System 800xA
System Introduction

Power and productivity
for a better world™

ABB

Reaching new levels of productivity with System 800xA

You're under more pressure than ever before to run your operation profitably – to achieve greater results with fewer resources.

Extended automation
System 800xA's 'xA' stands for Extended Automation and utilizes the Industrial IT architecture which was built for integration in a fully redundant, reliable environment.

System 800xA extends the reach of traditional automation systems - beyond control of the process - to increase energy efficiency, asset utilization, energy savings and operator effectiveness.

The power of integration
In order to be competitive, various plant entities, departments and personnel have to work as one flexible, integrated, collaborative team. For this to be accomplished, an automation platform with incredible connectivity capabilities is necessary. Integration of systems and applications where all actionable information is available for use in the system can be provided to users in a variety of roles.

System 800xA Extended Automation is an integration platform with unparalleled connectivity to enterprise and plant systems, applications, and devices that improves operations, engineering, control and maintenance and provides a collaborative environment where real-time decision making is a reality. This is the Power of Integration.

Support for life
ABB's superior lifecycle policies, services and products ensure the highest possible return over the entire life of the system.

System 800xA is the latest installment on ABB's 25+ year commitment to our DCS users. Our pledge of evolution through enhancement ensures that future advances in systems technologies will enhance rather than compromise your current investments.

Where others promote "rip and replace" migration strategies, we deliver true system evolution, allowing you to build on your strong DCS foundation.

System 800xA Extended Automation
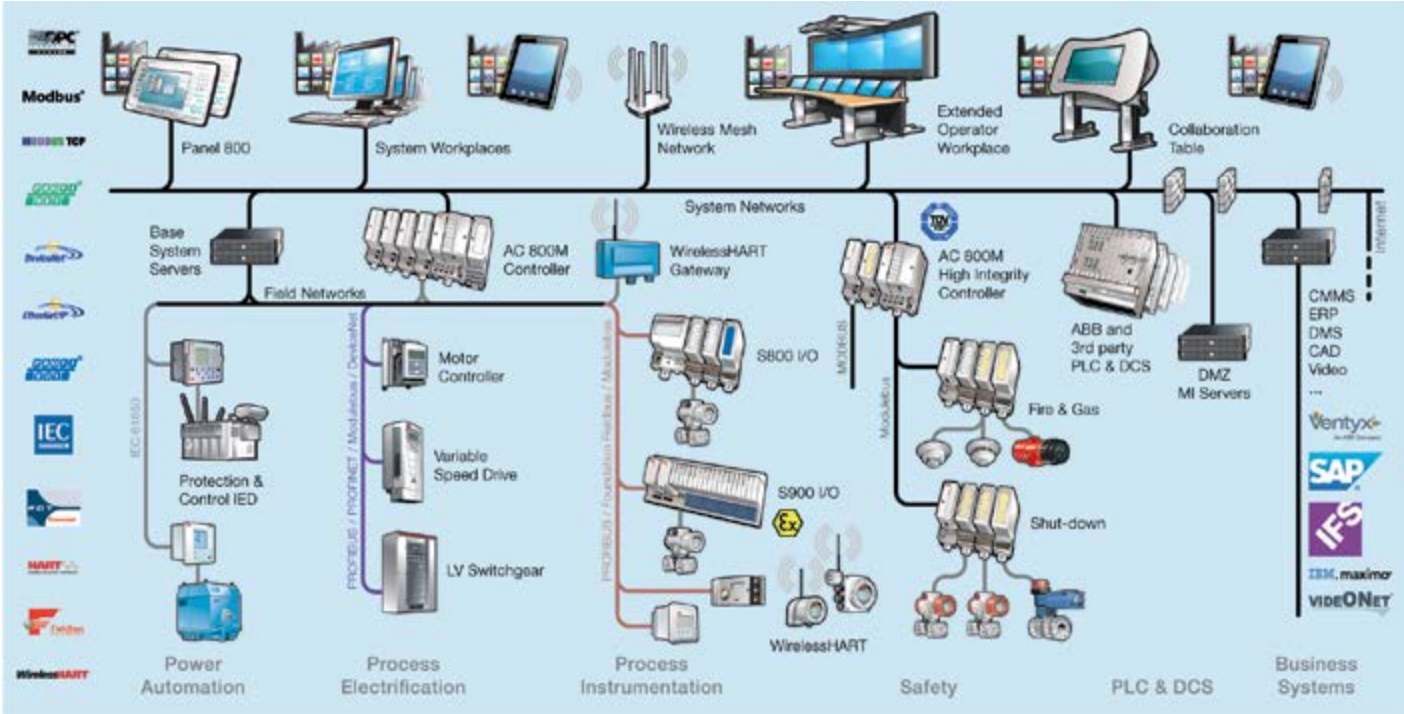
System 800xA Extended Automation was built for integration

System 800xA - The Power of Integration
Removing the barriers of traditional distributed control systems, System 800xA provides the integrated environment that is required to increase productivity while reducing risk and total cost of ownership. System 800xA dramatically improves plant-wide productivity through the following powerful, integrated core functions.

Operations
800xA Operations, the industry's most intuitive system interface, provides a consistent method for accessing enterprise-wide data and for interacting with multiple applications from any connected workstation in the plant or office.

Engineering
System 800xA's integrated engineering environment efficiently supports the complete lifecycle of the automation project, from planning, through configuration and library management, to commissioning and operation to minimize system ownership costs.

Safety
A complete, scalable IEC 61508 and IEC 61511 compliant SIS (Safety Instrumented System) that spans the entire safety loop, including SIL rated field devices, I/O modules, controllers, and field actuators. Powerful system functions as well as operator and engineering tools reduce plant risk through management of the human factor.

Knowledge management
Powerful knowledge management software collects, stores, retrieves and presents current and historical process and business data to support reporting, KPI visualization, and analysis.

Batch management
800xA Batch Management's enterprise level planning coordinated with production system scheduling provides the agility, speed, and the quality control needed to respond to increasing production demands. Including ISO S88 S 98.

Asset optimization
Asset optimization software exploits the wealth of plant resident information to monitor, assess, and report equipment conditions in real time to reduce costly corrective and preventive maintenance and optimize maintenance and calibration work flows.

Control and I/O
Comprehensive suite of standards-based hardware and software meets the needs of total plant control. Controllers are complimented with a full line of industrial I/O interfaces to meet all plant environments.

Device management
Support of digital fieldbus standards and intelligent device management provides significant cost savings throughout the design, implementation and operation of field equipment.

The Power of Integration

System architecture

System 800xA delivers the exact information and collaboration environment necessary for the formation and execution of sound business decisions. ABB's integration architecture, based on Aspect Object technology, relates all of your plant data, the Aspects, to the specific plant assets, the Objects. This architecture enables one click navigation, efficient engineering and presentation of the right information in the right context to the right user.

