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magazine

RE-INDUSTRIALISING EUROPE

A vision for competitive manufacturing

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FOREWORD

Welcome to the 18th edition of our association's magazine. This year, we turn our attention to a topic that is both vital and inspiring: "Re-industrialising Europe: A Vision for Competitive Manufacturing." In today's ever-changing world, it's clear that Europe's path forward relies on revitalising its industrial backbone. The lessons of the past year have shown that strong and adaptable manufacturing practices are key to maintaining resilience and growth.



In the following pages, you will uncover insightful and thought-provoking perspectives, united by a shared commitment to supporting the evolution of manufacturing in Europe. These contributions reflect the collective vision and dedication of industry leaders to shaping a resilient and innovative future for European manufacturing.

You'll read about how cutting-edge technology is transforming the way we make things, making production more efficient and adaptable. But more importantly, we'll show how these improvements are helping manufacturers tackle challenges head-on and make the most of new opportunities. We also shine a spotlight on the push for sustainability, demonstrating how environmentally friendly practices are becoming standard, not just an afterthought, and helping Europe meet its ambitious climate goals.

Another key focus is on the people driving this transformation. Closing the skills gap has never been more important. In this edition, you'll find stories about training programmes and partnerships that are equipping workers with the skills they need—blending traditional expertise with modern practices.

We are delighted to present this edition, which aims to inspire and inform as we work together to build a strong and competitive manufacturing sector for Europe. This magazine is designed to empower leaders, innovators, and policymakers with practical guidance and a call to action to shape a resilient and future-ready industrial landscape.

I would like to extend my sincere gratitude to the authors and contributors who made this edition possible. Their expertise and insights have enriched these pages, offering valuable perspectives to drive our collective progress.

A handwritten signature in blue ink, which appears to read "Filip Geerts". The signature is stylized with long, sweeping strokes.

Filip Geerts,
CECIMO Director General



1

EU INDUSTRIAL COMPETITIVENESS



THE ELUSIVE EU SINGLE MARKET

Author: Sandra Parthie, President Internal Market Section, European Economic and Social Committee

The EU's economic powerhouse and simultaneously its main international fire power and attractiveness is the Single Market. In theory, it serves 450 million consumers, who are comparatively well-heeled, with a spending power amounting to 1860bn EUR in 2024, an increase to the previous year, and an all-time high. How come then, that it's receiving so much criticism?

Well, for starters, the Single Market is all but one harmonized economic zone. The 27 member states it encompasses are prone to fragmenting it, to adding different national requirements onto rules agreed at the European level. While it does live up to its promises in some areas, accounting for 61% of intra-EU trade by companies, in others such as the services sector, on energy or in the digital realm it remains a jigsaw puzzle. Studies find that there is still potential between €183 billion and €269 billion per year to be realised.

To become a real success story Single Market needs improvements in several areas, including European energy and industrial policy, a more favourable framework for businesses and SMEs, and a functioning infrastructure. The Single Market facilitates operations of SMEs by creating common standards for their services and products, enabling them to operate and work across borders.

So, a further grievance is that for this to really take full effect there needs to be consistency between EU legislation and the implementation and enforcement of that legislation in Member States, which is currently not the case. European start-ups, e.g. in the AI field, consistently run into difficulties trying to scale their businesses because despite the nominal existence of the Single Market, each EU member state comes with its own specific language, culture, local legislation and regulations.



There is also no unified definition of what a start-up is, forcing companies into different legal forms in different EU countries, with different sets of obligations. The very shallow capital market also leaves promising scale-ups with a lack of funding. This shallowness derives from a lack of capital market integration across the EU member states and effectively means, there is no Single Market in that sector.

Next to a regulatory fragmentation, the lack of cross-border financing of real economy actors and start-ups, there are also missed opportunities for reducing production costs. The Single Market would have the potential to significantly advance the secure and affordable energy supply by improving cross-border flows, but to fulfil this function the regulatory framework governing the EU's energy mix and energy-related decision-making needs an overhaul with a focus on European and not just national supply security.

A strategy for the future of the Single Market needs to come with the necessary means, such as a well-performing market surveillance, a capable customs control at our borders, mechanisms to ensure the enforcement of EU legislation and address infringements efficiently, and an assertive administration. The European Commission and the national governments have all the necessary tools at their disposal. They have to demonstrate the political will to turn the Single Market into the success that it can be.



Ensuring the smooth functioning of the Single Market under all circumstances, free from barriers, is essential for a resilient and competitive European economy. Only through a unified Single Market can we unlock the full potential of the European industrial base and enhance our capacity to respond to future challenges.

François Duval, CECIMO President



THE MANUFACTURING SECTOR: A CATALYST FOR EU COMPETITIVENESS AND PROSPERITY

Author: Maria Cristina Russo, Director 'Prosperity', European Commission, DG Research & Innovation

Europe's manufacturing industry – with all the challenges it faces – is at the heart of our competitiveness, prosperity and sustainability. The EU manufacturing sector is employing almost 30 million of people with a value added of 2.2 trillion EURO, corresponding to 15% of the GDP.[1] Manufacturing is one of our key strengths: an industry that makes world-renowned products and offers attractive jobs.

To retain the value and social contribution of the manufacturing industry, we need bold investments in the green and digital transition.

This is not merely about adopting new technologies, but about transforming our entire approach to manufacturing. The green transition is essential for our society and our planet – we need to exploit the opportunities it offers, massively enhance circularity and continue to be leaders in clean and green tech.[2] Similarly, digital tools like big data and AI promise to revolutionise how we design, manufacture, and distribute goods.

The Union's R&I funding through the Made in Europe partnership, proves our commitment to the manufacturing industry, through an expected EU contribution for advanced manufacturing of 900 million EUR in Horizon Europe.[3]

We are seeing figures suggesting that industry is investing at least as much. More support for advanced manufacturing is coming from the European Institute of Innovation and Technology;[4] from the European Research Council (ERC); and from the European Innovation Council (EIC).[5]

Yet, despite these opportunities, adoption rates among European manufacturers remain modest. This is costing in efficiency, innovation, job opportunities and market responsiveness. As recommended in the Draghi report, we need investments in advanced technologies, in skills, in updates of systems and processes, and in new IT infrastructures. As signatories of the Paris Agreement and proponents of the European Green Deal, we have made ambitious commitments to reduce our carbon footprint and environmental impact. However, these commitments are not being met with the necessary urgency and investments in sustainable practices and technologies. The green transition is not limited to the EU and being first movers will open new markets.

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To retain the value and social contribution of the manufacturing industry, we need bold investments in the green and digital transition.



Two important recent reports by Enrico Letta and Mario Draghi echo these challenges and provide ample evidence for what is needed. The Letta Report highlights the risk of deindustrialisation in Europe, which is not seen as irreversible but requires European companies to scale up within the Single Market to be able to compete globally.

The Draghi Report stresses the need for significant investments – including crucial private investments and joined up investments by Member States – for decarbonisation and digital innovation, as well as in all the infrastructure that can be considered a European common good.

The new political guidelines of President von der Leyen call for a European Prosperity Plan, to invest massively in our sustainable competitiveness; put research and innovation at the heart of our economy; tackle the skills and labour gap; and build a Clean Industrial Deal. Of clear relevance to the manufacturing industry are the Clean Industrial Deal, to support clean and strategic technologies and energy-intensive industries; and the new Circular Economy Act, to retain the value of resources for longer.

In conclusion, we need to invest massively in innovation, to keep up with the US and China; we need to develop circularity, both to reduce our dependence on imported critical raw materials and as a technological opportunity; to tap into the potential of data and digital tools; to invest in skills; and to retain strategic and technological sovereignty in advanced manufacturing.



High energy prices are having a serious impact on the global competitiveness of European companies and industrial production. It is also crucial to champion an open approach to technology in the automotive industry—embracing not only electric vehicles, but also advanced combustion engines, hydrogen fuel, and other innovative solutions. A diverse approach will offer consumers greater choice and drive sustainable growth across the sector.

