System 800xA Asset Optimization
Improving plant performance
Take advantage of hidden opportunities in your plant

Knowledge is the most valuable commodity in business today. Production facilities employing real-time Plant Asset Management systems significantly increase process uptime while reducing maintenance costs. The typical plant is teeming with information. The challenge, however, is having relevant information available at the right time, in the right form and to the right people.

An effective asset management strategy combines the needs of the production and maintenance organizations. It increases both equipment availability and production rate by providing insight into asset health, corrective action instructions and organizational visibility.

The international adoption of the ISO 55000 standard within process industries, addressing asset management and highlighting best practices within the area, proofs the importance of the topic.

Maintenance is the largest controllable cost in a process manufacturing facility. Knowing the status of critical assets tells you what needs maintenance and, just as important, what doesn’t. This is the key for reducing maintenance costs.

The challenge is to achieve plant-wide real-time condition monitoring of all types of critical assets. Relevant information has to be available at the right time, in the right form and to the right people. To promote collaboration between operations and maintenance, and streamline the overall work processes, plant owners need to connect and share maintenance data between the DCS system and a Computerized Maintenance Management System (CMMS).

ABB has a unified approach to asset management with a wide range of products, solutions and services. System 800xA Asset Optimization provides plant asset management and condition monitoring solutions that present real-time asset information to the people that can take action. As a result, continuous improvement initiatives such as the implementation of maintenance strategies and adoption of proactive maintenance practices; minimize unscheduled downtime, optimize productivity and become more sustainable. These activities result in higher return on assets and greater profitability.
**System 800xA Asset Optimization**

Higher asset availability and reduced maintenance costs made easy

System 800xA Asset Optimization brings together, in one user interface, all information resident in different, traditionally disparate, automation and monitoring systems to provide a composite view of the health and performance of an asset.

System 800xA Asset Optimization provides real-time asset monitoring, notification and maintenance workflow optimization of automation equipment, plant infrastructure, plant equipment, field devices, IT assets and production processes.

Unique single collaborative environment for seamless information sharing System 800xA’s common user interface enables improved collaboration between operation and maintenance personnel and is the cornerstone for an efficient asset management. While transparently maintaining all the richness of information, advantages and capabilities of each specialized system, 800xA Asset Optimization eliminates the need for the user to switch between several systems, workplaces, application environments and navigation schemes. CMMS integration allows to keep track of assets from the plant floor and throughout the enterprise.

System 800xA can perform real-time condition monitoring on all assets in a plant
Every key asset in the plant is equipped with an Asset Monitor that continuously monitors the health of an asset. The Asset Monitor detects plant equipment problems before they occur. The Asset Monitor provides additional information like the Possible Cause of a problem and the Suggested Action to resolve it. This significantly reduces the time to determine the correct maintenance action.

System 800xA Asset Optimization offers a complete range of condition monitoring with a common user interface to display and analyze data about health assets.

Lower cost of ownership System 800xA Asset Optimization is an embedded Plant Asset Management system which reduces the total cost of ownership compared to a separate system. Purchasing separate condition monitoring solutions will add costs linked to configuration, software maintenance and testing during upgrades for example.

**Benefits**
- Increased asset availability and performance
- Optimized Operations and Maintenance effectiveness
- Reduced Time to Repair through Optimized Work Processes between 800xA and CMMS
- Improved collaboration between operation, automation and maintenance personnel
- Plant-Wide Adoption of Predictive and Proactive Maintenance Strategies
- Consistent Reporting of Plant Asset Health
- Visualization of current health conditions with analysis features provides the ability to drill down to the root cause of failure

**Features**
- Automatic Monitoring of Maintenance Conditions
- Real-time monitoring and alarming of asset key
- Maintenance Workplace to empower maintenance users
- Performance Indicators (KPIs)
- Integration of disparate Computerized Maintenance Management Systems (CMMS), IMS Calibration Systems, Dynamic Overall Equipment Effectiveness (OEE) Tools

**Your challenges**
- Demand for reduced maintenance and operation costs while increasing productivity
- Need for improved equipment reliability and reduced unplanned shut-downs

**Our solution**
System 800xA Asset Optimization provides a complete asset overview with one single interface for operations, maintenance, engineering and management to optimize asset availability and utilization.
Reduced maintenance costs and increased overall equipment effectiveness

Maintenance is the largest controllable cost in a process manufacturing facility. Knowing the status of critical assets tells you what needs maintenance and, just as important, what doesn’t. This is the key for reducing maintenance costs.

Improved collaboration between operations and maintenance

The primary objective of a maintenance organization is to ensure asset availability and performance so that operations can meet their production goals (throughput, quality, costs) on a predictable basis. To do so successfully, requires close collaboration between operations and maintenance.

System 800xA offers the right collaborative environment for an effective asset management strategy. With a seamless connection between Plant and Enterprise Asset Management systems and related working procedures, asset information is provided in the proper context to operations, maintenance, engineering and management. With this approach, time-to-repair is reduced and coordination between production and maintenance activities is made more effective. All these improvements contribute to better collaboration between plant production and maintenance departments.

Predictive and proactive maintenance is the key

A shift towards more predictive maintenance is crucial. With 800xA Asset Optimization condition monitoring and reporting features, plant resident information can be collected, aggregated, analyzed, and compared to historical data to provide advanced warning of degrading device, equipment, or process performance and their impending failure. 800xA Asset Optimization enables predictive maintenance strategies and the knowledge gained from condition monitoring will additionally enable proactive maintenance strategies.