The client server architecture of System 800xA is the backbone of the system. It is this architecture that provides:

– Centralized licensing
– Streamlined controller communications
– Centralized configuration and backup
– High level alarm handling
– System wide trend, history and audit trail data collection, storage and viewing

System 800xA also provides hardware freedom of choice when it comes to the server / workstation computer hardware. Virtualization can be used in 800xA systems to combine multiple 800xA applications into a single server with pre-tested, validated architectures using VMware ESX. System 800xA also has a wide variety of certified and approved servers in both standard and blade configuration.

Information integration

Information collected from the plant applications, business systems and devices in the System 800xA information architecture can be used to achieve real improvements in productivity.

– Engineering is done on a system level and provides significant time savings since configuration of each tag or object is done only once.
– Personalize workplaces can be configured so that each user has only the information necessary for their function.

– Licensing is done on a system level so all information and applications in the system are available at each workplace.
– Regulatory compliance functionality is built into System 800xA through its integrated audit trail, user log-over function and electronic batch records.
– System 800xA has been developed and delivered as an integrated system. Adding or changing control information is no problem. Simply engineer the change once and it will be automatically deployed through the system.

Plant system integration and applications

The integration architecture of System 800xA allows seamless integration of applications and supports 3rd party systems such as computer based maintenance management and video systems. As shown in the diagram at the bottom of this page, applications developed with or for System 800xA can be "plugged into" the common engineering, information and visualization environment.

This same architecture enables us to deliver solutions such as integrated process control and safety and integrated process and power automation solutions. Both these and many other System 800xA solutions feature common visualization across plant areas and deliver savings in engineering as well facilitating the right operational and business decisions and actions to maximize productivity.

Promoting collaboration

Control system integration

System 800xA's integration platform enables controller and device level integration via OPC and fieldbus protocols. This platform provides a foundation for evolution from ABB's installed based to the latest technology with System 800xA. The development of system specific control libraries for System 800xA allows users to easily transfer their control code from their existing controller to the newest AC 800M controller saving time and preserving their original engineering investment. Connectivity packages provide integration with 800xA Operations bringing all of the extended automation features to our installed base.

The OPC connectivity that is part of System 800xA's integration platform enables connection of 3rd party DCS controllers and PLCs. Once connected, the data becomes part of the system in the same way as other integrated ABB hardware and software components.

Device integration

System 800xA is designed to be the best system at integrating fieldbus solutions. Each AC 800M controller can mix and match incoming information from any combination of up to 12 direct fieldbuses. Supporting fieldbuses delivers significant value to the end users in the form of both CAPEX savings (wiring, footprint, weight) and OPEX savings (asset management, heating & cooling, design flexibility, maintenance strategy).
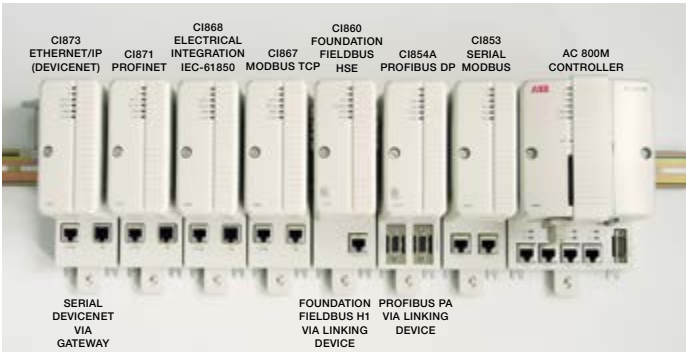
Standards-based fieldbus communications for System 800xA controllers

The powerful integration of so many fieldbus options provides all of the necessary information needed for an optimized control application directly to that application. Especially with the ethernet-based communications like FF HSE, Ethernet/IP, Modbus/TCP, PROFINET, and IEC-61850, the wide-reaching network infrastructure supported by these protocols allows individual controllers to see information from nearly anywhere on the entire network. There is no longer a need for individual controller-dedicated I/O structures. System 800xA is uniquely positioned to deliver the values associated with fieldbus solutions no matter which protocol you choose.

The Power of Integration

Flexible and scalable SIS design

System 800xA offers a complete SIS (Safety Instrumented System) solution, complying with the IEC 61508 and IEC 61511 standards and covering not only the "logic solver" but the entire safety loop, consisting of SIL rated field instruments, controllers and I/O modules, valve positioners, and actuators. Highly scalable, System 800xA SIS solutions provide you the flexibility to match specific safety functions with your actual plant needs.

800xA High Integrity controllers and I/O are highly modular, offering many interconnection options and making them suitable for all safety and business critical process automation applications, from small to large, from single to redundant. Redundant solutions for CPU and I/O will increase the availability without increasing the probability of failure on demand (PFD) as happens with other systems.

SIL compliant application solutions

System 800xA includes a comprehensive library of standard reusable components that include extended automation entities such as faceplates, graphic elements, trends, document links, and alarm and events. In addition, ABB provides a broad family of industry specific libraries that contain pre-configured control modules, function blocks, and graphic elements. These pre-tested proven libraries significantly reduce the time required to engineer, test, and maintain control applications, while minimizing project risks.

ABB safety expertise

With more than 35 years of experience in designing, implementing, and maintaining safety systems, ABB provides a wide range of field proven applications, including:
– Fire & gas systems
– Emergency and Process shutdown (ESD and PSD)
– Interlock systems
– Burner Management and Boiler Protection (BMS)
– Critical control
– High Pressure Protection Systems (HIPPS)
– Pipeline Protection systems (PPS)

TÜV Product Service, the foremost independent certification agency in the business, has certified all product components of the 800xA Safety offering.

Today, companies require tighter integration among safety and control applications. The industry is calling for SIS solutions that are cost effective through integration with control systems, require less frequent proof-testing, and provide scalable architectures. The 800xA HI (High Integrity) system satisfies these objectives by providing a functional building block approach for system design to meet every system application need.

Embedded safety and control

The 800xA system architecture offers the flexibility of hosting both safety and process critical control applications in the same controller. The AC 800M HI controller is supported by common engineering tools, human system interface, historian, audit trail, asset and device management applications, and instruments; thereby improving the overall integrity and reliability of Basic Process Control Systems (BPCS) and Safety Instrumented Systems (SIS) operations. Such an environment offers safe, instant, interaction between applications; leading to a host of benefits, from easier handling, through better technical solutions, to lower costs.

Meets industry standards

800xA HI systems are delivered and supported in accordance with the strictest current standards. Among others, System 800xA HI complies with IEC 61508, IEC 61511, EN 954, NFPA 85 and NFPA 72 standards.

Promoting collaboration

Process and power automation

Process automation and electrical integration is the next frontier in delivering a unified environment that will drive improvements in productivity, increase safety, and reduce costs. With the growing number of complex plant system interfaces and fewer employees to maintain such systems, a need for one system to serve both process automation and electrical applications has arisen. The next generation of plant operators will no longer make decisions based only on voltages and temperatures but on dollars and cents. For example, Shell Oil has realized a 20% productivity improvement through improved operator visibility of entire plant assets. Only ABB can deliver the power of one fully integrated control system.