Dipl.-Ing. George BLAHA, General Manager, SCHNEEBERGER Mineralgusstechnik

[1] Eurostat 2024

[2] The EU is currently the leader in green patents, 2023 EU industrial R&D investment scoreboard

[3] EUR 570 million for 93 projects up to now (2021–2024), see also Trends in advanced manufacturing R&I

[4] through EIT Manufacturing, a Knowledge and Innovation Community (KIC), bringing together close to 70 European leading partners from business, education and research

[5] The EIC has made an investment of up to EUR 250 million in advanced manufacturing



IS THE ADVANCED MANUFACTURING STRATEGY VITAL TO EUROPE'S COMPETITIVENESS?

Author: Vincenzo Belletti, Director of EU Public Affairs, CECIMO

Today, Europe faces the challenge of competing on a global stage dominated by giants like China, the United States, and fast-growing competitors like India. These major players distinguish themselves not only by their economic size but also by the number of enterprises and their entrepreneurial capacity, creating significant challenges for European industry. In this context, the urgency of a coordinated European industrial strategy becomes clear—one capable of effectively responding to these global challenges and support our industries growth and stability.

However, this does not mean standardising interventions or implementing one-size-fits-all solutions for all Member States. The objective should be to unite efforts without sacrificing technological neutrality, allowing the market the freedom to innovate and develop.

Developing a European industrial plan means, in other words, putting each industry in a position to be more competitive on the global stage. In this context, competitiveness would mean increasing the technological density within European enterprises, factories, and supply chains. Only by doing so can Europe compete on equal terms with the world's leading industrial powers.

If we focus on the advanced manufacturing sector, it is clear that the EU needs needs to make a real effort to increase its competitiveness, as also highlighted by a recent Joint Research Centre study.

Such study provides a clear overview of the situation within the European Union, quantifying progress in the advanced manufacturing sector and offering metrics that can assist policymakers in monitoring industrial objectives. The data reveal that 72% of globally active firms in advanced manufacturing are concentrated in China, the United States, and Europe. Despite the growth of European enterprises, particularly in Germany, Spain, France, and Italy, China dominates the sector, with a growth rate of 570% since 2009. Furthermore, 66% of Chinese companies have filed at least one patent in this field.



So the question is how can we increase the competitiveness in the advanced manufacturing sector?

First of all, by supporting the digital transition of the manufacturing technology sector, and offering them solutions to integrate cutting-edge solutions such as automation, robotics, and artificial intelligence, which hold the potential to deliver economic growth, job security and deliver on the different policy strategy.

Secondly, by reducing energy costs. This will be a priority for the Ursula Von der Leyen's new European Commission. As a key driver of industrial transformation, more affordable energy bills will help the manufacturing to sector remain competitive and enable Europe to maintain its leadership in high-precision manufacturing. Lower energy costs are not only a crucial factor for industry-wide cost-efficiency but also a strategic advantage in positioning Europe as a global leader in advanced production technologies. By addressing this challenge, the European Union can ensure that its industries remain at the forefront of technological innovation and industrial excellence.

Finally, recognising the enabling potential of manufacturing technologies and their critical role in the clean energy transition. While the Clean Industrial Deal emphasises decarbonisation and sustainable energy solutions, the European Commission should also prioritise the advanced manufacturing processes required to build infrastructure for clean technologies, such as wind turbines, and gas and hydrogen networks. The machine tool industry, for instance, provides the precision tools necessary for producing components and systems critical to clean tech deployment. A focus on this sector will ensure that Europe's manufacturing base remains competitive, avoiding the risk of ceding ground to international competitors. By emphasising both the supply chain and the technologies that can deliver the clean transition, Europe can reinforce its leadership position in the global industrial landscape.

For the next years the policymakers will have to embrace a coordinated and forward-thinking strategy for advanced manufacturing which looks at competitiveness and market growth. It is only by building on existing strengths and addressing critical gaps, that the EU can consolidate its place as a global industrial leader in a rapidly evolving industrial landscape.



Europe's Advanced Manufacturing Strategy is not just a blueprint for industrial growth; it is a cornerstone of our competitiveness on the global stage. Investing in production technologies and embracing cutting-edge solutions in manufacturing will empower Europe to lead in innovation, boost productivity, and secure economic resilience for future generations.

Martin KAPP, Managing Director and Partner, KAPP Werkzeugmaschinen GmbH

WHY EUROPEAN MACHINE SAFETY STANDARDS NEED TO BE ENFORCED AND HOW MANUFACTURERS HAVE GROUPED IN A WORKING COUNCIL AT CECIMO

Author: Alexander Kunz, Head of Product Management and International Sales Bending Technology, TRUMPF

The safety of workers and operators should always be a top priority. Unsafe machines pose a significant risk of accidents, injuries, and even loss of life. Working with unsafe laser machines, especially those lacking proper radiation protection, poses serious health risks. These include skin burns and permanent eye damage from direct laser exposure, inhalation hazards, chemical exposure, electrical risks, accidental eye exposure, and long-term health effects. To ensure operator safety, it's vital to choose compliant and properly safeguarded laser machines. For end-users and customers, ensuring machine safety means protecting their employees, safeguarding their investments, and minimising potential legal and financial consequences. Moreover, using compliant machines helps maintaining the reputation and credibility of the industry as a whole. That said, just securing CE conformity can easily amount to a price difference of 10-20%, which can distort decision making significantly. However, established suppliers worldwide – and especially in the EU – increasingly register instances where potential customers, drawn by attractive pricing, have unknowingly considered machines with fake safety solutions.



“ Just securing CE conformity can easily amount to a price difference of 10-20%, which can distort decision making significantly.


End-users play a pivotal role in ensuring that the machines they purchase are safe and compliant. One of the key steps they can take is to demand proper documentation and certification from manufacturers. This includes checking for CE markings and obtaining relevant information about the machine's compliance with mandatory safety requirements. Engaging with well-established and reputable manufacturers, as well as seeking recommendations and advice from industry associations, can also contribute to making informed decisions. For this purpose, CECIMO has published a simplified CE checklist for machine tools, which has been ratified by the German Federal Institute for Occupational Safety and Health BAuA which can found here: [Guidelines of CE Marking on Laser Machines - CECIMO](#).

Non-compliant machines might seem like a cost-effective choice upfront, but the risks far outweigh the benefits. Non-compliant machines may lead to frequent breakdowns, inefficient operation, and increased downtime due to unexpected malfunctions. Further, not all end-users know that in the EU they themselves are legally responsible for the safety of their workers, even if a machine's non-compliant features are due to manufacturer negligence. The manufacturer's responsibility, in cases where harm is caused due to the lack of safety precautions in the machine's design and manufacturing, does not absolve the employer. The employer bears the obligation to eliminate hazards for employees using the machine and to utilise modern technologies to ensure worker safety within the company.

Even in the EU, the specific regulation varies from country to country. Given this complexity, it would be beneficial for all market participants, if there would be a EU wide, standard procedure and jurisdiction. The new EU supply chain law, otherwise known as the Corporate Sustainability Due Diligence Directive (CSDDD), has the potential to already ensure a level playing field for all EU and non EU suppliers in Europe, if it enforced correctly. So this is also the reason why market surveillance officials have a hard time to detect unsafe equipment – it is nearly impossible to act such as the US, which has recently put several suppliers on a black list. This means their products can no longer imported to the US even without any inspection. In return, this might lead to even more unsafe machines trying to enter the EU market in the future and require an increased awareness of end users and market surveillance agencies.

