



Control Technologies

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

How can companies achieve and sustain exceptional operation performance?



- 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

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

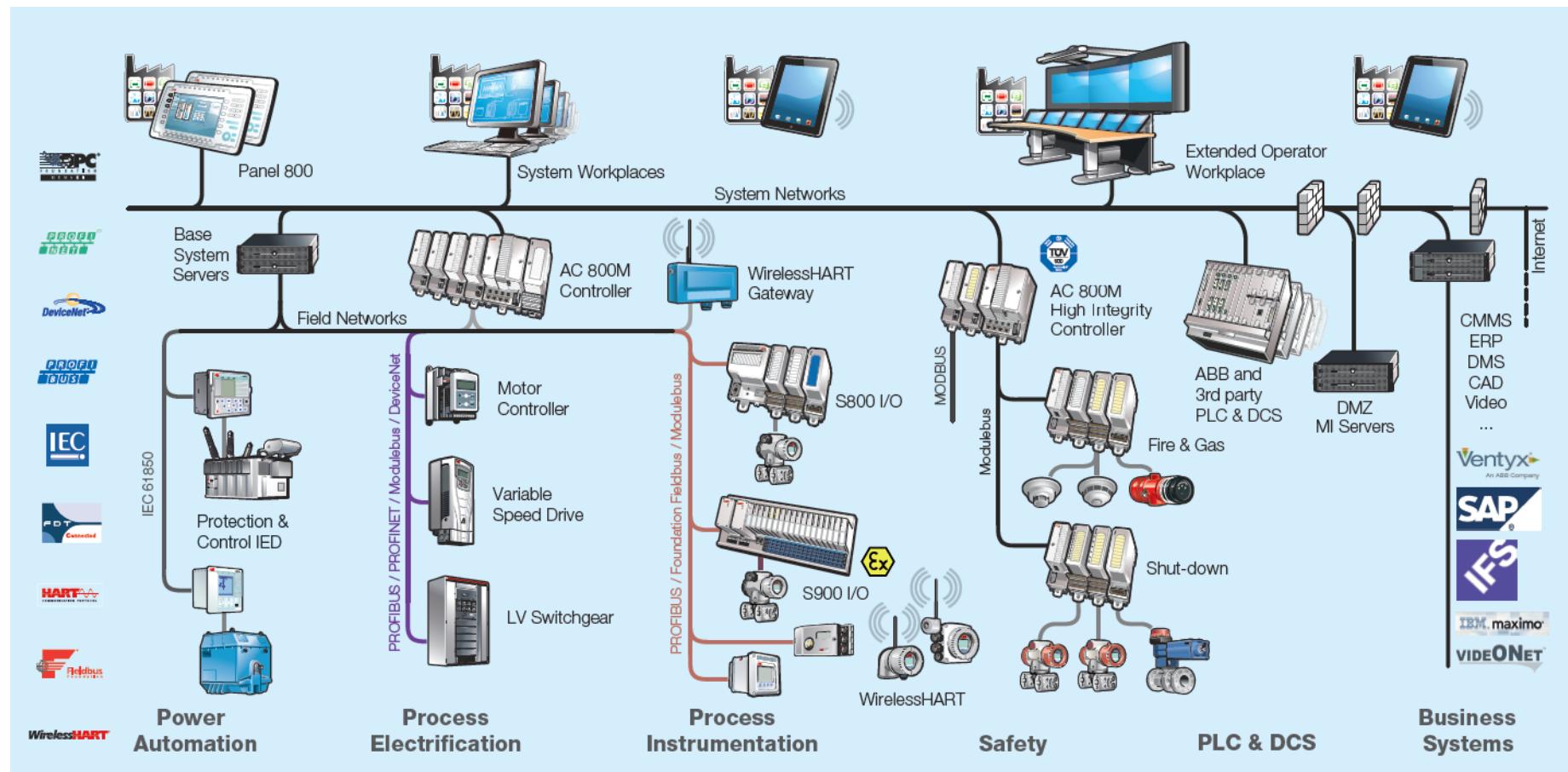
ABB's flagship control system



- 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...