Electrical integration and the process control industry

Typical process control plants can be divided into three areas: Process Control, Process Electrification, and Power Distribution and Management. In the past, each of the areas has been handled by separate systems with unique communication protocols. Today, ABB seamlessly integrates the three areas to make their information available to all other system functions. ABB has created a solution with System 800xA that integrates electrical control with process control within a plant by taking advantage of the IEC 61850 standard.

Is process automation and electrical integration for me?

Different industries have different objectives for electrical integration. The oil and gas industry wants to maximize production by keeping the process running. Load shedding during power interruptions is critical. Pulp and paper, steel, aluminum, and cruise ship industries consume large quantities of energy. They need to manage electricity as a raw material cost through peak shaving and power consumption prediction. All industries are looking for ways to lower installation, engineering, and lifecycle costs with simpler more efficient system designs.

System 800xA and IEC 61850 communications

There is a distinct advantage when using System 800xA with the IEC 61850 integration. System 800xA's AC 800M controller is transformed into an Intelligent Electrical Device (IED). As an IED, the AC 800M communicates horizontally with other IEC's using the GOOSE protocol for the fast time-critical data.

Benefits of integration

The benefits of process and power automation integration include:

– Single system that promotes collaboration and operator effectiveness
– Total plant visualization through a single controller and HMI for DCS and ECS
– Common supplier of automation and electrification needs
– Consistent strategy for asset management
– Enhanced visibility into power consumption

ABB's unified approach combines process control, process electrification and power management
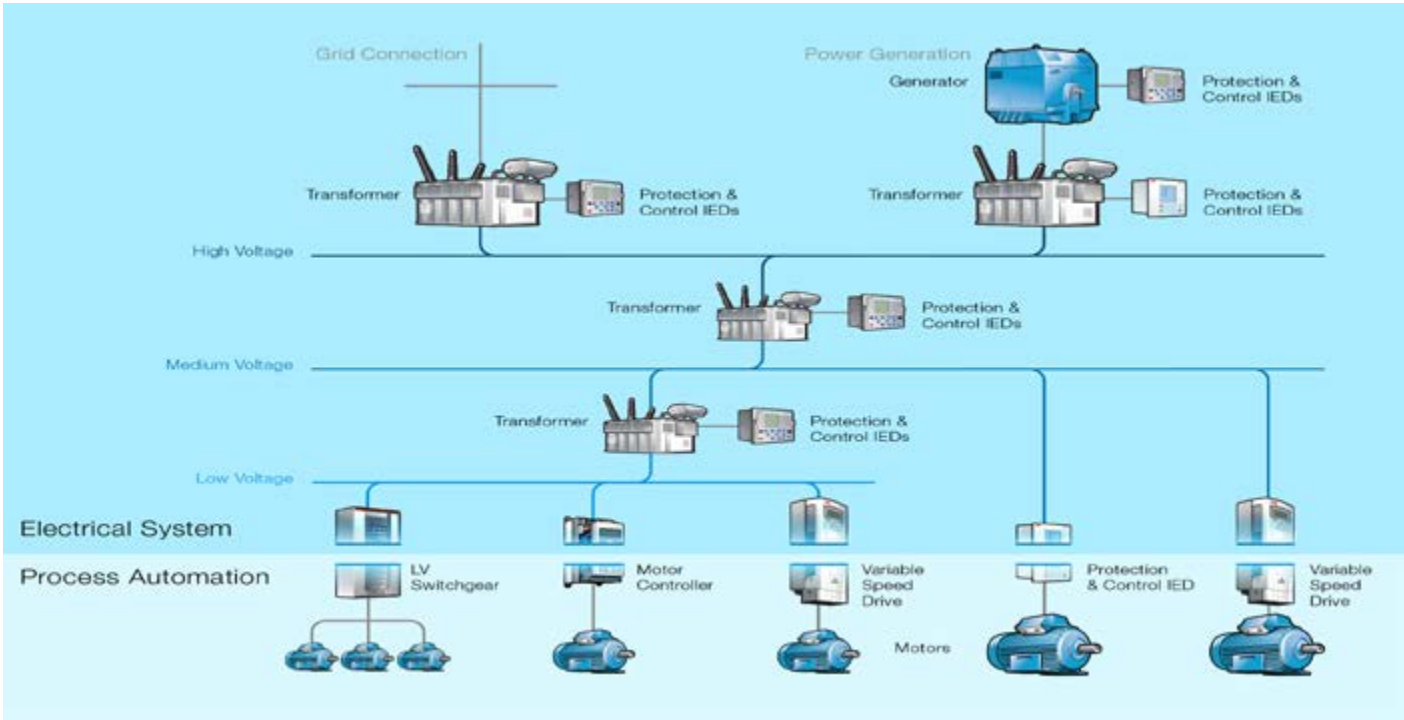
Improving operator effectiveness through integrated information

System 800xA's Extended Operator Workplace enables operator effectiveness

Integrated operations
One of the four main components of operator effectiveness is integrated operations. The goal of an integrated solution operator interface is to provide the operator with a quick, easy to use and effective decision support environment for analyzing and troubleshooting both routine and upset conditions. This makes the operators much more effective.

Integrated operations support other end user requirements such as centralized, consolidated operations and multi-system integration. Using the System 800xA information architecture, data from multiple sources, from across the plant to the enterprise system, can be consolidated into one common picture of the operation. The seamless presentation of data from multiple sources, placed into context, enables an operator to do much more than in the past. Just one example of the power of integration.

Attention to human factors
Once the aggregated information is available within the control environment, the next step is to consider the effects and advantages of human factors on operator performance. System 800xA provides the foundation for optimal presentation of information to the operator. But what about the physical environment? This is where the human factors should be considered. This includes things such as:

– Advanced keyboards for multi-client handling with hotkeys
– Directional sound system and integrated dimmable lighting
– Motorized, adjustable monitoring positions
– Pre-integrated operator desk system with adjustable desk/monitor positioning
– Micro-ventilation and other leading edge innovations

All of which are available through the System 800xA Extended Operator Workplace and the power of integration.

High performance design
The integration platform and leading edge operator environment are only part of the solution. The real value comes from the design and implementation of customized operations environments taking best practices, ergonomics and human factors into consideration. System 800xA itself provides the ability to customize the look and feel of the operator environment (personalized workplaces) to match the operations philosophy. The architecture of System 800xA enables intuitive navigation for quick display access. Implementation of standards in the areas of display design (ASM, ISA S88), alarm management and abnormal situation management enables operators to perform effectively no matter what is happening in the plant.

Operator competency
With the technology, human factors and design all being addressed, the final pillar of operator effectiveness is competency. In order to ensure that the operator performs as expected, it is necessary to provide continuous training through every step of the systems lifecycle. An integrated system not only supports simulated training, but provides a platform for modification and optimization studies as well as knowledge capture.

With a training technology platform identical to the plant control system, you will be able to provide realistic and efficient training of process operators and instill confidence that they know how to respond correctly with abnormal situations arise.

With competent operators, working on an integrated system, in an optimally designed environment, true operator effectiveness can be achieved through the power of integration.

