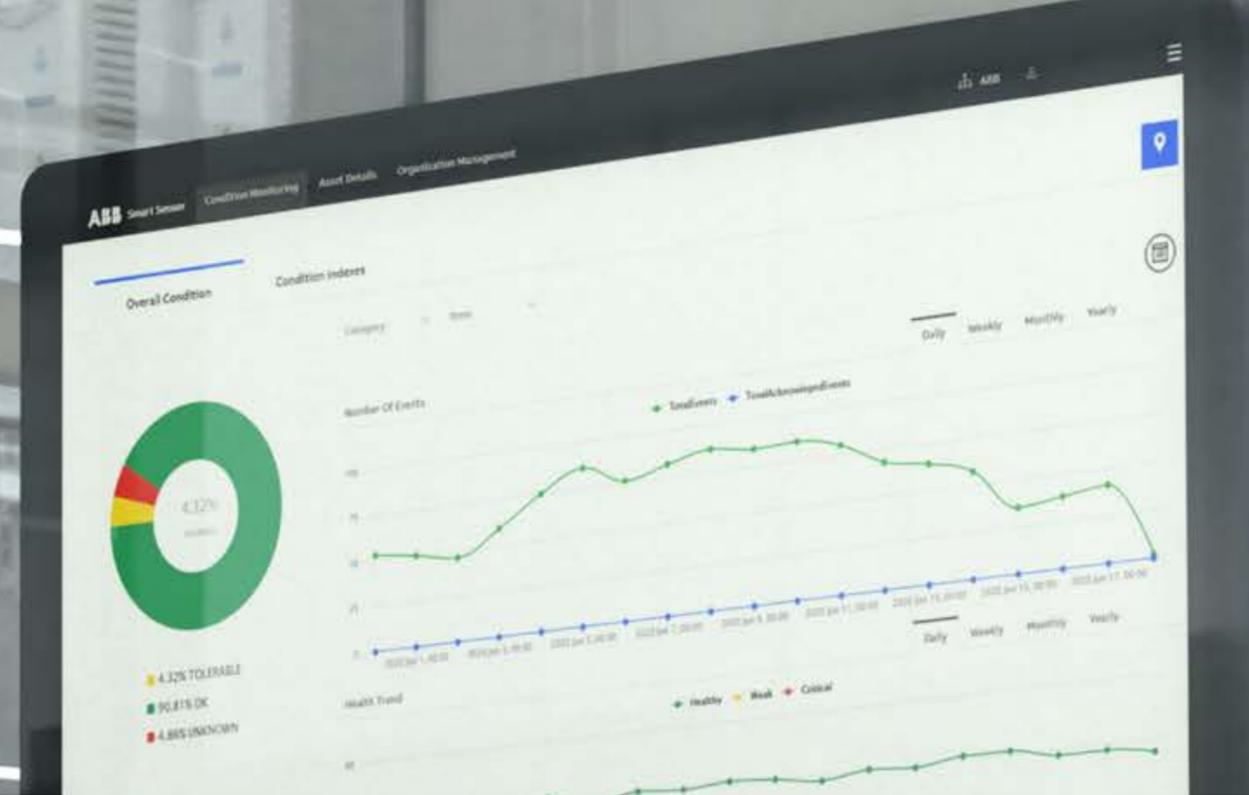




**Data and Advisory services for motors, generators and drives**  
Better decision making for maximized performance, uptime and efficiency

# Benefits



## Maximized uptime

Potential equipment disturbances can be detected and maintenance planned before reliability, productivity and safety are impacted.



## Optimized performance and energy efficiency

Insights into the performance of your motor driven applications help you to make better decisions on ways to optimize their performance, save energy, lower CO<sub>2</sub> emissions and boost sustainability.



## Optimized Return on Investment (ROI)

Early detection of a change in the condition of the equipment extends equipment lifetime and keeps maintenance costs under control.



## Improved safety

Easy and safe access to equipment located in dangerous or difficult to access areas.

