

Optimization of company assets boosts revenues by increasing plant capacity, minimizing process losses, and maximizing plant availability. Unfortunately, these revenues are rarely realized because short-term cost cutting objectives dominate company strategies. Management, viewing maintenance as a necessary evil and not as a business opportunity, will target the maintenance department with budget reductions. However, many companies do not realize that achieving short-term cost objectives may negatively impact long-term revenue through unexpected equipment failures.

Process losses, combined with current market competitiveness, can be the difference between the success and failure of a company. Management is better served by identifying ways to perform smarter with existing physical and intellectual assets.



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In North America alone, over \$20 billion USD, or almost five percent of total production, is lost each year due to unexpected equipment failures.

ARC Advisory Board

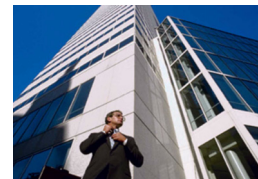
Creating Knowledge Assets

Knowledge is the most precious commodity in business today. Production facilities employing real-time Plant Asset Management (PAM) systems significantly increase process uptime while reducing the maintenance budget.

- Do your operators know how equipment is performing?
- Does your maintenance department know what equipment is failing?
- Does management know where production losses are occurring?

With data originating from a variety of devices and systems, the plant is teeming with information. The challenge facing many businesses, however, is having relevant information available at the right time, in the right form, and to the right people.

ABB's Optimize IT Asset Optimizer provides the real-time PAM solution that integrates traditional transaction-based maintenance systems with real-time data from the plant automation system, enabling companies to move from costly reactive, after-the-fact maintenance to proactive and predictive maintenance practices. Asset Optimizer presents real-time information seamlessly, and in the proper context, to operations, maintenance, and management.



Asset Optimizer Provides Real-Time Plant Asset Management

Asset Optimizer provides complete asset optimization of automation devices, plant infrastructure, plant equipment, and production processes. Features such as asset condition monitoring and reporting ensure fast, reliable proactive implementation of corrective measures. Integrating the Computer Maintenance Management System (CMMS) with the real-time Plant Automation Systems (PAS) environment optimizes the maintenance cycle.



Measurement and analysis of Asset Monitors, the Key Performance Indicators (KPI) of Asset Optimizer, provide continuous process improvement opportunities. When Asset Monitors detect equipment performance breakdown, standard production evaluation processes are deployed. Root Cause Analysis (RCA) determines what the problem is and where it is located, leading to the most effective corrective action. Real-Time Performance Monitoring (RPM) and Total Productive Maintenance (TPM) processes adjust business and equipment procedures with the aim of improving asset efficiency.

Benefits

- **Complete Asset Optimization.** Optimizes use of automation devices, plant infrastructure, plant equipment, and production process assets.
- **Automatic Monitoring of Maintenance Conditions and Automatic Alarms.** Monitors KPIs to facilitate fast, reliable implementation of corrective actions.
- **Real-time Data Integration.** Integrates CMMS system data, condition monitoring system data, and PAS asset data into a single user application environment.
- **Consistent Reporting of Plant Asset Health Status.** Provides visualization of current health conditions with the ability to drill down and determine root causes via a unified user interface.

Features

- **Asset Monitoring.** Acquires and analyzes asset status and condition information. Notifies operators and maintenance personnel when abnormal conditions call for maintenance action.
- **Messenger Service.** Notifies key plant personnel of critical asset alarm conditions via email and/or paging.
- **Thin Client Remote Access.** Accesses all data and screens via standard web technology.
- **CMMS Connectivity.** Provides seamless integration of CMMS systems, PAS systems, and real-time asset information into a single application view. Asset related maintenance information is accessed via standard, preconfigured CMMS views, allowing for quick and efficient assessment of maintenance needs and status.

