Industrial IoT applications

How ABB creates value from Internet of Things, Services and People (IoTSP)

Data collection and data analysis enabled by the industrial Internet of Things may increase knowledge and allow predictions, but unless someone acts on these, there will be no effect on the operational performance and direct value to customers across various industries. Only when the knowledge is turned into actions and issues are resolved will there be a benefit from analyzing more data.

Providing remote access to data and analytics to service experts will close the loop of continued improvement. Online availability of support from a device or process expert is essential for a quick resolution of unwanted situations. Coupling remote access with new technologies allows earlier detection, better diagnostics, and therefore facilitates faster service – resulting in better planning and an increase in efficiency.

ABB is driving Internet of Things, Services and People

ABB's connected offerings enabling fast and efficient resolution of issues

▪ **ABB advanced services based on data analysis**
Analyzing usage data across customers to propose operational improvements

▪ **Dashboards for customer self-service**
Web portal dashboards to present asset status, operational reports and other measured data

▪ **Integration of 3rd party service providers**
Partners that can offer services based on measured data, e.g. sub-suppliers, OEMs, channel partners

IoTSP use cases

Connected systems
Internet connected assets
Ad-hoc mobile connected devices

Simulation and Safety support

Integrating monitoring data from all sources in the plant including electrical and control systems provide thorough information for continued improvements by decision makers. Remote operation and services reduce personnel exposure in hazardous / remote areas and fix issues faster.

- Data concentrator (DCS, Historian, SCADA) available on-site
- Transferring data from system data concentrator
- Tunneling monitoring data from devices through system connector to the cloud
- Standards required in case of non-ABB systems

Connected oil and gas production

Goliat FPSO, ENI Norge AS

Onshore Operation Center supports remote operation and services for oil production in the Arctic Circle

Customer situation
- World's largest FPSO vessel ever built needs to meet the high standards linked to on-site safety and a healthy working environment adapted to the climatic conditions in the Barents Sea

ABB solutions
- Technicians can manage and monitor the Goliat on the platform itself, and also from onshore operation centre. Besides usual data links, the platform is able to connect with vessels within a range of 10 km.
- WiMon system monitors the condition of rotating equipment on board - an example of a reasonable size wireless mesh network (conventionally, this would mean having an operator with a handheld tester reporting to the control room the vibration measurements)
- ABB services for IT, security and network infrastructure, information management, condition monitoring, operational performance monitoring and flow assurance solutions

Benefits
- Optimized production efficiency and decreased energy consumption through integrated automation, electrification and telecom solutions
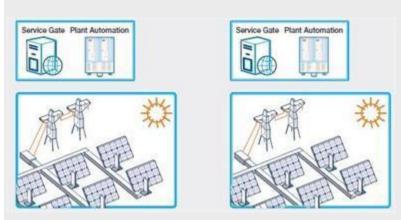
ABB advanced services

Customer decision support

Partner software development kit

About Integrated Operation in Oil and Gas

Connected renewables

PV solar plant monitoring & operation

Customer's situation:
- Minimum resource requirements for operating and maintaining a photovoltaic solar power plant

ABB solution:
- A remote monitoring solution provides secure and efficient access to an increasing amount of data, collected from multiple remote plants
- Automated analysis tools and applications transform the data stream into useful actionable information
- Web portal provides easy access to dashboards and reports to users

Benefits:
- Service experts have better access to data and can easily connect to a remote site, resulting in reduced response time and cost. This enables customers to improve their O&M strategies, increase performance and availability of their assets

ABB advanced services

Customer decision support

Partner software development kit

About ABB solutions for renewable power plants

Connected vessels

FPSO Yùum K'ak'Náab, BW Offshore

ABB Remote Diagnostic Services support vessel's onboard personnel and solve a problem within 5 hours

Customer's situation:
- Drive tripped due to component failure.
- Reduced cargo transfer capacity lead to delays in production.
- Onboard personnel not able to determine root cause of fault.