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# Data and advisory services for powertrains

Stay one step ahead with accurate information about the health, performance, energy efficiency and CO<sub>2</sub> emissions of your equipment for better operational decision making and cost management.

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# Data and advisory services for LV motors

Condition monitoring of low voltage motors to get detailed insights into how your motor-driven applications perform.

Helping you to predict maintenance needs and make better decisions on ways to save energy and lower CO<sub>2</sub> emissions.

## Energy efficiency

Identify the most energy wasteful motor-driven applications in your facility and get recommendations on how to boost efficiency.

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# **Data and advisory services for HV motors and generators**

Condition monitoring and condition assessment of high voltage motors and generators to predict maintenance needs and reduce unplanned downtime.

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## **Data and advisory services for variable speed drives**

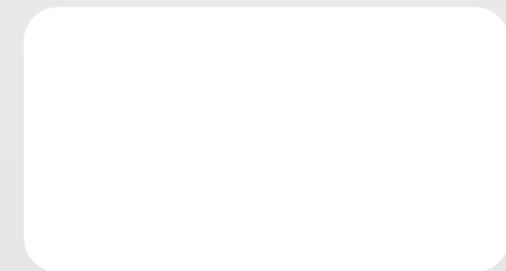
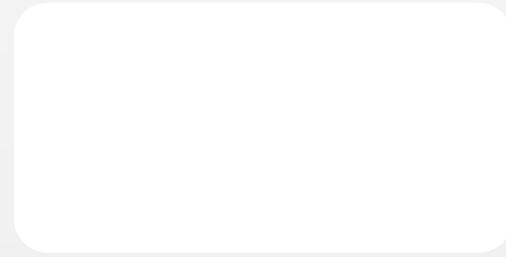
Condition monitoring of variable speed drives to get detailed insights into how your motor-driven applications perform.

It helps to predict maintenance needs and prevent unplanned downtime.

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# Data and advisory services for machinery

Condition monitoring of machinery, such as pumps and fans, to detect potential problems before they can impact production.





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## **ABB Ability™ Digital Powertrain**

The ABB Ability™ Digital Powertrain is a suite of digital solutions that enables you to remotely monitor the health and performance of powertrains, including motors, drives and applications, such as pumps. It combines connectivity and data analytics with our expertise to make your operations efficient, predictable and safe.



**Maximized uptime**



**Optimized performance  
and energy efficiency**



**Lower maintenance costs  
and extended equipment lifetime**



**Improved safety**

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## **Condition monitoring**

Stay one step ahead with information on the health and performance of your assets.

ABB Ability™ Condition Monitoring for powertrains gathers data from drives, motors, pumps and other applications. It combines connectivity and data analytics, and enables expertise driven assessments. Maintenance can be planned based on the condition of the equipment, and performance, reliability and efficiency of the powertrain can be improved.

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## Proactive monitoring by ABB experts

Free up in-house staff for other critical tasks by outsourcing the monitoring of your assets.

ABB Ability™ Monitoring Service gives users of motors, variable speed drives and their driven equipment access to a network of remotely located ABB technical experts. These engineers proactively track the performance of assets, provide regular reports, trigger early warnings and highlight areas for improvement.

Handing over the performance tracking of assets not only offers peace of mind but frees your valuable maintenance teams to be deployed on other critical tasks.



**Timely and reliable analysis of data - stay one step ahead with early warnings**



**Lower total cost of ownership - optimize maintenance planning and extend asset lifetime**



**Re-deploy key personnel**



**Cut energy waste  
and costs**



**Reduce CO<sub>2</sub> emissions**



**Minimal disruption  
to operations**

## Energy appraisal

Do more with less by improving energy efficiency.

A Digital Powertrain Energy Appraisal is aimed at motors fitted with ABB Ability™ Smart Sensors. The data collected from the digitally connected motors gives detailed insights into how motor-driven applications perform and helps to identify the most energy wasteful applications. The Energy Appraisal recommends ways to save energy, lower CO<sub>2</sub> emissions and boost a company's overall sustainability.