System 800xA provides a unified, collaborative environment for operations that helps our customers increase operator effectiveness, and therefore production performance. This includes providing truly integrated operator environment for process, safety and electrical applications, advanced alarm management, personalized workplaces allowing for the ultimate in intuitive navigation and information access.

Personalized workplaces for focused information access
Workplace layouts are adjusted and optimized to users' preferences and needs with individualized menus, toolbar contents and display locations. Windows management functions such as safe areas, pinning and stacking priorities minimize operation errors by prioritizing the presentation of important material.

Comprehensive operator functionality for reliable control
System 800xA provides a complete set of operator functions that include realistic process graphics based on Windows WPF with standard faceplates, superior trending capabilities, intelligent alarm and event handling, production reporting and remote messaging. Complete functionality simplifies and streamlines operator interaction for more reliable control.

Integrated information for informed decision-making
Unique to System 800xA is its ability to gather information from multiple plant sources and transform it into relevant information for a diverse set of users such as maintenance technicians, process engineers, production managers, or plant operators. Information from ABB applications, other automation systems or even business systems is readily integrated into the 800xA system on common displays. This single window provides users a much broader view of the facility and better information from which to make quicker, more informed decisions.

Integrated environment increases operator effectiveness
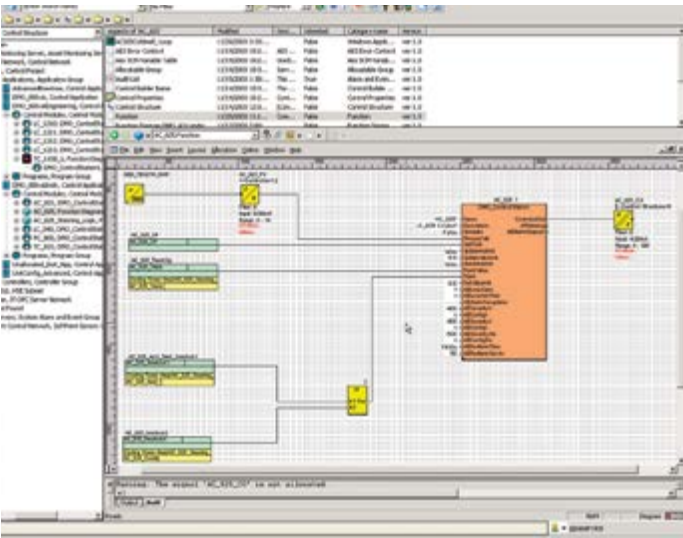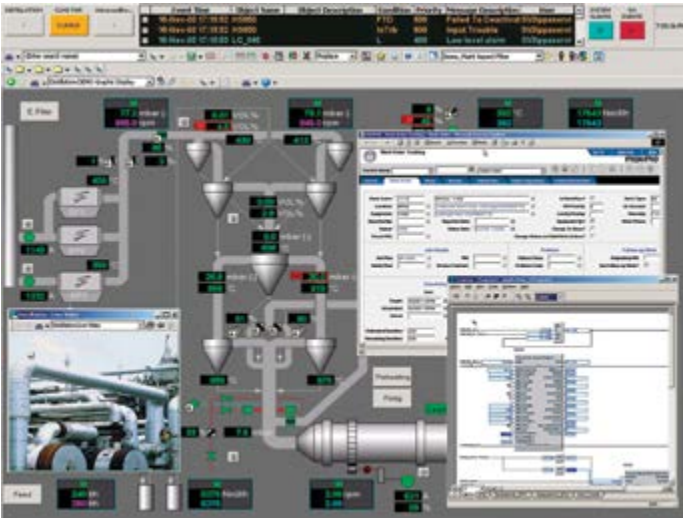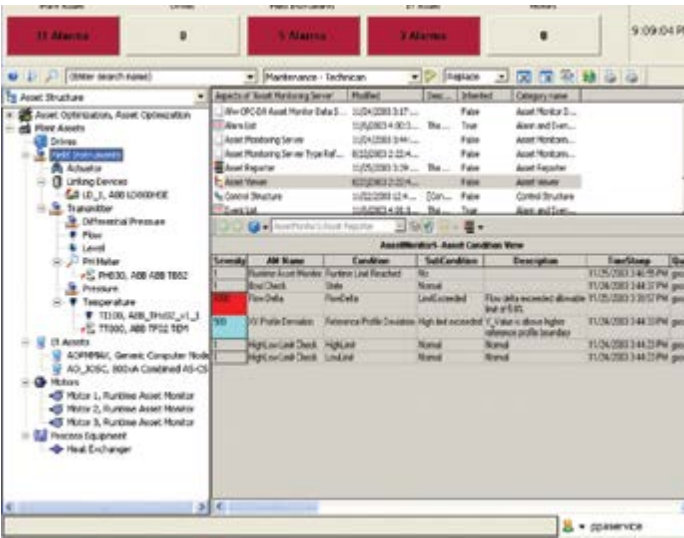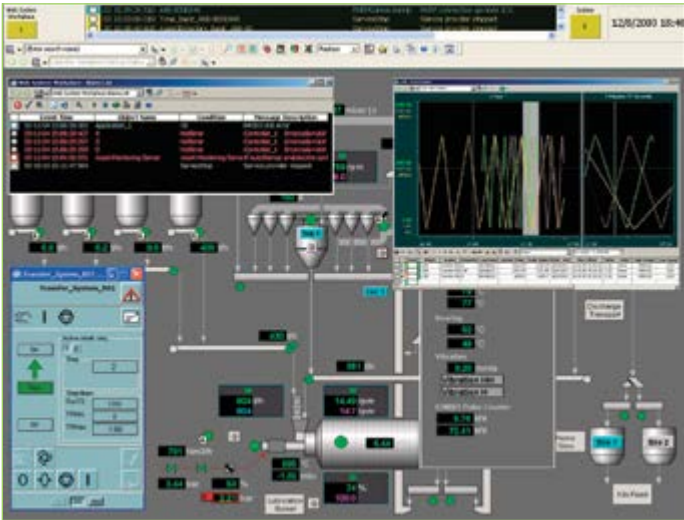
Generating cost effective solutions through integrated engineering tools

System 800xA provides a visual environment for easy design and deployment of automation strategies, process visualization displays, information management, asset optimization, and field device integration. The flexible, distributed engineering environment allows project data to be accessed, created and modified simultaneously by different users.

Total asset lifecycle engineering
Opportunities to drive operational performance improvement starts early in the project lifecycle where key asset information is being created in core process design systems. For example, by using System 800xA's process engineering tool integration for Intergraph SPI, not only can automation system structure, functionality, and graphics be created directly from the INtools design, but operational changes such as ranges, units, and settings, can be continually reflected back to the INtools application. With this unique feature, engineering savings of 40% and operational savings of 20% are achievable from reduced as-built cycles and by automatically maintaining design synchronization.

Graphical function design
800xA Engineering graphical function design features enable your engineers to be "engineers" instead of "programmers." The graphical design of automation strategies facilitates easier engineering of your applications. Because design is function oriented, you can develop strategies without specifying controller and I/O physical allocations.

