

The ‘Silver Tsunami’ Hits Manufacturing. A Call to Action for Bridging the Knowledge Gap

The industrial sector's dual challenge of labor shortages and knowledge retention has reached a critical mass. With each retiring expert, decades of invaluable manufacturing know-how are at risk of being lost forever. However, within this pressing issue lies an unexpected opportunity for transformation.

As the experienced workforce ages and retires, a crisis is looming over the manufacturing sector. [The U.S. Census Bureau and The Manufacturing Institute](#) have projected a staggering 2.1 million unfilled jobs by 2030 due to skilled labor shortages. The industrial sector faces a perfect storm as know-how retention and transfer challenges compound this deficit.



This is not a new problem. According to the National Association of Manufacturers (NAM) [Manufacturers' Outlook Survey \(Q4 2023\)](#), more than 71% of manufacturing companies have already cited attracting and retaining a quality workforce as their top challenge, and the situation has not improved since then. Younger generations are showing less interest in industrial careers, leading to a skills gap that impacts operational efficiency and innovation capabilities. This generational disconnect demands effective knowledge transfer strategies.

Unlocking Transformation Through Knowledge

Retaining and sharing knowledge is essential for sustainable business practices. Companies excelling in this area demonstrate stronger environmental performance through systematic best practice documentation, AI-supported learning platforms, mentorship programs, digital information repositories, and real-time data sharing. Organizations embracing these solutions are better positioned to reduce operational waste, optimize energy consumption, and quickly adapt to market changes.

The challenge of knowledge retention is twofold. While younger professionals excel in digital solutions, they often lack the hands-on experience of their seasoned counterparts. Modern solutions have made transferring skills more achievable than ever. Digital tools are transforming traditional approaches, capturing experienced workers' decision-making patterns and creating accessible knowledge repositories.

“Our goal at Mitsubishi Electric Factory Automation is to augment manufacturing expertise and intuition with empirical data and insights while systematically converting implicit knowledge into explicit, replicable rules. This approach not only enhances current decision-making capabilities but also creates a sustainable framework for knowledge preservation and transfer. MailLab is a prime example of this approach. This AI-powered platform increases machine and production line intelligence by combining empirical data with seasoned expertise. It serves as a centralized knowledge hub, transforming crucial insights into explicit, shareable information that benefits the entire organization.” explains Christian Nomine, Factory Automation Strategic Product Manager at Mitsubishi Electric Europe B.V.

AI enhances rather than replaces human expertise. With solutions like Mailab offering a streamlined implementation process and cost-effective entry points, companies can start their AI journey without significant upfront investment. This accessible approach helps prevent the substantial costs of inaction - from increased scrap and quality issues to lost production capacity.



“Imagine a scenario where a seasoned technician develops a novel solution to a recurring production bottleneck. We can document this solution, including the specific steps, data analysis, and rationale behind it. This information becomes readily available to other team members, transforming crucial knowledge into shareable insights. This democratization of expertise reduces reliance on individual experts and empowers the entire team to benefit from best practices,” adds Nomine.

AI-powered solutions optimize tool utilization, reduce equipment failures, and lower operational costs while enhancing sustainability.

Building a Sustainable Future

The global labor shortage is propelling industries toward a critical transformation in how expertise is preserved and shared. “Smart knowledge transfer solutions, particularly those leveraging AI capabilities, not only bridge the expertise gap but also make manufacturing more appealing to tech-savvy professionals. It isn't just about working smarter; it's about pioneering a future where business excellence meets sustainability,” concludes Nomine.

The 'silver tsunami' in manufacturing presents both a challenge and an opportunity for revolutionary change. While the exodus of experienced workers threatens to drain crucial knowledge from the industry, it has catalyzed the development of innovative solutions that bridge the generational gap. By leveraging AI-powered platforms and digital knowledge transfer systems, manufacturers can not only preserve decades of expertise but also create more attractive, technologically advanced workplaces for the next generation. This transformation is fundamental to achieving true sustainability in manufacturing. Without effectively addressing knowledge transfer, any attempts at building a resilient and sustainable manufacturing sector will fall short. It's not just about surviving current challenges—it's about securing future sustainable operations.

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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 5,257.9 billion yen (U.S.\$ 34.8 billion*) in the fiscal year ended March 31, 2024.

For more information, please visit www.MitsubishiElectric.com

**U.S. dollar amounts are translated from yen at the rate of ¥151=U.S.\$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2024.*

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 leverage 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:

<https://www.MitsubishiElectric.com/fa/about-us/automating-the-world/index.html>

About e-F@ctory

e-F@ctory is Mitsubishi Electric's integrated concept to build reliable and flexible manufacturing systems that enable users to achieve many of their high speed, information driven manufacturing aspirations. Through its partner solution activity, the e-F@ctory Alliance, and its work with open network associations such as The CC-Link Partners Association (CLPA), users can build comprehensive solutions based on a wide ranging "best in class" principle.

In summary, e-F@ctory and the e-F@ctory Alliance enable customers to achieve integrated manufacturing but still retain the ability to choose the most optimal suppliers and solutions.

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