



TRENDS FOR THE

ADVANCED MANUFACTURING SECTOR IN 2025



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Introduction

Advanced manufacturing is at the heart of Europe's industrial transformation, with the potential to drive sustainable economic growth, strengthen global competitiveness, and lead the way in environmental innovation. At CECIMO, we believe Europe can continue to set the global standard in this field by embracing collaboration, innovation, and forward-thinking strategies.

Over the past year, we've connected with industry leaders, innovators, and policymakers through a series of events and discussions. These included workshops, panels, and most notably, our biggest event, The Brussels Forum. These conversations gave us a chance to reflect on where advanced manufacturing is heading and identify the key trends that will define its future in 2025.

From sustainability and digital transformation to workforce development and supply chain resilience, it's clear that advanced manufacturing holds the key to solving some of today's biggest challenges. But unlocking this potential isn't something that can be done in isolation—it requires all of us, across industries and sectors, to work together, invest in new ideas, and adapt to the fast pace of change.

At CECIMO, we're committed to supporting this journey. By fostering collaboration, driving policy discussions, and championing innovation, we aim to help create a future where Europe's advanced manufacturing sector thrives—responsibly, sustainably, and globally.



1 Factories to gear up for a full digital transition

Smart factories present manufacturers with an opportunity to achieve new levels of efficiency and flexibility by integrating various processes, information streams, and stakeholders. The accelerated transition to smart factories is fuelled by advancements in real-time data analytics, IoT, machine learning, 5G networks, and industrial cloud platforms. These technologies are driving this shift by enabling real-time insights for greater precision and efficiency while facilitating seamless data storage, processing, and scalability in modern factories.

Big data analytics lies at the core of this transformation, empowering manufacturers with predictive maintenance to minimize downtime, optimize production processes, and enhance product quality. Additionally, the insights generated from big data support continuous innovation, enabling companies to adapt rapidly to market trends and customer demands. However, the rise of smart factories also introduces challenges such as growing cybersecurity threats and the need to comply with new regulatory standards. As a result, manufacturers are increasingly adopting zero-trust architectures and AI-driven threat detection systems to secure their operations and ensure resilience.



2 Accelerated adoption of automation in manufacturing

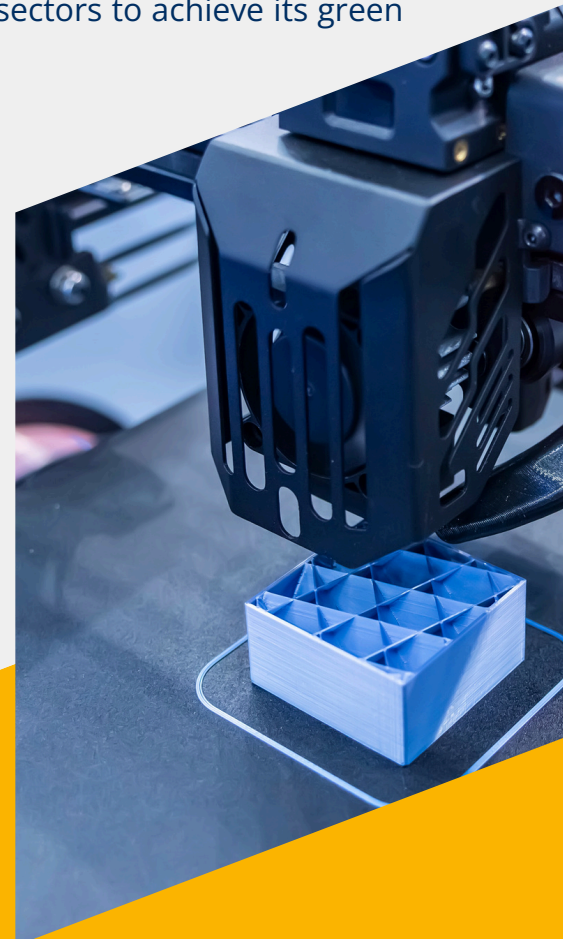
Automation in manufacturing is surging ahead, fueled by advancements in robotics, artificial intelligence (AI), and the Industrial Internet of Things (IIoT). This evolution is transforming production processes by enhancing precision, boosting efficiency, and minimizing human error. While automation has already revolutionized industries such as automotive manufacturing, vast opportunities remain in many other sectors, particularly for small and medium-sized enterprises (SMEs), where adoption rates are still low. AI-powered tools are simplifying the integration of automation by enabling real-time decision-making and addressing concerns about complexity or high costs. This transition, however, introduces workforce challenges, with growing demand for workers skilled in operating and maintaining advanced automated systems. As a result, educational and training programs must evolve to ensure that employees are equipped to thrive in increasingly automated environments.



