SAP LEONARDO INTERNET OF THINGS

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This technical view focuses on <u>SAP Leonardo Internet of Things (IoT)</u>, looking into the technical core elements of:

- SAP Leonardo Foundation
- SAP Leonardo for Edge Computing
- SAP Cloud Platform / SAP HANA Platform

SAP Leonardo Foundation

Provides capabilities of data ingestion of raw sensor (thing) data, big data abilities to manipulate huge data volumes and data integration with enterprise software systems (action) to provide the ability to create end-to-end IoT solutions for businesses to leverage and drive the right outcome.

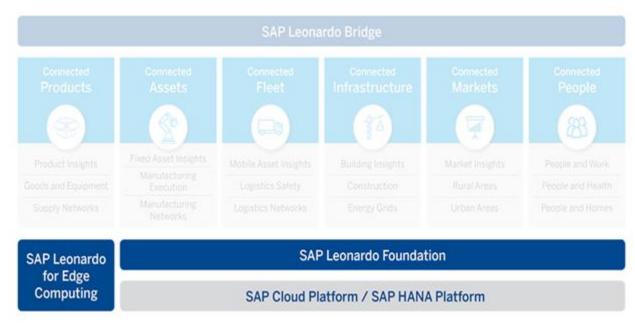
The SAP Leonardo Foundation is available for cloud and on premise deployment types, based on either <u>SAP Cloud Platform</u> or <u>SAP HANA Platform</u>, and includes the following:

- Cloud-based on SAP Cloud Platform
 - SAP Cloud Platform Streaming Analytics
 - SAP Cloud Platform Remote Data Sync
 - SAP Cloud Platform Integration
 - SAP Cloud Platform Internet of things
 - SAP IoT Application Enablement
- On premise-based on SAP HANA platform
 - SAP HANA remote data sync
 - SAP IoT SIM Management
 - SAP HANA dynamic tiering
 - SAP HANA Vora

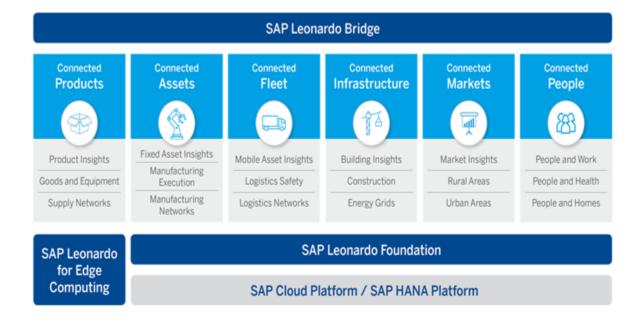
SAP Leonardo for Edge Computing

SAP Leonardo for Edge Computing serves as an <u>IoT Gateway</u>, offering an exciting set of services that run at the edge of the network to complement the SAP Leonardo Foundation. This includes:

- Streaming Lite
- SAP SQL Anywhere
- SAP Plant Connectivity (PCo)
- SAP Device Management for IoT by Telit
- SAP HANA Integrator by OSISoft



SAP leonardo Bridge



SAP Leonardo Bridge

SAP Leonardo Internet of Things (IoT) is one of the capabilities of <u>SAP Leonardo</u>, and includes Internet of Things (IoT) solutions that enables companies to realize the digital transformation of existing end-to-end business processes and to evolve new business models to run digitally. It combines a solid IoT foundation, a range of IoT applications and standards-based IoT edge computing as main building blocks with a <u>jump-start program</u> in the form of a pre-packaged consultative offering to:

- Significantly improve existing business processes
- Develop new business processes
- Find new business models
- Establish new work environments

The evolution of connectivity, big data management, analytics, and cloud technology is enabling us to converge operational and information technologies to make machines smarter and drive the end-to-end digital transformation. Initially, IoT applications were limited for operational activities on shop floor and data was not leveraged for enterprise use. With the evolution of Industry 4.0 and industrial Internet, customers are looking to leverage this big data and develop responsive and intelligent applications for line-of-business and industry-specific end-to-end processes.

For this purpose, SAP Leonardo Internet of Things (IoT) comprises the following:

- *SAP Leonardo Bridge*combines real-time information from connected things with business processes to turn extended supply chains into live supply chain environments
- A range of packaged *enterprise end-to-end solutions for connected things* from products to people across line-of-business and industry use cases, addressing the following areas:
 - *Connected products*to generate new insights into lifecycle management, sourcing, response and supply, and digital supply networks. In addition, handle the design, manufacturing and delivery of smart, connected products across all industries. Example for a product in this category is <u>SAP Connected Goods</u>.
 - Connected assets to track, monitor and analyze fixed assets. Manufacturing and
 maintenance business processes are in scope as well. This will help to reduce costs and
 increase equipment uptime of these assets. Examples for products in this category are <u>SAP</u>
 <u>Asset Intelligence Network</u>, SAP Extended Warehouse Management, SAP Manufacturing
 Execution, and SAP Predictive Maintenance and Service (<u>Cloud Edition</u>, <u>On Premise</u>
 Edition).
 - *Connected fleet*to enable businesses and public service organizations owning moving assets to improve services and safety, visibility to logistics and service quality. Examples for moving assets are vehicles, robots, fork lifts and autonomous vehicles, an example for a product in this category is <u>SAP Vehicle Insights</u>.
 - Connected infrastructure for a new digital operational intelligence that enables improved service, efficient operations and compliance and risk mitigation for physical-infrastructure systems, construction and energy grids. Examples for products in this category are <u>SAP Asset Intelligence Network</u> and SAP Manufacturing Integration and Intelligence.
 - *Connected markets*to enable new production and business models of local relevance and with the right timing for customer and marketing insights, digital agribusiness, smart ports and smart cities. Examples for products in this category are <u>SAP Connected Goods</u>, <u>SAP Vehicle Insights</u> and SAP Predictive Maintenance and Service (<u>Cloud Edition</u>, <u>On Premise Edition</u>).
 - *Connected people* for more insightful, collaborative work roles, health management and smart home environments. The intention is to connect people and communities and to provide better, more personalized lifestyle experiences.

- *SAP Leonardo foundation*includes both best-of-breed business services that enable users to rapidly build IoT applications by creating digital twins, reusable application services, and applying predictive algorithms; and core technical services to process a high velocity of data with the ability to stream analytics and run predictive scenarios. It is delivered on <u>SAP Cloud Platform</u> as its platform as a service.
- *SAP Leonardo for Edge computing* ingests data irrespective of connectivity, latency, device protocols concerns, and (at the same time) delivers intelligent edge applications.

Further details about products in the context of the foundation and edge computing can be found in the <u>technical view of SAP Leonardo Internet of Things (IoT)</u>.