Utilize Your Process Automation System to Address Key Market Challenges

As technology continues to drive innovations, the production enterprise must keep step to remain competitive. Companies must converge their production disciplines into an integrated plant-wide architecture that better addresses their key market challenges. This plant-wide architecture must:

- Increase PRODUCTIVITY with continuous improvements that provide better asset utilization and system performance
- Enable BUSINESS AGILITY through rapid and cost-effective response to changing environments
- Address SECURITY RISKS to help protect important resources, such as people, assets and valuable information
- Improve TIME TO MARKET through system design efficiencies and rapid asset integration
- Support SUSTAINABILITY with extended product lifecycles, safer environments, and reduced energy usage

PlantPAx. The Modern DCS.

The PlantPAx™ process automation system from Rockwell Automation can help meet these challenges. The PlantPAx system provides:

- All the core capabilities expected of a DCS, while enabling plant-wide control and optimization
- Scalability and modular architectures to match exact requirements
- Open, information-enabled and secure architectures
- Flexibility in delivery and support of the system

It’s time to rethink what a distributed control system can do.
Plant-wide Control and Optimization
By implementing a single, plant-wide control system, companies can increase efficiencies and productivity across all layers of their operations. The PlantPAx system uses scalable, multi-disciplined control technology to provide a common automation platform for seamless integration between it and the balance of the plant. The technology allows the easy integration of process control, discrete control, power control, information and safety into one plant-wide infrastructure. This eliminates the need for different and disparate control systems, resulting in significant plant-wide optimization improvements and reduced total cost of ownership (TCO).

Utilizing a modern DCS to enable plant-wide control capabilities is often the key to improving productivity. It is able to deliver information-rich production intelligence into business systems to provide the visibility necessary to drive efficiency and productivity across all layers of the organization.
• Scalable system offers unified experience across applications, operations and environments
• Common plant-wide platform reduces support, training and spare parts inventory requirements
• Real-time information strengthens continuous improvements

Open, Information-Enabled and Secure
The DCS can no longer be an isolated operation. As organizations move toward gaining greater visibility into their operations, their need to establish a seamless flow of information from device to enterprise has become a requirement of modern industrial automation systems. The PlantPAx system is based on open communication standards leveraging EtherNet/IP as its backbone. As a result, real-time information is readily available throughout the enterprise for better business decisions. In addition, it allows the use of commercial off-the-shelf products and supports the adoption of the latest IT technology for automation. It addresses industrial security from the individual device on the plant floor to the enterprise.
• Lowers IT integration costs
• Enables production and IT convergence with industry-leading CISCO partnership and standards
• Layered security helps maintain operational integrity under threat
Scalable and Modular Architecture
The PlantPAx system is built for the needs of today’s end users, providing wider ranges of architecture options and increased flexibility. The same platform is used for single stations or large distributed architectures, providing the right-size control at the right cost. It also provides scalable system capabilities, such as HMI, batch management and data collection that does not require a server or workstation perfect for process skid equipment – enabling rapid integration.
- Provides cost-effective skid design, development and deployment
- Enables quick and easy process equipment integration into larger PlantPAx architectures
- Simplifies remote monitoring and support through use of unmodified Ethernet

Flexible Delivery and Support Network
The PlantPAx system offers multiple choices for implementation and support. Different integration routes may be selected depending on the scope of the project.
- It may be beneficial for manufacturers to engage Rockwell Automation to deliver the system and other world-class products, services and solutions
- Smaller manufacturers may elect to engage a local process system integrator because of an established relationship or availability commitment
- Others may rely on process equipment manufacturers to provide automation and equipment to leverage their specific expertise
**System Architecture**

**Provides scalability, flexibility and proven system performance**

Defined system architectures, enabled by PlantPAx system sizing tools, allow users to design an architecture with minimal risk and proven system performance.

**Scalable and Flexible**

Same platform for single stand-alone station or large distributed architecture enables cost-effective process equipment integration.

