

UNDERGROUND MINING

ABB Ability™ Performance Optimization for hoists

Lift your productivity to a higher level



ABB Ability™ Performance Optimization for hoists improves uptime, availability, performance and productivity of mine hoists by providing actionable information on Key Performance Indicators (KPIs). Data is automatically collected, monitored and analyzed to generate actionable insights that can increase production performance, identify safety hazards, and provide optimized maintenance scheduling.

ABB Ability™ Collaborative Operations Center

ABB Ability™ Performance Optimization for hoists uses powerful analytics to extract valuable information from asset and process data at a customer site. The value of data analytics is fully realized when an expert determines the subsequent course of action. The experts located in ABB Ability™ Collaborative Operations Centers play a critical role in identifying improvement opportunities and potential failures. Routine

monitoring and analysis are performed by utilizing dashboards configured to show production shortfalls, maintenance issues and safety hazards. Aggregating data from multiple sites and collaborating with experts in real-time, helps to improve productivity and efficiency for mine hoists even further. ABB is helping mining companies across the world improve their productivity through ABB Ability™ Collaborative Operations Center (COC).

Transparent collaboration solution

Dashboard

Using dashboards, we have an overview of all sites around the world. This enables us to easily receive indications and drill down to any specific hoist system and see the status of all KPIs for that particular hoist.

Mail notifications

For critical KPIs, we set pre-determined rules, thresholds and limits to be notified instantly if anything changes from a normal state.

Case management

This will automatically start a case in our case management system, where all work previously conducted in the case is registered.

myABB

At ABB we want to have a transparent way of working with our digital services. That is why each customer can see the cases connected to their site and follow mail correspondence with experts, together with their current case status.

Implement solutions

Together with our local engineers, we help our customers implement improvements, closing the loop by coordinating and managing the work with ABB hoist engineers on site.

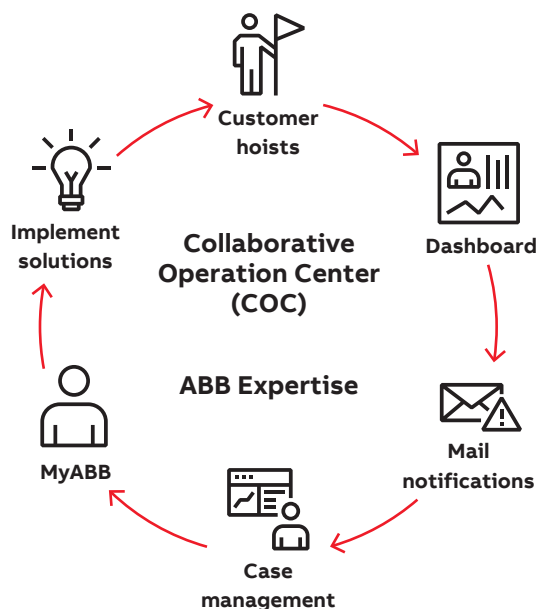




ABB Ability™ Performance Optimization for hoists infrastructure

The backbone of this service is in its infrastructure, where all data transferred to and from site is handled in the upmost cyber secure way. Fault tracing and solution investigation will only occur through the use of a secure VPN connection.

The raw hoist data is stored on premise, easily accessible for both customer and ABB experts for deeper analysis if so required.