Worldwide, established suppliers register instances where potential customers, drawn by attractive pricing, have unknowingly considered machines with fake safety solutions. It's a challenge to compete against manufacturers who prioritize cost-cutting over safety. However, these experiences motivated the European machine tool industry to emphasize their commitment to safety, transparency, and compliance, gathering in a CECIMO working council on this topic. By sharing experiences and educating customers about potential risks both from legal and economic points of view, they aim to create a market environment where safety is valued above all else.

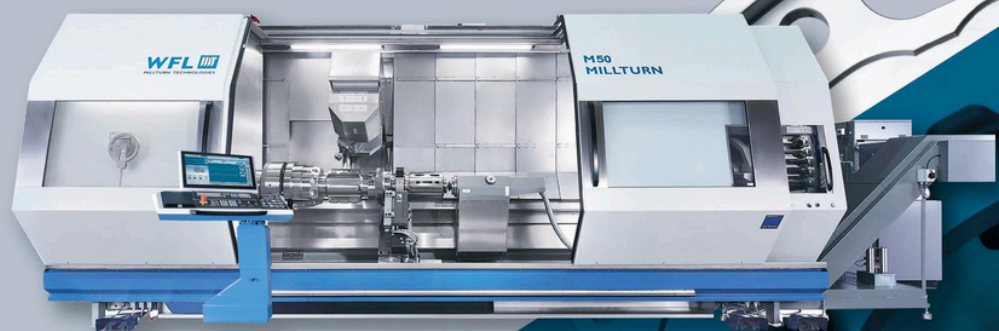
Collaboration of market surveillance, suppliers, associations and users is fundamental. It will enhance the overall safety of machines used in various sectors, ensuring the well-being of operators. Additionally, it will promote fair competition by eliminating the advantage that non-compliant producers have due to lower manufacturing costs. Ultimately, we aim to create a safer and more reliable market environment that benefits both businesses and workers.

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TECH & DIGITALISATION



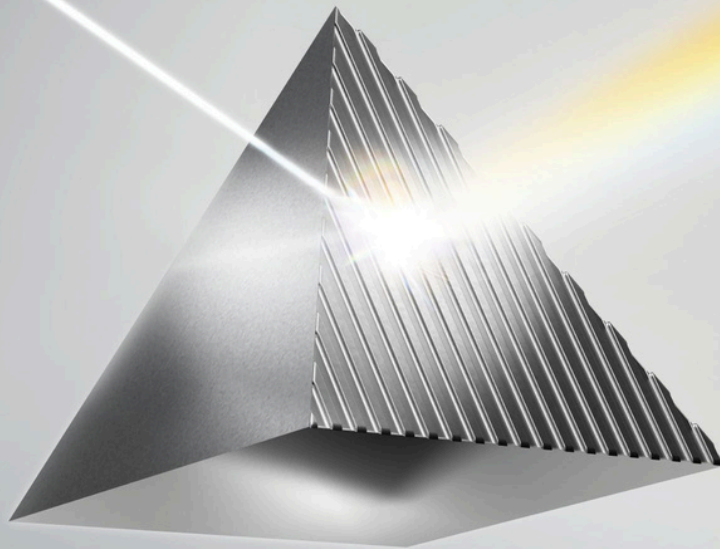
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The bright side of metal forming

Machines and equipment for the machining of sheet metal, pipes, sections, wire and metal structural work. Dies. Welding. Treatments and finishing. Subcontracting. Robots, automation and enabling technologies.



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EMERGING DIGITAL TRENDS AND TECHNOLOGIES FOR COMPETITIVE MANUFACTURING IN THE EU

Author: Dr.-Ing. Christian Bölling, Managing Director, EIT Manufacturing Central

“

Through the intelligent use of digitalisation technologies and data analysis, new business models and services can be created to position the company more broadly and thus make it more competitive and resilient.



In many industries, digitalisation impacts and changes the traditional business models of companies. Digitalisation and the associated ICT solutions bring numerous advantages and opportunities, especially for small and medium-sized enterprises. By analysing the data relevant to the business or industry, internal processes can be made significantly more efficient. Through the intelligent use of digitalisation technologies and data analysis, new business models and services can be created to position the company more broadly and thus make it more competitive and resilient.

Data spaces facilitate partnerships in manufacturing ecosystems

The increase in cross-company production and usage scenarios makes data sharing a key element in terms of productivity, quality assurance and ultimately the competitiveness on the global market. The possibilities of analysing ever larger volumes of data based on artificial intelligence offer enormous potential for the European economy. However, there still exist reservations within companies who fear that data analysis could lead to a transfer of know-how to competitors. This effect is exacerbated by the fact that the traditional strength of the manufacturing sector in Europe is based on enormous knowledge in the fields of mechanical and electrical engineering as well as mechatronics. The area of information technology, however, is a fairly new element and expertise is still being developed. Conversely, this means that trust is required between the actors involved and that the provision of data must be secured by technical precautions.

Transferring “traditional” collaboration to the digital space

A data space creates the conditions for both and thus makes it possible to overcome reservations and drive forward the data economy through trusted partnerships. It forms the technical basis for a manufacturing ecosystem that consists of trusted players and ensures that data can only be processed and used in accordance with the owner's specifications. It also simplifies cross-company collaboration through the use of (de-facto) standards such as Gaia-X, in which EIT Manufacturing is actively involved through the lighthouse project “EuProGigant”. The established “traditional” collaboration of many companies can thus be transferred to the digital space.



Economic benefits of data sharing

Data sharing between manufacturing companies can lead to significant economic advantages, such as enhanced sustainability through decreased resource consumption and the reduction of scrap parts, directly impacting cost effectiveness. Shared production data fosters better interaction between processes and actors along the manufacturing value chain and accelerates innovation by providing a richer dataset for developing new products and services. Collaborative data environments enable manufacturers to innovate more quickly and effectively, leveraging insights that would be impossible to obtain in isolation. This can lead to the creation of new business models and revenue streams, as companies can offer data-driven services and solutions.

European manufacturing ecosystems secure global competitiveness

The use of data to improve production processes and increase the understanding of the entire product lifecycle is highly relevant in the transformation process towards environmental and social sustainability. However, competitiveness must be ensured at all times. Cross-company collaboration through the use of data spaces is the enabler here. The efficient use of data improves the competitive situation of individual companies and ensures that manufacturing eco-systems in Europe remain intact.



By integrating innovations like AI, IoT, and advanced automation, European industries can drive efficiency, enhance product quality, and adapt swiftly to market demands, ensuring they remain resilient and globally competitive in the digital transformation of industry.

Norbert JUNGREITHMAYR, Managing Director, WFL Millturn Technologies



INDUSTRIAL AUTOMATION – A DRIVER OF SUSTAINABLE GROWTH, RESILIENCE AND COMPETITIVENESS IN EUROPEAN MANUFACTURING

Authors: Dr. Kirill Safronov, Head of Technology Research at TIC, KUKA & Volker Schmirgel, Head of Technology and Innovation Center, KUKA

Making automation accessible to everyone is more than just a goal – it is a necessary development in times of demographic change and an increasing shortage of skilled workers. In many industries, it is becoming increasingly difficult to find qualified employees, and this is where automation can help to fill the gap.

Automation is no longer seen as just a means of increasing efficiency, but also as an answer to social challenges, such as an aging population and the resulting labor shortage. Automation has become the cornerstone of the manufacturing industry. However, the potential is far from exhausted. Industries that already have a high degree of automation as well as those that have had little experience so far, are intensifying their work on automating their processes. This is true not only in the automotive industry, where robot density is already very high. Germany ranks third in the world in terms of robot density per employee, reflecting the strong industrialization and advanced automation in this sector. However, there are still many industries outside the automotive industry where the potential for automation is huge. Particularly in small and medium-sized companies the degree of automation is still low and there are often concerns about it, whether because of the supposedly high costs, the complexity of the technology, or the idea that their specific processes cannot be automated.

