Asset Management and Condition Monitoring
Asset Management System

Oil and gas producing facilities and process plants are complex systems, consisting of expensive and production critical equipment. The plants condition and performance degrades over time due to mechanical wear, fouling and changes in operation conditions. Asset management strategies aim to counter this negative impact. This is achieved by systematic condition monitoring of equipment to avoid unplanned production downtime and to reduce operational expenses by optimizing maintenance planning.

The ABB Asset Management System provides an information infrastructure for gathering of condition monitoring data from the various equipment sub-systems. The system generates automated alerts upon failure detection and facilitates remote expert analysis. It is integrated with the computerized maintenance management systems (CMMS) and provides the basis for an optimal asset management work process.

What it means to you
– Increased production uptime
– Reduced maintenance cost
– Improved HSE
– Collaboration on equipment maintenance and performance across locations, organizational levels and engineering disciplines
– Automated early alerts of critical faults
– Efficient work process for issuing work orders into CMMS
– Easier root cause analysis - reduced Mean Time To Repair (MTTR)

Technology
The Asset Management System allows real-time access to these functions and supports monitoring and diagnostics. The main advantage lies in the ability to display all maintenance relevant data in a uniform user interface. This allows for better informed decision making as overlapping monitoring functions can easily be compared. It consists of a common infrastructure integrating maintenance data from individual systems with analysis tools and business systems.

Infrastructure
The basis of the asset management system is an integrate operations base system. The system consists of ABB cpmPlus historian and enterprise connectivity, and its topology is compliant with current best practices with regards to network structures and security rules.

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Top Level system

Rich visualization and analysis functionality with respect to asset monitoring data is provided at the enterprise level. A web application provides overview asset condition reporting as decision support for maintenance and logistics planners and integrity managers. A tool kit also allows users to configure their own web interfaces accessing any selected asset management data. Performance analysis tools allows assessing the operational performance of single pieces of equipment or the process as a whole, which in turn leads to improved operation and maintenance planning.

The top level system also integrates well with 3rd party visualization and analysis tools. Data export to Microsoft Excel is provided as part of the system.

Maintenance Workplace

The Maintenance Workplace is intended for the day-to-day maintenance operations at the plant level. It integrates data and information from all equipment monitors allowing a uniform user experience for follow-up of all kinds of equipment. All maintenance alarms generated by the monitors are available through a set of common alarm lists, easily guiding the user to the most critical events. Analysis and evaluation of the events are available thorough drill-down functionality. The Maintenance Workplace enables cross-functional and multi-location collaboration for all users involved in maintenance planning and execution.

Equipment Monitors

All major components making up an EICT delivery from ABB are available with intelligent monitoring and diagnostics functions suitable for inclusion in the Asset Management System. Long-term monitoring functions deliver important information on equipment status, tasks needed and possible performance improvements. 3rd party systems can also be integrated in order to maximize the advantages of a uniform user interface.

Services

The ABB Asset Management System provides a platform for remote services offered as part of the ABB Service EnvironmentTM. In addition to basic equipment maintenance, the Asset management System facilitates advanced analysis services focusing on understanding and improving equipment and process condition. Services can either have the form of studies doing an overall evaluation of equipment health, or more regular analysis services providing condition information for decision support in day to day operation.

Example setup of an asset management system
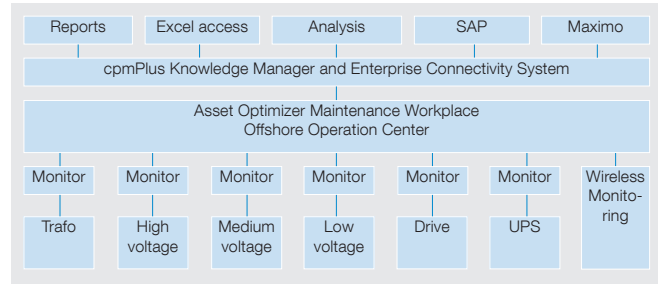
Components and architecture of an asset management system.

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