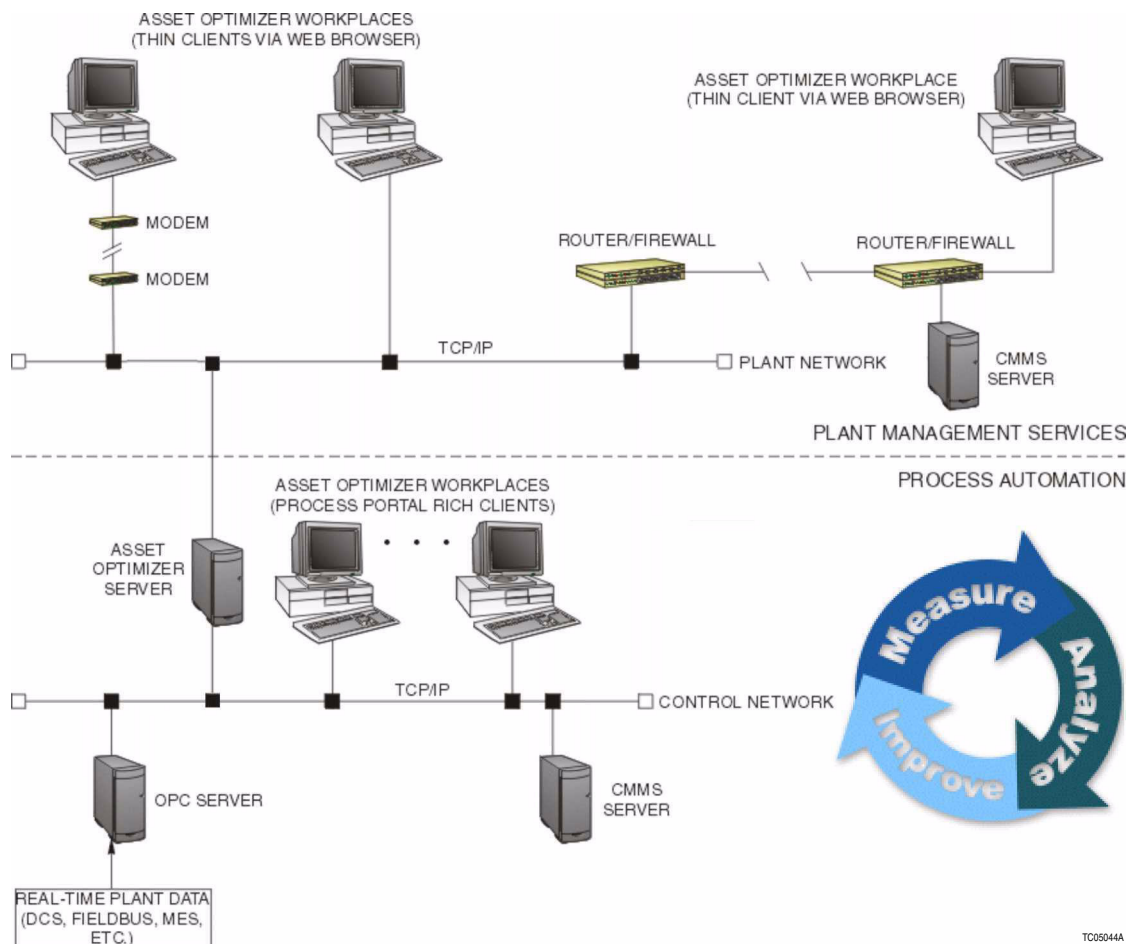
Asset Optimizer Architecture

Asset Optimizer exploits intelligence embedded in plant assets to analyze asset status/condition and notify plant personnel when abnormal conditions call for a maintenance action; thus leading to predictive maintenance. Lowering deployment costs through streamlined work processes, better process and product quality, improved availability, and greater throughput results in greater return on assets.

Asset Optimizer, compatible with the latest software standards, uses Industrial^{IT}™ Aspect Object[™] technology to deliver its asset monitoring and decision support applications. The combination of the client/server distributed architecture and connectivity to advanced information technologies (e.g. digital fieldbus solutions) allows Asset Optimizer to access plant asset data in real time. When asset alarms or maintenance events occur, the Messenger Service automatically sends text notification via email or pager to responsible personnel. Standard web technology makes informative Asset Optimizer displays available to any PC workplace inside or outside the enterprise. Asset Optimizer includes components such as:

- Data acquisition.
- Data analysis.
- Visualization.
- Reporting and alarming.
- Web access.