ABB solution:
- Remote connection was requested.
- Viewed historical data from time of fault.
- Based on alarm and events participating crew was instructed to perform physical tests on specific parts related to the fault.
- In cooperation the faulty part was detected and replaced with onboard spare part.
- ABB remotely monitored initial start-up after part replacement.

ABB's integrated operations centers study data from multiple ships to provide fleet-wide energy efficiencies

Customer's situation:

Customer sets high demands in the environmental friendly solutions it deploys onboard the vessels:
- to improve the environmental footprint of its fleet
- to minimize the overall energy costs for the entire fleet

ABB solution:

Equip entire fleet with:
- SEEMP-compliant energy monitoring and
- EMMA management system and decision-support tool to minimize the overall energy costs for individual vessels and entire fleets

- All data generated onboard transferred to a cloud-based application for vessel benchmarking.
- Provides management onshore with full visibility of energy consumption across the entire fleet.
- Extensive ABB analytical services, including simulations, helps customer on future business case analysis

Vessel Remote Diagnostic Services

Customer decision support

Partner with Marine R&D Lab

About [ABB Integrated Operation Center for Marine](#)

Connected mines

Garpenberg - most profitable mine in Boliden

Extracting new value through integrated mining

Customer's situation:
- ABB receives an automatically generated e-mail indicating a problem with a gearless mill drive
- Data analysis shows that the device will probably fail within 8 days

ABB solution:
- Based on the data analysis, the customer was advised to immediately interrupt production for <30 min to clean dust filters to survive operation until next planned outage
- At next planned outage, resolution of the problem by replacing components that were organized in time by the service organization
- We collect data in real time from 400 electric motors, 280 variable speed drives, and two massive 1,200-meter hoists. Engineers now have the ability to make predictive maintenance decisions, before something goes wrong.

Benefits:
- Reduced energy usage, increased resource productivity, reduced downtime, reduced need for on-site expertise, more efficient water usage, reduced noise

ABB advanced services

Customer decision support

Partner software development kit

About [Next Level Mining](#)

Connected paper mills

Pulp mill in Indinesia

Remote-enabled services use data to predict and control operations for peak productivity and quality

Customer situation
- A greenfield pulp mill needs to optimize equipment and process performance

ABB solution:
- Advanced Process Control (APC) packages use data already gathered and available in a pulp mill's automation system to predict and control operations.
- ABB Loop Performance Monitoring Service, powered by remote-enabled ServicePort, helps the mill identify and control loop performance issues.

Benefits
- ABB advanced services provide the mill with tools needed to achieve peak productivity and quality

ABB advanced services

Customer decision support

Partner software development kit

Connected data centers

Telx data center service provider

Business analytics capitalizing on the ability to connect with, monitor and automate all types of third-party equipment

Customer situation
- A major provider of data center colocation services across America (20 data centers in 13 strategic U.S. markets) needs maximum visibility into its own operations, ability to identify issues before they become problems, to optimize energy consumption and cooling

ABB solution
- ABB Decathlon for Data Centers connects with, monitors and automates equipment provided by all types of third-party suppliers so that operators can manage all of their cooling equipment from a single location within the data center. No other system provider can do this.
- ABB system calculates the energy in the cooling liquid for the center and reports a monthly history of energy usage so Telx managers can compare energy reports to utility charges, a crucial analysis in a region where electricity is very expensive.
- Datacenter owner can look at all his customers across 20 sites nationwide and compare customer revenue and the amount of power each customer uses from a centralized location.

Benefits
- Business analytics help determine the true costs of delivering data center services and understand data centers' profitability through a consolidated system.

Cloud data center management

Data center business analytics

Data center solution partnerships

Close

Learn more

How to implement Internet of Things, Services and People in industrial environment based on 800xA control system

Get the most from the IoTSP with industrial productivity software

Safety and cyber security

ABB service research & development