

SAP Solution Brief

SAP Leonardo

SAP Predictive Maintenance and Service

Objectives

Solution

Benefits

Quick Facts

Leverage the Internet of Things to Transform Maintenance and Service Operations



The Best-Run Businesses Run SAP®

Deepen insight into your assets using the Internet of Things

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Transform your business by taking advantage of the Internet of Things (IoT). Move from reactive to predictive maintenance and service by analyzing large volumes of operational data along with business data using the SAP® Predictive Maintenance and Service solution. Use the solution to **apply deep insight into asset history and trends to help predict maintenance and service needs.**

In an increasingly interconnected world, the IoT enables us to interact barrier free with devices – and devices to interact with one another. Devices and assets are important parts of your business. SAP offers solutions to take full advantage of the IoT, including the SAP Predictive Maintenance and Service solution, available either on premise or in the cloud. This solution can help your organization maintain full visibility into current asset health and predict future needs by monitoring and analyzing Big Data with in-memory computing

on the SAP HANA® platform. For example, you can use the SAP solution to:

- Enrich asset management to monitor assets anywhere and remotely
- Detect system malfunctions using real-time fault management
- Improve quality and service by predicting malfunctions before they cause unscheduled downtime and higher costs
- Offer performance-based service and dispatch proper technical assistance based on near-real-time monitoring of operations



Target user groups who benefit from predictive maintenance and service

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Sense data and monitor equipment behavior remotely

Manage more efficiently using Big Data analytics

Create new value by integrating with SAP Business Suite

Built on powerful in-memory computing technology in the SAP HANA platform, SAP Predictive Maintenance and Service delivers deep, unified insight by integrating operations and analytics on a single platform. To support continuous performance improvement, you can use insight from business and operational data as well as other unstructured documents from any source. By assessing this data on historical and operational performance, you can predict malfunctions before they occur and damage profits.

Various users can benefit from SAP Predictive Maintenance and Service:

- **Owners and asset operators of connected equipment** can analyze operational trends to minimize unplanned downtime. By better understanding defect and failure patterns, they can manage risk and tighten alignment of corporate goals and maintenance operations.
- **Service providers** can expand offerings for asset owners and deliver standard and add-on services more quickly and efficiently.
- **Asset manufacturers** can identify design issues, lower warranty costs, predict recalls, and create innovative aftermarket business models.

Join companies that use SAP solutions to produce more than half the world's GDP, and work smarter with SAP Predictive Maintenance and Service.



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Chief operating officers, operations managers, and vice presidents of asset strategy, manufacturing, and customer service have come under pressure to automate operations and streamline maintenance and service processes. Predicting equipment degradation and malfunction is key to achieving these goals.

SAP Predictive Maintenance and Service provides a single control center for managing assets and **sensing** telemetry and machine-to-machine, business, and third-party data. The solution, based on SAP HANA, provides connectivity with physical assets while enforcing security standards in the cloud.

From an integrated control center, you can **monitor** your assets and enhance decision making with deeper insight into large volumes of operational data. Based on this **analysis**, you can evolve and execute a holistic maintenance and service strategy.

With **predictive** analytics and its powerful as well as flexible business rules, you can continuously drive new insight and business innovation. You can **trigger** closed-loop business scenarios, such as service requests to fix potential problems or recommendations for other quality management initiatives. Tight meshing with your core business systems with very little latency empowers your organization for optimal performance.



Manage more efficiently using Big Data analytics

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Machine-learning algorithms that use the latest statistical methods can help you take preventive action before asset efficiency erodes. You can detect fault patterns and monitor equipment against them to predict future performance degradation. SAP Predictive Maintenance and Service harnesses a framework of robust predictive analytics based on the Big Data computing power of SAP HANA.

By integrating remote machine monitoring and predictive analytics directly into your maintenance or service processes, you can:

- Calculate performance against key indicators in real time

- Analyze trends based on both telemetry and business data
- Apply an array of statistical methods to correlate data on production rework
- Track energy consumption profiles and support health prediction with statistical constructs

In short, a single, consolidated overview of a large volume of sensor data helps improve visibility over past, present, and future asset performance consistently for all stakeholders. You can increase asset reliability, shorten maintenance times, and improve uptime percentages.



With SAP Predictive Maintenance and Service, you gain significant improvements in uptime, first-time fix, mean time to repair, and remote-fix rates.



Create new value by integrating with SAP Business Suite

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To optimize maintenance and service processes, SAP Predictive Maintenance and Service provides a single integrated platform, helping you connect remote devices securely and analyze resulting data in near-real time to generate actionable intelligence. The integration with remote business systems sets the solution apart from those of competitors. The SAP solution fully integrates operational data with business information, a key requirement for success with the Internet of Things.

Once a critical situation arises, asset manufacturers can trigger a service notification or

order in the SAP Hybris® Cloud for Customer solution, the SAP Customer Relationship Management (SAP CRM) and SAP ERP applications, or non-SAP service software. Asset operators can create a maintenance notification in plant maintenance systems. Authorized service providers can access critical alerts and sensor data in order to provide maintenance services on behalf of asset manufacturers or operators.

In any business model for maintenance and service, integrating business and operational data can improve asset performance and shrink maintenance, service, and warranty costs.

Integration with SAP Business Suite software can foster smarter decision making, faster operational processing, and simpler business interaction.



Realize the benefits of predictive maintenance and service

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With SAP Predictive Maintenance and Service, you can monitor asset conditions, predict machine health, proactively deliver spare parts, improve spare parts planning, and ensure proper technician staffing. If you use SAP Business Suite software, you can pass requests to core applications for creating maintenance orders, scheduling service delivery, executing orders on mobile devices, and providing visual support for technicians. When you optimize analyses and fine-tune operations accordingly, you can integrate quality management deeply into R&D and production operations. You can minimize recalls and repairs and establish processes for continuous product and service improvement.

Asset manufacturers can:

- Reduce warranty costs by saving on field service staffing and travel costs

- Implement transformational business models like performance-based or pay-per-use billing
- Enhance product quality and shrink testing investments by analyzing fault patterns
- Encourage collaboration among engineering functions

Asset operators can:

- Increase equipment reliability by moving from reactive maintenance to condition-based management
- Decrease operational costs and improve profit margins by applying deeper insights into energy consumption, failure patterns, and alerts
- Boost both quality and safety by predicting potential issues early





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Summary

As data volumes expand and in-memory computing becomes essential for competitive edge, you need the power of the SAP HANA® platform. You can harness predictive analytics on SAP HANA to help forecast and prevent future performance issues. Help maintain foresight as well as insight with the SAP® Predictive Maintenance and Service solution, part of the SAP Leonardo portfolio.

Objectives

- Transform enterprise asset management and field service for a data-rich mobile ecosystem
- Maximize equipment uptime and service performance levels
- Predict equipment malfunction or service degradation in order to evolve proactive remedies
- Lower maintenance costs by completing tasks remotely and with guidance

Solution

- Real-time operational data and predictive analysis to support higher-margin business operations
- Detection and isolation of equipment malfunctions to speed recovery
- Fault pattern analysis for warranty management and engineering innovation
- Insight for embedding quality management into R&D and production

Benefits

- Decrease maintenance and service costs to increase profits
- Boost product and service quality through rich feedback for innovation
- Deploy the solution on premise or in the cloud to suit your business and strategic direction

Learn more

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The Best-Run Businesses Run SAP®