3 Finding the Real Strength of Additive Manufacturing

Additive manufacturing (AM) is set to overcome its growing pains and unlock its full industrial potential. While scaling from prototyping to large-scale production has been difficult, advances in material science, cost-effective equipment, and large-format metal printing are paving the way for sustainable, on-demand manufacturing. These innovations reduce material waste, shorten supply chains, and enable more decentralized and flexible production models.

These innovations can help reducing material waste, shortening supply chains, and enabling decentralized manufacturing with greater flexibility. Consolidation within the industry will create a more robust and competitive market, offering improved profitability for suppliers and better services for customers. By combining innovation with sustainability practices, AM is poised to redefine efficiency and emerge as a transformative force in manufacturing and help different sectors to achieve its green and digital goals.



4 Adoption of **digital twins** to enhance manufacturing efficiency and sustainability

Digital twins are set to continue transforming manufacturing by giving companies the ability to test and refine their operations in a virtual space before moving to the real world. This not only helps improve product design and production efficiency, but it also speeds up time to market. By using digital models, manufacturers can predict potential issues early on and make necessary adjustments to avoid problems down the line.

But the benefits don't stop at just improving operations. Digital twins play a crucial role in sustainability as well. They allow manufacturers to simulate processes in ways that reduce material waste, minimize tool wear, and lower energy consumption. Through these virtual models, we can optimize resource use and find more efficient ways to run operations—before we actually run them.

As more manufacturers adopt digital twins, we'll see greater collaboration between teams, better predictive maintenance, and smarter financial decision-making. These tools give companies the ability to analyze real-time data, which leads to more accurate cost assessments and improved supply chain management. This not only gives manufacturers a competitive edge but also supports their goals for environmental sustainability.

In the long run, digital twins are more than just a technological upgrade—they're helping create a manufacturing landscape that is both more efficient and more sustainable. By reducing waste, saving energy, and improving overall processes, digital twins are driving change that benefits both businesses and the planet.



5

Growing International Competition in Advanced Manufacturing

The European Union has the potential to become the global leader in advanced manufacturing, a sector critical for driving Europe's industrial transformation, long-term economic growth, global competitiveness, and environmental responsibility. However, the race for global leadership in advanced manufacturing is intensifying as international competitors, particularly China and the United States, invest heavily in cutting-edge technologies and workforce development.

China has rapidly advanced through government-backed initiatives such as "Made in China 2025," focusing on high-tech industries like robotics, artificial intelligence, and green energy technologies, while the U.S. has implemented policies like the Advanced Manufacturing strategy or the CHIPS and Science Act to strengthen domestic semiconductor production and maintain its leadership in aerospace, biotechnology, and industrial automation.

In this competitive landscape, the EU must address challenges such as geopolitical risks, supply chain disruptions, and sustainability requirements, while fostering innovation through strategic investments, cross-border collaborations, and workforce upskilling. Robust market surveillance framework will remain fundamental to ensuring a level playing field, preventing unfair competition, and supporting European innovators in this evolving ecosystem. As global competition reshapes the manufacturing landscape, the EU must capitalize on its strengths to secure its position as a leader in advanced manufacturing by addressing these challenges and leveraging its commitment to innovation and sustainability.



About CECIMO

CECIMO is the European Association of Manufacturing Technologies. With a primary focus on machine tools and additive manufacturing technologies, we bring together 15 national associations, which represent approximately 1500 industrial enterprises in Europe (EU + UK+ EFTA + Türkiye), over 80% of which are SMEs. CECIMO covers 97% of the total machine tool production in Europe and about 1/3 worldwide. It accounts for approximately 150,000 employees and a turnover of around 25.8 billion euros in 2024.



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