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## More data and advisory services for HV motors and generators

Besides condition monitoring, ABB offers specific services for HV motors and generators that help to predict maintenance needs and optimize maintenance planning.



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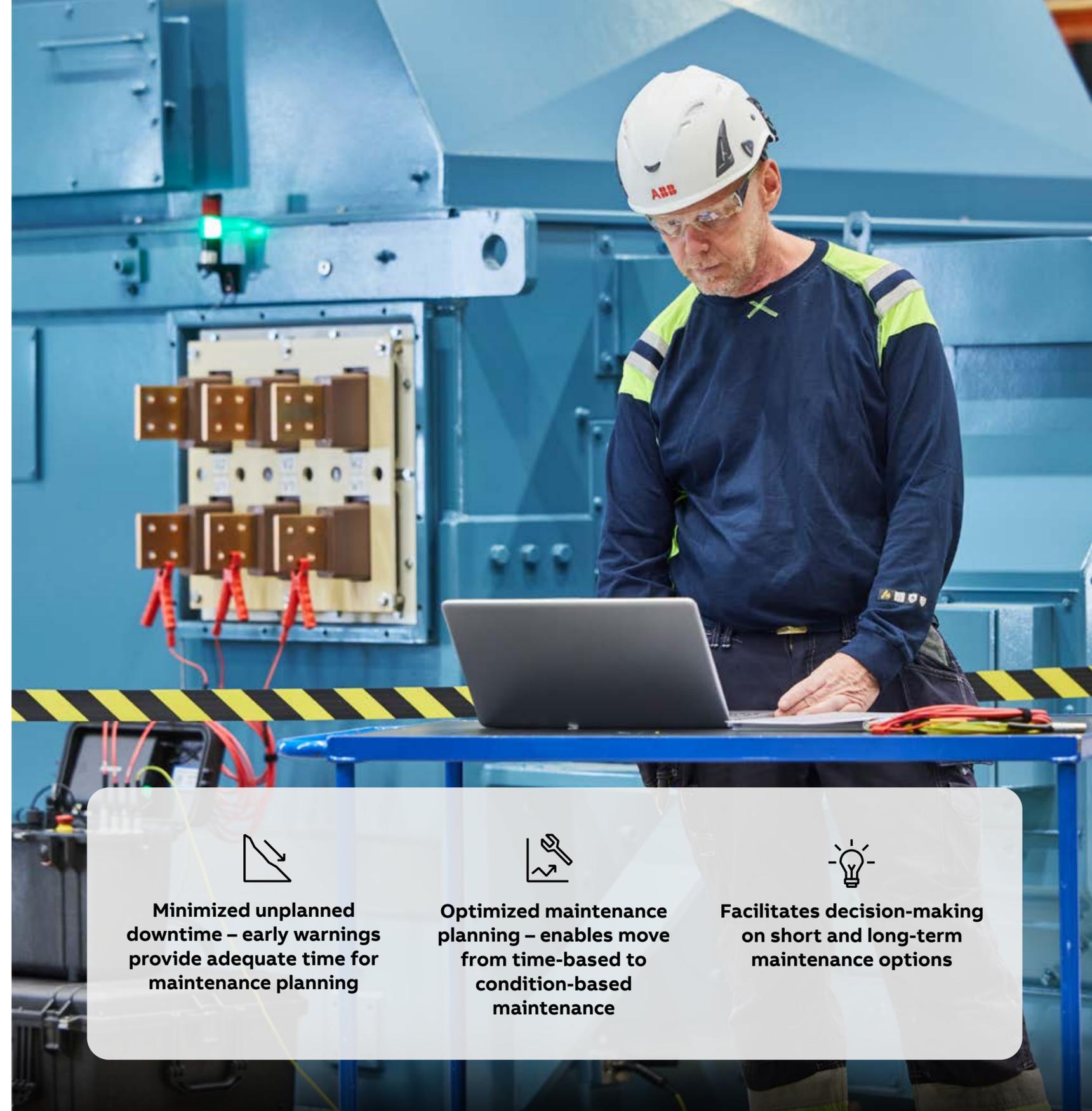
## Life expectancy analysis of stator winding insulation

Analysis of the stator winding insulation condition for maximized uptime.

