliver to the market. The partnerships with Microsoft and Snowflake are intended to integrate the Siemens Industrial Edge platform with those vendors' industrial data lakehouses (Microsoft Fabric and Snowflake manufacturing data cloud).

Ease of use – The integration of Siemens Industrial Edge with Siemens' broader portfolio is continuing. This simplifies the usage of industrial edge in combination with other Siemens software portfolio elements. Today, Siemens Industrial Edge is the core element for edge deployments of the Siemens Industrial Operations X portfolio (including MES, IoT, HMI/SCADA). In addition, the Industrial Edge Marketplace is becoming an integrated part of the Siemens Xcelerator Marketplace. However, especially combining low-code app development via Mendix with edge management capabilities to publish apps can help manufacturing companies simplify and accelerate IT/OT integration projects.

Cyber resilience – Siemens is certified for IEC 62443-4-1 and is making progress towards achieving IEC62443-4-2 for its industrial edge management platform by the end of 2025.

Phoenix Contact

PAC considers Phoenix Contact as a best-in-class vendor in the PAC INNOVATION RADAR 2025 for industrial edge management platforms.

Offering description – Phoenix Contact certainly was a first mover in this market segment by introducing its PLCnext Technology concept in 2016. The PLCnext Technology combines several elements from Phoenix Contact like the PLC hardware (PLCnext Control with strong real-time capabilities), application development (PLCnext Engineer), app store (PLCnext Store), cloud capabilities (Proficloud), and a developer ecosystem (PLCnext community).

Phoenix Contact's positioning as a best-in-class vendor in our analysis is primarily based on the following aspects:

Cyber resilience – PAC sees PLCnext from Phoenix Contact as the leading industrial edge management platform around cyber resilience. In 2022, Phoenix Contact was the first company to receive a certification in accordance with IEC 62443-4-2 SL2 and 62443-4-1 ML3 for PLC controllers. The certification confirms a secure product development lifecycle and technical security requirements for industrial IT security and builds the foundation for compliance with the CRA. No other vendor in our analysis has shown more progress in this area.

Go-to-market – Phoenix Contact has extended its general leadership position around cyber resilience into the energy sector. In May 2024, PLCnext Control was certified for cyber-secure communication in energy management systems (IEC 61850 Ed. 2.1 and IEC 62351-3). This step was fully in line with the new strategic direction of the Phoenix Contact Group, which follows the vision of an "All Electric Society" and aims to position the company as a leading supplier for a fully electrified world. With the new certifications mentioned above, Phoenix Contact has now become the leading vendor for cyber-secure industrial edge management systems for the energy sector and we expect to see rapid business success in this space.

Openness – PAC has identified further progress in this space during 2024/25. PLCnext has been an open system on the development side from the very beginning. It is possible to use classical PLC coding tools like PLCnext Engineer (available as free download), Codesys or other IT tools, such as MATLAB Simulink, Eclipse, or Visual Studio. We see some level of openness on the application side. One element in this space is the PLCnext Store, which is a constantly growing marketplace (from +80 components in 2020 to +250 in 2025), and Phoenix Contact is the only vendor in our analysis that provides some proof points for business success of its marketplace. In fact, the PLCnext Store is primarily a repository of free apps (200+ from Phoenix Contact or open-source-based) in combination with a buying system for Phoenix Contact offerings. However, customers from Festo and Alibaba Cloud can benefit from additional flexibility, as they can choose to use apps via the app stores from these vendors or the PLCnext Store. Let us take a look on the hardware side, where we saw the greatest progress during 2024.

The strength of PLCnext around real-time capabilities and cyber resilience naturally also has a downside, namely the limited openness of the system on the hardware side. Nevertheless, we see several steps that the system has become more open on the hardware side: One step were the partnerships with Yaskawa (since 2020) and Festo (since 2024), as they provide own hardware around PLCnext technology. Another big step forward was the introduction of Virtual PLCnext Control in 2024. Virtual PLCnext Control is software-based and hardware-independent. It operates on an OCI container and can be installed on IPCs or other edge devices.

Customer success and new partnerships – Phoenix Contact announced new cooperations with Festo and Alibaba Cloud in 2024. In April 2024, Festo announced it would use the PLCnext runtime environment in combination with its own hardware controllers, and launched the new Festo AX Controls automation portfolio in November 2024. The Festo AX Controls platform consists of the Festo AX OS (Operating System), the Festo AX Motion control software, the Festo AX Machine Visualization software, and the first edge controller CEPE. The Festo online catalog provides access to various apps, including their own AI tool AX Industrial Intelligence. In a next step, customers can also buy software directly from

the PLCnext Store. According to Festo, they choose PLCnext especially for their real-time capabilities, integrated cyber resilience, flexibility in using different programming tools, and cloud connectivity. In November 2024, the Chinese cloud hyperscaler Alibaba Cloud announced the integration of the Virtual PLCnext Control software from Phoenix Contact into its solution portfolio for the manufacturing industry. Alibaba Cloud will offer Virtual PLCnext Control together with its own cloud and edge infrastructure offering. This enables customers to also access the PLCnext Store.

