

Emerson Exchange 2017: The Next Era of Value Creation Is Digital

By Paula Hollywood, Harry Forbes, and David Clayton

Keywords

Additive Manufacturing, Digital Transformation, Digital Workforce, Workforce Upskilling, Main Valve Contractor, Wireless, Reliability

Overview

ARC Advisory Group recently attended another jam-packed Emerson Exchange in Minneapolis, MN. The location enabled the company to showcase its new facilities at the global headquarters for Rosemount products in nearby Shakopee. This is also the home of the company's second

Emerson Automation Solutions remains committed to partnering with its customers to help them achieve top quartile performance by accelerating value creation through investments in people and technology.

Interactive Plant Environment (IPE) training facility where students can improve their skill levels in a simulated plant environment.

Emerson Automation Solutions launched its Industrial Internet of Things (IIoT) portfolio last year when it introduced its [Plantweb digital ecosystem](#).

Just one year later, the talk now is about creating value digitally by automating mundane production tasks to enable workers to add more value through better decision support and increased collaboration. Emerson states digital transformation is fundamentally changing how people do their jobs, to create value in new ways with the right analytical tools and training. Stating that a one-size-fits-all approach won't work, Emerson Chief Technology Officer, Peter Zornio declared, "We've architected Plantweb to enable companies to get started where they can gain the greatest near-term impact." The company's Plantweb portfolio updates, introduced at the event, address this need. Mr. Zornio explained that these are designed to help customers achieve top-quartile performance across the lifecycle of their investments by linking strategy to business objectives, creating a culture of accountability, embedding expertise into work processes, and using real-time data to optimize.



Committed to Supporting Top-Quartile Performance

In his opening remarks, Executive President, Mike Train, promised that Emerson Automation Solutions will continue to build on the progress it has made in helping its customers achieve top-quartile performance through a modern approach to automation. Mr. Train acknowledged that digital transformation will enable the next era of value creation. He went on to suggest that digital transformation requires more than technology, stating that people and culture often represent the most challenge to change.

In this vein, CTO Peter Zornio shared that Emerson will focus on what it considers to be the five essential competencies for digital transformation and associated deliverables, from organizational alignment through program sustainability (see table).

Competency	Benefit	Emerson Solutions
Automated workflow	Enables plant personnel to focus on value added activities by eliminating repetitive tasks and streamlining operations	AMS ARES DeltaV DeltaV Logbooks Smart Commissioning
Decision support	Analytics and engineering expertise provide actionable insights to reduce complexity and enable more informed decisions faster	DeltaV Live Plantweb Advisor Plantweb Insight
Workforce upskilling	Empowers workers with knowledge and skills to support collaborative decision-making at higher levels	Training Simulators Expert assistance Control Performance Academy
Mobility	On-demand access to automation expertise and information	AMS ARES Asset View AMS Trex DeltaV Mobile
Change management	Simplifies and accelerates sustainable implementation of industry best practices	Operational Certainty Consulting Group Jumpstart Engagement Program Emerson ChangeManagement Methodology

Emerson's Five Essential Competencies for Digital Transformation

Digital Workforce Experience

According to the World Economic Forum, 73 percent of CEOs cite skills shortages as a business threat. In his presentation, Ranken Technical College President, Stan Shoun, supported this position, stating that manufacturing is not lacking for jobs, but rather the workforce is not keeping pace with technology. “This isn’t a jobs issue; it’s a skills issue. The future jobs created will be skilled, not unskilled.”

Manufacturers increasingly rely on automation to help fill these knowledge and experience gaps while simultaneously upskilling the workforce. In its immersive Digital Workforce Experience exhibit, Emerson demonstrated how its Plantweb digital ecosystem can empower workers to tackle new types of problems and deliver value in new ways. One example provided was an automated workflow for a valve repair, supported with real-time access to a remotely located valve expert to guide the technician through the repair process. Another was using a digital twin to enable an operator to test new approaches to controlling a process.