Process visualization
Based on the new Microsoft Windows Presentation Foundation (WPF) technology, interactive process operation graphics can easily be customized through the use of the comprehensive library of pre-defined elements and symbols. In addition, bitmaps, photos, and third party graphical elements can be supported.
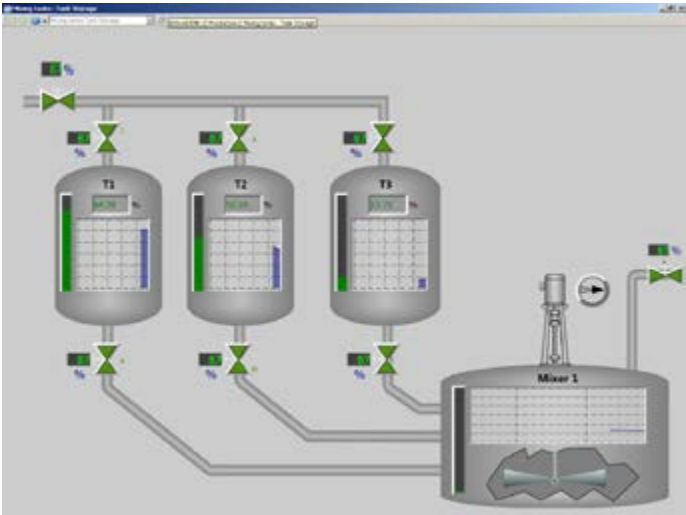
Device management
Device management for HART, FOUNDATION Fieldbus, and PROFIBUS intelligent devices provides the tools to engineer device integration from topology on down to the field elements, including device parameterization, application planning, commissioning, and detailed diagnostics.

Bulk data management
The ability to efficiently manage large amounts of data is crucial to the engineering of any automation system. Using Microsoft Excel and Excel add-ins, 800xA Engineering bulk data management features allow for the automatic importation and assignment of external data such as signal lists, tag names, or documents. In addition, you can export system data at any time to support data validation and modification.

Reusable solutions
Companies ensure maximum consistency, reliability, and availability of plant asset production by using "Best Practices" solutions. System 800xA allows standard solutions to be quickly reproduced and deployed.

Most focus their reuse solutions at the process control strategy and implementation levels. With System 800xA, your solution standards incorporate extended automation entities such as faceplates, graphic elements, trends, document links, Computerized Maintenance Management Systems (CMMS) data views, field device diagnostics, and asset monitors. Standards are defined at any level across the entire plant, loop, machine, line, unit, and area.

As needs change, your standards will change. System 800xA allows you to improve them. And, with automatic update of all deployed instances, you can immediately improve the performance of your plant.

System 800xA Windows Presentation Foundation (WPF) graphics streamline engineering

Change management
Needed to meet regulatory compliance, 800xA Engineering change management features record and track system configuration changes to project libraries, instantiated solutions, and runtime and off-line data. System 800xA not only tells the what, why, where, and when of changes that have occurred, it also improves the granularity of the change with a "Detailed Difference Report". This report indicates the exact change that was made thereby reducing time for verification during traditional change management processes.

Integrated documentation and diagnostics
System 800xA's integrated engineering environment provides the ability to associate documentation with related equipment and applications. Using dynamic documents, you can quickly navigate to the displays required for action. Documents based on Microsoft Excel®, Word®, AutoCAD® and many other formats can be enhanced with live process values for easier diagnostics review.
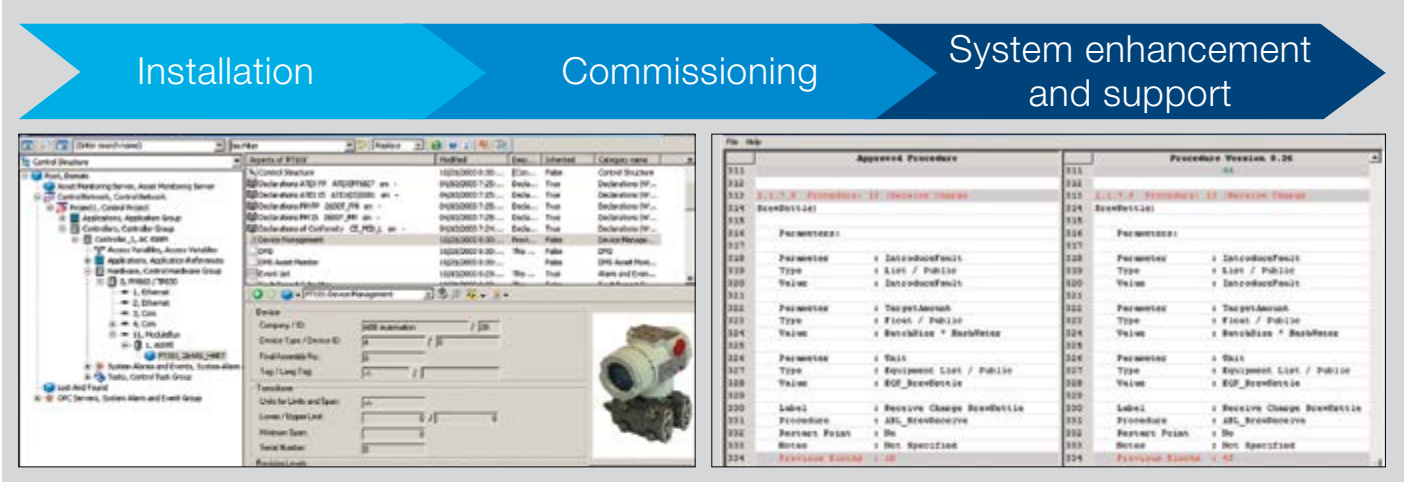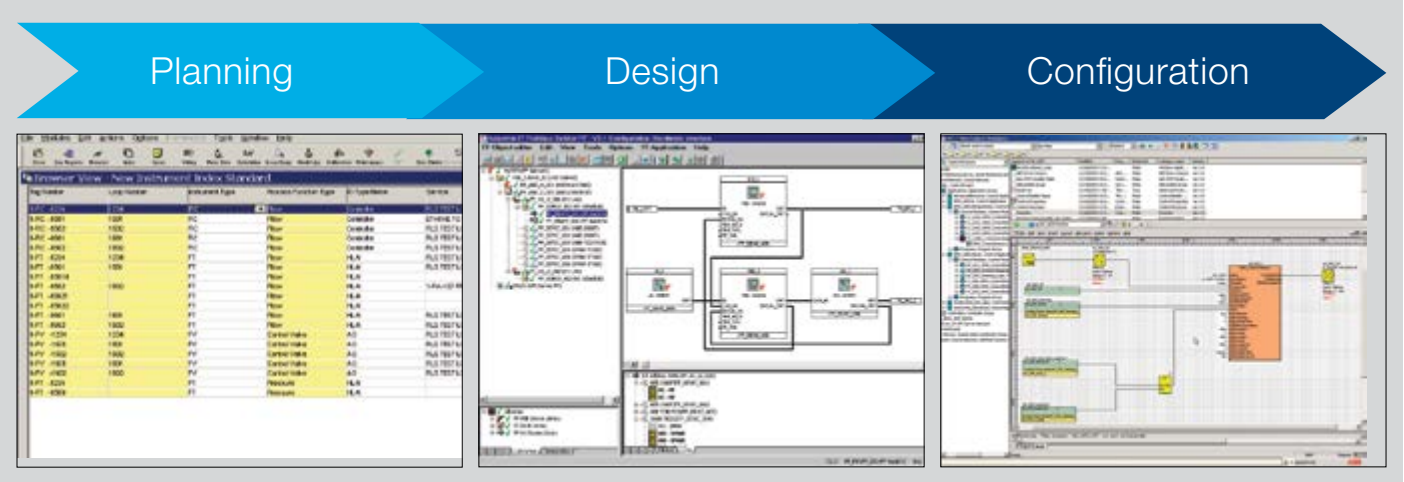
Achieving seamless control through integrated fieldbus communications