However, by leveraging techniques such as learning-from-demonstration and utilising AI tools, like large language model technologies, e.g., Copilot, such enterprises can overcome the above-mentioned challenges. AI tools can assist in automating complex decision-making processes and providing real-time support, further simplifying the adoption of automation. The goal must be to break down existing and perceived barriers by offering solutions that are easier to implement and to use, thereby making robotics accessible to smaller companies as well.

In line with this vision, KUKA is working intensively on various innovative technologies that will have a significant influence on the future of robotics. One focus is on the area of vision systems and artificial intelligence (AI). These technologies enable robots to perform complex tasks with even greater precision and autonomy. AI is undoubtedly one of the key technologies that will transform robotics in the coming years.

By integrating AI and machine learning and combining these technologies with robotics and automation it is possible to enhance the precision and autonomy of robots enabling them to perform complex tasks more efficiently. Collaborative robots are expanding into new applications, working alongside humans to boost productivity and safety in various industries.

Mobile manipulators combine mobility with advanced manipulation capabilities, offering versatile solutions for dynamic and changing environments. The use of digital twin technology allows to create virtual replicas of robotic systems, optimizing performance and reducing downtime through simulation and testing. These innovations, partly funded within EU projects, highlight KUKA's commitment to advancing robotics and making automation more accessible and effective.



“

The goal must be to break down existing and perceived barriers by offering solutions that are easier to implement and to use, thereby making robotics accessible to smaller companies as well.

By enhancing efficiency, reducing downtime, and enabling more flexible and precise operations, these innovations help industries, especially small and medium enterprises, adapt to changing demands and resource constraints. This enables SMEs to strengthen their production in Europe, even when facing the shortage of skilled workers. It not only boosts productivity but also supports the long-term growth.



ACHIEVING CYBER COMPLIANCE

A QUICK REFLECTION ON REGULATORY ASPECTS IN CYBERSECURITY WORLD

Author: Ivana Butorac, Cybersecurity Regulatory & Compliance Manager, Sopra Steria

Manufacturing cybersecurity risks nowadays have become reality – it is interesting to see that manufacturing industry is at the top of targeted industries for cybercriminals. In fact, 61% of manufacturers experienced a data breach in the last 2 years.[1] [2] And – apart from the attractiveness for cybercriminals, challenges comes from the other side too – having a regulatory jungle to tackle and ensure design compliance. The questions arise: What are the vulnerable aspects in manufacturing industry? Further, how do you navigate through regulatory jungle in a simple way that helps you turn laws into your business competitiveness rather than an obstacle?



The Growing Cybersecurity Threat to Manufacturers

It is also necessary to understand main cybersecurity threats that are escalating for manufacturers worldwide because if they occur, they result in downtime, production losses, and, potentially, damage to critical machinery or industrial control systems. Just earlier in February 2024, a German battery manufacturer had to suspend the production of the plants for over 2 weeks due to a cyberattack on its IT system. In such cases, ensuring business continuity and investing in re-design is often followed with significant financial expense that could have been prevented by prioritising cybersecurity posture.

In the complex cyber landscape, there are several threats that are on the rise in the industry:

Business Email Compromise

Unlike traditional phishing scams, Business Email Compromise (BEC) attacks are highly targeted, with attackers conducting thorough reconnaissance to make fraudulent email requests look as convincing as possible. Most common types of such attack can be bogus invoicing, executive fraud or payroll fraud.

Supply chain attacks

The truth is – it is not always and on you only, it is critical to find partners whose security standards meets security practices.

Navigating regulatory “jungle” and building your cybersecurity posture

Recognizing these threats, European legislators have introduced several regulations to help protect industries, including manufacturers, from cyberattacks.



NIS2 Directive

The NIS2 Directive focuses on strengthening the cybersecurity of critical infrastructure sectors. Given its extended scope of covered sectors, ensuring that manufacturers are considered as “important entity” falling under its regulatory oversight.

Under NIS2, manufacturers must implement comprehensive cybersecurity measures to mitigate risks, primarily to implement risk management processes that consider the ever-evolving threat landscape.

AI Act

Artificial intelligence definitely revolutionizes the manufacturing industry with its transformative capabilities. Coming into force just this August 2024, the AI Act regulates the development and use of AI in the EU. The regulation follows a risk-based approach, classifying AI systems into different risk categories. High-risk AI systems must meet stringent requirements to ensure safety, transparency, and accountability.

Besides ensuring secure design, it will also be critical to understand the potential risks associated with AI and to implement appropriate cybersecurity measures to protect against AI-specific vulnerabilities such as data poisoning or model manipulation.

Cybersecurity Act

The Cybersecurity Act establishes an cybersecurity certification framework for ICT products, services, and processes. This certification framework ensures that their connected devices and industrial systems comply with the highest cybersecurity standards.

Manufacturers can ensure their products are secure from the design stage through their operational lifecycle. This also provides a level of trust and confidence to clients and partners, enhancing their market position in an increasingly competitive landscape.

Cyber Regulations are your essential tools for building secure posture

Cybersecurity is no longer an option but a necessity, especially in the manufacturing industry. With this complex landscape, regulatory “jungle” actually forms a safety net to achieve your cybersecurity goals.

These regulations act like the interconnected layers of the cybersecurity ecosystem, guiding you to establish comprehensive protection. What may seem complex at first turns into a strong shield that keeps businesses resilient. Instead of seeing regulations as a burden, companies can view them as essential tools, ensuring safety and trust in their digital operations.



As technologies become more interconnected, security challenges grow, but so do opportunities for resilience and innovation. In advanced manufacturing, a streamlined cybersecurity risk assessment procedure and security-by-design approach aligned with both European and international standards are key to building a robust and innovative manufacturing future

Frank FEHLMANN, CEO, Fehlmann AG Maschinenfabrik

[1] <https://cybelangel.com/the-biggest-cyber-attacks-in-the-manufacturing-industry/>

[2] Cost of a data Breach 2023, IBM

[3] <https://www.redscan.com/news/top-5-cyber-security-threats-in-manufacturing/>



AI AND MACHINE TOOLS

Paving the Way for Smarter and Greener Manufacturing

Author: Vincenzo Belletti, Director of EU Public Affairs, CECIMO

Manufacturing has always been a competitive and evolving sector. Over the years, automation, robotics, and digitalisation have reshaped the industry, and now, AI is emerging as the next frontier. It offers unprecedented opportunities to optimise every stage of production, from design to delivery, and enhance the performance, efficiency, and flexibility of machine tools.

AI's integration into machine tools is driving significant improvements in productivity and sustainability. One of the most impactful applications is predictive maintenance. Traditionally, machine maintenance has been reactive—when equipment breaks down, repairs are made, leading to costly downtime. With AI-driven predictive maintenance, machines can monitor their own health in real-time, using sensors and data analytics to detect early signs of wear or malfunction. This allows manufacturers to schedule maintenance proactively, reducing downtime, lowering repair costs, and extending the lifespan of equipment.

AI is also revolutionising quality control. Ensuring consistent precision and quality is a major challenge in manufacturing. Through solutions such as machine vision and image recognition, AI can continuously monitor products during production, detecting defects or deviations from quality standards. This real-time monitoring ensures that quality control becomes an automated, continuous process, rather than a manual or end-of-line check.

Sustainability is another area where AI plays a crucial role. With growing pressure to reduce carbon emissions and waste, AI helps optimise energy use and minimise material waste. AI systems can fine-tune machine settings to optimise cutting processes, ensuring that raw materials are used as efficiently as possible, reducing scrap, and lowering costs.

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AI can adjust energy consumption based on machine workload, ensuring that equipment operates efficiently while maintaining performance standards, which contributes to greener manufacturing practices.

Despite its numerous advantages, the adoption of AI in machine tools faces several challenges. Data security is a critical concern, as AI systems rely heavily on data and are potential targets for cyber threats. Protecting this data is essential to prevent financial and reputational damage. Additionally, many manufacturers still use legacy equipment that isn't AI-ready, making retrofitting or replacing machines a significant investment.