Developer community – The PLCnext Community is by far the largest developer community in our market analysis. The PLCnext Community on LinkedIn has grown considerably over the last five years (from 5,200 followers in 2020 up to 24,000 followers in 2025), which is a result of long-term commitment and continuous investment. Other vendors will not be able to replicate this in the short term.

Ease of use for industrial AI – With MLnext, Phoenix Contact offers an easy-to-use tool for industrial AI. MLnext Creation allows to build and train AI for time-series data without the need to write source code. MLnext Execution simplifies the deployment of AI models into production environments.



PAC INNOVATION RADAR “DIGITAL PLATFORMS FOR INDUSTRIAL EDGE MANAGEMENT IN EUROPE 2025”



Fig. 10: PAC INNOVATION RADAR “Digital Platforms for Industrial Edge Management in Europe 2025”

Based on the scores in competence and market strength, the overall score is calculated (calculation: competence score plus market strength score, divided by two). From the resulting overall score, each provider receives their characteristic positioning within the PAC RADAR.

Here, the following applies: The closer a company is to the upper right corner, the closer they are to meeting customers' requirements.

REVIEW OF TOP-SEEDED PROVIDER SIEMENS

Siemens – Best in Class

COMPETENCE



Siemens

STRATEGY

Vision	<div style="width: 100%; height: 15px; background-color: #009682;"></div>
Strategic activities in the last 12 months	<div style="width: 100%; height: 15px; background-color: #009682;"></div>
Unique selling proposition (USP)	<div style="width: 100%; height: 15px; background-color: #009682;"></div>

PORTFOLIO

Application development	<div style="width: 100%; height: 15px; background-color: #009682;"></div>
Application deployment and management	<div style="width: 100%; height: 15px; background-color: #009682;"></div>
Open ecosystem approach	<div style="width: 100%; height: 15px; background-color: #cccccc;"></div>
Platform quality proven by client references	<div style="width: 100%; height: 15px; background-color: #009682;"></div>

EXPANSION

Expansion of go-to-market & business model	<div style="width: 100%; height: 15px; background-color: #009682;"></div>
Expansion of use cases & applications	<div style="width: 100%; height: 15px; background-color: #009682;"></div>
Expansion to new technology	<div style="width: 100%; height: 15px; background-color: #009682;"></div>

MARKET STRENGTH

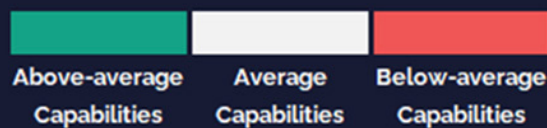


MARKET GROWTH

Market perception in Europe	<div style="width: 100%; height: 15px; background-color: #009682;"></div>
Momentum	<div style="width: 100%; height: 15px; background-color: #009682;"></div>

MARKET POSITION

Ecosystem of partners	<div style="width: 100%; height: 15px; background-color: #009682;"></div>
Client-base and relationship in Europe	<div style="width: 100%; height: 15px; background-color: #009682;"></div>



APPENDIX

The PAC INNOVATION RADAR

The PAC RADAR is an effective tool for the holistic evaluation and visual positioning of software and ICT service providers on local markets. Numerous ICT and business decision-makers in user companies of all industries and company sizes rely on the PAC RADAR when selecting their partners and developing their sourcing strategies.

With the help of predefined criteria, PAC evaluates and compares providers' strategies, development, and market position, in addition to their performance and competencies within specific market segments.

Each PAC RADAR focuses on a specific IT market segment. Up to 30 leading providers are evaluated per segment. Participation in the PAC RADAR is free of charge.

All providers are evaluated using PAC's proven methodology, which is based on personal face-to-face interviews and/or a detailed self-disclosure from each provider.

PAC reserves to also evaluate and position relevant providers in the PAC RADAR that do not participate in the self-disclosure process.

After the evaluation of the predefined criteria, each supplier's position is plotted in the PAC RADAR. The criteria are classified by clusters and can all be attributed to the "Competence" and "Market Strength" clusters. The provider evaluation, including a market description, is published as a report.