ABB Ability™ Performance Optimization for hoists infrastructure

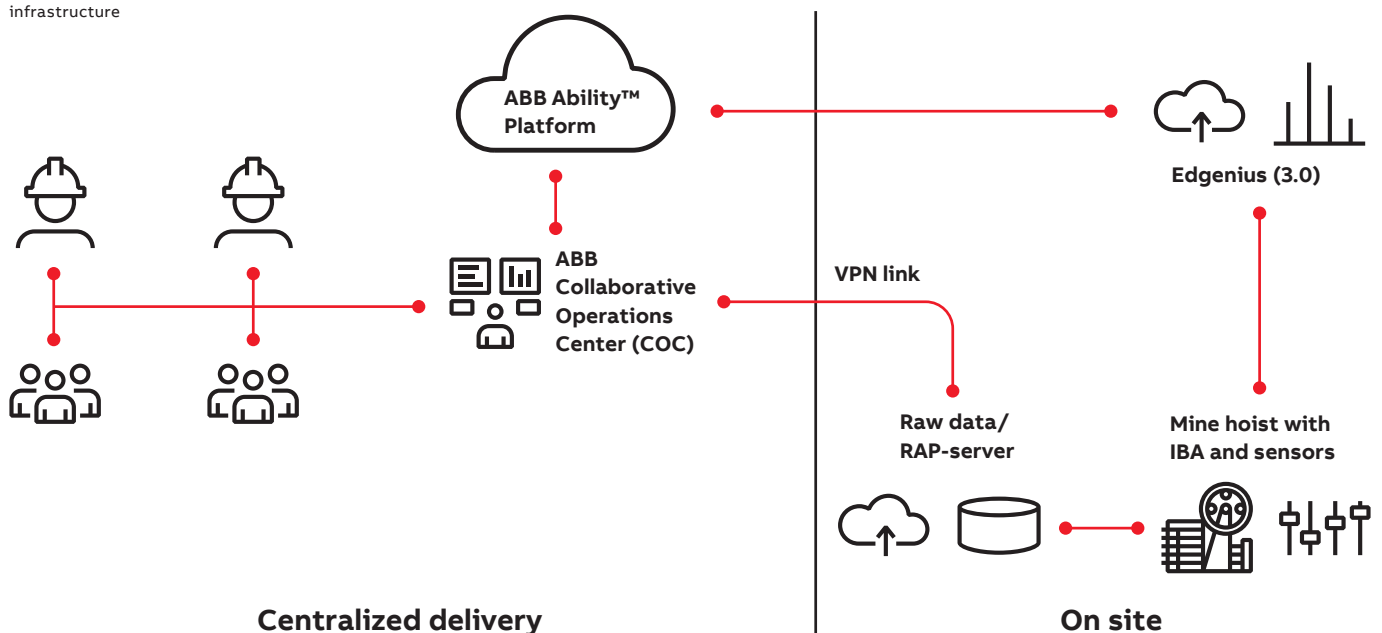




ABB Ability™ Performance Optimization for hoists combines the benefits of reduced downtime and failure risk, extended equipment life cycle, minimized equipment damage as well as improved availability and safety.

Key Performance Indicators (KPIs)

Improve hoist performance using actionable information on key parameters

ABB Ability™ Performance Optimization for hoists identifies, categorizes and prioritizes Key Performance Indicators (KPIs) for the following areas:

Hoist performance

To ensure optimal operation of the hoist system, we monitor analyze a range of KPI's, such as hoist capacity flow and motor speed. If the deviations exceed site-specific thresholds, alarms are triggered that notify site personnel and ABB experts, who are monitoring the system remotely.

Safety brake system

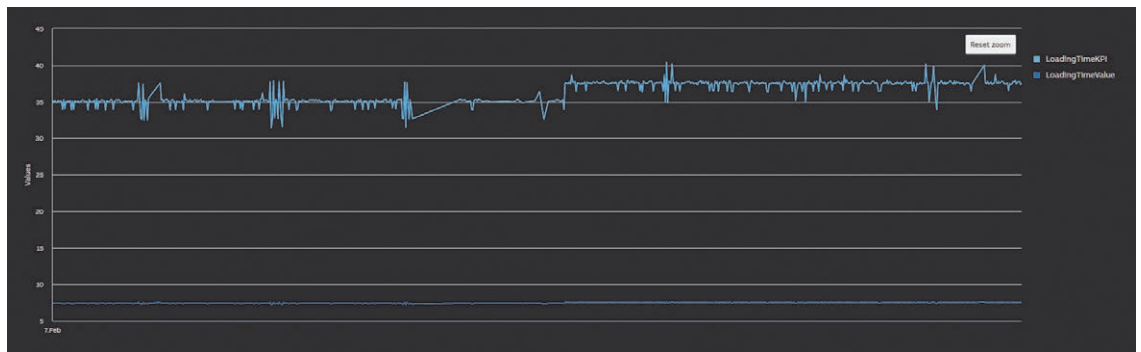
All emergency stops will be analyzed to ensure a controlled and approved retardation. A too high retardation can result in rope slip and a too low retardation can result in over winding. This, together with checking of the brake valves, prevents the hoist from an unplanned stop.

Hoist supervision

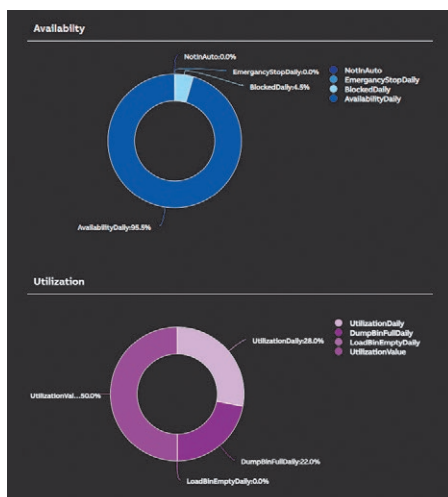
Here we monitor the position checkpoints, over-speed margins and compare reference between drive and control system. This helps ensure that our hoist protection works properly and that you don't have any unwanted unbalances.

01 KPI dashboard – loading cycle

02 ABB Ability™ Performance Optimization for hoists – status details



01



02

ABB Ability™ solutions

Increase efficiencies of hoist systems across the world

ABB Ability™

ABB Ability™ platform; our unified, cross-industry, digital capability that extends from device to edge to cloud. This platform securely collects data from devices at sites, applies advanced analytics and generates actionable insights for customer operations at the site level. Furthermore, the platform aggregates data from multiple sites into the cloud so that asset and performance issues can be identified, categorized and prioritized for proactive improvement actions.