Smaller manufacturers may find the cost of AI adoption a barrier, even though the long-term benefits could outweigh the initial outlay.

Compatibility with existing equipment isn't the only hurdle; there is also a need for clear regulatory standards to ensure safe AI deployment. The recently enacted AI Act establishes requirements for quality management and conformity assessment, categorising AI systems by risk level. However, machine tools, often classified as high-risk due to their use of narrow AI in specific tasks like predictive maintenance and efficiency, differ from more complex general AI systems and generally present fewer safety concerns.

Harmonised standards are expected to provide manufacturers with a presumption of conformity, easing compliance and reducing risks. Yet, maintaining clear, precise, and relevant standards in this rapidly advancing field has been challenging. The CEN-CENELEC Joint Technical Committee (JTC) 21, which oversees these standards, faces delays due to the ongoing need for up-to-date data and technical expertise. Achieving consensus on actionable standards before August 2026 remains essential to minimise compliance burdens and uncertainties, especially for SMEs.

Establishing these standards will help build trust in AI systems and ensure they are used responsibly. Clear regulations are vital for maximising the benefits of AI while ensuring that ethical considerations are taken into account.

Looking ahead, the future of AI in manufacturing is promising. AI will continue to enhance predictive capabilities, improve quality control, and bring greater adaptability to machine tools. As AI systems evolve, they could enable near-autonomous production lines in combination with robotics, further reducing the need for human intervention. However, for these advancements to reach their full potential, collaboration among technology providers, manufacturers, and policymakers is essential. Working together, they can address current challenges and create a framework for AI able to drive sustainable, efficient, and manufacturing practices.



AI is reshaping the landscape of manufacturing, driving tools that adapt, learn, and optimise processes in real time. This integration enhances productivity, reduces errors, and allows for unprecedented precision. The fusion of AI with advanced machine tools is setting new standards, transforming how industries approach efficiency and quality.

Barbara COLOMBO, CEO, Ficep S.p.A.

The background of the entire page is a blue-tinted, futuristic cityscape at night. In the foreground, several people are seen from behind, walking on a reflective surface. They are wearing patterned, possibly augmented reality or virtual reality, suits. The city in the background has glowing lights and digital lines, suggesting a high-tech environment. The overall mood is innovative and forward-looking.

3

INNOVATION IN ACTION

DIGITAL TWIN

A PERFECT MATCH FOR SUSTAINABLE MANUFACTURING

Author: Dr Martin Stockinger, Product Manager CNC, FANUC Europe

According to Fortune Business Insights, the global size of the digital twin market is projected to grow from US\$17.73 billion (approximately €15.93 billion) in 2024 to US\$259.32 billion (around €232.95 billion) in 2032, representing a huge CAGR (compound annual growth rate) of 39.8%. The reasons for this remarkable growth projection are clear: digital twins can make you more competitive through improved product development, better team collaboration, predictive maintenance capabilities and enhanced financial decision making. However, not all of you may be aware that a digital twin can also support your business sustainability strategies. Digital twin solutions can help machine tool users to create a simulation of their entire set-up – machine tool, fixture, cutting tools, workpiece – to perform trial cuts virtually. This activity saves traditional trial cutting scenarios where you would take raw material, load it to the machine, cut the part and perform inspection. A review process would then be necessary to identify potential improvements in cycle times, tool wear and part quality, followed by a repeat of the machining process to assess the changes.

A digital twin removes this effort by taking new-part trials into the virtual realm. You save expensive workpiece materials, as well as costly consumables like cutting tools, coolant and machine tool energy, including electricity and compressed air. Simultaneously, you provide your business with a notable sustainability boost. You also save a lot of time. Virtual simulations are up to 20 times faster than those that take place physically.

For machine tool manufacturers and end users, a digital twin should feature core technologies that include a CNC simulator. A digital tool of this type gathers data from inside the actual CNC to provide you with more realistic PC-based simulations. It reproduces CNC operations such as acceleration/deceleration and smoothing functions, and accurately estimates your machining time.

A digital twin designed for the machining community should also offer tools that help you achieve key component quality objectives like surface finish. A virtual surface simulation function will allow you to perform parameter adjustments and fine-tune the process if surface quality does not meet expectations, perhaps for a die and mould part.



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You save expensive workpiece materials, as well as costly consumables like cutting tools, coolant and machine tool energy, including electricity and compressed air. Simultaneously, you provide your business with a notable sustainability boost.

Some digital twin solutions will feature tools to verify accurate machine operation, where immersive CNC animation checks for collisions involving complex five-axis parts required by the aerospace or medical industries, for example. This capability avoids potential damage and again offers an environmental aspect by negating the need for service engineer visits and replacement machine parts.

For machine tool builders specifically, a digital twin allows you to verify CNC functions and improve operational efficiency. When adopting a new CNC system, for example, you can tap into the benefits of a CNC simulator to help expedite their initial machine design and development, or simply to check that existing machine functions will still operate as expected. Such software should provide all the features of operation and control, as well as the ability to run and simulate the Programmable Machine Controller (PMC). All without the need for physical tests, saving extensive amounts of physical prototyping and electricity consumption.

Alongside a myriad of documented benefits that drive manufacturing competitiveness, a digital twin is also a sustainability partner, helping users to save raw material, cut waste, reduce consumables, lower energy consumption and preserve the planet. A green future is a digital future.

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A digital twin is also a sustainability partner, helping users to save raw material, cut waste, reduce consumables, lower energy consumption and preserve the planet. A green future is a digital future.

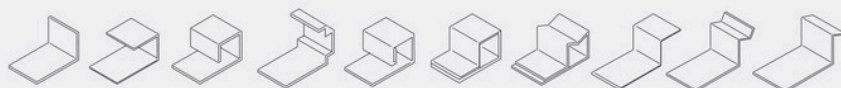
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HOW ARE FEEDBACK SYSTEMS SHAPING THE FUTURE OF MANUFACTURING

Authors: Javier Arenas, Head of R+D+i Research Centre, Fagor Automation Aotek & Jose Emilio Oti, Research and Development Director, Fagor Automation



Javier Arenas

The transformation of European manufacturing is being driven by the integration of automation and advanced monitoring systems in what we now call "smart factories." These factories represent a new era in manufacturing, where precision, efficiency, and adaptability are more critical than ever. By leveraging cutting-edge technologies such as smart sensors and real-time data feedback, manufacturers are redefining productivity, quality, and resource management.

Key components driving this transformation are linear and angular encoders. Traditionally known for their high-precision position-sensing capabilities, these encoders are evolving into more advanced smart sensors. This shift allows manufacturers to not only track position but also transmit critical status data, which is essential for optimizing machine performance and improving overall process efficiency.

One of the most important advancements in smart manufacturing is the introduction of prescriptive maintenance. In contrast to traditional maintenance approaches, where problems are addressed only after they occur, prescriptive maintenance uses real-time data to predict potential failures before they happen.



Jose Emilio Oti

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By continuously monitoring machine conditions, smart sensors can alert to issues, allowing for timely intervention. This proactive strategy reduces unplanned downtime, minimises expensive repairs, and extends the lifespan of machinery.

The integration of smart linear and angular encoders into manufacturing processes contributes significantly to what is known as machine awareness. Machines equipped with these technologies are no longer passive tools; they become active participants in the production line, capable of making real-time adjustments to enhance performance, which improves both productivity and consistency in product quality. Machines can automatically adjust their behaviour to compensate for wear and tear or changing environmental conditions, maintaining peak performance without human intervention.

However, smart factories are not just about the machines themselves—they are about creating a more interconnected and intelligent production environment. In a truly smart factory, feedback systems enable seamless communication between different machines and systems, fostering an integrated approach to production management. This integration allows factories to respond dynamically to shifts in demand, streamline workflows, and allocate resources more efficiently.