ABB Ability™ LEAP (Life Expectancy Analysis Program) analyzes the condition and expected lifetime of the stator winding insulation – the most uptime critical component in high voltage motors and generators. It detects potential problems well before they become critical and cause expensive downtime.

For motors and generators up to 5kV, ABB offers the service ABB Ability™ Condition Assessment. The compact analysis equipment is ideal for analyzing the stator insulation of motors and generators located in limited space.

The services are available for ABB and non-ABB motors and generators.



**Minimized unplanned downtime – early warnings provide adequate time for maintenance planning**



**Optimized maintenance planning – enables move from time-based to condition-based maintenance**



**Facilitates decision-making on short and long-term maintenance options**

## Air gap inspection

Visual inspection of the stator core, rotor core and winding without the need to remove the rotor.

The robotic crawler, the ABB Air Gap Inspector, moves in the air gap between the stator and rotor, traversing the stator core laminations using modular, magnetic tracks. Unlike conventional inspection devices, which are restricted to turbo/hydro generators with very large air gaps, ABB Air Gap Inspector can be used on all large synchronous motors and generators with air gaps of 10 mm or more.



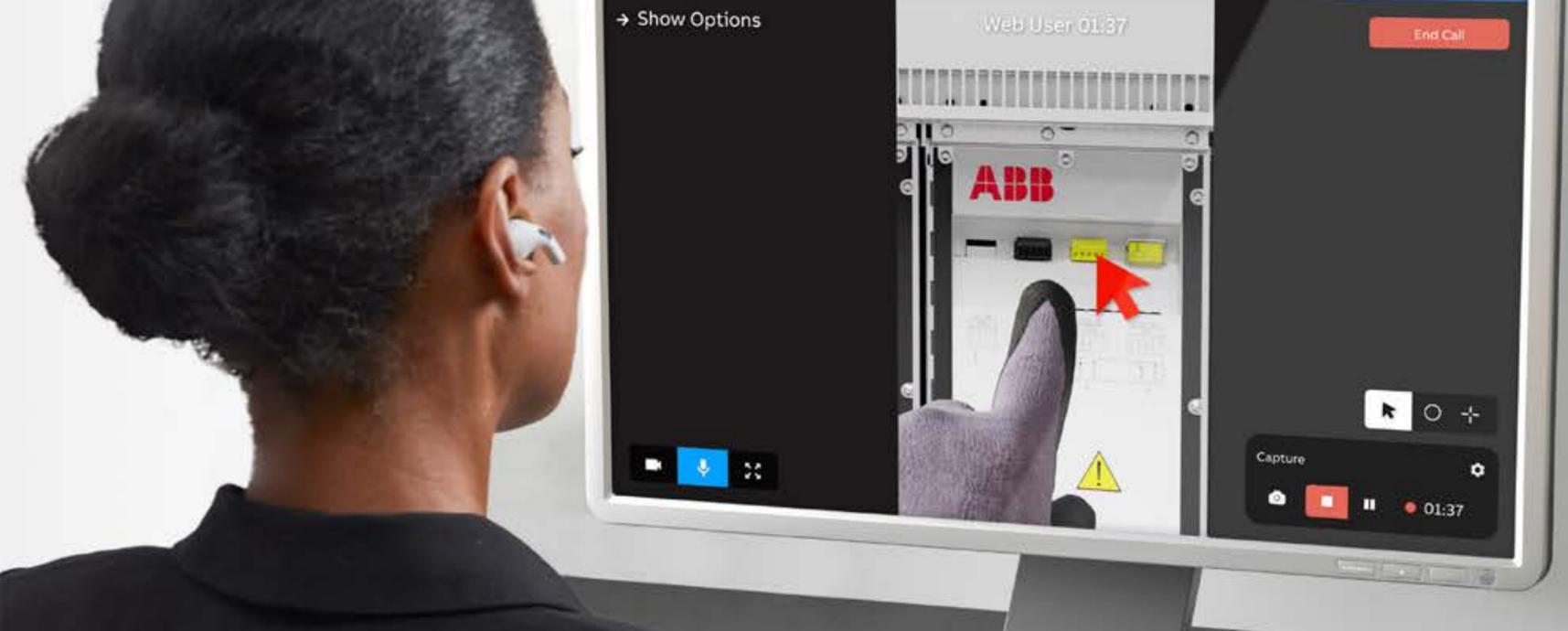
**Significant savings in time and costs as well as reduced risk**