Traditionally, production facilities maintained many controller subsystems; each meeting specific plant needs. However, as business goals have changed, using a scalable controller platform possessing multi-functional capabilities, adaptability to changing requirements, openness, and maximum availability, is critical for success. The System 800xA family of controllers, communication interfaces and I/O modules match the most challenging requirements in all these areas.

High performance controller

System 800xA's flagship controller, the AC 800M, has the ability to integrate various networks, fieldbuses, serial protocols, and I/O. It provides seamless execution of advanced and process control strategies as well as safety, electrical, quality control, and power management applications.

The latest controller in the AC 800M family is not only significantly faster with more memory than earlier models, but easier to engineer as well. This provides significant value in large applications when a centralized approach is required.

Comprehensive communications protocols

Designed from the ground up to leverage the power of industry standard fieldbuses and open communication protocols, System 800xA's open architecture allows for the easy integration of a wide variety of devices and systems. This extensive portfolio of modules enables seamless integration of fieldbus devices, traditional technology controllers from ABB and 3rd parties, as well as electrical equipment. Extended automation solutions such as integrated process and power automation are now easily engineered and deployed and can leverage both the 800xA applications and hardware (IEC 61850 communications module).

System 800xA supported communication types

Serial communications (CI853)	MODBUS TCP (CI867)
PROFIBUS DP (CI854A)	PROFINET (CI871)
FOUNDATION Fieldbus (CI860)	IEC 61850 (CI868)
Ethernet/IP (CI873)	MasterBus 300 (CI855)
S100 I/O (CI856)	TRIO I/O (CI862)
Satt I/O (CI865)	INSUM (CI857)
DriveBus (CI858)	

System 800xA I/O provides a wide variety of input/output and signal conditioning capability

Flexible I/O options

System 800xA I/O, available for local and remote mounting, provides a wide variety of input/output, ranging from standard analog and digital to HART, FOUNDATION Fieldbus H1/ HSE, PROFIBUS PA/DP, PROFINET and IEC 61850 protocol devices. Intrinsically safe I/O, SIL rated I/O, and modular packaging options allow for System 800xA to be installed anywhere in the plant. These protocols enable integration of data and devices from almost any compliant source.

WirelessHART

System 800xA enables customers to utilize technologies such as WirelessHART to more easily capture diagnostic data as well as access wireless process variables. System 800xA's integration platform enables users to acquire WirelessHART diagnostic and process data and use it within any System 800xA control or monitoring application. Asset optimization features can be used to support advanced maintenance strategies and improve device performance.

System 800xA's WirelessHART integration, combined with ABB Instrumentation WirelessHART adapters and Wireless consulting services offerings, delivers the complete package necessary to help customers implement a solution tailored to their needs.

Vertical device integration

System 800xA provides device integration through numerous communications gateways and protocols. This enables the process and diagnostic data from the field devices (instrumentation, drives, IEDs etc.) to become part of the 800xA system making that data available for all integrated applications. There is significant value in having this diagnostic data available real time for an operator trying to diagnose a problem.

Some of the specific communications modules supported by System 800xA include:

IEC 61850

IEC 61850 defines interoperable function blocks which communicate over a network with other functions regardless on which suppliers' device they are implementing. System 800xA's IEC 61860 communications module is a key addition to AC 800M communications that enables users to finally optimize the use of their electrical subsystems within a facility relative to the power utilization required by the process manufacturing needs in real time.

System 800xA supports multiple communication modules

Foundation Fieldbus

System 800xA's support for Foundation Fieldbus (FF) includes both HSE and H1 networks. Foundation Fieldbus offers the unique capability to fully distribute control into the field devices with the use of function blocks similar to those used in most DCSs today. System 800xA is the only DCS that offers a full implementation of FF HSE and FF H1 that provides significant benefits to the user unmatched by a direct FF H1 only solution. These include:

– No controller requirements
– Further wiring reductions
– Elimination of peer-to-peer data sharing
– Flexible architectures for FF with robust communications
– Separated control and field device networks for independent commissioning
– Virtual signal marshalling concept – not tied to individual controllers
– Ability to withstand higher noise levels especially for communications between H1 links
– Built for "Control in the field" without being restricted to one H1 link

System 800xA not only provides freedom of choice of fieldbus protocol, but of Foundation Fieldbus networks as well.

Profibus/Profinet

PROFIBUS DP & PA are used for many applications including remote I/O with S800 and S900 products, connectivity to PB/ PA devices like transmitters and valves, and solutions with AC & DC drives.

Available in the latest System 800xA release, PROFINET now provides many of the features of PROFIBUS DP on an Ethernet backbone using the same tools and seamless connectivity features users of PB/DP & PB/PA already know. PROFINET is one of the key networking infrastructure protocols that users will have to integrate a wide range of automation networked products and solutions.

Ethernet IP / Device Net

Also in the latest release of System 800xA are Ethernet IP and Device Net communications modules. EtherNet/IP is the TCP/IP Ethernet extension of DeviceNet (and ControlNet). In addition to the speed increases achievable with Ethernet, the protocol also includes standard object and device models to simplify the communication message structures. A primary application of EtherNet/IP within System 800xA will be to provide high speed connections to PLC's and Motor Control Centers (MCC's) that use this protocol.
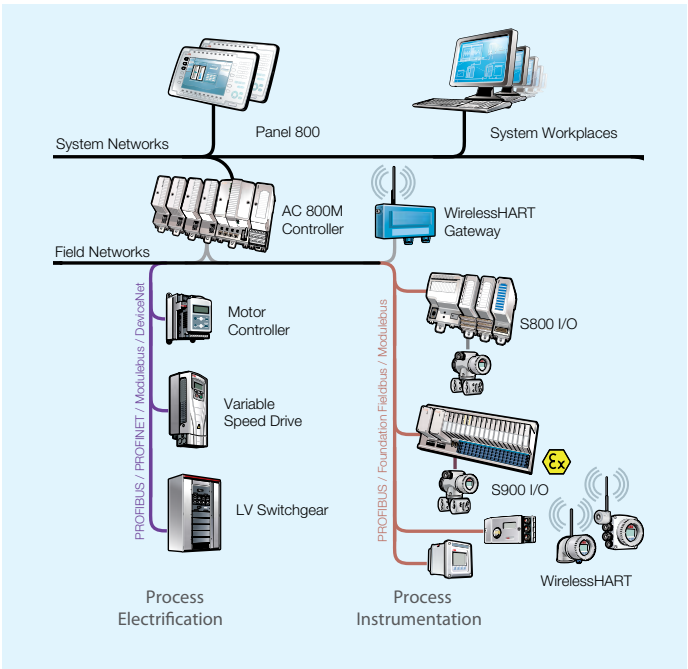
Providing a flexible evolution path through integrated controller platforms

Continuous productivity improvements and increased profitability are the driving forces behind the selection of today's automation systems. Traditionally, production facilities maintained many controller subsystems; each meeting specific plant needs.