Another important aspect is the role of data analytics in smart manufacturing. The data generated by smart sensors feeds into analytical systems that can detect trends and inefficiencies that may not be immediately visible. By analysing this data, manufacturers can make more informed decisions, optimize production cycles, and improve their overall competitiveness in an increasingly globalized market.

These innovations help European manufacturers stay competitive in a world where efficiency, adaptability, and sustainability are key drivers of success. By investing in smart technologies today, European companies are positioning themselves to lead the next wave of industrial innovation, ensuring a future where they not only meet the demands of modern manufacturing but also contribute to a more technologically advanced global industry.





4

HUMAN CAPITAL

FUTURE-PROOFING MANUFACTURING

STRATEGIES FOR ATTRACTING AND DEVELOPING TALENT

Author: Antonio Ranieri, Head of Department for VET and Skills, Cedefop



The manufacturing industry is undergoing a significant transformation, driven by automation, digitalisation, and geopolitical shifts. While new technologies have the potential to boost efficiency and productivity, they also require a workforce equipped with the skills to thrive in this evolving landscape.

One of the most pressing challenges faced by manufacturing companies is the need to upskill and reskill their workforce. Traditional approaches can be costly and disruptive, particularly for smaller companies with limited resources. To overcome this, companies are encouraged to adopt resourceful strategies:

Understanding skills needs: That may sound obvious, but before investing in training it is essential to have a clear understanding of the skills gaps within the company. This involves not just assessing current employee skills but also anticipating future needs based on industry trends and technological advancements. Engaging with employees, suppliers, and customers can provide valuable insights into these needs.

Fostering a culture of continuous learning: Cultivating a workplace environment that embraces continuous learning can be more effective and less disruptive than traditional, one-off training programs. This can be achieved through promoting collaboration and knowledge sharing among employees, integrating learning opportunities into daily routines, and leveraging micro-learning and blended learning approaches.

Leveraging digital resources: Digital learning platforms, skills management tools, and online resources offer cost-effective and flexible ways to train employees. These platforms can provide access to a wide range of training materials, track employee progress, and personalise learning experiences.

Attracting young talents is another significant challenge, particularly in light of outdated perceptions surrounding manufacturing jobs. To address this, companies need to highlight the innovative reality of modern manufacturing:

Showcasing the innovation: Today's manufacturing is characterised by advanced technologies, automation, and digitalisation. Communicating this reality to young people, demonstrating how these technologies are shaping the industry, and showcasing the exciting career paths available, are all critical to attracting the next generation of skilled workers.

Promoting diverse career paths: Manufacturing offers a wider range of career opportunities than traditionally perceived. Highlighting this diversity – from engineering and design to data analysis and cybersecurity – can broaden the appeal of the industry to a wider range of talents and aspirations.

Emphasising the value of vocational training: Apprenticeship programs, vocational schools, and skills competitions can provide young people with practical experience, industry-recognised credentials, and a clear pathway into rewarding manufacturing careers. Highlighting the value of these pathways can help shift perceptions and encourage young people to consider manufacturing as a viable career option.

Recognising that companies cannot overcome these challenges in isolation, collaboration among stakeholders is essential. Public policy plays a crucial role in creating a supportive ecosystem for skills development. This involves:

Targeted support: Governments can provide targeted financial incentives, grants, and tax breaks to encourage companies, especially SMEs, to invest in skills development.

Mediated support: Beyond direct funding, governments can support innovation, research and development, and the adoption of new technologies, which can, in turn, drive changes in work organisation and create demand for new skills.

Promoting cooperation: Governments can facilitate partnerships between companies, educational institutions, training providers, and employment services. These partnerships can help align training programs with industry needs, facilitate knowledge exchange, and ensure a more effective skills development ecosystem.

Examples of such collaborative initiatives include the EU's Pacts for Skills and Skills Alliances. These initiatives bring together a range of stakeholders to address skills shortages, promote upskilling and reskilling, and ensure that the workforce is equipped for the future of manufacturing.

In conclusion, the future of manufacturing hinges on a skilled and adaptable workforce. By embracing new technologies, investing in workforce training, fostering collaboration, and creating a supportive policy environment, the industry can overcome current challenges and unlock future opportunities.



Amid advancements in manufacturing, technical skills alone aren't enough. As machines and processes grow increasingly smarter, the industry requires a blend of enhanced technical know-how and human-centered skills—such as critical thinking, adaptability to disruptive change, collaboration, and leadership—that complement evolving technology.

Juan ANDUEZA, General Manager, DIMECO

PREPARING THE MANUFACTURING WORKFORCE FOR THE FUTURE OF TECHNOLOGY

Author: Olha Hunchak, Digital and Technical Policy Officer, CECIMO

In the manufacturing industry, skills form the foundation of innovation. In light of the ongoing impact of advanced technologies such as automation, artificial intelligence (AI), machine learning, and data analytics on manufacturing processes, it is clear that equipping workers with the right skills is of paramount importance. For companies to remain competitive and efficient, investing in personalised training programmes is fundamental. However, this journey is not without its hurdles.

Technologies such as automation and AI are transforming the way products are designed, created, and delivered in today's manufacturing landscape. While these advances present immense opportunities, they also require a workforce capable of operating, maintaining, and optimising these sophisticated systems. As a result, bespoke training programmes, including microcredentials and hands-on learning are becoming increasingly vital. By tailoring education and training to the needs of individual employees, manufacturers can guarantee their workforce is prepared to meet the demands of a technologically advanced environment.

Mentorship programmes are also of great importance. Pairing experienced employees with younger, tech-savvy colleagues not only facilitates the transfer of valuable skills and knowledge but also helps to cultivate a culture of continuous learning and development. It is vital that this dynamic exchange is maintained to ensure that the workforce remains adaptable and ready to embrace rapid technological change. It also has the additional benefit of improving job satisfaction and retention rates, which are crucial for adapting to rapid technological change.

Despite the industry's focus on up-skilling, manufacturers still encounter a number of challenges. The first challenge is identifying suitable candidates for training and long-term development. It is often challenging for companies to recruit individuals who are not only suitable for training but also likely to remain with the company for the long term. Secondly, it is becoming increasingly challenging to identify future skills needs. The rapid pace of technological change makes it difficult for companies to anticipate and plan for the specific competencies that will be needed in the near future. Finally, accessing suitable training and trainers poses another issue, particularly for on-site training, where it is difficult to find qualified professionals who can develop effective, tailored programmes.





Furthermore, there is a significant deficit in the number of professionals with expertise in installation and service engineering. The nature of these roles often requires extensive travel, making it difficult to maintain a healthy work-life balance, thereby further complicating recruitment efforts.

Part of the challenge also lies in the outdated perceptions of manufacturing as an old-fashioned, monotonous, low-paid, and male-dominated industry. To overcome these stereotypes and attract a more diverse talent pool, it is essential for companies collaborate closely with educational institutions and government bodies. Promoting Industry 4.0 technologies, such as automation and additive manufacturing, can help rebrand the sector as innovative and dynamic. Up-skilling programmes for frontline workers in these technologies have the potential to redefine the image of manufacturing and attract a broader, more skilled workforce.

According to a 2023 CECIMO survey, over 50% of enterprises recognise the value of automation control systems in optimising manufacturing processes, while around half also emphasise the significance of data analytics and visualisation skills. Other essential skills in high demand include robot operation, programming, integration, maintenance, troubleshooting, collaborative robotics (cobots), machine learning, and AI management. As automation increasingly takes over repetitive tasks, human roles are evolving to focus more on oversight, optimisation, and technology integration. Rather than eliminating jobs, digital transformation is reshaping them, necessitating that workers develop new digital skills to remain relevant in the evolving job market.

