Executive Summary
System 800xA 5.1 and feature releases
System 800xA 5.1 and feature releases
Overview of the presentation

- 800xA – leading control system and automation platform
- Features and Benefits 800xA 5.1 and feature releases
- The concept of Feature Packs
- Summary
Industry challenges

- Meet health, safety and environmental requirements
- Minimize unscheduled shutdowns
- Increase asset utilization and reliability
- Minimize fixed and variable costs
- Phase out a soon-to-retire workforce

How can companies achieve and sustain exceptional operation performance?
Key benefits 800xA 5.1 and feature releases
Improved user, system and plant performance

- Productized Control room environment using Extended Operator workplaces
- Integrated Alarm analysis for continues analysis and optimization to avoid nuisance alarm
- Increased support for High performance HMI improves situation awareness
- Simplified batch scheduling with one tool to organize parameters and schedule batch recipes
- Extended communication support for Foundation Fieldbus, Profinet, IEC 61850 and HART
- Increased virtualization support and doubled system capacity reduces the number of servers and installation costs
- Smart Client for presenting 800xA information in the office environment
- 800xA mobility guideline (2PPA110154-510)
Collaborative Process Automation
Going beyond the DCS

- Collaboration between systems, equipment and people
- Empowers people to perform optimal control actions and sound business decisions
- Requires the ability to share information without barriers
System 800xA Extended Automation
ABB’s flagship control system

- System 800xA is the most capable automation platform on the market today
  - Comprehensive feature set
  - Largest global market share
  - Global support network
  - Reliable, Scalable and Flexible
- Unparalleled integration and connectivity to plant systems, applications, and devices
- Over 8000 systems installed since 2004
System 800xA Extended Automation
The power of integration

People, systems and equipment collaboration
800xA plant collaboration offering
The power of integration

- **Options**
  To facilitate collaboration

- **Core system**
  Basic system-wide functionality

- **Hardware**
  Controllers, I/O, PC, Network…
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System 800xA 5.1 – Highlights FP1

- Alarm Response
- Alarm Grouping
- Tabbed Navigation based Workplace
- Simplified Batch and Parameter Management
- SFC Viewer Improvements
- Multi-System Integration support for Point of Control, FF, and IEC 61850
- CMMS Integration support for Maximo version 7 and SAP ECC6

Alarm Response - Giving operators a “head start” regardless of their experience level!
Foundation Fieldbus Improvements

- Live list improvements
  - Real device type is shown instead of ABB version
  - Device that is Backup LAS is indicated
- Improved system diagnostics through LD800HSE
System 800xA 5.1 – Highlights FP3

- Tab Navigation w Alarm Summary
- New aspect view button with display history indication
- Display history navigation via hotkeys and selectable icon size
- Batch scheduler spreadsheet available on non-800xA nodes
- New batch scheduling graphic element
- Multi-System Integration support for Asset Optimization
- Support for latest HART protocol
- Improved fieldbus support for IO allocation
- Bulk configuration for SFC and SPL

Feature pack 3 improves productivity and profitability by increasing operator effectiveness, asset utilization and engineering efficiency.
Feature Pack 4 continues to enable collaboration between people, systems, and equipment

Feature Pack 4 makes it easier to create, maintain and secure a collaborative environment

- Packaged Control room design offering using EOW
- Control Diagrams Editor
- Application Versioning
- Inter-Application Variables Support for Load-Evaluate-Go
- New communication capabilities
- High Density S800 I/O
- Virtualized Clients
- Standard Diagnostic Displays for AC800M
- Industrial Defender Integration
- Safety enhancements
System 800xA Extended Automation
Plant-wide consolidation, collaboration and optimization

Operator Effectiveness
- Full scope and features set includes control room design based on human factor best practices

Integrated Safety
- Promotes collaboration by combining basic process control with high-integrity applications

Automation and Power Integration
- Promotes collaboration by combining process automation and power automation in a common infrastructure

Enterprise Asset Management
- Full-scope asset monitoring and manufacturing operations management

System 800xA removes barriers and promotes collaborative process automation!
Operator effectiveness
Improved alarm management

- Empowering the operators increases availability, safety, and quality and is a key enabler for consolidated operations