ABB Ability™ Safety Plus for hoists solutions can transfer performance data and test results to our advanced digital service ABB Ability™ Performance Optimization for hoists for further analysis. The field data (speed, position, brake pressure, temperature, time, actuator position, etc.) is sensed and subjected to analysis to then allow site engineers to identify any discrepancies or plausibility and take remedial actions.

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ABB experts at ABB Ability™ Collaborative Operations Centers connect with customers in real time to quickly identify and resolve issues.

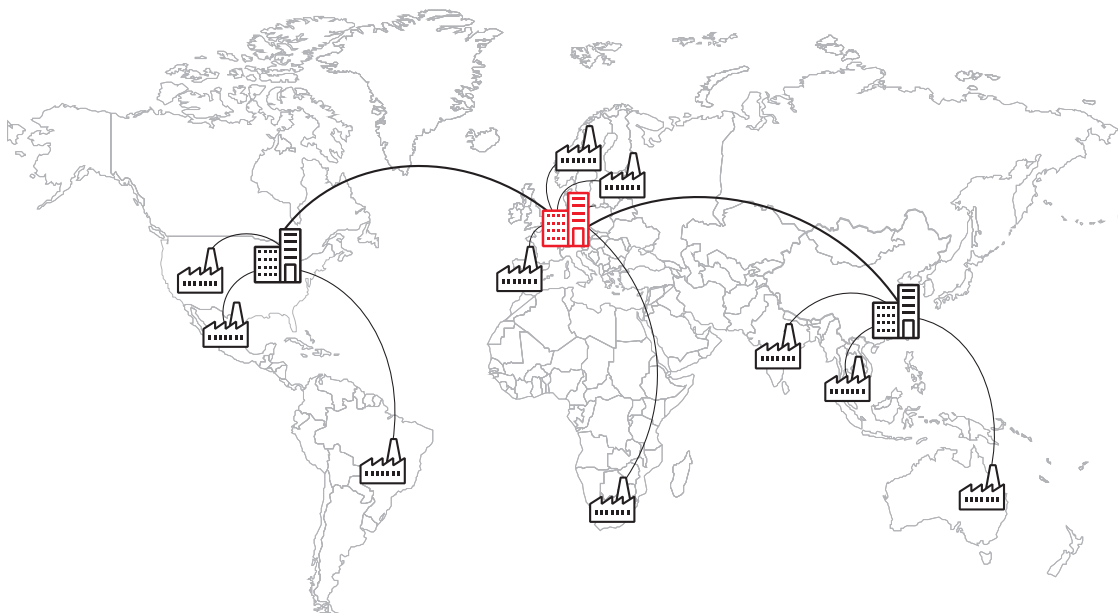




ABB Ability™ MineOptimize

ABB Ability™ MineOptimize is a four-pillar framework that simplifies and unifies optimized engineering, optimized solutions, digital applications and collaborative services to bring new levels of performance across the mining enterprise. Collectively, this framework helps mining end-users achieve the most efficient design, build and operation of any mining or mineral processing facility.

With ABB Ability™ Collaborative services, ABB specialists can be connected with in-house teams, either remotely or on-site and in real-time, providing a suite of digital services ranging from remote assistance to predictive maintenance and performance optimization. One such service is ABB Ability™ Performance Optimization for hoists, which improves hoist performance using actionable information on key parameters. Data is automatically collected, monitored and analyzed to generate actionable insights that can increase production performance, identify safety hazards, and provide optimized maintenance scheduling.

ABB acts as single source supplier with global integration experience for electrical, instrumentation and control that provides a fast track way of moving mines from costly and reactive time-based maintenance to planned preventive and predictive interventions. Through remote services, predictive maintenance and upgrades and retrofits, ABB helps mining companies ensure maximum performance throughout the mine's life cycle.

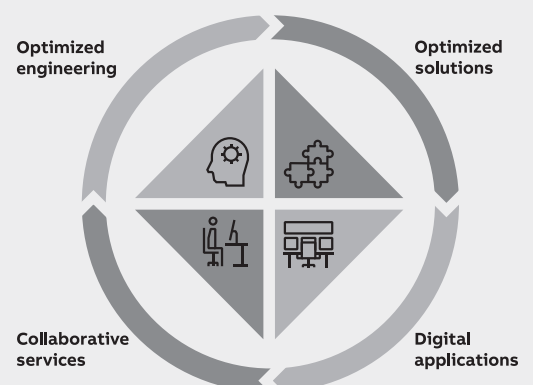




ABB Mining business is represented in the following countries: Australia, Brazil, Chile, China, Germany, North America, Peru, South Africa, Sweden and Switzerland. For contact details, please visit our website:

abb.com/mining