Asset Optimizer solutions complement ABB's other innovative Industrial IT system products and services in providing fully integrated platforms and products for the automation and asset optimization of your production facility.



Asset Condition and Reporting System

Asset Optimizer is unique in the marketplace. It brings together, in one user interface, all information resident in different, traditionally disparate, automation and monitoring systems. Transparently maintaining all the richness of information, advantages, and capabilities of each specialized system, Asset Optimizer eliminates the need for the user to switch between several systems, workplaces, application environments, and navigation schemes.

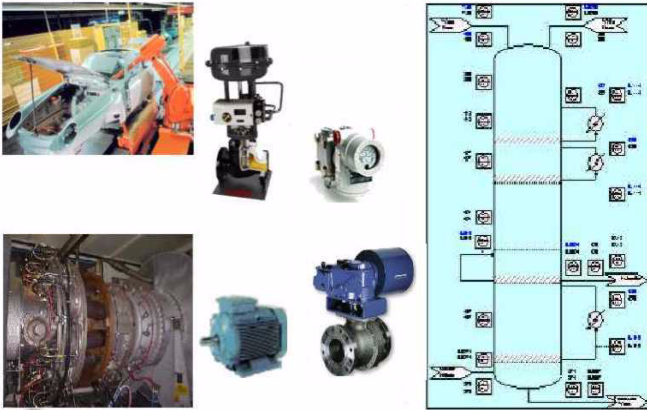
Asset Optimizer delivers its asset monitoring functions as system extensions to ABB's Industrial IT Human System Interface (HSI) Process Portal. Using Industrial IT patented Aspect Object technology, the unified user interface collects and displays all information required to install, operate, and maintain each component with a single click of the mouse.

For each assigned plant component, Asset Optimizer provides the following information displays with a single click:

- Asset Condition Tree.
- Asset Condition Tree Reporter.
- Fault Report Submitter.
- Industrial IT CMMS data displays.
- Native CMMS portal displays.



Asset Optimizer users gain the advantage of single-click access to plant asset information-rich aspect systems.



Asset Monitors are designed with flexibility and open standards in mind to support assets of all levels, from field instrumentation to major plant equipment and processes.

Condition Monitoring

Asset Optimizer includes software that monitors asset performance. Asset Monitors use real-time plant information as inputs to:

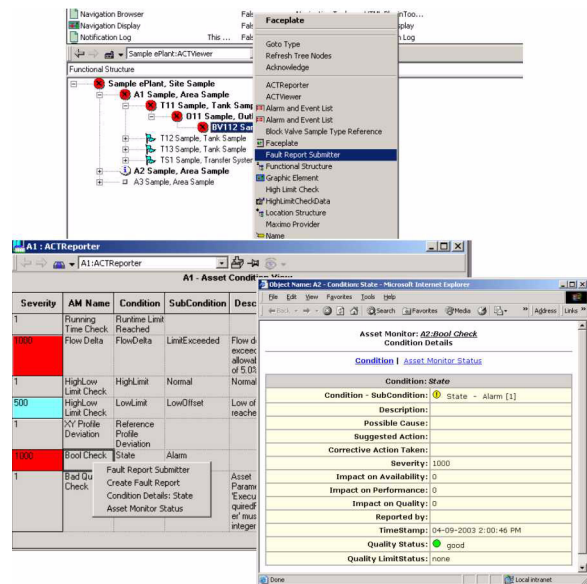
- Detect maintenance conditions before failure occurs.
- Assist in diagnosis of the problem.
- Offer correction recommendations.

Asset Monitors vary in complexity from simply identifying status changes in an intelligent device or identifying high, low, or deviation limit conditions in the control system, to identifying abnormal conditions using advanced process equipment condition monitoring applications.