Emerson Becomes Main Valve Contractor

Emerson’s ongoing assimilation of Pentair’s Valves and Controls business dominated much of the Flow Control discussions. This acquisition continues to create a stir in the market as it paired the leading global supplier of control valves with the leading global supplier of isolation and pressure

Emerson’s ongoing assimilation of Pentair’s Valves and Controls business dominated much of the Flow Control discussions. The acquisition paired the leading global supplier of control valves with the leading global supplier of isolation and pressure relief valves.

relief valves. This expands the breadth of Emerson’s valve portfolio, strengthens its European presence, and increases its valve service capabilities.

Emerson plans to leverage the expanded scope of its valve and automation solutions to revolutionize the purchase processes and service businesses for isolation and pressure relief valves. By combining Pentair brands with Emerson’s Fisher brand, the company plans to become a main valve contractor (MVC). Combining the MVC role with the company’s strengths in DCS, asset management, intelligent field devices, wireless networks, and as a main automation contractor (MAC) allows Emerson to serve as a partner for most any automation requirements. This will become important in the future as more isolation and pressure relief valves are integrated into plant automation and other systems. Taking this a step further; Emerson hopes

to leverage its strengths to increase the availability and reliability of critical emergency shutdown and other safety valves; thereby increasing overall plant safety.

An interesting related item is the company's use of additive manufacturing to produce stronger, less costly valve components and deliver these to customers much faster. According to Terry Buzbee, Group President, Final Control, "Additive manufacturing lets us print with powdered metal right from a CAD file. This eliminates waste, saves energy, and produces products that are laser perfect and have better material characteristics. In fact, we can print a ball valve for a 1,000-psi application that's stronger than the cast version." Buzbee reported the company now uses additive manufacturing to produce all Cavitrol Hex cavitation-reducing flow conditioners. He added, "In the future, users are going to see more [additive manufacturing] facilities nearer to their sites for easier response and quicker deliveries."

Stiff Competition for Reliability Plant of the Year

There was stiff competition for this year's Reliability Plant of the Year (RPOY) award. The award recognizes organizations for improving operations by adopting top-quartile reliability strategies. The judges painstakingly whittled down the initial field of 53 nominees to three worthy finalists: Gwinnett County Water Resources of Lawrenceville, Georgia; TNB Janamanjung Sdn. Bhd. (TNBJ) of Malaysia; and Saudi Aramco Shell Refining (SASREF) in Jubail, Saudi Arabia.

The winner, SASREF, launched its Reliability Excellence Transformation (REXT) program in 2014 to create more business value for the facility by establishing a reliability and performance culture across the organization.

Reliability Plant of Year winner, Saudi Aramco Shell Refining (SASREF), increased mechanical availability from 96 percent to nearly 98 percent in three years and a 13.5 percent reduction in total cost of maintenance.

In part, the SASREF program leveraged automation, digital tools, and training to detect and resolve asset issues faster. It invested heavily in its workforce to help it become digitally-based. The 305,000 barrel-per-day refinery increased mechanical availability from 96 percent to nearly 98 percent in three years and achieved a 13.5 percent reduction in maintenance cost from the total budget. SASREF plans to sustain its efforts through industry benchmarking and pursuing ISO 55000 asset management certification.

tion in maintenance cost from the total budget. SASREF plans to sustain its efforts through industry benchmarking and pursuing ISO 55000 asset management certification.

Ten Years of Wireless

Emerson Automation Solutions used the event to mark the tenth anniversary of its first wireless transmitters. ARC's in-depth research in this area indicates that no other automation firm has made investments in this area comparable to Emerson's and the company is the clear market leader in wireless measurements and sensing.

The company recently launched a dual-mode wireless gateway that supports both WirelessHART and ISA100 industrial wireless communications standards. The vast majority of wired field measurements employ the ancient HART protocol. This can make them difficult to integrate from an IIoT standpoint because HART data must usually pass through a DCS to a device management software application. End users almost never have enough time and expertise to maintain this complex form of connectivity, which can involve tens of thousands of devices for a large complex. Furthermore, many of the existing device management applications are standalone and cover devices for just one process unit or DCS.