**Optimized maintenance planning**



**Extent and quality of inspections are greatly enhanced**



## Visually guided technical support

Simplifying troubleshooting with live and interactive support from an ABB expert.

Using a mobile phone, Remote Visual Guidance featuring Augmented Reality (AR) brings the ABB expert directly to site, via a secure connection and without having to physically travel.

The expert gets real-time visual insight to the application, accessing chat, images or videos shared by the on-site engineer. The ABB expert helps the on-site engineer troubleshoot by guiding through the service process with the aid of interactive tools that visualize the instructions.



**Minimized downtime - rapid troubleshooting process reduces equipment downtime**



**Lower maintenance costs - faster resolution of problems and reduced travel time and costs**



**Improved personnel safety - fewer human errors caused by complex or unfamiliar tasks; reduced need for outside personnel to visit a site**



# Drive system consulting

Reduce risks and maximize uptime with drive system advisory services.

## Simulation twins for drive systems

Using a simulation twin in place of a real drivetrain system avoids excessive set-up and pre-tuning time and costs. It mitigates risk as any faults merely halt the simulation twin thereby avoiding any damage that could be inflicted if real equipment is used.



**De-risking repetitive testing**



**Plant wide performance optimization**



**Training of personnel to understand real hardware is simplified and less costly**

## Electromechanical System Interaction (EMSI) study

ABB offers an Electromechanical System Interaction study to help you to identify potential critical points of failure or performance degradation in a drive system. The study also provides guidelines on how to mitigate these issues.



**Maximize uptime by avoiding unplanned shutdowns due to equipment failure**



**Cost optimization by minimizing system design iterations and installation time and increasing the lifetime of the equipment**



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## Cyber security

The trusted partner.

ABB has long been a trusted partner for industrial automation and control technology. We bring our rich heritage and deep understanding of the industries we serve and the challenges they face. There are more than 70 million connected devices, 70,000 digital control systems and 6,000 enterprise software solutions delivered by ABB around the world.

As a leader in the industrial space, we have four decades of experience creating secure digital solutions for customers in across all sectors of industry. We provide the defense-in-depth security required for digital solutions in mission-critical applications and industries.

Security means much more than protection against cybercrime: certainly, connections need to be safe, but the value of that data should also be protected. Over the years, cyber security has become an integral part of ABB's product portfolio.

Today, it is front and center at every phase, from design and development to product maintenance and support. Our cyber security requirements for products are based on the IEC 62443 international industrial security standard and we are ISO 27001 certified. To ensure security of data and equipment, we follow state-of-the art processes that are based on best practices and globally accepted frameworks.



SELECTED REFERENCES

# Customer experiences with ABB Motion data and advisory services

Please click on the **red dots** to learn more.

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# ABB Motion OneCare agreement