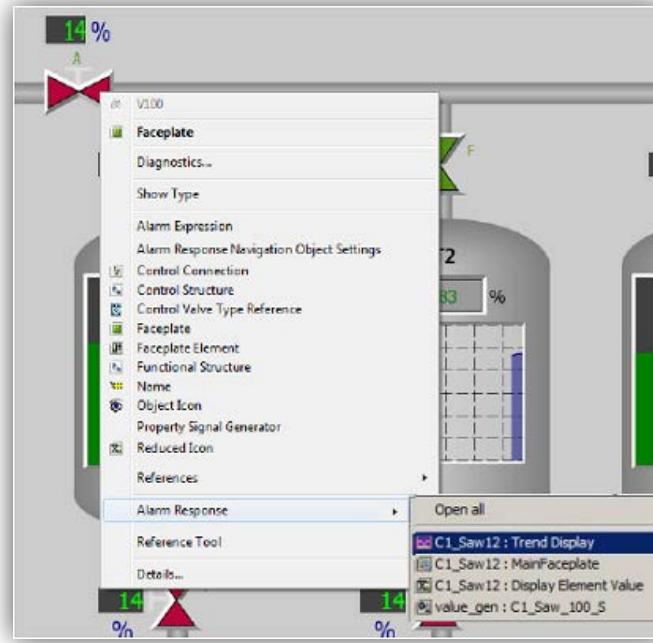
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System 800xA 5.1 – Highlights FP1

- 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!

System 800xA 5.1 – Highlights FP2

Foundation Fieldbus Improvements

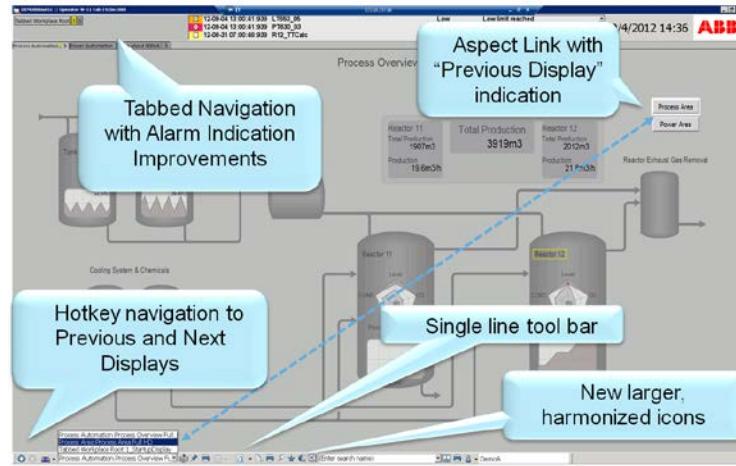
- Live list improvements
 - Real device type is shown instead of ABB version
 - Device that is Backup LAS is indicated
- Improved system diagnostics through LD800HSE



Live List		Diagnostics		Live List Status	LAS Status	Download Action	Device Manufacturer	Device Type	Device Address	PD Tag Dir	Dev
Icons	PD Tag										
LD	LD_200						ABB	LD800HSE	172.16.108.168	LD 200	2 (
FF LAS	FF_H1_L1_001				LAS (running)			H1 Link	4096 (1000hex)	Link 1)
FF LAS	TIT030				BLAS		ABB	TF02 TEMPER/	20 (14hex)		1 (
FF LAS	FIT030						ABB	TZID POSITIO	35 (23hex)		1 (
FF LAS	FIT070						Softing AG	FBK Rock	36 (24hex)		3 (
FF LAS	TIT010	configured					Endress+Hauser	TMT125	31 (1Hex)		1 (
FF LAS	TIT090	not available					ABB	TZID POSITIO	32 (20hex)		1 (
VEGA	VEGA_VEGA	active					VEGA Grieshaber	VEGABAR	44 (2Chex)		1 (

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.

System 800xA 5.1 – Highlights FP4



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



System 800xA removes
barriers and promotes
collaborative process
automation!

