

MindSphere

Background

The digital transformation is changing the world

Data and the efficient analysis of it can be the factor that makes or breaks a company today – no matter whether it is involved in industry, infrastructure, energy generation or any other sector.

With MindSphere, Siemens is providing a cloud-based, open operating system for the Internet of Things. On this platform as a service (PaaS), applications (apps) and digital services can be developed, operated and provided.

As a result, the immense amount of data produced by a plant or company can be quickly and efficiently collected as well as analyzed and thus contribute to optimization. In addition, MindSphere offers a cost-effective entry phase, and it is fully operational in a very short time.

Recommendations for action derived from data analysis

Regardless of the industry involved, from production companies and train operators to energy producers or building management: With MindSphere, the raw data produced by plants and systems can be comprehensively analyzed with the help of a wide range of apps.

This information can lead to higher availability as well as improved productivity and efficiency for individual machines, entire plants, systems or globally distributed machine fleets.

As a result, recommendations for action can help to continuously optimize a facility – for example in the area of resource usage. With regard to predictive maintenance, it is also possible to identify potential problems at a very early stage. Thus, the right decisions can be made at the appropriate time.

The obtained data also help to improve the design, the performance and the availability of the systems. The customers benefit from the optimized assets and can prevent errors.

Importance for Siemens

Why cloud?

Cloud technology implies a lot more than just decentralized data storage. It increases efficiency and helps improve cash flow thanks to elasticity and on-demand delivery of IT resources:

- Compute and networking
- Storage
- Database
- Application services
- Deployment and management
- No hardware investments

Benefits

- Focus on innovation: A cloud-based open ecosystem acts as a digital business model enabler, providing a global marketplace of applications and services while integrating data from all assets.
- Increasing competitiveness: Moving to the cloud provides access to enterprise-class technology and to a whole ecosystem of applications and services for everyone.
- Flexible capacity, speed, agility and no upfront investment: It is cost-efficient and flexible, making it possible to easily adapt to fluctuating business demands and giving the agility to easy scale up or scale down capacity.
- Low ongoing costs and global reach on demand: Cloud-based solutions provide unlimited storage and global access to data in an efficient way. Cloud cuts out the high cost of hardware, since users enjoy a subscription-based model. Additionally, when using cloud technology, servers are off-premises and cloud suppliers manage and maintain them, rolling out regular software and security updates automatically.
- Proven security: Data are more secure in trusted infrastructure data centers, which are in line with the leading cyber security standards like ISO 27001 and IEC 62443 and professionally managed by cybersecurity experts.
- Reliable business continuity management is decisive for businesses of all sizes: Using cloud technology for this saves time, avoids large up-front investment and leverages third-party expertise.

Why did Siemens launch MindSphere?

MindSphere is an open ecosystem using data from production assets, enabling customers to get value out of their data. This is becoming a key differentiator for Siemens. MindSphere is a scalable infrastructure to collect data from production assets and make them available to value-added analytics. Siemens is a market leader in automation and drives equipment with a huge in-stalled base, and is therefore in a strong position to connect production assets, collect data in a smart way. Our industrial and vertical know-how allows us to generate value for customers from them.

Success stories and research focus

Powerful industrial applications and digital services

MindSphere provides a wide range of applications for different purposes and usages (MindApps). In addition, customers and partners can develop their own applications on the platform as well as use and operate them. These applications facilitate new digital services that, on the basis of the efficient use of collected data, create a competitive edge – for instance, in the form of guaranteed availability of machines, optimized resource usage and increased productivity.

Connecting real things to the digital world

With MindConnect, Siemens offers a range of ways to simply and securely link machines, plants and systems to MindSphere. With MindConnect Nano, customers have the possibility to read data from an asset with the help of a plug-and-play solution and then to securely send them in encrypted form to MindSphere – and to frequently do so after just about an hour of installation time.

Closed loop innovation with end-to-end digital twin

Digitalization and the transformation of IoT data to productive business results are core drivers of MindSphere. High-value industry-based applications built on MindSphere deliver measurable results through digital services. In addition, companies can leverage MindSphere to close the digital twin loop through product ideation, realization and utilization to seamlessly integrate operational data throughout the value chain. This helps to not only drive operational efficiency, but also compare simulation and test results with real-world observations.

Customers can now optimize the entire value chain, from design, production planning and engineering to services.



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Ingenuity for life

Data as the basis for new business models

The connection of assets to MindSphere facilitates many things: the optimal use of energy and resources, for example, as well as the implementation of new business models. Examples of such business models include the sale of machine hours or availability in place of the actual machine.

MindSphere on AWS

Coming in January 2018, MindSphere will be available on Amazon Web Services (AWS). Customers will benefit from the combined global scalability of Siemens as the No. 1 automation provider and Amazon Web Services as the No. 1 cloud provider.

Summary: MindSphere offers...

- Faster development of robust Industrial Internet of Things (IIoT) solutions
- Open PaaS with access to native cloud development (identity and access management)
- Extensive device, enterprise and database connectivity
- Powerful industry solutions with advanced analytics
- Global partner ecosystem

Further information

siemens.com/innovationday

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