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Highlights of the 2016 Emerson  
Global Users Exchange

October 24-28, 2016

Austin, Texas, USA

A Special Report  
by the Editors of  
*Control*



# SHOW ME THE MONEY: HOW TO JUSTIFY AUTOMATION PROJECTS

Quantify risk and reward to get your next project approved.

Paul Studebaker

Developing the financial case for an automation project requires a perspective that goes beyond the system itself and considers potential gains from improvements in operations. “Expanding your view beyond the control system often lets you see significant opportunities for financial gains you can use to justify more and better automation,” said John Dolenc, P.E., principal consulting engineer, Emerson Automation Solutions, to attendees of his session at Emerson Global Users Exchange this week in Austin, Texas.

Automation projects generally fall into three categories: replacing an existing system, taking advantage of

an identified opportunity, and acting on an idea for a potential opportunity. “System replacements are usually a question of when, not if,” Dolenc said. Justification can be done on the basis of maintenance costs, lack of support (obsolescence) and risk.

“Whether or not it’s driven by a system replacement, a new system can be a platform for performance optimization,” Dolenc said. “Look at the full range of costs to see opportunities for optimization.”

Start with causes of poor performance. “An EnTech study showed two-thirds of loops underperform, resulting in variation,” Dolenc said. Poor performance also re-

**“You can look at the financials in real time to maximize profit. When the operators can’t see this, they may run the plant well but lose money.” John Dolenc, P.E., Emerson Automation Solutions, on how automation impacts the bottom line.**

sults when operators run the plant with too much of a “safety factor,” when batch operations are inconsistent, and when the operations organization lacks the information it needs to make decisions.

Poor performance also can be caused by deteriorating conditions, such as worn pumps and inefficient catalysts; human error; and lack of availability due to outages.

#### Believe that automation will help

“Most plants as-built do not have optimum measurements and controls,” Dolenc said. “Engineering and construction companies see I&C as overhead and give you the minimum needed to get you to sign off on the design.”

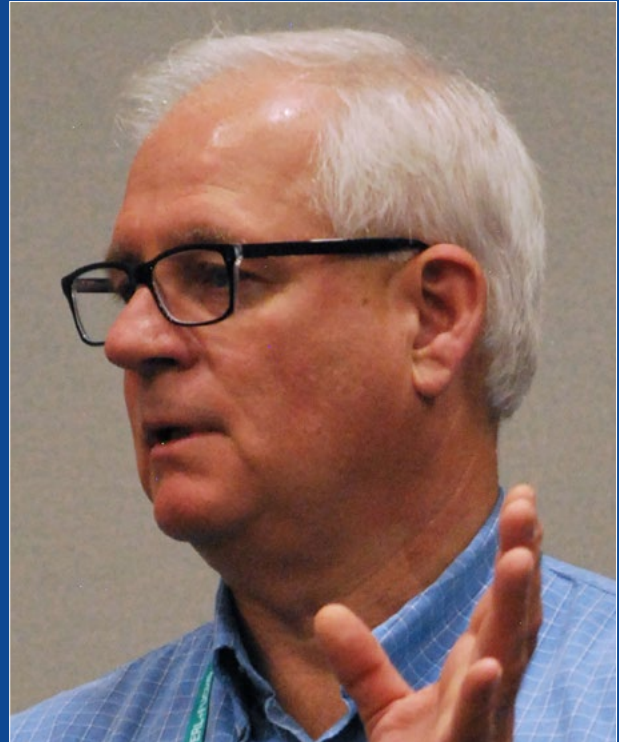
Perhaps the current system is not being used to its potential. “Many plants were originally designed with no DCS, just loop control—sometimes pneumatic—and the DCS was just designed to replace a panel board,” Dolenc said. “Now, we’re replacing those systems. Some plants want no improvements, and their designs are still based on single-loop control.”

Some of the potential values of modern automation can be had by optimizing unit performance. Advanced control is now easy to add, and consider adding support for performance management. “You can look at the financials in real time to maximize profit,” he said.

Real-time measurements at the operations supervisor’s or plant manager’s desk can help them to identify opportunities to increase profits. Reliability can be improved with key process measurements that allow you to see problems early and do troubleshooting.

Another opportunity is in logistics. “A lot of money can be had by improving inventory,” Dolenc said. “Typically 10% of inventory is tied up in vessels. That’s a lot of value.” Better control also can reduce variability, which helps to reduce cycle times and increase capacity.

Safety and environmental concerns can be addressed by



developing control and operating procedures that keep the plant in a safe state so the SIS never activates.

#### Show them the money

To convince the accountants, look at the financials and ask, “Where are we not performing?” Compare performance to the metrics and understand the accounting perspective before interviewing operations. Then speak to the operations supervisors, the production and process engineers and the controls engineers.

Understand your plant’s definition of OEE and consider how automation might improve it. Look at cost sheets and budget cost factors—the costs of material, energy and labor to make a pound of product. “If energy costs are allocated instead of actual, it may be hard to justify savings here,” Dolenc said. “And, if actual costs are distributed, you might do a good job of managing steam on a single unit, but it’s invisible to the accountants.”

Look at time-based demand. “The average demand may be below the capacity, but demand spikes may be higher,” Dolenc said. “Adding capacity may offer a significant return.”

Bear in mind, “the majority of systems are underused,” Dolenc said. “Find the opportunities and work on them. Many have small cost, are easy to justify and offer fast ROI.”



## **SAVE THE DATE!**

**Emerson Exchange 2017 comes to Minneapolis, Minnesota, USA, October 2-6**