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

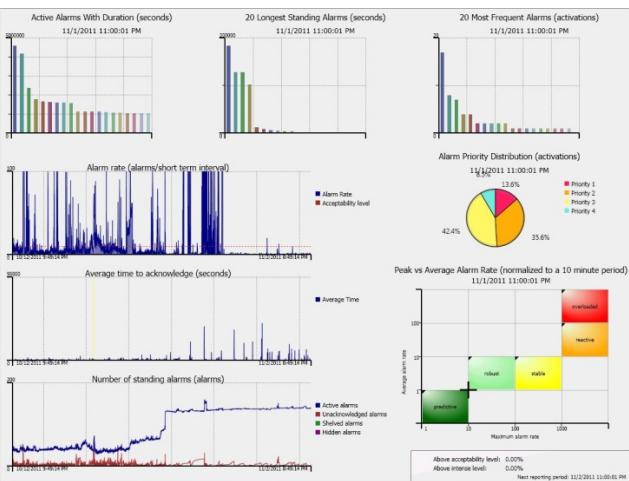
- Promotes collaboration by combining process automation and power automation in a common infrastructure

Enterprise Asset Management

- Full-scope asset monitoring and manufacturing operations management

Operator effectiveness

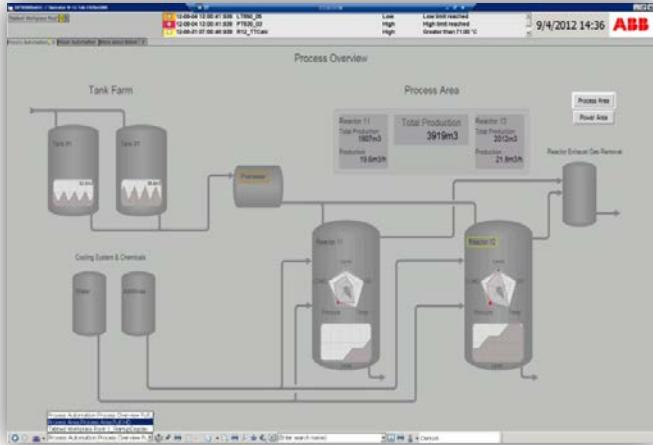
Improved alarm management



- 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

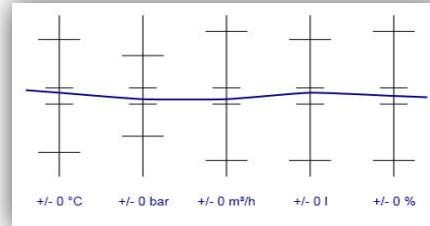
Operator Effectiveness

Integrated Automation and Power

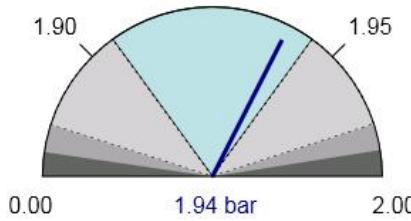
Integrated Safety
Enterprise Asset Management

- PG2 Graphic Elements
- Numeric values freely configurable (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

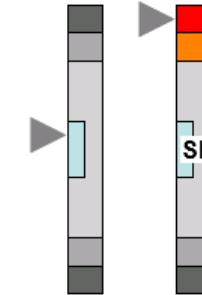
Improved situation awareness!