  - Alarm analysis acc to ISA 18.2 and EEMUA 191 (5.1)
  - Support for hiding and shelving of alarms (5.1)
  - Group alarms, a single alarm instead of several (FP1)
  - Alarm response, direct navigation from the alarm to object information (FP1)
operator effectiveness

display navigation tools improves situation awareness

- Indication on an aspect link if the link points to the previous display simplifies and speeds up navigation (FP3)
- Combined one line toolbar gives the operator more workplace space and simplifies access to tools (FP3)
- Selectable size for workplace toolbar icons improves operator screen and process interaction (FP3)
- Hotkey support for display history (Back-Forward) enables effective and familiar navigation (FP3)
Operator effectiveness – 5.1 FP 4
Extended Operator Workplace x

- EOW-x2 and EOW-x3
  - A base for collaborative plant operation
  - Transforms control rooms to collaboration centers
  - Managers and engineers can now easily create powerful collaboration environments using packaged solutions
  - Packaged preconfigured workplaces, including everything from software to screens and operator desk

- The EOW products includes
  - Software: Extended Operator Workplace, Operator Workplaces, Video-clients and input channels, CAD viewers
  - Hardware: Operator desk, Video Camera, Screens, Multi-client keyboard
  - Packaging & freight included
Operator effectiveness – 5.1 FP 4
Extended Operator Workplace f

- EOW-f2 and EOW-f3
  - A basic version of the EOW
  - Fixed screens and tables
  - Packaged preconfigured workplaces, including everything from software to screens and operator desk

- The EOW products includes
  - Software: Extended Operator Workplace, Operator Workplaces
  - Hardware: Operator desk, Screens, Multi-client Keyboard
  - Packaging & freight included
High Performance Graphic Elements
Included in 5.1 FP 4

- PG2 Graphic Elements
- Numeric values freely configureable (e.g. as deviation from good-range)
- Display with or without numeric values
- Immediately indicates an abnormal situation for operators to take action
- No licence required

Improved situation awareness!
Automation and power integration
Embedded power automation - 5.1 FP 4

- Simplified IEC 61850 engineering workflow (IET tool dependency removed)
- Operations library for substation equipment (IEC and ANSI symbols)
- IEC 61850 OPC server
  - Extended signal configuration
- New CI868 features
  - MMS support
    - CI868 as IED (more cost effective deployment)
- Available for Harmony Controllers
- Enabled for Channel Partner sales
- More flexibility in 61850 networks layout supports network and voltage level correlation
- MMS variables available in AC 800M
Enterprise asset management
Improved support for predictive maintenance

- Enabler for applying effective maintenance strategies and the shift to predictive maintenance
- Integration of CMMS with 800xA reduces unplanned downtime and disturbances
  - Improved 800xA support for Control Loop Asset monitors to 500 in one system (Rev A)
  - Improved support for integration of CMMS with 800xA, latest versions as well as previous for IBM Maximo and SAP (FP1)

Corrective maintenance can cost ten times as much as a predictive maintenance strategy.
Enterprise asset management
Support for latest protocol’s increases asset utilization

- Smart device communications and consolidated asset management system (FP3)
  - HART 7 support in base Device Type Manager (DTM)
  - HART Device Management support with AC 870P
  - Multi-system support for Asset Optimization (condition monitoring, reporting etc from the subscriber system)
S800 High Density I/O modules and MTUs – 5.1 FP 4

- New I/O Modules
  - DI818 - 32 channel 24V
  - DO818 - 32 channel 24V
  - DI828 - 16 channel 120V
  - DO828 - 16 channel Relay

- New Modular Termination Units
  - TU818 MTU with screw terminals
    - 32 Channel single wire with same foot print as 16 Channels, for DI818, DO818
    - 16 Channel 2 wire connection, e.g. DI810, DO810
  - TU819 MTU with 2 x 25 pin D-sub (32 Channels)
    - For use with DI818, DO818
  - TU851 MTU that can handle 16ch, >50V
    - For use with DI828 and DO828
  - TU852 and TU854, redundant MTU’s with 25 pin D-subs
    - For use with S800 units supporting redundancy
Footprint and cost reductions – 5.1 FP4
Potential savings for only Digital I/Os

