Service Digitalization

September 2020
Service in the era of digitalization

Introduction
Overview
Portfolio
Delivery Options
The Need
The Value
The Journey
Use cases
Introduction
## Energy Industries - Making a world of difference

We enable safe, smart and sustainable projects, service and operations

<table>
<thead>
<tr>
<th>Integrated portfolio</th>
<th>Deep Domain Expertise</th>
<th>Digital Leadership</th>
<th>Extensive Global Capabilities</th>
<th>Lifecycle Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical, Instrumentation, Automation and Telecommunication capabilities</td>
<td>#1 in DCS and Automation Services *</td>
<td>Comprehensive solutions for industrial segments</td>
<td>Largest service footprint</td>
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<tr>
<td>#1 in DCS* for 20th consecutive year</td>
<td>People with industry and control systems expertise in all process and energy industries</td>
<td>ABB Ability™ digital solutions</td>
<td>Presence in 100+ countries</td>
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<tr>
<td>125+ years in automation</td>
<td>Enabling our customers to execute complex projects and maintain reliable operations</td>
<td>Edge computing</td>
<td>Multinational leadership</td>
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<td></td>
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<td>Remote service offerings</td>
<td>24/7 customer support</td>
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<td>Technology uplift</td>
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<td></td>
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<td>while preserving your investment</td>
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*L as reported by ARC*
Protect
We wrap our customers in care with contracts that provide peace of mind and protect your control system investment with flexible options covering everything from software maintenance to security patches to upgrades and cloud solutions.

Extend
Evolution programs for traditional ABB and 3rd party automation and electrical systems ensure that your systems are up to date with current technology and enable you to leverage the latest features such as integrated asset management, performance improvement and remote access solutions.

Transform
ABB combines deep industrial expertise and digital technologies to help our customers transform their operations by harnessing the power of information to achieve outstanding operational and business results across your plant or enterprise with our cyber solutions.

Support for Life
With over 40 years of experience, ABB understands how to care for your automation and electrical system investment by delivering programs, services and tools that ensure your system is always safe, secure, reliable and serving your business needs.
Digitalization Overview
Service Digitalization - Transforming the World of Service

Using data + technology to achieve operational and business insights

Leveraging Data

... to identify improvement opportunities

Support for Life

... starts with ABB Care

- Leverage Care contracts to access online tools, asset health services and delivery options
- My Control System: On Premise or in the Cloud

Support
- Capture
- Visualize
- Understand
- Decisions

Improve
- Asset Mgmt
- Alarm Mgmt
- Analytics
- Safety/Risk

Transform
- Planning
- Enterprise
- Fleet Mgmt
- IT/OT/ET Integration

User Experience

... provides instant access to system information

Delivery Options
- On Site
- Remote Access
- Remote Support
- Mobile

Subscriptions (SaaS)
- Benchmark
- Fingerprint
- Assessment
- Monitoring
- Workplace

Data In
- System SID
- System Scan (SPDC)
- My Spare Parts Analyzer
- Security Guidelines

Information Out
- System Performance
- System Components
- Installed Licenses
- Recommended Parts
- Lifecycle Status
- Cyber Health
- Documentation
Energy Industries Service Portfolio

Start with ABB Care and add what you need

- Remote Service
- Asset Health
- PLC Services
- HMI Replacements
- Evolution and Upgrades
- Cyber Security
- Asset Management
- Training
- Technical Support
- Lifecycle Parts Services

Digital Services: data and technology to help achieve operational and business insights
ABB Ability™ Digital Service Portfolio
Transformation through ABB Ability Services