Single user-interface maintenance workplace

System 800xA empowers maintenance users with a tailored Maintenance Workplace. The Maintenance Workplace offers one single user-interface for all types of maintenance actions. When an asset alarm occurs, the user is guided by the system and shown the possible cause plus a suggested action to correct the situation.

System 800xA’s Maintenance Workplace organizes and arranges asset information for maintenance personnel in a way that is needed for efficient daily activities. Additional filters further refine this information for specific maintenance roles, such as the maintenance technician, maintenance engineer and maintenance manager.

With the workplace environment, maintenance personnel are provided with meaningful analysis and reporting tools needed to identify and analyze poor plant performers. Report screens provide immediate visualization of performance problems.
Increased plant availability and reduced costs with CMMS integration

To promote collaboration between operations and maintenance, and streamline the overall work processes, plant owners must connect and share maintenance data between the DCS system and a Computerized Maintenance Management System (CMMS).

With System 800xA, CMMS integration maintenance data such as active work orders and work order history can be shared seamlessly between 800xA work places and the CMMS.

System 800xA bridges the gap between daily operations and the maintenance organization within the plant. With 800xA CMMS integration, work orders are easily scheduled and all maintenance data is easily accessed from the control room. Production can be planned according to current maintenance activities and operators assume a proactive role in plant maintenance by adding new maintenance work orders as problems occur during production.

The main benefits with CMMS integration are:

- Reduced Time to Repair through Optimized Work Processes and overview
- Improved collaboration between operation, automation and maintenance personnel

System 800xA provides predefined interfaces to CMMS such as IBM MAXIMO® and SAP PM®.
Condition Monitoring enables optimized time to repair and consistent reporting of plant asset health

System 800xA offers a plant-wide real-time condition monitoring of all types of critical assets. Relevant information is available at the right time, in the right form and to the right people.

System 800xA Asset Optimization includes a comprehensive library of Asset Monitors. Asset monitors vary in complexity from those that simply identify status changes in an intelligent device or identify high, low, or deviation limit conditions in the control system, to those that utilize advanced process equipment condition monitoring applications. When a performance condition is detected, the asset monitor issues an Asset Condition Document (ACD) and notifies the system.

An ACD contains all information necessary to describe an asset condition. In turn, this information may be used to generate a work order for maintenance purposes. Asset monitors can exist in any part of the plant hierarchy, such as the device, loop, equipment, process, plant or enterprise. They can be written for higher-level assets (parents) that are themselves composed of many sub-assets (children). In addition, System 800xA preconfigured asset monitor types are available for assignment to assets of all levels.

System 800xA Asset Monitors are compliant with NAMUR NE107. This ensures consistency throughout all asset diagnostic data and support maintenance users to easy benchmark data regardless of the source of the diagnostic data.

Process Instrumentation and valves
System 800xA has a wide support for various fieldbus protocols and allows users to choose the best instrumentation and valve positioners for a particular application. All Fieldbus information like topology design, device configuration and diagnostics is available in System Workplaces.Automatic condition monitoring detects upcoming maintenance conditions before a device failure can cause production disturbances.

Electrical systems
Reliable electrical systems for power generation and power distribution are essential for plant uptime. The unique integration of power automation, using IEC 61850 protocol in System 800xA, allows not only control and supervision but also condition monitoring of high and medium voltage electric systems. Additionally, condition monitoring of low voltage equipment like ABB HN95 switchgear and motor control gives maintenance personnel a complete picture of the plant. This complete scope of electrical integration ensures uptime and reduce maintenance costs.

Vibration monitoring
Mechanical equipment, e.g. large rotating machines, are often the key assets in industrial plants. Failures are costly and can cause lost production. System 800xA Asset Optimization provides various levels of mechanical condition monitoring from basic vibration monitoring to complete mechanical asset analysis with detailed root cause tools.

PID loop performance
Good performance of PID control is required to maintain the defined process state and reduce wear on equipment. System 800xA Control Loop Asset Monitoring (CLAM) performs automatic loop monitoring and detects both malfunctioning PID loops and control valves. Automatic loop monitoring with CLAM improves control performance and reduce costs due to less consumption of instrumentation air, less wear of control valves, etc.

Heat exchanger performance
The overall energy efficiency in industrial plants is to a large extent dependent on the performance of heat exchangers. The System 800xA Heat Exchanger Asset Monitor (HXAM) monitors deviations from defined operating points. The result is improved process performance and also reduced maintenance costs for heat exchangers.

IT equipment monitoring
Modern control systems and the required integration to other type of systems rely on the availability of IT systems like servers, clients, networks and network components. With PC, Network, and Software monitoring functions, our 800xA Asset Optimization monitors and ensures the reliability of the IT infrastructure for the entire system.

Generic asset monitoring library
System 800xA Asset Optimization contains a wide range of generic asset monitors that can be applied to any asset connected on the system. Generic monitors can be used for any type of monitoring. Examples are runtime monitors, counter monitors, X-Y profile deviation monitors and limit monitors.

Custom defined condition monitoring
The 800xA Asset Optimization framework allows customers to specify their own condition monitoring algorithm based on any available input data in the system. This framework allows custom defined condition monitoring. A typical use case is mechanical equipment with unique asset characteristics, which requires special condition monitoring algorithms.

For more info visit www.abb.com/800xA