However, to succeed in today's changing business environment, you need a controller possessing multi-functional capabilities, adaptability to changing requirements, openness, availability, programmability and maintainability.

Installed base compatibility

System 800xA builds upon the leading brands and technologies that have made ABB number one in automation systems installed base. This includes control and I/O compatibility for most installed systems from ABB, Bailey, Hartmann & Braun, Taylor, Fischer and Porter, and Alfa Laval Automation. The result: maximum leverage from installed components as you evolve to new functionality!

System 800xA supported controllers

AC 800M series	AC 870P series
Advant Master series	MOD 300 series
Freelance series	Melody series
Safeguard 400 series	SATT & Sattline series
Symphony DCI series	Symphony Harmony series

With the largest installed base of traditional DCSs in the world, ABB has designed the 800xA system to allow for implementation with its entire line of control and I/O products

Expanding functionality

By evolving to System 800xA, the traditional system functionality can now be extended to include asset optimization, alarm management, and knowledge management capabilities. Certified hardware and applications from ABB and 3rd parties provide additional value for the installed base including Advant Master, Symphony Harmony / INFI 90, Symphony DCI, Freelance, Contronic, and MOD 300 control systems as well as the latest AC 800M series controllers.

ABB offers evolution paths for the installed base through its common HMI (System 800xA Operations), controllers and I/O subsystems. Controller level peer-to-peer communication between traditional and AC 800M controllers allows for the incremental evolution and expansion to System 800xA. In addition to its products, ABB has an evolution services division that offers its customers low risk evolution programs to System 800xA including hardware, software, application upgrades, modernization and implementation.

Control libraries

ABB is committed to providing its system owners with extended automation solutions while protecting the capital equipment and intellectual property investments made in their installed systems. Control libraries are one of the solutions ABB offers for protection of investment in control applications. These libraries allow for step-wise evolution of control configurations to System 800xA using the same control algorithms as the original system.

Traditional "rip and replace" upgrades

Re-engineering or translation of control applications
New algorithms results in new process control behaviors
Long commissioning and startup periods
Create new documentation
Results in:
– Greater loss of production
– Increased risk
– Higher project costs

Comparison of evolution strategies

Investment protection

ABB's automation solutions help sustain and extend your control system to meet today's business challenges. We are focused on keeping your system as vital and productive today as it was the day you bought it. This dedication is realized in a number of ways. ABB has:

– A defined lifecycle support policy
– A history of providing a forward evolution path for all of our systems
– New technology that seamlessly integrates with and enhances our existing systems
– Tools and libraries that convert existing graphics, control code and documentation
– The lowest risk solution for the life of your system

Stepwise execution

ABB's evolution strategy is realized through our lifecycle programs ensuring that your control system is always current and serves your business needs. We are committed to working with our customers through our evolution planning and execution process to ensure that you can:

– Make informed decisions
– Better control lifecycle costs
– Extend the life of your existing automation systems
– Remove uncertainty to create predictable budgets
– Eliminate unplanned upsets and trips due to system interruption

ABB control library for AC 800M upgrades

Minimal to no engineering required
Process control is same as before
Minimal commissioning and startup
Documentation converted and enhanced
Results in:
– Minimal loss of production
– Minimal risk
– Lower project costs

Through ABB's evolution strategy, lifecycle policy, software management, and evolution planning programs, our installed automation systems remain viable and sustainable.

The power of integration: evolving to System 800xA

At the core of System 800xA is its integration platform. It is this platform which enables ABB to provide a powerful evolution path for its large installed base of control systems to System 800xA Operations. There are significant benefits in evolving to the latest hardware and software versions if you own one of ABB's traditional control systems. However, these benefits extend even further when integrating other equipment such as 3rd party controllers and PLCs. Once all areas of a plant / unit are controlled by and visualized within System 800xA, operators will become more effective, maintenance and troubleshooting will become easier and collaboration for real-time decision making will become standard good practice.

Support for life

In addition, an automation control configuration conversion utility transforms the existing control logic diagrams to like diagrams within AC 800M's graphical engineering environment. Through the use of these libraries and the conversion tools, traditional system owners can evolve their control strategies to the latest technology without the project costs or production risks associated with 'rip and replace" control upgrade methods.

Industry leading lifecycle policy
ABB's industry leading lifecycle management programs assist our customers in actively managing their control system lifecycle costs. Control system lifecycle management and customer investment protection have always been cornerstones of ABB's development programs. ABB's focus on "evolution through enhancement" has set the industry gold standard of lifecycle support for control systems. In addition, ABB's system lifecycle policy provides long-term software version support for up to seven years after release. This offers our system owners options to balance the addition of new technology and products that increase productivity with the need to mitigate risks and maximize Return-on-Investment (ROI).

In support of this customer focused strategy, Automation Sentinel is the system lifecycle management program that extends support for and the value of existing ABB control systems, protecting our customer's system investment. The program provides the best overall ROI for past, present and future automation control system software expenditures.

The Automation Sentinel Program assists system owners in actively managing their lifecycle system costs and

investments. With this program, system owners can decide when to update to newer versions of system software based on their system lifecycle plan and business objectives. In addition, customers receive consistent support through the complete lifecycle of their system.

A yearly subscription to the Automation Sentinel program provides the following deliverables:

– Licenses for new versions of system software
– Software maintenance updates
– Extended support for System 800xA software versions… up to seven years
– Technical phone support to assist in system problem troubleshooting
– On-line website access for downloads to assist in system maintenance:
– Software updates
– Firmware updates
– User manuals
– Software release notes
– Product technical bulletins
– Software security management:
– Microsoft security patch validation status reports
– Third party virus scanner qualification
– Personal computer hardware qualifications for compatible replacement PC models for new and existing software versions
– Device library management updates for System 800xA for PROFIBUS, FOUNDATION Fieldbus and HART
– Auto notification by e-mail
– Technical updates
– Product release information

Global service
ABB is one of the world's largest automation companies with an extensive, global installed base of control, motion and robotic products and systems. Our portfolio of services – from spare parts to consulting, optimization, and outsourcing services – ensures maximum return on your ABB automation equipment investment. Our automation service offerings include:

– Asset and process optimization services that utilize proven, improvement methodology, special tools, and knowledge of systems and processes to diagnose, implement, and sustain performance improvement, which lowers cost and increases the productivity of installed systems and assets.
– Reliability engineering and consulting experts with worldwide experience to ensure you reach the full potential of productivity and energy efficiency in a sustainable manner. ABB's broad suite of maintenance and reliability services assures equipment will start up, operate and shut down without failures or cutbacks.