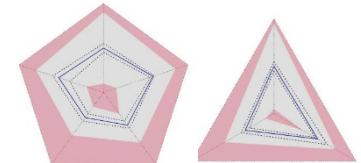
- Normalized trends



- Volt meter



- Bar charts



- Radar charts

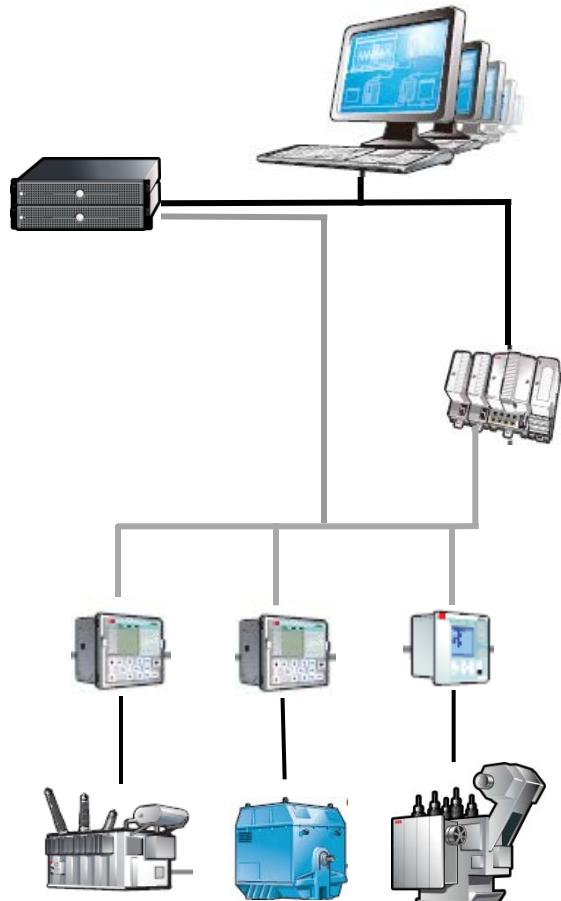


- Alarm priorities w/shapes

Automation and power integration

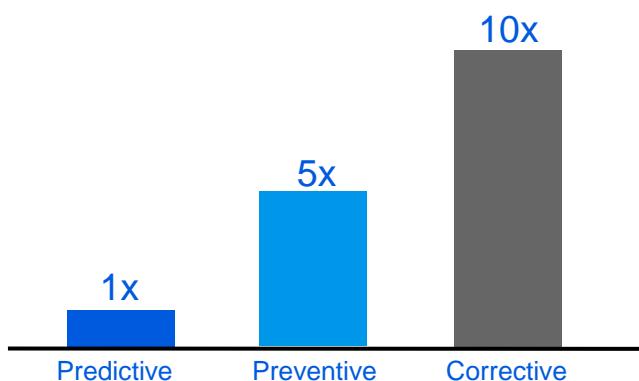
Embedded power automation - 5.1 FP 4

- 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



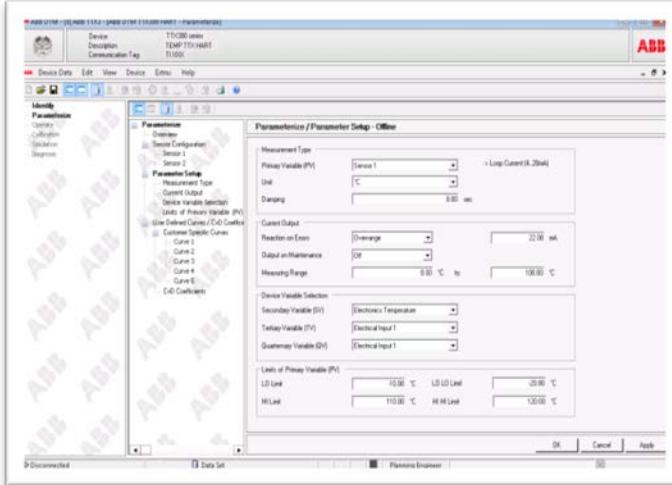
Corrective maintenance can cost ten times as much as a predictive maintenance strategy.

- 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)

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

	Foot print reduction due to less quantity (Only Digital)	Cost reduction due to less quantity (Only Digital)
I/O Module	Up to 50%	Same amount of channels needed
MTU	Up to 50%	Up to 50%
FCI	Up to 30%	Up to 30%
Misc	Up to 5%	Up 5%
I/O Cabinets	Up to 50%	Up to 50%

