# Revolutionising manufacturing with AI and cobots



The integration of artificial intelligence (AI) and automation technology is increasingly shaping the manufacturing landscape, as illustrated by recent initiatives in New Jersey and across Europe. Notably, the New Jersey Manufacturing Extension Program (NJMEP) has aligned with Universal Robots, a prominent player in collaborative robotics, to enhance workforce capabilities in the state. This partnership marks NJMEP’s official entry as an Authorized Training Partner within the Universal Robots Training Academy, aiming to bridge the gap between advanced automation technologies and local manufacturing firms.

Representing a major shift, this collaboration began with the first training sessions on November 15, 2024. It seeks to empower New Jersey manufacturers by providing specialized robotics training, focusing on the practical aspects of operating and programming collaborative robots, or cobots. These robots are designed to work alongside human workers, enhancing productivity and safety while helping businesses scale operations effectively. Peter Connolly, CEO of NJMEP, underscored the strategic benefits of this partnership, highlighting its potential to foster innovation and bolster the regional economy.

The introduction of cobots is particularly relevant as manufacturers face increasing pressure to adapt to a rapidly evolving industrial landscape. The partnership aims to equip the workforce with essential skills needed to thrive in a technology-driven environment, thus reinforcing New Jersey’s position in contemporary manufacturing.

Beyond New Jersey, the broader European manufacturing sector is also witnessing a significant shift towards smart factory automation, projected to double by 2029. According to Michael Mayer-Rosa, Senior Director at Delta Electronics, AI is poised to revolutionise the smart manufacturing paradigm by introducing advanced decision-making capabilities based on machine learning.

AI applications in manufacturing encompass robotics, the industrial internet of things (IIoT), predictive analytics, and cloud computing, all aimed at enhancing resilience, efficiency, and sustainability. However, small and medium-sized enterprises (SMEs) face unique challenges in adopting these technologies, including high initial investment costs and a lack of skilled personnel. With SMEs representing 99.8 per cent of Europe’s businesses, addressing these hurdles is critical for ensuring inclusive growth in the industrial sector.

Cobots present a viable solution for SMEs looking to embark on their automation journey. Unlike traditional industrial robots, which often require extensive programming skills, cobots can be more easily integrated into existing workflows. For instance, Delta Electronics’ D-Bot allows for versatile application across various tasks in the manufacturing environment, offering simplified programming that can be achieved without the need for specialised expertise.

As the manufacturing sector continues to innovate, the institutions supporting it, such as NJMEP, are crucial for facilitating the workforce's transition to these advanced technologies. With the combination of AI capabilities advancing quicker than ever, the industry is heading towards a future where production systems gradually evolve into more autonomous, self-optimising entities. This transformation is not only viewed as an improvement in operational efficiency but also contributes to sustainability goals by minimising energy consumption and waste.

Over the next five to ten years, as AI and robotics capabilities become more sophisticated, the landscape of smart manufacturing is expected to change dramatically. Companies will increasingly leverage AI for predictive maintenance, quality control, and supply chain optimisation, emphasizing the need for businesses to invest in training and data management. Manufacturing firms are encouraged to start small, utilising pilot projects to validate the effectiveness of these new technologies before broader implementation.

In summary, the ongoing developments in AI and automation, particularly through initiatives like that of NJMEP and Universal Robots, highlight an important shift in manufacturing practices. As organisations evolve with these technologies, their capacity for growth and competitiveness will likely shape the future landscape of the industry.

Source: [Noah Wire Services](https://www.noahwire.com)

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