

# Plant Services

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## Time to Ripen

Green initiatives often need room to grow before they bear financial rewards

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# LEGACY UPGRADE

## Optimize production flow and ROI with control system investments

In a no-spend environment, it's tempting to continue repairing aging or outmoded process controls. Budget constraints and maintenance contracts might preempt any discussion about upgrading controls until you reach the point where you simply can't fix them anymore.

If you're trying to save money on an outdated process control system that way, you're investing in false economies. Eventually, upkeep becomes more expensive than purchasing a new system.

Graham Packaging worked with automation and controls specialists to maintain our edge in customized packaging. We operate a tabletop conveyor depalletizer system and an aseptic, water-wash line in a Class 100 clean room. We're moving 24,000 bottles/hr, and we struggled with nuisance trips and jams. The operators didn't understand that the problem was the information the machine gave them. They'd have to try several solutions. This equipment has five access doors, and it didn't identify which was open, so we'd have to operate each door to find out. This machine has pumps and valves. If one had a problem, it didn't tell what to look for or which valve was the problem.

Connell Industries ([www.connell-ind.com](http://www.connell-ind.com)) helped us identify needs and opportunities to be addressed through system upgrades and replacements. Upgrading saved us four hours to six hours of downtime each month. We didn't have a lot of catastrophic failures, but if you're getting so much downtime, you've got an problem.

Connell looked at revamping and upgrading the controls and operator interface. We wanted the most up-to-date industry-standard equipment, so we could get replacement parts. We upgraded to a touchscreen HMI, Rockwell Automation's Allen-Bradley on-machine PLC, and two Allen-Bradley VFDs/encoders. We added remote monitoring so management could watch process variables.

The ROI matches what one expects from a retrofit or upgrade. One primary benefit of upgrading controls is system reliability. That translates into other benefits, such as product quality, uptime, and production capacity.

Key metrics are how much labor we use to get packages out the door and the time it takes to repair. Better diagnostic tools let us measure that. The data monitoring system allows us to react more quickly and keep ahead of problem areas.

Even when you're not there watching the equipment, you can see an increase in events. By having insight into the

equipment as it's running and being able to monitor key components in the line, we don't rely on perception-based or importance-based decisions. Instead of spending time on reactive maintenance, we watch trends. Everyone does PMs, SIPs and CIPs. The more invisible we are, the better off everyone is. The automated delivery of reliable information via advanced interfaces enables more appropriate system support. We don't rely on human interpretation. Trouble-

## TROUBLESHOOTING AND FAILURE ANALYSIS CAN SUFFER WHEN INDIVIDUALS DEVELOP THEIR OWN ANALYSES AND SOLUTIONS.

shooting and failure analysis can suffer when individuals develop their own analyses and solutions. If five people look at a problem, we'd get five interpretations and solutions.

Intelligent process controls can identify problems and the events that led to them. This streamlines our ability to integrate, troubleshoot, identify, and evaluate efficiencies and opportunities. Process data reveals trends that let us schedule timely maintenance. We know how products affect the production line and how some cause more wear and tear.

Some of the feedback comes from advanced network communications, including SCADA systems. Higher system integration is more attainable through Internet-based systems that use the existing Ethernet communication network installed in most facilities.

In some senses, improved system reliability is like an iceberg, with uptime and productivity improvements representing the visible and, to many companies, the most important cost benefits. Savings on system maintenance and repair can be tied to appropriate automation-control upgrade programs because of the ability to get system-wide feedback. This gives new opportunities to institute improved maintenance programs, whether preventive maintenance or corrective maintenance. This information also gives added flexibility in maintaining equipment. ☎

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