Footprint and cost reductions – 5.1 FP4

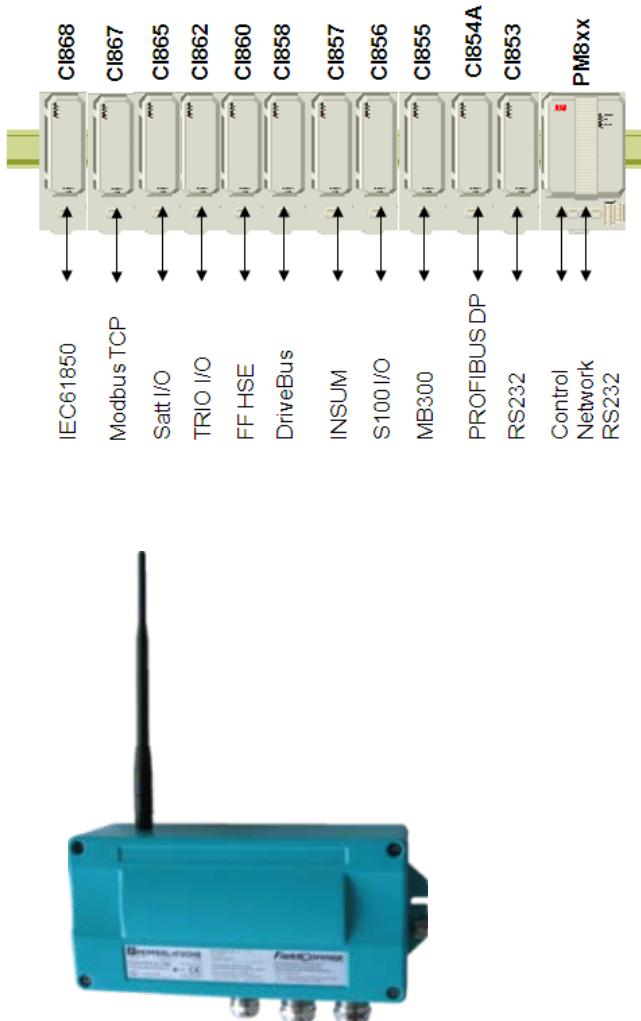
Savings for a typical project (30% Analog, 70% Digital)

	Foot print reduction due to less quantity (Only Digital)	Cost reduction due to less quantity (Only Digital)
I/O Module	20-30%	Same amount of channels needed
MTU	20-30%	20-30%
FCI	~20%	~20%
Misc	Up to -5%	Up 5%
I/O Cabinets	20-25%	20-25%