Condition Reporting

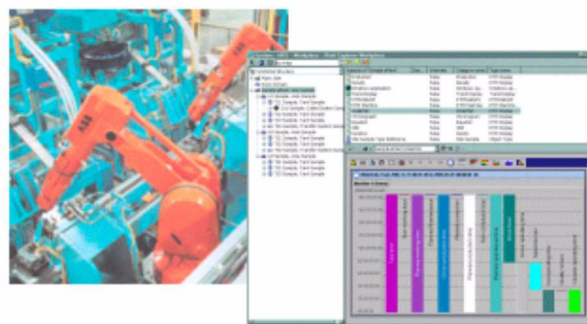
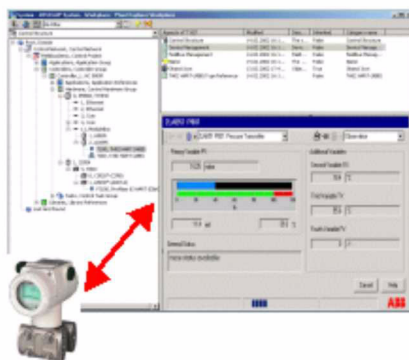
Continuous improvement of plant performance requires visualization of key plant information and asset performance metrics. Readily available plant information describes asset performance objectives, constraints, current behavior, and relationships with other plant assets. Asset Optimizer uses this information to provide plant personnel with meaningful analysis and reporting tools that identify and analyze poor plant performers. Report screens provide immediate visualization of performance problems while analysis tools identify problem causes, locations, and their impact on overall plant performance.

A detected maintenance condition generates an asset alarm. The Asset Condition Tree quickly identifies these performance status alarms. Most severe conditions are propagated up the tree. Additionally, a detected maintenance condition creates a fault report that initiates the work order process. The fault report carries the information contained in the Asset Monitor and can be directly passed to the CMMS system; thus avoiding potential mistakes or delays.



Asset Optimizer reporting displays provide quick identification of critical plant performance conditions.

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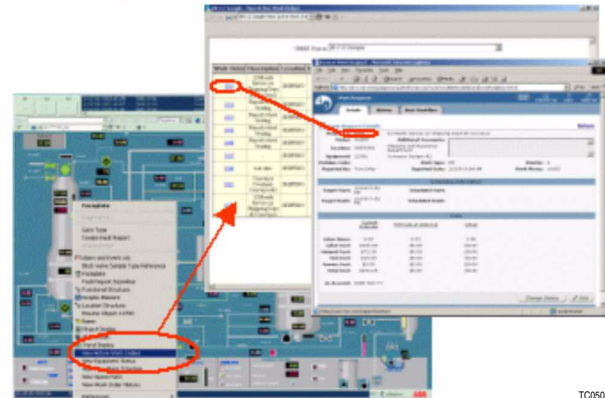


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Device diagnostics provide additional support in root cause analysis. Advanced production analysis and reporting displays provide a better understanding of plant equipment losses and production potential.

Seamless Interaction Between Process and Maintenance

Optimize IT Asset Optimizer CMMS Connectivity makes information within the CMMS system transparently accessible to users in the process control and maintenance system environments. One of the issues that traditionally inhibits free interchange between these functional areas is their different naming conventions; an asset may have one name in the operations environment and another in the maintenance environment. These systems have vastly different focuses, purposes, and needs that their naming conventions must satisfy. Asset Optimizer removes these barriers by pointing to the right context, regardless of the naming convention.



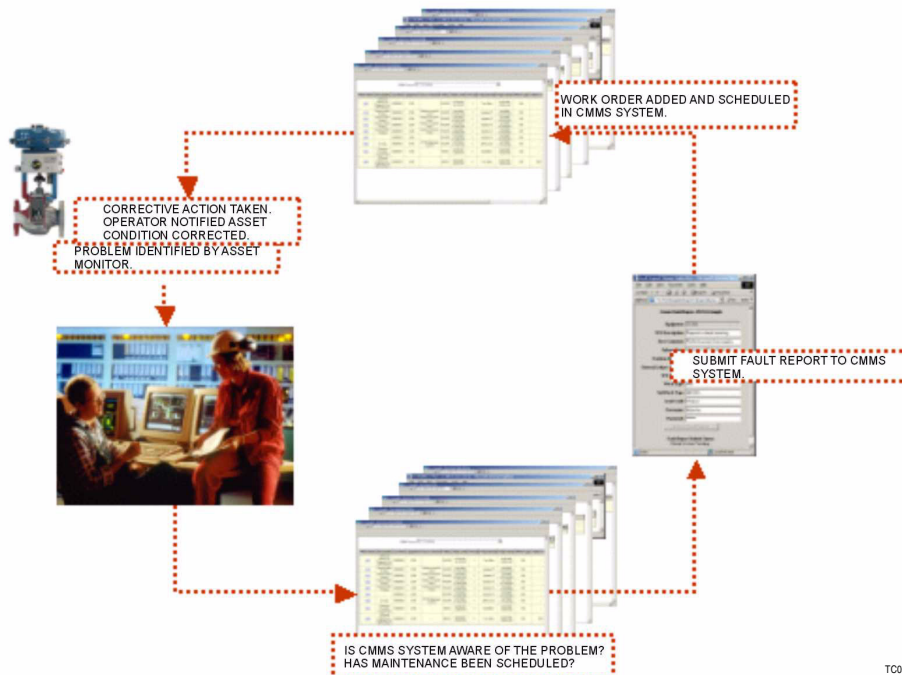
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CMMS resident information is readily available for viewing by right-clicking on the graphic element related to the asset. Hyperlinks provide for direct connection to the specific work order located within the CMMS system.