Concept and methodology of the PAC INNOVATION RADAR are similar to those of the traditional PAC RADAR. While the traditional PAC RADAR focuses on mature market segments, the PAC INNOVATION RADAR, on the other hand, positions providers in new and innovative market segments. Thus, the focus of the evaluation is on the portfolio, vision, strategy, and early client engagements rather than on existing revenue figures and resources.

Definitions & Segmentation

A **digital platform** provides digital tools for different use cases (more than one) and constantly strives to expand to new use cases and digital solutions to serve the holistic demand of its target audience. To achieve this, digital platform providers also integrate their partner ecosystem into the platform. A technical integration layer and a governance framework are helpful tools to ensure interoperability across different digital solutions on the platform.

A **vendor of platform-related services** provides digital consulting, system integration and managed services for industrial use cases around relevant platforms. They constantly strive to expand to new services and use cases to serve the diverse and holistic demand of their target audience. To achieve this, service providers need dedicated, platform-related expertise and a strong ecosystem of platform partnerships.

Specific PAC definitions used in this RADAR

Digital Platforms for:

Industrial edge management: These platforms use concepts from the IT world, such as container and virtualization technology and app store models, for simplified application lifecycle management at the industrial edge (OT world). In this space, apps around AI, machine vision and virtual PLCs gain further relevance. Machine builders and factory managers use these platforms to manage PLCs and IPCs across their installed-base of machines and factories.

An industrial data lakehouse: Industrial companies must overcome IT/OT data silos and prepare for the age of AI agents. A key enabler is the concept of the industrial data lakehouse, which allows the management of data across different data stores. The vision is to create a digitally-integrated manufacturing company without data silos, open data access, transparency across the company, flexible analytics capabilities, agile workflow development, and increasing automation.

Connected workers: Work instructions, visual guidance, digital support content and remote expert services for mobile, industrial workers are central capabilities of this type of platform.

AI-advanced industrial robotics: PAC evaluates platforms that combine hardware-independent AI and low-code/no-code capabilities around two dedicated use cases in the context of industrial robotics. First, advanced perception (object detection) for pick-and-place tasks via AI-enabled robot vision systems and foundation models. Second, AI-based robot control systems (motion planning and force control) for assembly and material processing tasks.

An integrated digital thread: An integrated digital thread ensures the flow of product-related data throughout different cloud-based business applications, from product design and development to manufacturing, maintenance and service. It enables organizations to break down product-related data silos, streamline workflows, and achieve interoperability across departments, functions, and systems. While PLM builds the centerpiece of an

integrated digital thread, vendors also provide in extension low-code application development capabilities and additional pre-integrated business applications, such as ERP, MES and Field Service Management (FSM). This enables an integrated flow of product-related data throughout the entire company. PAC provides transparency about cloud-based PLM vendors, with a well-integrated portfolio of cloud-based business applications and low-code capabilities to simplify the development of apps and the integration of product data into different business applications. These capabilities together build a platform for an integrated digital thread.

Platform-related Services for:

For industrial data lakehouses: As the concept of industrial data lakehouse is not simple to realize (for more details, please see the topic definition in the above platform section), PAC recommends working with leading C&SI's

with proven expertise across various relevant platforms in this space. To provide market transparency around this topic, PAC here evaluates the expertise of C&SI's around the three relevant platforms Databricks, Snowflake and Microsoft Fabric.

For the industrial metaverse: PAC sees NVIDIA Omniverse as the market-leading platform to build the industrial metaverse today. As a result, PAC here evaluates the expertise of C&SI's around NVIDIA Omniverse.

With multi-PLM platform expertise: PLM is not a new topic, and several leading platforms have existed for years. While many C&SI's have strong capabilities around one or two of the leading PLM platforms, PAC wants to provide transparency about C&SI's with dedicated know-how across multiple PLM platforms. In this comparison, we focus on the PLM platforms from the four leading vendors Siemens, Dassault Systèmes, PTC and Aras.

Segmentation

PAC is going to evaluate the providers of digital platforms and services in Europe in eight PAC INNOVATION RADAR segments dedicated to specific use cases:



Fig. 11: PAC INNOVATION RADAR – segments analyzed

Provider Selection and Participation

What providers are positioned in the PAC INNOVATION RADAR?

Providers are selected and invited according to the following criteria:

- **Size of revenues** in the segment to be analyzed in the specified region;
- **"Relevance"**: Even providers that do not belong to the top-selling providers in the segment to be analyzed are considered if PAC classifies them as relevant for potential customers, for instance due to an innovative offering, strong growth, or a compelling vision.

There is no differentiation as to whether the providers are customers of PAC – neither in the selection of the providers to be positioned, nor in the actual evaluation.

What do providers have to do in order to be considered in a PAC INNOVATION RADAR analysis?

The decision as to which providers are considered in the PAC INNOVATION RADAR analysis is entirely up to PAC. Providers do not have any direct influence on this decision.