Communication

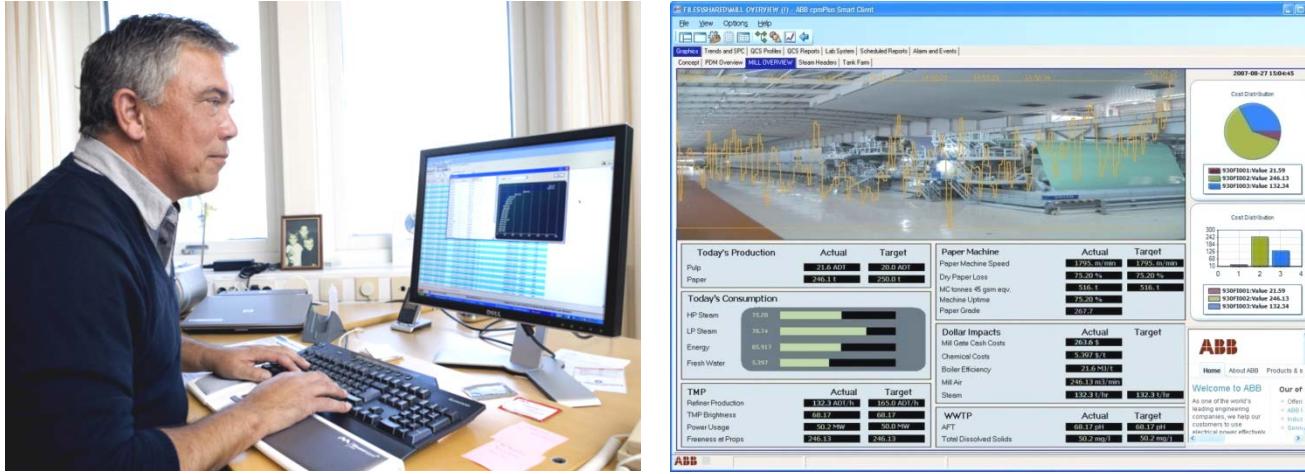
Improved communication capacity



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



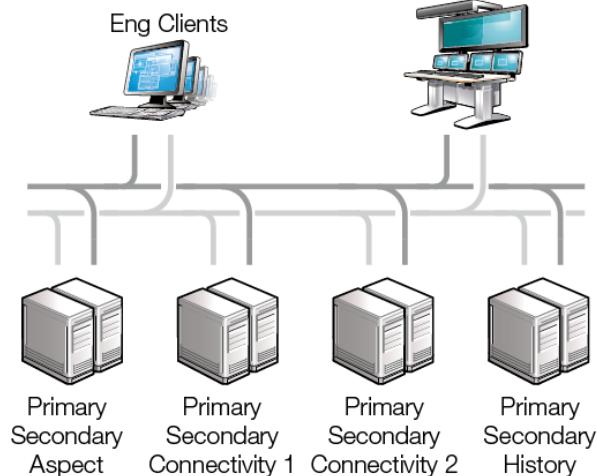
- Desktop client for office users with access process data and easy to use tools for effective analysis and reporting (Smart Client v2.2)
- Improves plant visibility, production follow-up and the production planning process
 - Reuse existing 800xA PG 2 graphics; view live data, navigate to related displays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

Virtualization – 5.1 FP 4

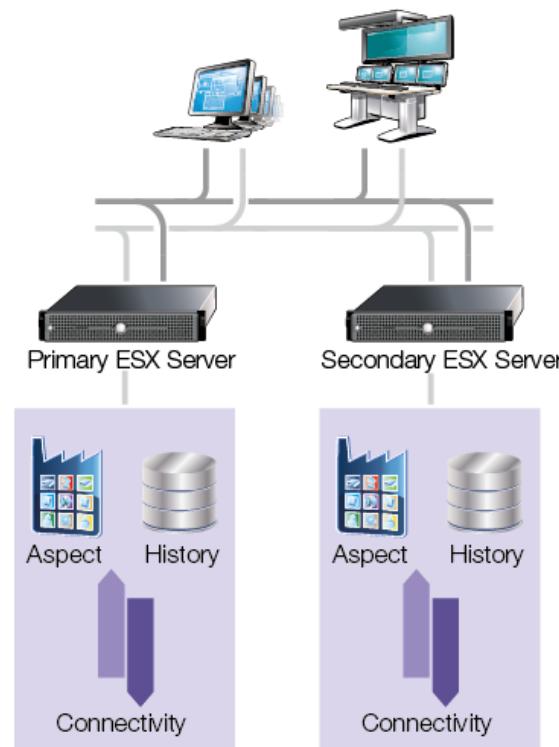
Virtualized clients

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

Before, 8 physical servers



Virtualization with 2 servers

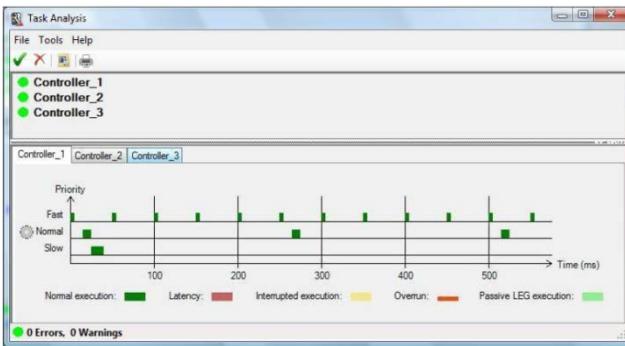


Cyber Security - 5.1 FP 4

- 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

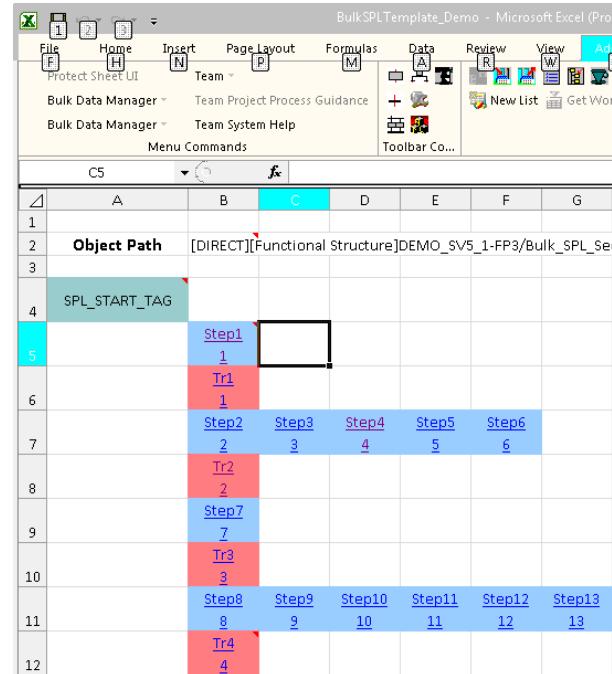


- Valued added engineering that generates cost-effective solutions
- Standardization and reusable solutions deliver the best overall engineering value
 - Task analysis tool helps the user to evaluate the application (5.1)
 - The detailed difference report makes it easier to see and track changes in the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