This all spells "opportunity" for Emerson. First, via wireless sensing where the connectivity is much easier. Second, via the company's Plantweb IIoT applications. Making field instrument data more widely accessible has and will continue to be an Emerson strong suit.

New Products and Services

Emerson used the event to mark the launch of several new products and services. The highlights include:

Operational Certainty Consulting Group

ARC research indicates that manufacturers are still learning about digital transformation; many want to begin, but are uncertain how to proceed. In

Emerson's Operational Certainty Consulting Group will provide expertise in safety, reliability, production, and energy management to help its customers achieve top-quartile performance by connecting manufacturing operations with business performance.

response, Emerson launched its [Operational Certainty Consulting Group](#) to help manufacturers develop a digital roadmap. Emerson believes its advantage in this area is its application and industry expertise. In addition to developing a solution architecture and management of change guidance, the group of 100+ consultants will provide expertise in safety, reliability, production, and energy

management to help its customers reduce losses due to poor operational performance, which the company estimates at \$1 trillion annually. The Operational Certainty methodology begins with an assessment of IT and network infrastructure to understand how users interact with it. Recommendations will focus on communications to facilitate collaboration and an architecture to support the business needs of the enterprise.

DeltaV PK Controller for Small-Scale Applications

A new [DeltaV PK controller](#) was introduced that targets a range of applications from skid-mounted equipment to large-scale traditional control operations. ARC's most recent DCS market research revealed that integrating skid-mounted control systems has become a pain point for end users, OEMs, and EPC firms alike. Though a project may agree on a common DCS, integrating multiple skid-mounted DCSs to form a single system is not a trivial endeavor. Emerson's new controller is designed to address this issue (for DeltaV users, at least). The product's functional design and features reduce costs and its licensing structure reduces duplicated costs that represent a pain point for system integrators and often encourages them to cut corners.

Heat Exchanger Monitoring App

The company introduced the [Plantweb Insight Heat Exchanger app](#). This provides real-time access to critical heat exchanger analytics anytime, anywhere. An extension of the Plantweb digital ecosystem, the app employs pre-built algorithms and analytics to deliver predictive diagnostics to monitor shell and tube heat exchangers and provide alerts, including for fouling, heat duty, and heat transfer coefficient. The app operates independently of existing monitoring and control systems.

Conclusions

The Emerson Automation Solutions Plantweb digital ecosystem, in collaboration with strategic partners including Microsoft, Cisco and Dell, plays to the company's leading position at the sensor/actuator level of the IIoT stack. Hardware innovation to ease the complexity of installing, commissioning, and connecting devices wirelessly is being augmented with analytics and applications to provide deeper insight into asset and plant performance to empower the digital worker.

The company is also taking an innovative approach to delivering its domain expertise through innovative software. Plantweb Insight applications target specific asset classes to identify and resolve asset issues. The Plantweb Advisor Suite leverages the open data infrastructure of OSIsoft PI to monitor plant asset health, plant performance, and energy consumption. Connected Services enables Emerson to deliver its expertise via the SaaS model.

Emerson Automation Solutions continues to demonstrate its willingness to invest in new concepts, technologies, products, alliances, and acquisitions. The combination of Project Certainty, Operational Certainty Consulting, and the Plantweb digital ecosystem enable Emerson to offer its customers the opportunity to digitally transform their operations from dull, dirty, dangerous and distant environments to engaged, clean, safe, and desirable places to work.

For further information or to provide feedback on this Insight, please contact your account manager or the author at phollywood@arcweb.com, hforbes@arcweb.com, or dclayton@arcweb.com. ARC Views are published and copyrighted by ARC Advisory Group. The information is proprietary to ARC and no part may be reproduced without prior permission from ARC.