Addressing the digital skills gap requires a long-term commitment to creating a culture of continuous learning that prioritises practical, hands-on training, rather than a quick fix. Microcredentials have proven to be an effective tool in this effort, particularly within the advanced manufacturing sector. These concise, targeted courses enable employers to quickly upskill their workforce in specific areas, offering a flexible, cost-effective, and tailored approach to learning. In a competitive environment where both employers and employees seek top talent and opportunities, microcredentials offer businesses a rapid and efficient way to identify and develop the precise skills needed to boost productivity. This not only helps to maintain a competitive edge, but also ensures that the workforce remains agile and able to adapt to changing market demands.



Investing in microcredentials should not be perceived as an employee perk. In an era when recruitment and retention pose significant challenges, it's essential to equip workers with the targeted skills necessary for Industry 4.0 and Industry 5.0, cultivating their agility and adaptability.

Mikko NYMAN, CEO, Fastems OY

5

TRADE



THE IMPACT OF EU-CHINA RELATIONS ON THE EUROPEAN UNION'S INDUSTRIAL AMBITIONS

Author: Ivano di Carlo, Senior Policy Analyst, European Policy Centre

The world is undergoing rapid transformations, marked by escalating conflicts, geoeconomic fragmentation and geopolitical volatility. From wars spreading across regions to the emergence of more assertive countries, and the return of Donald Trump to the White House posing yet another challenge, the EU will likely have to navigate through significant and unexpected changes in the coming years. These changes, many of them unprecedented, are set to reshape the global economy, the relationship between the private and public sectors, between industries and institutions. Yet, the pace and impact of these transformations may vary across countries, leaving some regions more vulnerable than others.

In this evolving global landscape, the EU is falling behind the US and China in the race for dominance over key technologies, while its heavy reliance, for instance, on imported critical raw materials threatens both its economic security and future prosperity. The Union is confronted with numerous economic strains, including the loss of investments to the US, surging energy prices following Russia's full-scale invasion of Ukraine, and the growing economic pressure on European companies competing against China's state-subsidised manufacturers; the stakes for Europe's economic sustainability could not be higher. With major players such as China and the US ramping up their investments in critical industries, Europe cannot afford to delay action any longer.

A paradigm shift is needed to ensure that the EU keeps pace with these seismic changes. In Brussels, economic security has become the name of the game, a strategic mix of policies aimed at strengthening supply chain resilience and boosting industrial competitiveness. This focus will likely dominate the EU policy agenda in the foreseeable future.



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THE ONGOING DEBATE IN BRUSSELS OVER TARIFFS ON CHINESE ELECTRIC VEHICLES (EVS) IS A CLEAR EXAMPLE OF THE CHALLENGES THIS LACK OF UNITY CAN POSE. IN THESE CIRCUMSTANCES, NATIONAL RESPONSES ARE INADEQUATE.

One country, in particular, is proving to be a significant thorn in the EU's side—not only for its ambivalent stance on the war in Ukraine but also due to the economic challenges it poses: China. As Chinese companies rapidly close the gap in technology and product performance, and the EU continues to grapple with persistent trade deficit with Beijing, lines between geopolitics and geoeconomics are increasingly blurred. Against this backdrop, European industries must brace not only for geopolitical shocks and sudden market shifts but also for tougher competition with China.

To address some of these challenges, the EU has launched a de-risking policy and an economic security strategy, but these initiatives – among many others – require substantial investments and a set of rapid and actionable measures, aligning industries and governments on key priorities. Bridging the often-diverging perspectives of national ministries and agencies on economic security is crucial, as is building consensus among Member States to prevent internal divisions that could undermine these efforts and further erode the EU's global influence. The ongoing debate in Brussels over tariffs on Chinese electric vehicles (EVs) is a clear example of the challenges this lack of unity can pose. In these circumstances, national responses are inadequate.

It is a challenging job for the EU, too, as it has to develop its own coherent strategy that integrates geopolitical considerations with national security and economic interests. This will prove difficult, especially vis-à-vis China, which will continue to matter due to its vast market and the connections between European and Chinese companies, especially for those operating and producing in China.

To successfully realise its long-term industrial ambitions, the EU must adopt a more integrated and proactive approach through a bold and interventionist industrial policy for the whole EU, while allocating resources to critical industrial sectors. Trade defence measures will play an important role in ensuring fair competition. Still, it would be shortsighted to ignore that defensive measures should work in parallel with a “grand strategy” that is not afraid of countering national particularism and is ready to mobilise consistent public and private investments towards key industries and industries of the future.



EU-China relations have an impact in the European Union's industrial ambitions; as China continues to become leader as a global manufacturing producer, the European Union has to deal with a complex landscape and to boost and establish its own future industrial base in order to be able to cooperate and to compete in a rapid evolving market.

José PÉREZ BERDUD, CEO, Fagor Automation

CHALLENGES AND OPPORTUNITIES OF 'MAKE IN INDIA' FOR THE EUROPEAN MANUFACTURING SECTOR

Author: Mélissa Levaillant, Associate Senior Policy Fellow, Asia Programme, European Council on Foreign Relations

India's 'Make in India' initiative, launched in 2014, has reshaped the country's industrial strategy, aiming to establish India as a global manufacturing hub. For European manufacturers, India presents a dynamic but complex market, offering significant opportunities while posing several challenges. Navigating this environment requires a well-planned, long-term strategy.

The opportunities: expanding manufacturing footprint

Growing demand for high-tech manufacturing:

India's push toward 'Industries 4.0' has created a demand for advanced manufacturing solutions, particularly in sectors like automotive, pharmaceuticals, and electronics. European firms, with their expertise in IoT, automation, and artificial intelligence, are well-positioned to meet this demand. Companies such as Michelin and Saint-Gobain have already adapted their research and development strategies, establishing innovation centers in India that cater to local market needs.



Cost advantages and competitive positioning

India's lower labor and material costs remain a key attraction for European manufacturers. Localising production not only reduces costs but also helps companies comply with India's stringent regulations. By manufacturing locally, European companies avoid high import tariffs and can more effectively compete with emerging local players.

Strategic geopolitical positioning

India's geopolitical significance offers another advantage. As the country seeks to reduce its dependence on Chinese imports, European firms can step in to fill critical gaps in supply chains. Furthermore, India's role as a gateway to other emerging markets in Asia and Africa allows European companies to use it as a hub for regional expansion. For instance, Wilo has successfully transformed India into a hub for exporting water-related products to the Middle East and Africa.

The challenges: navigating regulatory and market complexities

Protectionism and regulatory hurdles

India's regulatory environment presents challenges for foreign firms. The Indian government's local content requirements mandate that companies produce at least 50% of their components domestically to qualify for government contracts. While this encourages localisation, it can be difficult for firms heavily reliant on imports. Moreover, India's fragmented regulatory landscape, with varying rules across states, can create logistical challenges for companies. European firms need to develop strong local partnerships and engage with regulatory authorities to navigate these complexities effectively.

Fragmented market and consumer preferences

India's market is vast but highly fragmented, with significant regional differences in consumer preferences. Local adaptation is essential for success—not only in product offerings but also in marketing and distribution strategies. Decathlon's success in tailoring its product lines to meet the differing needs of consumers in North and South India is a prime example of how flexibility can lead to market success.

Long-term investment and return

Investing in India requires a long-term perspective. Many European manufacturers have found that building a distribution network and establishing local relationships takes time. Companies like Legrand and Saint-Gobain have made significant investments in local partnerships, understanding that once established, their positions in the market are relatively secure.

A strategic future for European manufacturing in India

The 'Make in India' initiative offers European manufacturers a mix of challenges and opportunities. While navigating India's regulatory and market complexities requires patience and adaptation, the long-term potential for growth and innovation is undeniable. Success in India will depend on a company's ability to localise production, adapt to regional differences, and establish strong, enduring partnerships.

For European firms that can overcome these initial barriers, India offers vast opportunities in high-tech industries, a strategic export base, and a rapidly expanding market. Those who invest in long-term strategies and adaptability will find India a rewarding landscape for future growth.