Lifecycle services include a comprehensive selection of services to maximize productivity, minimize lifecycle costs and extend the useful life of installed equipment. These include:

Maintenance & field services
– Installation and commissioning
– Predictive, preventive and corrective
– Service contract agreements

Parts, repair and refurbishment
– Parts
– Emergency parts
– Test and inspection
– Repair and refurbishment
– Online parts and repair
– Parts inventory management

Support and remote services
– Remote enabled services and diagnostics
– Web-based support
– Telephone technical support

Evolution and upgrades
– Evolution planning
– Evolution implementation
– Standard evolution packages

Training services
– Product programs
– Process programs
– Custom courseware
– Coaching
– Training assessments

Engineering and consulting
– Energy efficiency
– Process safety
– Reliability and maintenance
– Process optimization

Installation and commissioning
– Functional testing and on-site configuration of control system components through full process control commissioning
– System placement, power-up, check-out
– Control tuning and sensor correlation
– Performance verification and documentation

With more than 10,000 service professionals worldwide, we get the job done, when it's needed, where it's needed.

Global community of experts

ABB's global community of experts help our end users with competence development, expert training, and System 800xA consulting in the areas of asset management, fieldbus technology, system architecture, engineering, information management, and IT security.

System 800xA expert offerings
– Design and capability consulting
– Project risk reduction
– Advanced engineering methodologies
– Implementation review and advanced troubleshooting
– Improvement of operator effectiveness
– Asset management implementation solutions
– Software solutions
– IT security
– Fieldbus network design

Design and capability consulting
Reduces future project and operations costs by taking full advantage of System 800xA technology during the design stages of your project.

– Product capability consulting
– System design reviews
– Fieldbus topology evaluation

Project risk reduction
Keeps the project on schedule and under budget to minimize impact on business performance.

– Technical project risk assessment
– Risk management implementation
– Dedicated project consultant

Advanced engineering methodologies
Accelerates System 800xA engineering competence to enable efficient project implementation

– Achieve greater engineering efficiency with training on advanced techniques
– Field system integration
– Project jump start program

Implementation review and advanced troubleshooting
Enables early identification of potential problems to increase system reliability and performance.

Improvement of operator effectiveness
Improves the operator's working environment to support collaborative decision making.

– Alarm management strategy and implementation
– HMI design review and improvement
– Operation strategy implementation
– Control room design and improvement

Asset management implementation solutions
Provides assistance in developing and deploying System 800xA's Asset Optimization in order to reduce maintenance costs, increase reliability and overall equipment effectiveness.

– Asset management strategy and consulting
– Feasibility studies & pilot projects
– Fast track device integration
– CMMS integration
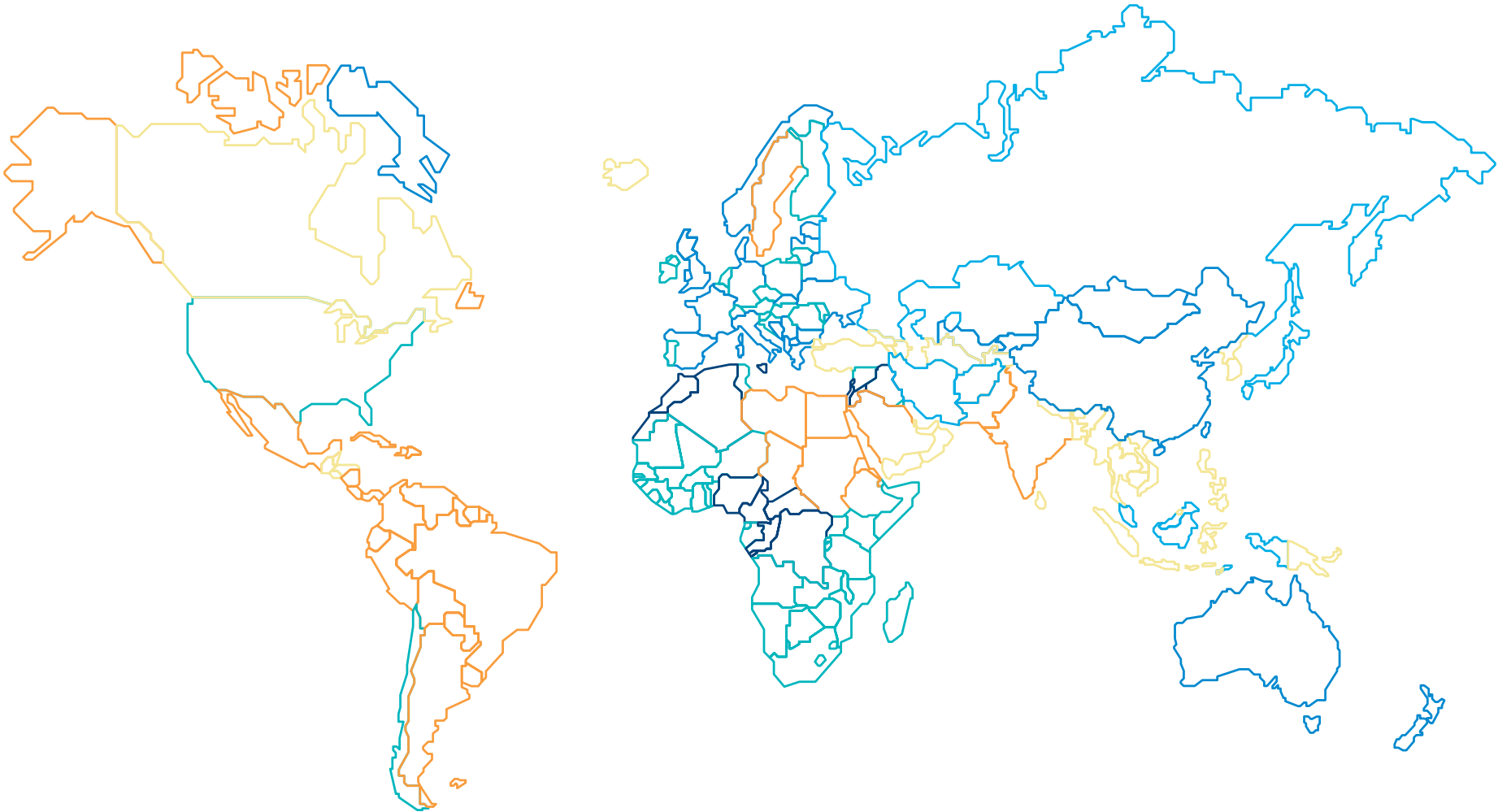
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