Legacy Automation Systems: Maintain Or Overhaul?

Mike Schmidt, Manufacturing Business Technology

There is no shortage of reasons why manufacturers consider addressing the limitations of their legacy automation systems. From increased efficiency to faster production to widespread customization, there is obvious value in overhauling or maintaining aging equipment.

Then why are manufacturers sticking with legacy systems that don't offer the desired performance and flexibility? More importantly, what are their options when they decide they are ready to make a change?

In most cases, a complete overhaul of a system is often an undesirable option with a ton of risk involved. First and foremost, the purchase price of new equipment is high. Then it often takes months to wire, test and debug the system. The production time that's lost is considerable. Manufacturers should consider their respective IT strategies to ensure the IT department and organizational decision-makers are on the same page with regard to their automation improvement goals and objectives.

Then there's the legacy systems themselves. They don't make the decision-making process any easier for companies.

"A lot of it has to do with how legacy systems are designed," said Richard Brueggman, Marketing Committee Chair for the Control System Integrators Association (CSIA). "They are somewhat rigid. They are designed to do a specific task and do it well."

But only to a point. That lack of flexibility can cause a variety of issues. For example, legacy systems can cause significant problems if a company employs Microsoft Windows as its operating system.

"If you don't upgrade your HMI software, you can't necessarily run on a later

operating system, which means you don't have the security patches in place," said PC Romano, Treasurer/Statistics Committee Chair, CSIA, who noted that those companies are forced to downgrade their Windows operating system and retrofit installations.

Security becomes a significant and ever-present problem that threatens operations. These issues aren't going away – in fact they are becoming more prevalent in the past year or so due to high-profile security incidents at major companies like Apple and Amazon.

"This is a challenge for integrators and their clients," said Bob Lowe, Executive Director, CSIA. "More and more, integrators are expected to deal with cyber-security issues, and they are held liable if something goes wrong."

Making incremental changes and improvements can be a cost-prohibitive and frustrating, especially if done incorrectly. Often, companies recognize the risk and complexity involved with maintenance and improvement, so they opt for doing nothing at all.

However, a migration method is often the best bet to limit cost and downtime but still reap the benefits of an upgrade. That being said, there needs to be a plan in place. And that plan doesn't necessarily start with approaching an automation supplier.

"Manufacturers often go to the automation suppliers for those upgrades and maintenance," said Romano. "Sometimes there is more creative ways to get that flexibility out of a system that what that automation supplier recommends."

However, according to CSIA, manufacturers must choose the system that provides the lowest total cost of ownership over that of the lowest initial cost.

"(The proper) design, structure, and architecture is really going to give them the long-term benefits where it is easily adaptable and low cost to maintain," said Brueggman.

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