<table>
<thead>
<tr>
<th>Asset Health Services</th>
<th>Cyber Security</th>
<th>Asset Management</th>
<th>Performance Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABB Ability™ Asset Health for Control Systems</td>
<td>ABB Ability™ Cyber Security - Essential</td>
<td>ABB Ability™ Asset Insight</td>
<td>ABB Ability™ Performance Optimization</td>
</tr>
<tr>
<td>System Scan / Benchmark</td>
<td>Cyber Security Benchmark</td>
<td>Condition based maintenance solution for Process, Electrical and Rotating Equipment</td>
<td>Control Systems – Harmony, 800xA</td>
</tr>
<tr>
<td>System Fingerprint</td>
<td>Security Update Bulletin</td>
<td></td>
<td>Control Loops</td>
</tr>
<tr>
<td>System Assessment</td>
<td>Hardening Guidelines (GPOs)</td>
<td></td>
<td>ABB Ability™ Alarm Lifecycle Management</td>
</tr>
<tr>
<td>System Health Monitoring</td>
<td>Malware Protection (McAfee license)*</td>
<td></td>
<td>Alarm Benchmark</td>
</tr>
<tr>
<td>System Update Service</td>
<td>Windows Backup / Recovery</td>
<td></td>
<td>Alarm Fingerprint</td>
</tr>
<tr>
<td></td>
<td>ABB Ability™ Cyber Security - Protect</td>
<td></td>
<td>Nuisance Alarm management</td>
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<tr>
<td></td>
<td>Essential</td>
<td></td>
<td>Alarm Rationalization</td>
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<tr>
<td></td>
<td>+ Cyber Asset Inventory</td>
<td></td>
<td>ABB Ability™ Control System Simulation</td>
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<td></td>
<td>Security Update Service</td>
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ABB Ability™ Digital Service Portfolio
Deep dive: Asset Health (Software as a Service)

Care + My Control System provides access to...

- Access to subscriptions and software licenses
- 24/7 online availability
- System lifecycle and investment planning tools
- Cyber security guidelines and dashboards
- Parts recommendations

... available services and licenses

- Scan (starting point for benchmark and fingerprints)
- Benchmark (auto generated, identifies problem areas)
- Fingerprint (auto generated, detailed system analysis of key KPI’s and recommendations)
- System Assessment (auto generated, in-depth analysis, recommended actions, comprehensive report)
- System Monitoring (continuous tracking of relevant KPI’s with report)
- System Update (highly automated update service with secure connection)
### ABB Ability™ Digital Service Portfolio

**Deep dive: Cyber Security**

<table>
<thead>
<tr>
<th>Cyber Security Capabilities</th>
<th>Care Levels</th>
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<tbody>
<tr>
<td></td>
<td>Self</td>
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<tr>
<td>Cyber Security Benchmark</td>
<td>0</td>
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<tr>
<td>Reference Architecture Gap Assessment</td>
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<tr>
<td>Monthly Validated Security Update Bulletin</td>
<td>0</td>
</tr>
<tr>
<td>Hardening Guidelines (GPO) Documentation</td>
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<tr>
<td>Backup &amp; Recovery – Basic (Windows)</td>
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<tr>
<td>Cyber Asset Inventory</td>
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<tr>
<td>Malware Protection - Update Service</td>
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<tr>
<td>Backup &amp; Recovery – Advanced (Acronis)</td>
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</tr>
<tr>
<td>Cyber Security Workplace</td>
<td>0</td>
</tr>
<tr>
<td>Cyber Security Monitoring Service</td>
<td>0</td>
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</tbody>
</table>

**Note:**
- **Essential**
- **Protect**
- **Max**
Deep dive: Why Remote Service?

Improve fix rate
- 23% of the time, maintenance issues are not resolved on first visit*.
- Prior knowledge of conditions improves first time repair percentages

Shorter resolution times
- Systems have become more complex and connected
- Proficiency in multiple disciplines is required to identify the source of problems
- Faster access to expertise shortens resolution time

Repair in remote locations
- Getting experts to remote locations may require extensive travel time
- Ability for experts to provide instant guidance greatly improves repair efficiency

Increase collaboration
- Dependence on vendors or OEMs to maintain operations
- Tools that facilitate knowledge sharing greatly improve outcomes

ABB Remote Service
- Remote Access Support (system to system)
- Visual Remote Support (human to human)
- Mobile Solutions
Choose Your Option

Option 1: Visual Remote Support
- Direct connection to experts via Remote Insights for Service application
- Meets ABB’s cybersecurity requirements
- Exchange video, documents and other attachments
- Improved safety & awareness
- Live annotations, excellent troubleshooting tool

Option 2: Remote Access Support
- Remotely connect from any ABB system to process experts
- Connect through ABB’s secure Remote Access Platform (RAP) or your private, secure VPN, secured through virtualization with “snap-back” software
  - Control and disable the connection instantly
  - Remote desktop sharing and web browsing
  - File transfer between ABB and your site
  - Track all user activities
ABB Ability™ Digital Service Portfolio

Deep dive: Visual Remote Support

Visual Remote Support (Remote Insights) is a live video sharing application that improves interaction by allowing remote experts to interact with field personnel and ‘see what they see.’