The seamless interaction between process and maintenance is made possible through standard screens created by Asset Optimizer. Industrial IT CMMS views present the relevant maintenance information for each specific piece of equipment. These informative displays include:

- Active Work Orders View.
- Work Order History View.
- Equipment Status View.
- Preventive Maintenance Schedule View.
- Spare Parts/ Availability of Spare Parts Views.

When an Asset Monitor detects an equipment problem, work orders can be automatically initiated by electronically submitting a fault report to the CMMS system. This significantly reduces the latent time between problem identification and resolution.



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Seamless interaction between operations and maintenance leads to efficient management of plant assets.

Enhance Your Asset Optimizer Solution with other Industrial IT Offerings

Industrial IT system offerings link automation, information, and plant management systems in real time. This provides complete management and optimization of all company assets in your production facility. System offerings include:

- Control and I/O:** Comprehensive suite of hardware and software products designed to meet the needs of traditional DCS controllers and PLCs. These controllers are compliant with IEC 6-1131 standards for control languages and designed from the ground up to leverage the power of industry standard fieldbuses. Controllers are complimented by a full line of industrial I/O with capabilities that result in lower asset and installation cost.



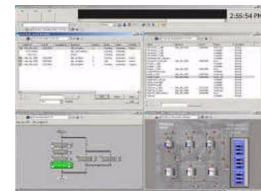
- Engineering:** Integrated suite of engineering tools designed to support the complete automation project, including planning and data acquisition, configuration management, library management, commissioning, operation, and maintenance. Providing unprecedented information control from a single engineering workplace, these tools minimize implementation costs and allow knowledge resources to focus attention on value-added engineering instead of configuration.

- Operations:** The most intuitive operator software in the industry, providing consistent access and interaction with data from multiple control and I/O to plant and enterprise information. Combining comprehensive process know-how and installation experience with advanced software functionality, the unified user interface provides a consistent method for accessing enterprise-wide data and for launching multiple applications from any connected workplace in the plant or office.



- Information Management:** Powerful suite of information management applications collects, stores, retrieves, and presents historical, process, and business data. Enhances usefulness of data from all operations within the enterprise to help identify bottlenecks and operating anomalies. Analyzes under-performing assets that adversely impact profits and productivity. Transforms data into meaningful information integral to decision-making processes throughout the enterprise. This allows production facilities to operate more efficiently and profitably.

- Production Management:** Gives manufacturers the agility, speed, and control to respond to increasing production demands. Model, execute, and track information associated with material and control flow across the plant. Products include those that provide batch and procedural control production management, product tracking, and quality management.



Operational Excellence Achieved with Asset Optimizer

Optimize IT Asset Optimizer provides new revenue opportunities through continuous monitoring, analysis, and improvement of KPIs in your plant. Continuous improvement initiatives, such as plant-wide adoption of predictive and proactive maintenance strategies, minimize unscheduled shutdowns, optimize product quality, and lead to operation near plant design limits, ultimately leading you to operational excellence.

At ABB, we provide you with the tools to improve your KPIs to ensure a sustainable advantage over your competition.

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*To find out more about how ABB can enhance your competitive advantage, contact us at:
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