



SAS® Predictive Asset Maintenance

Optimize asset maintenance for reduced costs and increased productivity

Overview

Maintenance issues abound as asset-intensive organizations strive to reduce maintenance costs, eliminate breakdowns, reduce downtimes and increase production while guaranteeing safety and equipment reliability. Maintenance and operations managers must determine optimal maintenance strategies that include the necessary routine and preventative maintenance while eliminating costly unscheduled downtime.

Today, most organizations use basic monitoring consoles provided by the asset manufacturers to monitor equipment performance. These consoles are limited in scope with little emphasis on analytics, resulting in isolated views into separate tags of assets. This process is resource-intensive, time-consuming, subject to false alerts and driven primarily by domain knowledge and biased judgment. It mainly supports reactive rather than proactive maintenance, fixing a problem rather than preventing one.

SAS® Predictive Asset Maintenance is an analytics-driven solution to improve uptimes of crucial assets and reduce unscheduled maintenance, thus lowering maintenance costs and minimizing maintenance-related disruptions in the operation. Most failures typically start out as unobserved small errors or defects that don't trip failure thresholds. Only analytics can predict failure patterns and identify root causes of issues



Challenges

- Demand for higher asset uptime to prevent revenue loss and missed growth targets caused by disruptions in production.
- Need to differentiate from the competition in order to satisfy customer needs, meet or exceed service level agreements and reduce maintenance costs.
- Too much unplanned maintenance disrupts production, strains maintenance staff and increases costs.
- Challenging regulatory compliance mandates must be met to avoid penalties, liabilities and damage to the brand.

as well as generate alerts so you can address potential problems during scheduled maintenance without waiting for an outage to occur. By reducing shutdowns and increasing production, SAS saves you both time and money.



Proactively maintain assets to minimize costs and increase uptime

The SAS® Solution

SAS Predictive Asset Maintenance enables predictive and preventive maintenance of assets with minimal disruption to production. As a result, you can maximize the use of maintenance resources to meet operational goals for profitability, safety and environmental compliance.

The solution provides:

- An analytics-based framework to improve uptimes and utilization while reducing the amount of unscheduled maintenance to contain maintenance costs and minimize maintenance-related disruptions of the operations.
- A Web-based, point-and-click interface for reporting to support a broad spectrum of users, from business managers to statisticians.
- Rich, interactive analysis and discovery tools to identify the root cause events.
- Data mining capabilities generate predictive alerts to solve issues in a planned manner during a scheduled outage before they occur.

Benefits

- **Reduce shutdowns and downtime.**
SAS software's leading enterprise business intelligence capabilities grant a near-real-time insight into performance of sites and assets, enabling maintenance engineers to focus and solve issues more quickly. Predictive models generate alerts, enabling you to proactively address potential performance issues before they affect operations. You can then fix issues during a planned outage, reducing downtime.
- **Reduce unscheduled maintenance.**
Predictive and near-real-time performance alerts enable the maintenance teams to fix issues during already scheduled maintenance outages in a planned and more cost-efficient way, increasing availability and profits.
- **Discover root causes.**
State-of-the-art analytics and predictive data mining capabilities help you identify the real drivers of performance issues out of hundreds, or even thousands, of measures and conditions. The availability of data helps engineers troubleshoot faster and initiate the best corrective action, driving continuously improved reliability and equipment efficiency as well as better quality.

- **Improve visibility.**

SAS software's enterprise maintenance-centric data model captures large volumes of data, regardless of format or source. It then transforms, standardizes and cleanses the data to prepare it for easy consumption by a wide range of user groups. The data model can also be customized to incorporate any additional data types your organization may require to meet future needs.

One customer's story

A large, offshore energy company uses SAS to optimize its maintenance and operations activities. After the first year, the company realized a 540 percent ROI.

Capabilities

- **Integration of all relevant data**
Data integration capabilities consolidate data sources from multiple metering, monitoring and surveillance systems into a big-picture view of performance across all operations. With SAS Predictive Asset Maintenance, you can access information from work orders, maintenance schedules, regulatory requirements and resource availability in a single, reliable source. Embedded data quality ensures the accuracy and integrity of all analyses. Even comments in maintenance and inspection records can be transformed into analyzable information.
- **Automated monitoring and alerting**
Sophisticated data mining and scoring algorithms explore historical and near-real-time data to spot trends that could provide early warning of possible production issues. Early warning alerts can then be sent automatically to the appropriate person for intervention. Alerts can be published and sent through a variety of different media, such as Web portals, e-mail and pagers.
- **Predictive modeling/model management**
Unparalleled predictive modeling capabilities and techniques enable you to receive alerts about equipment and assets that are likely to fail in the future. You can use this information to address these issues during scheduled maintenance for

improved productivity and performance. And because equipment performance changes over time, the solution's Model Manager monitors the accuracy of the predictive models and makes it easy to know when to improve a specific model.

- **Advanced analysis workbench**
The advanced analysis workbench enables maintenance and reliability engineers to analyze performance issues in a highly interactive and visual environment. It serves a variety of users, ranging from the casual user to the expert statistician. The solution provides a broad spectrum of tools to help you identify the root cause of performance issues, as well as identify metrics and conditions that indicate future problems.
- **Reporting and KPI dashboards with drillable alerts**
At any time, you can access key maintenance and reliability performance information, such as OEE, MTBF and MTTR, through a Web-based, point-and-click interface – without being an expert in statistics. You can generate charts, graphs and reports in minutes and share the information with those who need it at all levels of the organization.

The SAS® Difference

Only SAS delivers the entire scope of capabilities required – from data integration and analytics to optimization and reporting – to create a picture of what has happened and transform it with analytic and predictive capabilities into what will happen. SAS Predictive Asset Maintenance provides:

- **Data integration and management.** Combine sensor data with other critical information for monitoring, model development, root cause analysis and reporting.
- **Predictive modeling.** Accurately predict failures of assets and equipment before they occur.
- **Integrated analytical workbench.** Obtain powerful, integrated, root cause analysis of asset failures and performance issues.
- **Model management.** Automatically track the accuracy of predictive models over time by tracking and documenting all actions from the development to the retirement of the model.
- **Enterprise business intelligence.** Access the latest key maintenance and operations performance indicators through a Web-based, point-and-click interface.

About SAS

SAS is the leader in business analytics software and services, and the largest independent vendor in the business intelligence market. With innovative business applications supported by an enterprise intelligence platform, SAS helps customers at 45,000 sites improve performance and deliver value by making better decisions faster. Since 1976, SAS has been giving customers around the world THE POWER TO KNOW®.



THE
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