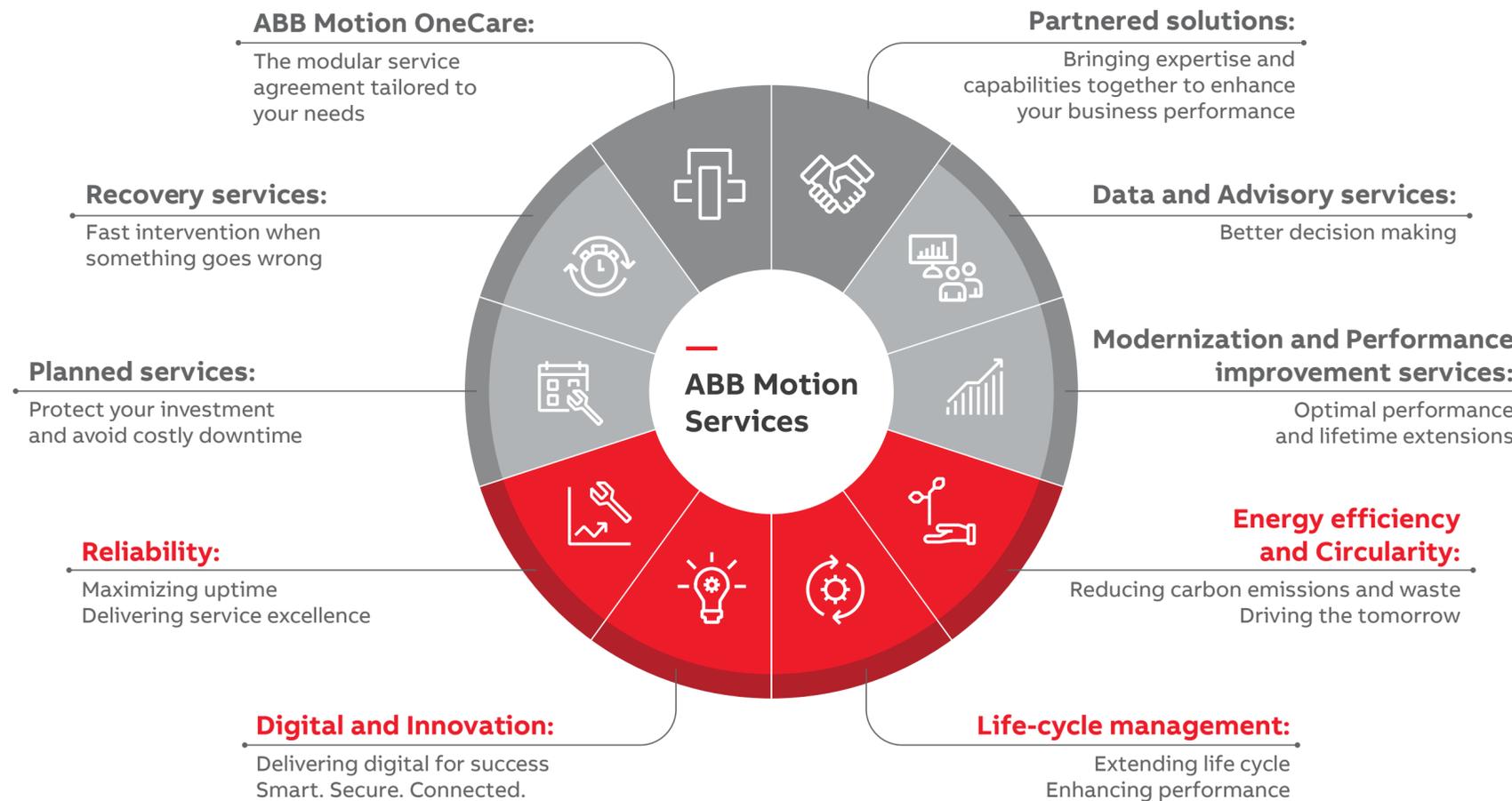
ABB Motion OneCare is a customized service agreement to improve your production efficiency and optimize your maintenance operations around your assets.

One tailor-made agreement can flexibly cover a single service, a bundle of desired services, or a transfer of the entire maintenance responsibility to ABB's service experts. Keeping you in total control.

- **Cost effective maintenance** strategy with long-term planning to maximize asset performance
- **Ensured performance with service expertise** to match your equipment's predictive and unpredictable needs, giving you peace of mind
- **Partnering for success** within a single contract for easy management of your assets and business needs



# Our tailored services and digital solutions keep your operations running profitably, safely and reliably



**OUR EXPERTISE**  
**YOUR ADVANTAGE**



**Make better decisions with ABB's data and advisory services**