**High Availability**

Solutions from redundant I/O to redundant controllers, resilient networks to redundant HMI servers to maintain critical operations.

**Characterized System Performance**

Guidelines and system tools minimize the risk of incorrectly designed systems and help ensure system performance.

**Virtualization Technology**

Industry-first virtual image templates for system servers and workstations. Helps lower engineering, testing, and lifecycle costs.

**Control and I/O**

**Offers a single, scalable controller platform for unified system experience**

The system high-performance controllers are designed to address all the control requirements of today’s applications. They offer the processing power to control many loops with advanced process control.

**Plant-wide Control and Optimization**

- Single technology offers multi-disciplined control including process, discrete, power, information and safety
- Scalable from 10 loops to hundreds per controller
- EtherNet/IP with CISCO technology is integrated down to the control and I/O level converging IT to the plant floor with security policy consistency

**Broad Range of I/O**

- Wide range of chassis based to small distributed I/O
- Distributed I/O with small footprint reduces wiring costs and maintenance
- Redundancy options provide 1oo2d fault tolerance at the I/O level without having to pay for redundant components you don’t need
- Integration of drives and field devices for easier information retrieval
**Engineering and Configuration**
Helps shorten development time and minimize human error
The PlantPAx system offers an integrated design and configuration environment for automating production processes. It also provides tools for easy configuration of process devices. This streamlines the overall design, development and deployment process, resulting in faster, lower-cost implementations.

**Common Development Platform**
- Same configuration tools across all plant-floor applications
- Defined initial setup so users can focus on application specific code

**Modular Object Library**
Shorten development time with predefined logic and HMI objects for rich operator experience

---

**Operator Effectiveness**
Facilitate operator performance with easy-to-interpret process information
PlantPAx provides the tools and capabilities to make the operator more effective resulting in safe and efficient control of the process, in both normal and abnormal situations.

**Intuitive Visualization**
- Intuitive displays, objects and faceplates with integrated diagnostics help streamline operator response
- Comprehensive HMI toolkit for effective display design driving operator productivity

**Procedural Control**
- PlantPAx Sequencer eliminates the need for custom-coded configurations to automate procedures for continuous processes
- The sequencer’s intuitive, user-friendly interface helps operators see and understand the information they need making procedures more repeatable and easier to track

**Standards-based Alarming**
Effectively direct the operator’s attention with alarms to improve the productivity, safety, and environment of your plant.
Batch Management and Control

Offers the flexibility to respond to external pressures such as regulatory compliance, yield optimization and production agility

The PlantPAx system offers the scalability and flexibility to meet the broadest suite of batch applications, all built upon the ISA-S88 standard and integrated within the architecture. The availability of smaller, yet fully-functional systems means greater productivity and lower cost of ownership through engineering and maintenance cost reductions when compared to traditional DCS batch solutions.

Scalable Platform

Choose batch solutions from unit scale to highly complex and integrated.

High Availability

Solutions from redundant I/O to redundant controllers, resilient networks to redundant HMI servers to maintain critical operations.

Native ISA-S88 Structure

Simplify change management and regulatory compliance.

Integrated Analysis Tools

Optimize batch production through built-in batch, material usage, genealogy and production reports.

Safety and Critical Control

Reduces economic risk by protecting critical assets

Rockwell Automation offers a range of scalable process safety solutions that support fail-safe, fault tolerant and Triple Modular Redundancy requirements. These solutions are SIL rated and certified up to SIL3 for use in varied process safety applications and are offered as integrated or diverse platforms.

Scalable Process Safety

• Development tool provides easy to design drag-and-drop configuration and simulation and adheres to IEC61131-3
• Safety hardware designed and packaged for harsh subsea environments requiring SIL2 and SIL3
• Validated against ISO13628-6

Dedicated Process Safety Resources

• Expertise to design, implement and deploy process safety systems using functional certified safety engineers
• Engineering practices adhere to IEC61511 standards
Asset Management and System Maintenance

Helps ensure process uptime through improved asset performance management and predictive maintenance

The PlantPAx system helps users achieve their uptime goals through its broad portfolio of asset management tools and device connectivity options.