Engineering

Improving efficiency through better workflows

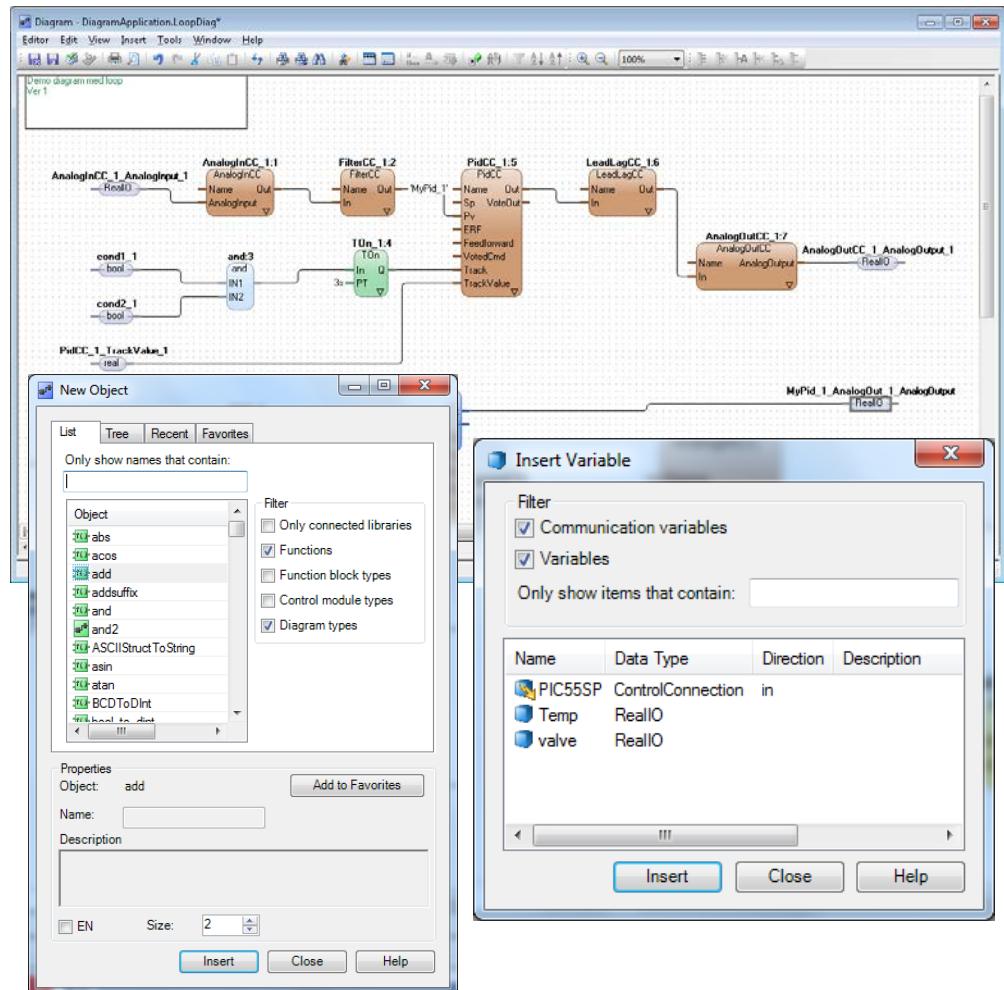
- Improved support of fieldbus I/O allocation and configuration workflow for sequential logic (FP3)
 - Improved IO allocation in Function Designer for Profinet, Foundation Fieldbus, and IEC61850
 - Automated importing of sequential logic from MS Excel to Control Builder and Function Designer