<table>
<thead>
<tr>
<th></th>
<th>Foot print reduction due to less quantity (Only Digital)</th>
<th>Cost reduction due to less quantity (Only Digital)</th>
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<tbody>
<tr>
<td>I/O Module</td>
<td>Up to 50%</td>
<td>Same amount of channels needed</td>
</tr>
<tr>
<td>MTU</td>
<td>Up to 50%</td>
<td>Up to 50%</td>
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<tr>
<td>FCI</td>
<td>Up to 30%</td>
<td>Up to 30%</td>
</tr>
<tr>
<td>Misc</td>
<td>Up to 5%</td>
<td>Up 5%</td>
</tr>
<tr>
<td>I/O Cabinets</td>
<td>Up to 50%</td>
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</tbody>
</table>
Footprint and cost reductions – 5.1 FP4
Savings for a typical project (30% Analog, 70% Digital)

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<tr>
<td>I/O Module</td>
<td>20-30%</td>
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Communication

Improved communication capacity

A wide portfolio of communication interfaces promotes effective plant-wide integration and facilitates easy access and usage of diagnostic data from smart

- Support for Profinet, Device Net and Wireless HART (5.1)
- Improved support for Foundation Fieldbus
  - EDDL
  - More efficient and faster commissioning in Device Management (FP2)
Smart Client
Improves production follow-up

- Desktop client for office users with access process data and easy to use tools for effective analysis and reporting (Smart Client v2.2)
- Improves plant visibility, production follow-up and the production planning process
  - Reuse existing 800xA PG 2 graphics; view live data, navigate to related displays etc (Smart Client 2.2)
  - Reuse existing graphics, engineering and system investments
Virtualization – 5.1 FP 4
Virtualized clients

- Virtualized Clients, entire system can be virtual now
  - Including Servers and Clients
  - No 800xA SW on physical client machines
- Support for ESXi 5.1
Cyber Security - 5.1 FP 4

- 800xA Cyber Security today
  - High default security based on 3D+C framework
  - Testing MS Security updates
  - Qualified anti virus solutions
  - Security fingerprint services available

- New 800xA Cyber Security presentation

- Extended security options introduced in FP4
  - Industrial Defender for 800xA, qualification of Monitor and Manage products
  - Application whitelisting with Cryptzone, by using SE46 standard
Engineering
Improved support for cost-effective solutions

- Valued added engineering that generates cost-effective solutions
- Standardization and reusable solutions deliver the best overall engineering value
  - Task analysis tool helps the user to evaluate the application (5.1)
  - The detailed difference report makes it easier to see and track changes in the application (5.1)
  - The process engineering tool interface supports advanced Foundation Fieldbus configuration (FP1)
Engineering

Improving efficiency through better workflows

- Improved support of fieldbus I/O allocation and configuration workflow for sequential logic (FP3)
  - Improved IO allocation in Function Designer for Profinet, Foundation Fieldbus, and IEC61850
  - Automated importing of sequential logic from MS Excel to Control Builder and Function Designer
Engineering Control Diagram Editor – 5.1 FP 4

- Easy to work with
- Compatible with FBD, CMD, ST, SFC
- Parallel engineering supported
- Open interface (XML)
- Independent
- Tools
  - New Object browser
  - Insert variables
  - Paste-special
- SIL support
Streamlining batch operations improves efficiency

- Comprehensive functionality integrated with system operations improves user and process efficiency
  - Simple Batch and Parameter Management: one tool to organize parameters and schedule batch recipes, fast and easy, no training required improves process and operator effectiveness (FP1)
  - Multi-write capability for OPC increases application performance (FP1)
Batch
Improved simplicity in batch scheduling

- Scheduling of batches is taken to a new level of simplicity by new ways to schedule and monitor batches (FP3).
  - Ability to have the Batch Scheduler Spreadsheet on non-800xA nodes
  - Enhanced security on the Batch Scheduler Spreadsheet Parameters
  - New Batch Scheduler Graphic Aspect for simplified scheduling
  - Accessibility to batch status parameters for improved visibility
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The concept of Feature Packs
More value to Sentinel subscribers

- Release of new features and functions between system version releases
  - To be used as “add-ons” to an already available system version
  - Allows a more agile response to market requirements without revising or releasing a system version
- Users are not forced to adopt a feature pack
  - A new installation can choose to install the main version only, or to also add the feature pack
  - An existing installation can choose to stay on the main version, or to install the feature pack at any time
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Power and productivity for a better world™