Connectivity

• Strong communication backbone to consistently integrate device networks using open device integration technologies
• Reduce time to troubleshoot and repair with immediate access to diagnostic information on any device in the system from any location

Instrumentation

Comprehensive device management enabled by industry standards

Premier Integration of Power Control Devices

• System incorporates variable frequency drives and intelligent motor control centers as native components to enable easy integration
• Easily retrieve information on energy consumption of devices
• Monitor your key assets – electric consumption, torque signature and relevant process variables to assess and track asset performance
• Make informed decisions along the lifecycle of your assets
• Correlate energy consumption with operational data to track equipment performance
Operations Productivity
Deliver actionable information into the hands of decision makers quickly
The PlantPAx system provides a broad offering of data management and decision support functionality to quickly deliver actionable information into the hands of decision makers.

Scalable Data Collection
• Collect real-time data at the source through chassis-based, plant-wide or enterprise-wide historian capabilities
• Equipment-level historians provide limited software footprint and no server connections, making the units inexpensive to deploy and helping reduce the risk of data loss due to network or other system interruption

Advanced Process Control
Delivers proven economic gains through increased production, reduced costs, improved product quality and reduced environmental risks
The PlantPAx yield optimization engine drives profitability for leading manufacturers worldwide by reducing variability, eliminating waste and improving quality. It helps facilitate quick response to market demands, continuous reduction of costs, consistent achievement of quality targets and enhanced air quality.

Broad Advanced Control Portfolio
From advanced regulatory to simple model-based control to model-predictive control

Flexible Deployment
From single loop and unit-level optimization in the controller to plant-wide optimization at the supervisory layer improving operational performance and return on investment.

Model Predictive Control
• Addresses interaction of multiple process variables in a predictive model to increase optimization and enable greater efficiencies
• Scalable, flexible and easy to integrate with existing business and plant infrastructure to lower total cost of ownership and provide superior asset performance

Emissions Monitoring
Soft sensors for continuous emissions monitoring help eliminate costly CEMS hardware.
Industrial Security

Rockwell Automation provides a layered security model to help reduce the risk of internal and external security threats, while allowing authorized personnel to use the system efficiently and in the intended manner.

Security Services

A converged set of industrial automation and IT experts can assess, implement and support plant-wide network infrastructures. This team has a breadth of industry standard committee participation.

Network Security Framework

Rockwell Automation can help secure your infrastructure through a combination of products and technology. From tamper and content detection through application access control and physical port security, we implement a Defense-in-Depth approach to security.
The Modern DCS
Across consumer- and resource-driven industries, PlantPAx offers one plant-wide control technology that enables significant plant-wide optimization – from raw materials and primary processing to packaging and warehousing. It reduces system lifecycle costs by providing premier integration of power control components on EtherNet/IP, including variable frequency drives and motor control centers. Additionally, real-time access to device information improves maintenance and troubleshooting capabilities and helps lower energy consumption.

Plant-wide Control and Optimization
Drives Total Cost of Ownership (TCO) savings
- One platform, one system with common configuration
- Multi-disciplined control – process, discrete, power, safety and information – for primary and secondary processes
- Leverages EtherNet/IP from the plant floor to the enterprise linking production information to business systems

OEM Scalable Architecture
Provides cost-effective skid design, development and deployment
- Easy integration of skids to modern DCS
- Rapid field device integration
- Supports multi-vendor integration
- Reduced training requirements

Production Intelligence
Enables continuous process improvement
- Information-enabled DCS supports Lean Six Sigma
- Real time intelligence enables faster decision making

Batch Management
Allows for modular designs providing savings on engineering and maintenance costs
- Enables control strategies that support flexible production capabilities
- Enhanced material tracking and tracing for regulation and standards requirements
- Defined repeatability to achieve “golden” batch