Utilizes augmented reality to speed problem resolution

**Key features:**
- Direct connection to expert
- One-way shared video, two-way audio
- Live on-screen annotations
- Individual and group collaboration
- Cross platform support

‘This has greatly improved the communication between the field engineer and expert’
ABB Ability™ Digital Service Portfolio
Deep dive: Asset Performance Management

Portfolio of Asset Performance Management Services

Solutions powered by ABB Ability™ Edge and Cloud platforms for on premise or cloud implementations:

Connectivity:
- DCS Connect (ABB’s 800xA and S+)
- OPC UA Client Connect (any OPC UA server)

Applications:
- ABB Ability™ Edgenius
  - Management Portal application for self-service cloud-based management of Edge nodes
  - OPC UA Configuration Tool
  - Streaming Calculation Engineering Tool
  - Dashboard application as visualization/BI tool
- Mobile Operations (Android)
System alarms anytime and anywhere

Operator Effectiveness:
- Enable a mobile workforce
- Improved visibility enables faster decision making
- Remote monitoring of critical assets
- Collaboration functions reduce time to corrective action

Functionality:
- Supports Android 7.x and later
- Alarm notifications
- Alarm limit visualization (locally on the Mobile Ops app)
- Trend curve with quality indication
- Favorites / Customer List for objects
- Full alarm list overview
Service Delivery Options

Focus on architecture
Service Delivery Options
Four architecture options for on premise to cloud services

**D** Cloud Services **WITH remote connection**
- **Process:**
  - Installing Data Collector on premise
  - Using remote connection for frequent or continuous automatic data transmission to ABB Cloud

**A** Cloud Services **WITHOUT remote connection**
- **Process:**
  - Running data collection from USB stick
  - Manual uploading of collected data to My Control System

**C** On premise Services **WITH local installation**
- **Process:**
  - Installing Data Collector and MCS on premise
  - Possible in combination
  - of C with A or D

**B** On premise Services **WITHOUT local installation**
- **Process:**
  - Installing Data Collector on premise
  - Using remote connection for frequent or continuous automatic data transmission to ABB Cloud

- **Control System Data Collectors**
- **My ABB / My Control System**
- **System Monitoring**
- **Scan Benchmark Fingerprint**
- **Health Check**
- **Service Application**
- **Process:**
  - Installing Data Collector and MCS on premise
  - Possible in combination
  - of C with A or D

- **Fingerprint Benchmark Scan Process:**
  - Running data collection from USB stick
  - Manual uploading of collected data to My Control System

- **Health Check Process:**
  - Running data collection from memory stick
  - Importing data to Service Application on Laptop
  - Synchronization of Service App with My Control System

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Who needs Service Digitalization?
With electrical, automation and telecoms solutions across industries
Service digitalization can benefit both new and installed base systems
Service Digitalization is for Everyone!

Everyone who wants...

... to have **instant access** to their system license and installed base information

... to be **automatically notified** of necessary patches or updates

... the ability to **access services** from ABB experts **remotely**

... to have My Control System available **on premise or in the ABB cloud**

... to efficiently **optimize** their spare parts stock

... to embrace a **predictive maintenance** strategy

... basic to enhanced (automated) **cyber security protection**

... to **optimize operational budgets**, keep plants running efficiently and be **proactive about maintenance**...
Service digitalization fits your needs at every level
Choose how we Care for you

<table>
<thead>
<tr>
<th>Four program levels help us deliver the customized Care you need</th>
</tr>
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<tbody>
<tr>
<td><strong>1 - Self Service</strong></td>
</tr>
<tr>
<td>Access to digital tools, technical support and software maintenance for the user with resources to maintain their automation and electrical assets themselves</td>
</tr>
<tr>
<td><strong>2 - Priority</strong></td>
</tr>
<tr>
<td>Additional access to technical support and diagnostic reports with enhanced software maintenance to enable upgrades to latest software versions.</td>
</tr>
<tr>
<td><strong>3 - Collaborative</strong></td>
</tr>
<tr>
<td>Includes options for evolution from heritage systems to System 800xA or S+, enhanced diagnostic reporting and system assessments with strategy planning for a proactive support approach</td>
</tr>
<tr>
<td><strong>4 - Complete Service</strong></td>
</tr>
<tr>
<td>All inclusive Care contract with dedicated support manager, lifecycle assessment and long-term planning with remote access for system monitoring and patch deployment for those who prefer a long-term partnership approach to caring for their automation and electrical assets</td>
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</table>
Value of Service Digitalization
Service Digitalization
Value of being a Care Member

