

The Step-by-Step Transformation: How Targeted Automation Delivers Better ROI in Automotive Manufacturing

Four Expert Perspectives on a gradual approach to automation

The recent report "Driving the EVolution" highlights a significant trend in the automotive industry: while 50% of industry experts emphasize the importance of automation and AI systems for reducing operational costs, 80% express concerns about economic uncertainty, leading to delays in major automation projects. This underscores the need for a cautious and incremental approach to boosting the productivity of automotive factories.

Small Steps to a Big Goal

Start with 'low-hanging fruits,' which have a big impact and low risk," advises Lucas Majewski, Global Director of Automotive/EV Industry at Mitsubishi Electric. Instead of expensive complete overhauls, industry experts find that strategic, smaller steps often work better and cost less upfront. The report reveals a significant shift in how manufacturers evaluate automation investments.

As Giuseppe Polimeni points out in our newest industry report, "Driving the EVolution," human operators' resistance to change and the cost of solutions remain the biggest challenges in implementing automation in automotive manufacturing. While technological advancement remains essential, 45% of industry experts highlighted the paramount importance of ROI in automation decisions. This increased focus on financial returns drives manufacturers to

seek solutions that deliver measurable value without a costly initial investment.

"Investing in solutions that provide an attractive ROI – investments in optimization, efficiency, predictive maintenance, etc. —often results in cost savings that outweigh the initial investment," notes Frederik Kok, Senior Cyber Security Expert at Mitsubishi Electric Europe B.V.

This focus on ROI is confirmed by [Deloitte's 2024 Manufacturing Industry Outlook](#) report, which found that 86% of surveyed executives acknowledge that innovative technologies will be the primary drivers of their competitiveness in the near term. However, calculating the return on automation investments requires a methodical approach. Manufacturers are increasingly adopting sophisticated ROI models that consider not just the payback period but also the internal rate of return and net present value of their automation investments. It leads to more problem-oriented implementations.

Tailored Software

Rather than installing expensive, factory-wide automation systems, manufacturers are succeeding with targeted solutions that address specific problem areas:

AI-powered maintenance systems like MELSOFT Mailab analyze data from machine sensors to spot problems and predict failures before they happen. [One minute of unexpected downtime on a car assembly line can cost \\$22,000](#)". Implementing focused predictive systems can cut downtime, saving money without requiring complete production line rebuilds.

Strategic quality control systems deliver significant value when implemented at key points in the production process. Two notable solutions - MELSOFT VIXIO and the already mentioned MELSOFT Mailab - demonstrate this potential. Stephen Methogo, Director EV & Lithium-Ion Battery Industries EMEA at Mitsubishi Electric, reports: "Our implementations at European automotive plants show the power of this approach: 65% less manual inspection time, 40% fewer welding defects, and payback within 4.5 months." These impressive results were achieved through targeted solution applications at critical points rather than requiring factory-wide changes.

Energy-saving solutions are another area where modest investments bring substantial returns. A project at Mitsubishi Electric's plant, Fukuyama Works, cut power demand by 25% through AI-driven energy management, ensured by [EcoAdviser solution](#), focused on high-energy processes.

Fu Zhiqi, Key Account Department Deputy Director (Automotive Industry) advises: "Another possible approach to manage high automation costs is to use open-source AI technology to reduce digital manufacturing expenses." This approach lets manufacturers test concepts with minimal investment before committing to larger implementations.

Matched Gears

The "Automotive Industry Factory Automation Expert Round-Up Report 2025" report highlights a significant shift toward cost-saving technologies. This has driven the development of scalable automation options tailored to different manufacturers' sizes and needs.

Car manufacturing automation offers solutions for every scale of operation. While large OEMs typically deploy high-performance systems—such as [A-series inverters capable of achieving up to 98% energy savings](#), RV-FR robots, or MELSERVO J5 Series—there are equally reliable alternatives for different production needs. Auto parts manufacturers and specialty vehicle makers can achieve excellent results with optimized solutions like CR-series industrial robots and compact FR-CS80 inverters, which deliver strong performance at a more accessible price point.

Frederik Kok reports specific results from this measured approach: "Through targeted energy management techniques, we can reduce unexpected breakdowns, improve machine uptime by 20%, and cut energy consumption by up to 30%." These improvements show how strategic, targeted automation investments can deliver multiple benefits across operations.

The Step-by-Step Path Forward

The report shows that successful manufacturers are taking a building-block approach to applying automation, allowing for gradual implementation and expansion based on proven results:

- Starting with targeted solutions in high-impact areas
- Confirming results and return on investment before expanding
- Building modular systems that can grow incrementally
- Focusing on solutions with multiple benefits (e.g., quality improvements that also reduce waste)

Non-financial Benefits

Beyond saving money, a step-by-step approach to automation offers essential additional benefits. Smaller, more manageable projects significantly reduce implementation risk, allowing teams to maintain stable operations while introducing new technologies. This gradual introduction also helps workers adapt more easily, as they have time to learn new skills and adjust to changing processes without feeling overwhelmed.

As Frederik Kok emphasizes, "It's crucial to assure teams that automation is not a threat to their jobs. It improves employee efficiency and helps build new skills." This message is easier to demonstrate with gradual changes rather than disruptive overhauls.

Perhaps most importantly, an incremental approach allows manufacturers to adjust based on real-world results rather than theoretical projections. This flexibility, combined with the ability to respond quickly to changing market conditions, creates a more resilient operation that can thrive during uncertain times.

Smartest, not Fastest

Industry experts believe that the most successful automotive manufacturers are not those pursuing complete automation at any cost but those implementing strategic, step-by-step solutions that deliver immediate value while marking the way to a more automated future.

As Lucas Majewski simply says, "Consider the Total Cost of Ownership. Start with opportunities that present quick wins, offering substantial impact while carrying minimal risk. Prioritize flexibility and modularity."

The automotive industry stands at a critical crossroads – balancing the pressure for digital modernization against economic uncertainty. The winners won't be those who invest fastest, but those who automate smartest, making targeted investments that deliver measurable returns while maintaining the financial discipline needed to succeed in unpredictable times.

About the Report: "Drive the EVolution! Automotive Industry Factory Automation Expert Round-up Report 2025" combines insights from industry experts across Europe, Asia, and the Americas with real-world case studies and actionable recommendations for manufacturers aiming to stay ahead in a rapidly evolving industry.

About Mitsubishi Electric Corporation

With more than 100 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing, and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation, and building equipment. Mitsubishi Electric enriches society with technology in the spirit of its "Changes for the Better." The company recorded a revenue of 5,521.7 billion yen (U.S.\$ 36.8 billion*) in the fiscal year ended March 31, 2025.

For more information, please visit www.MitsubishiElectric.com.

**U.S. dollar amounts are translated from yen at the rate of ¥150=U.S.\$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2025.*

About Mitsubishi Electric Factory Automation Business Group

Offering a vast range of automation and processing technologies, including controllers, drive products, power distribution and control products, electrical discharge machines, electron beam machines, laser processing machines, computerized numerical controllers, and industrial robots, Mitsubishi Electric helps bring higher productivity – and quality – to the factory floor. In addition, its extensive service networks around the globe provide direct communication and comprehensive support to customers. The global slogan "Automating the World" shows the company's approach to leveraging automation for the betterment of society through the application of advanced technology, sharing know-how, and supporting customers as a trusted partner.

For more about the story behind "Automating the World", please visit:

www.MitsubishiElectric.com/fa/about-us/automating-the-world