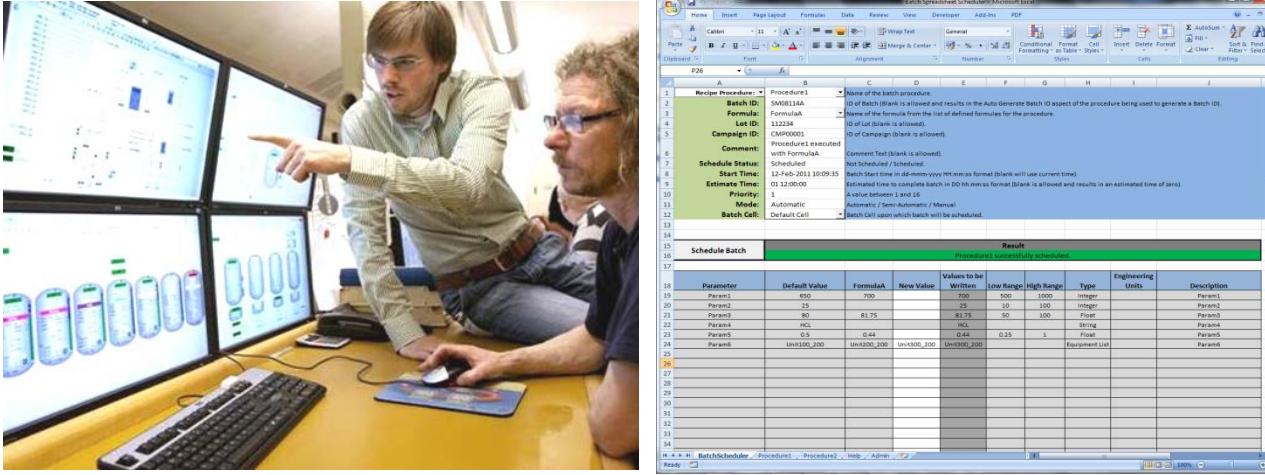
	A	B	C	D	E	F	G	
1								
2	Object Path	[DIRECT][Functional Structure]DEMO_SV5_1-FP3/Bulk_SPL_Sec						
3								
4	SPL_START_TAG							
5		Step1						
6		1						
7		Tr1						
8		1						
9		Step2	Step3	Step4	Step5	Step6		
10		2	3	4	5	6		
11		Tr2	2					
12		Step7	7					
13		Tr3	3					
14		Step8	Step9	Step10	Step11	Step12	Step13	
15		8	9	10	11	12	13	
16		Tr4	4					
17								

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



Batch Streamlining batch operations improves efficiency

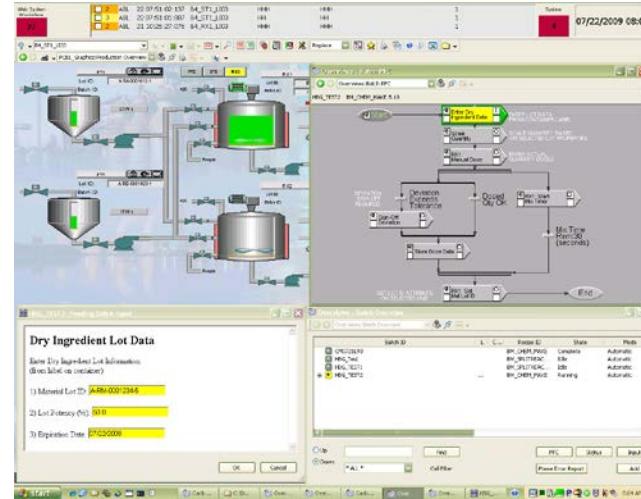


- Comprehensive functionality integrated with system operations improves user and process efficiency
 - Simple Batch and Parameter Management : one tool to organize parameters and schedule batch recipes, fast and easy, no training required improves process and operator effectiveness (FP1)
 - Multi-write 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

5.1 Rev C FP4 March 2013

5.1 Rev C December 2012

5.1 Rev B FP3 September 2012

5.1 Rev B July 2011

5.1 Rev A FP2 March 2012

5.1 64 Bit February 2012

5.1 Rev A FP1 September 2011

5.1 Rev A May 2011

800xA 5.1 July 2010

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Power and productivity
for a better world™