The value of ABB Care

- One standard contracting framework for Service makes engaging with ABB easy – saving you time
- Reduced OpEx with special pricing on covered products and services
- Reduction of unplanned downtimes with proactive maintenance strategy supported by Care offerings
- Self service option for access to system data saves time
- Support for the life of your automation or electrical control system

What you get with ABB Care

- Standard Terms & Conditions
- Agreed upon Hourly Service Rate
- Access to Loyalty Offers
- Priority access to Repair Solutions
- Self Service option for access to system data, notifications and licenses (via My Control System)
- Included asset health and cyber security services
- Special Price for Parts (in all Lifecycle statuses)
- Special Price for Training and Learning Solutions
- Special Price for other optional Service Solutions and Projects

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Service Digitalization
Value of Asset Health and Cyber Security

**Cost Reduction**
Focus on asset health (including Cyber) helps improve maintenance efficiency:
- Reduced cost of corrective maintenance
- Avoid scheduled, but unnecessary maintenance
- Reduce unplanned downtime and unexpected maintenance
- Optimize maintenance schedules
- Automate service processes like security updates

Cost: -15%

**Performance Optimization**
Discover deviations that impact plant performance and improve availability by adding Loop Optimization, Alarm Rationalization, Asset Management or Simulation applications:
- Reduce unavailability of system functions
- Improve poor performance of control loops (like response time)
- Eliminate strange system behavior

Availability: +50%

**Risk Avoidance**
Optimization solutions help achieve the operational insights necessary to keep production running with minimal risk and interruptions. Incidents can be avoided by:
- Detection of KPIs drifting to critical limits
- Ensuring system alarms and events are properly designed and interpreted
- System hardening settings are security updates are always deployed
- Continuous execution of predictive maintenance processes

Incidents: -66%
Customer Journey
Use Cases
Leveraging data and tools throughout the system lifecycle

Phase: FAT / SAT
- “As delivered” system scan ensures correct base data is captured
- My Control System setup at delivery provides self service access from Day 1

Phase: Operations / Maintenance
- ABB Care Service Support agreements provide a single contracting framework for Service
- Utilizing spare parts analysis tools helps define optimal parts strategy
- Regular Benchmark / Fingerprint reports identify trends and issues
- Cyber security updates help keep systems safe from intrusions

Phase: Updates / Upgrades / Evolution
- Tools support lifecycle planning
- Keeping systems up to date provides access to latest system features
**Service Digitalization - Transforming the World of Service**

Using data + technology to achieve operational and business insights

### Leveraging Data

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<td>Support</td>
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<tr>
<td>Transform</td>
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<tr>
<td>Improve</td>
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<tr>
<td>Cloud Apps</td>
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<td>OT Systems</td>
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<td>On Prem Apps</td>
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<tr>
<td>IT/ET Systems</td>
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<td>Connected System</td>
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<td>Connected Devices</td>
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### Support for Life

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<tr>
<td>Support</td>
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<tr>
<td>ABB Care Agreements</td>
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#### Delivery Options

- On Site
- Remote Access
- Remote Support
- Mobile

#### Subscriptions (SaaS)

- Benchmark
- Fingerprint
- Assessment
- Monitoring
- Workplace

### User Experience

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<th>... provides instant access to system information</th>
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<tbody>
<tr>
<td>Site Management</td>
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<tr>
<td>Customer Engineer</td>
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<tr>
<td>ABB &amp; Partners</td>
</tr>
<tr>
<td>MyABB / My Control System</td>
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#### Data In

- System SID
- System Scan (SPDC)
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- Security Guidelines

#### Information Out

- System Performance
- System Components
- Installed Licenses
- Recommended Parts
- Lifecycle Status
- Cyber Health
- Documentation

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MyABB / My Control System

Data In

- System SID
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ABB provides safe, secure and reliable operations by being an innovative partner with the best services delivered by the best people with the strongest domain knowledge.

Service digitalization is how we get there, together.