Operational Excellence
Provides critical asset health and performance information for optimization
- Integrating control, power, and safety enables asset performance management
- Diagnostic data can trigger manual or automatic intervention before any unplanned shutdown
- Immediate access to information enables quicker troubleshooting and response times
- World-leading advanced process control and condition monitoring drive energy efficiencies and reduce variability for cost savings.
Security
Protects people, assets, and information from accidental or malicious threats
• Intellectual property protection through standard system capabilities
• Government and standards alignment to fulfill independent requirements
• Control system architecture with layered security to help maintain operational integrity under threat

High Availability and Safety
Provides protection for personnel, equipment, production and the environment
• High availability and redundancy throughout the architecture for demanding 24/7 critical applications
• Scalable safety solutions from SIL1 to SIL3, including TMR
• Focused on availability, uptime, maintainability and repeatability

Sustainability
Provides cleaner, safer and more energy efficient operations to help you achieve your business goals
• Easy integration of PlantPAx, with energy monitoring control and reporting tools
• Vital data helps maximize asset availability, utilization and efficiency, which means more production uptime, reduced raw material use and optimized, efficient energy use
• Continuous emission monitoring to help ensure active compliance
DCS Migration Solutions
Migration services from Rockwell Automation and our partners help companies expertly and quickly migrate to newer technologies while minimizing downtime and maximizing operational success. Achieve productivity gains, lessen the risk of maintaining legacy equipment, and migrate at a pace that is comfortable – all while driving system lifecycle cost savings.

We have expert migration solutions for many legacy DCS systems including ease-of-migration tools such as I/O scanners, cables, wiring harnesses, database conversion tools, and more.

Leveraging Best in Class Partners
When companies choose Rockwell Automation, they also tap into the power of our PartnerNetwork™ program – a framework of well-managed relationships based on project needs. Our program provides access to a local, regional and global network of best-in-class companies including distributors, system integrators, machine and equipment builders, alliances and complementary product providers. Rockwell Automation and its partners help lower the Total Cost to Design, Develop and DeliverSM. We can help assess and quantify the value realized by choosing us as a preferred process automation partner.

<table>
<thead>
<tr>
<th>PartnerNetwork™</th>
<th>Sales &amp; Solutions</th>
<th>Products &amp; Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Enterprise</td>
<td>Distributors</td>
<td>Product Reference</td>
</tr>
<tr>
<td>Strategic Alliances</td>
<td>System Integrators</td>
<td>Technology Licensing</td>
</tr>
<tr>
<td></td>
<td>Machine/Equipment Builders</td>
<td></td>
</tr>
</tbody>
</table>
Solutions & Services

Bringing You a World of Experience

Across industries and processes, companies can leverage our global experience and partner resources to tailor solutions and services capabilities to meet their needs.

Rockwell Automation understands that a profitable, safe and sustainable operation is a primary goal for companies. As a valued partner, we offer industry and technology-specific expertise to address unique production challenges.

Our commitment is to help reduce project risk and provide solutions specific to the companies we support – executed globally and supported locally.

Optimize Operations

We start with an important step often overlooked in today’s competitive business world: we listen, to learn about our customers, their issues and their goals – for today, tomorrow and the future. After we understand their unique needs, we draw on our global pool of in-house experience and partner resources to deliver tailored, repeatable, scalable and maintainable solutions.

Protect Your Investment

By leveraging our global infrastructure of support centers and subject matter experts, we’re here to help protect our customers automation investment. Beyond providing peace of mind, as we help keep plants running, we’ll assess entire operations and recommend the right mix of services to help maximize productivity, optimize plant assets and improve the overall financial performance.

For more information about our process automation solutions, please visit: www.rockwellautomation.com/go/process
Rockwell Automation, Inc. (NYSE:ROK), the world’s largest company dedicated to industrial automation, makes its customers more productive and the world more sustainable. Throughout the world, our flagship Allen-Bradley® and Rockwell Software® product brands are recognized for innovation and excellence.