However, in the run-up to a PAC INNOVATION RADAR analysis, providers can make sure in an indirect way that PAC can adequately evaluate their offerings and positioning – and thus their relevance – e.g., by means of regular analyst briefings, etc.

Why should providers accept the invitation to participate actively?

Whether or not a provider participates in the RADAR process does not actually affect their inclusion and positioning in the PAC INNOVATION RADAR, nor their assessment. However, there are a whole host of benefits associated with active participation:

- Participation ensures that PAC has access to the largest possible range of specific and up-to-date data as a basis for the assessment;
- Participating providers can set out their specific competencies, strengths, and weaknesses as well as their strategies and visions;
- The review process guarantees the accuracy of the assessed factors;
- The provider gets a neutral, comprehensive, and detailed view of their strengths and weaknesses as compared to the direct competition – related to a specific service in a local market;
- A positioning in the PAC INNOVATION RADAR gives the provider prominence amongst a broad readership as one of the leading players in the segment under consideration.

Evaluation Method



Fig. 12: PAC INNOVATION RADAR – evaluation method

PAC uses predefined criteria to assess and compare the providers within given service segments.

The assessment is based on:

- The provider's self-disclosure via questionnaire;
- A briefing call about the provider's organization, resources, approaches, portfolio, customer focus, customer references, investments, partnerships, certifications, etc.;
- If applicable, a poll among customers by PAC;
- The analysis of existing PAC databases;
- Secondary research.

The provider data is verified by PAC and any omissions are rectified based on estimates.

If the provider does not participate, the assessment is performed using the proven PAC methodology, in particular based on:

- Information obtained from face-to-face interviews with the provider's representatives, analyst briefings, etc.;
- An assessment of company presentations, company reports, etc.;
- An assessment of PAC databases;
- An assessment of earlier PAC (INNOVATION) RADARs in which the provider participated;
- A poll among the provider's customers (as required) on their experiences and satisfaction.

Based on the scores in competence and market strength, the overall score is calculated. The overall score is calculated by using the weighted criteria assigned to the "Competence" and "Market Strength" clusters. From the resulting overall score, each provider receives their characteristic positioning within the PAC RADAR. Here, the following applies: The closer a company is to the center, the closer they are to meeting customers' requirements.

Reissue of published RADARs

The assessments in the PAC INNOVATION RADAR represent an assessment of the providers within the given peer group in the year in which the respective PAC INNOVATION RADAR was published.

The evaluations may not be directly comparable with those of any previous version due to subsequent content modifications. In particular, they do not depict a development of individual providers over time.

Methodological and/or organizational modifications may be made due to changing market conditions and trends, and may include:

- A different peer group in the focus of the analysis;
- Modification of individual criteria within clusters and sub-clusters;
- Increased or altered expectations by user companies;
- Adjustment of the weighting of individual criteria

Evaluation Criteria

Digital Platforms for Industrial Edge Management

COMPETENCE



STRATEGY

Vision
Strategic activities in the last 12 months
Unique selling proposition (USP)



PORTFOLIO

Application development
Application deployment and management
Open ecosystem approach
Platform quality proven by client references



EXPANSION

Expansion of go-to-market & business model
Expansion of use cases & applications
Expansion to new technology

MARKET STRENGTH



MARKET GROWTH

Market perception in Europe
Momentum



MARKET POSITION

Ecosystem of partners
Client-base and relationship in Europe

Fig. 13: Industrial Edge Management – evaluation criteria

PAC RADAR REPORT LICENSE

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The PAC RADAR is a graphical representation and written analysis of the positioning of various IT providers within a defined market segment at a specific point in time. The positioning and characterization of selected companies within the PAC RADAR is conducted on the basis of an analytical assessment of criteria which PAC previously defined for this analysis.

The selection, positioning, and characterization of companies within the PAC RADAR is not subject to any vested interests whatsoever. PAC does not support any providers that are represented in the PAC RADAR, and does not give any recommendations to technology users. The PAC RADAR represents a result from market research only and must not be taken as a recommendation for action.

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ABOUT PAC

We are a content-based company with a consulting DNA. PAC is the leading European consulting and analyst firm supporting software & IT service vendors worldwide. Since 1976, we have helped our clients to understand market dynamics, grow their revenue and raise their profile. Our unrivalled understanding of European markets, and deep research coverage help key market players to define their strategy, optimize their go-to-market and increase market share. PAC is an analyst-led consultancy with a team of over 100 experts across Europe. We provide market research and analysis on more than 30 countries worldwide, delivered through our portfolio pillars, Guidance, Insights, and Visibility, and our renowned SITSI® research platform.

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