IBM Predictive Maintenance on Cloud

Employ predictive analytics to increase asset availability, reduce maintenance costs and improve process throughput.

Facilitate the adoption of predictive analytics for assets with cloud

An increasingly connected world facilitated by the Internet of Things (IoT)—an integrated network of devices, data, connections, processes and people—is transforming products, services and business models. The volume of data generated by the IoT provides a new means to understand and monitor the performance of these assets.

Sophisticated analytics and modeling technologies can now be applied to volumes of operational data. This includes data generated by manufacturing equipment and machinery, and during actual product usage in the field. These analytics provide organizations with a more detailed and accurate insight into process efficiency and product behavior.

IBM® Predictive Maintenance on Cloud enables organizations to deploy a wide range of analytic capabilities that can be applied to operational data generated by production assets and products. This allows a better understanding of asset and product performance for continued improvement.

IBM Predictive Maintenance on Cloud solution enables operations, manufacturing, production and maintenance personnel in asset-intensive industries to:

- Employ predictive analytics to improve asset availability.
- Increase throughput.
- Minimize unplanned outages.
- Reduce maintenance costs.
IBM Predictive Maintenance on Cloud offers the capability to combine asset maintenance and performance data from disparate sources and analyze this data to develop predictive models. These models monitor asset performance in real time to calculate asset health scores and predict potential failure, thereby enabling preemptive deployment of maintenance and repair resources.

**Predictive models to analyze and monitor asset performance**

The analytic and reporting capabilities of IBM Predictive Maintenance on Cloud allow organizations to uncover trends in historical and real-time asset performance data. Analysis of these trends enables organizations to select the most appropriate model to describe and monitor asset performance.

Examples of models for data analysis and asset monitoring are:

- The **maintenance predictive model** — analyzes historical maintenance and repair data (such as work orders) to identify and prioritize an asset’s top failure reasons, determine the most effective repair procedures, and recommend optimum maintenance schedules.
- The **sensor health predictive model** — analyzes an asset’s sensor readings to help determine the likelihood that the asset will fail.
- The **feature-based predictive model** — calculates an asset’s predicted health score and optimal maintenance period, and recommends inspection or changes to maintenance schedules.
- The **integrated health predictive model** — provides a predicted health score and recommends the appropriate maintenance schedule for each asset at a site.

These models help forecast potential asset degradation or failure with the goal to minimize unplanned asset downtime, reduce maintenance costs, and improve process throughout.

---

**Figure 1**: Predictive models calculate asset health using key asset performance data.
Dashboards and reporting tailored to line of business needs

Once predictive models are implemented, personnel responsible for operations and maintenance of critical assets can monitor asset health in real time through a cloud-based user experience. Dashboards can provide a high-level summary of the health of assets, as well as detailed reports of asset conditions.

Dashboards provide relevant operational and performance insight to lines of business such as maintenance, manufacturing, production and operations. Users can obtain an overall view of asset health—past, present and predicted—of a specific asset type, such as all assembly robots on a welding line, as well as drill down to assess the health of an individual asset.

Predictive models enable maintenance to proactively address specific asset problems before a projected fail date, helping to avoid a costly maintenance procedure or unplanned asset downtime.

Manufacturing and production personnel can use real-time assessment of asset health to forecast degradation or pending failure and modify production schedules and resources to accommodate maintenance requirements and achieve required production goals.

Integrate with enterprise asset management to minimize asset downtime

Real-time alerts for impending asset degradation or forecasted failure are a significant improvement over any “run to failure” maintenance strategy. The benefit of a timely alert can be amplified by integration with enterprise asset management systems like IBM Maximo® or SAP Plant Management to automatically initiate work orders.

IBM Predictive Maintenance on Cloud supports such integration, and can be used to provide a diagnosis of a suspected problem (based upon previous analysis of historical maintenance and repair records) and recommend changes to an asset’s maintenance schedule to minimize unplanned asset downtime and potential delays in a production schedule.

Realize the benefits of predictive analytics and cloud in maintenance practices

Increasingly instrumented assets, improved connectivity, and sophisticated analytic and process management capabilities now enable organizations to have greater control of critical assets. IBM Predictive Maintenance on Cloud enables an asset-intensive organization to develop predictive models that can monitor asset health in real time, report the results with dashboards and reports tailored to line of business and integrate with enterprise asset management systems to accelerate repair time.

These predictive models, monitoring and reporting capabilities help asset-intensive organizations:

- Predict the failure of an asset to prevent costly unplanned downtime.
- Adjust maintenance schedules and tasks to reduce repair costs and minimize downtime.
- Determine the most effective maintenance cycles.
- Identify the root cause of asset failure faster to take corrective actions to increase asset availability, reduce maintenance costs, and improve process throughput.
Conclusion
IBM Predictive Maintenance on Cloud enables asset-intensive organizations to realize the benefits of predictive analytics without additional IT infrastructure cost. Through analytic models and reporting capabilities that are tailored to line of business users IBM Predictive Maintenance on Cloud can help organizations increase asset availability, reduce maintenance costs, and improve process throughput.

Why IBM
IBM has a comprehensive portfolio of analytics solutions. It deploys 9,000 business analytics consultants and 400 researchers, and has acquired more than 30 companies since 2005 to build targeted expertise in analytics. IBM secures hundreds of patents a year in big data and analytics, and converts this deep intellectual capital into breakthrough capabilities, including cognitive systems, such as IBM Watson™. The company established a global network of nine analytics solutions centers and has more than 27,000 IBM Business Partners.

For more information
To learn more about the IBM Predictive Maintenance on Cloud offerings, contact your IBM representative or IBM Business Partner, or visit: ibm.com/marketplace/cloud

Additionally, IBM Global Financing can help you acquire cost-effective, strategic IT solutions. IBM partners with credit-qualified clients to customize an IT financing solution to suit your business goals, enable effective cash management and improve your total cost of ownership. IBM Global Financing can fund critical IT investments and help propel your business forward. For more information, visit: ibm.com/financing