Trade relations between the EU and India can bring potential opportunities but also significant challenges. Different rules and market complexities can represent obstacles. However, the market expansion possibilities are significant. Therefore, deepening EU-India partnership is essential to overcome the current obstacles and to boost innovation and growth for the regions.

Carl DEWULF, President and Managing Director, LVD

EU-US TRADE RELATIONS IN THE AFTERMATH OF US ELECTIONS

Author: Tommaso Lolli, Economist, CECIMO

The recent US Presidential elections are expected to influence the international landscape, particularly in Europe, by reviving American protectionism and isolationism—key aspects of Trump's previous term and electoral success.

This shift aligns with broader US efforts to reevaluate domestic manufacturing and outsourcing strategies amidst concerns over declining industrial output, reduced competitiveness, and supply chain reorganisation. These policies aim to reduce reliance on outsourced production in critical sectors like technology, manufacturing, and energy, as well as intermediate goods exposure. Additionally, challenges such as the green transition and rapid technological advancements are influencing these policy shifts. Moreover, economic uncertainties, inflationary pressures, and rising populist sentiment are further potential drivers of this shift.

Economists warn that open trade, while increasing overall efficiency, often has significant but underestimated redistributive effects. It can lead to uneven distributional outcomes, with certain regions adversely affected by increased competition and market adjustments. In theory, the gains from trade could compensate those negatively impacted but this compensation rarely occurs in practice.

One example is the 'China Shock,' which refers to the major disruption in the US market following China's accession to the WTO in 2001. The flow of low-cost Chinese imports and heightened competition negatively impacted American industries and employment, particularly in states reliant on manufacturing. This event highlights how international commerce may impose hidden costs on certain sectors or regions, overshadowed by aggregate economic gains that conceal their distributional impacts.



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The flow of low-cost Chinese imports and heightened competition negatively impacted American industries and employment, particularly in states reliant on manufacturing.

Despite economic and social evidence, policy responses to mitigate the adverse economic effects of these choices have fallen short. This shortfall has further exacerbated scepticism towards international trade among the affected groups. This scepticism may have fuelled calls for trade restrictions, even though the exact causal relationship between international commerce and negative outcomes is still debated. As a matter of fact, in his previous presidential term, Trump addressed these concerns by implementing tariffs on Chinese imports, by seeking to reduce reliance on foreign supply chains, address the trade deficit, and counter competition. Significantly, while trade-related issues may have influenced Donald Trump's electoral success, other key economic and social factors outlined earlier played a more decisive role in the election outcome. These actions may provide insights into his potential future economic agenda. In his recent campaign, Trump proposed implementing a universal tariff of 10% on all US imports, arguing this would help reduce the trade deficit, improve domestic supply chains, attract investment, and create jobs—despite expert concerns about higher consumer costs. He has also openly criticised certain EU trade practices and has threatened further tariffs on European goods. This reflects his view of the EU as both an economic competitor and a strategic ally. Therefore, European exports could become a target, posing substantial risks to EU member states with considerable export volumes to the US. Additional tariffs could undermine business confidence, disrupt supply chains, and reduce investment, mirroring previous impacts—highlighting the significant consequences of escalating US-EU trade barriers. Given these potential challenges, it's crucial for the European Union to develop effective strategies to protect its economic interests.



To address these concerns, the EU must enhance innovation and close productivity gaps with the US to remain competitive. Diversifying trade partnerships can reduce dependency and mitigate tariff uncertainties. This strategy can strengthen the EU's global influence and better position itself to face challenges like digital transformation, climate change, and sustainable growth.

In conclusion, while protectionist policies aim to protect domestic industries, they can have far-reaching negative effects on global trade and economies. Open trade promotes efficiency, innovation, and economic growth but requires effective policies to address its distributional impacts. The EU must proactively consolidate its strategic autonomy, enhance competitiveness, and engage in unified negotiations to avoid disjointed responses for better dealing with the challenges and opportunities presented by shifting US policies. By acting rapidly and cohesively, the EU would be able to secure its economic interests in a continuous evolving international landscape.



The latest American elections introduce new dynamics to EU-US relations, highlighting the importance of adaptability and dialogue but also opportunities to rethink and strengthen economic ties. As global challenges evolve, this is a moment to collaborate to ensure a balanced and productive trade relationship.

Juha MÄKITALO, CEO, Pemamek Oy

6

EU FUNDED PROJECTS



EMPOWERING THE GREEN TRANSITION

How the GREEN Project is Shaping a Sustainable Future in Education and Advanced Manufacturing

Author: Marina Baptista, Education Project Manager, European Federation for Welding, Joining and Cutting (EFW)

The GREEN project, funded by Erasmus+ and the European Commission, unites nine partners from education and industry to promote sustainability in vocational training. This initiative supports global efforts to build a greener future by embedding sustainability into education and workforce development. The project focuses on six industrial sectors—additive manufacturing, automotive, batteries, defence, energy, and maritime—to identify essential green skills and address gaps in current training.

Initially focusing on six distinct industrial sectors—additive manufacturing, automotive, batteries, defence, energy, and maritime—the project examined two critical professional profiles relevant to the green transition in each of these sectors. It analysed the current training programmes to identify existing green skills as well as those that were missing. Through rigorous research and validation activities with experts and key stakeholders representing each sector, the project determined that, in addition to addressing sector-specific green skills, it is vital to promote green thinking as a transversal skill.

By embedding competencies such as systems thinking, problem framing, and critical thinking into educational approaches, trainers, teachers, and mentors can instil green thinking in learners. This will enable learners to integrate environmentally conscious approaches into their problem-solving and decision-making processes, ensuring that green thinking is transferred to the workplace.

The GREEN project elevates the role of educators as pivotal drivers of change. As promoters of professional, personal, and social development, educators have the tools to incorporate sustainability principles into their teaching, ultimately shifting the attitudes of the industrial workforce. Moreover, the role of education in advancing the Sustainable Development Goals (SDGs) cannot be overstated. Educators play a crucial role in shaping future generations to act responsibly towards the environment.



The GREEN project creates proactive learning environments that integrate sustainability into educational practices, preparing learners with green skills and fostering a broader cultural shift towards eco-consciousness. The launch of the European Network of Vocational Education and Training (VET) Providers in May 2024 significantly bolsters this effort. This network, including ten VET providers from both the project consortium and external organizations, aims to build a globally connected community that supports educators and learners in adapting to an evolving, green-focused world. The network offers the “Green VET Stamp” for providers meeting specific standards, with applications available online.

The GREEN project benefits all sectors by equipping professionals with essential green skills and incorporating eco-friendly principles into training programs. This ensures that industries not only keep pace with the green transition but lead in sustainable innovation and production processes.

 This project has received funding from the European Union's Horizon 2020 research and innovation programme under GA 870092.

EXTENDING HUMAN-ROBOT COLLABORATION

The role of AI into the next generation of the industry

Author: Christos Gkrizis, Research And Development Engineer, Laboratory for Manufacturing Systems and Automation

The JARVIS project leverages artificial intelligence and robotics to advance agile manufacturing and remote maintenance. As global industry shifts from mass production to customizable products, adaptable automation is vital for financial and technological sustainability. JARVIS enhances Human-Robot Interaction (HRI) using AI to tackle major challenges, boost productivity, and improve workplace safety and efficiency, laying the groundwork for future industrial robotics.



Central to JARVIS is integrating AI-driven multimodal interaction and advanced mechatronics into collaborative robotics. This addresses the cognitive and collaboration limits of traditional robots. The project aims to transform industries like automotive, aeronautics, and energy by enabling robots to predict human behavior, understand intentions, and dynamically respond. This allows workers to assign complex tasks while maintaining control, enhancing human capabilities. For example, in agile manufacturing, robots can safely and precisely assemble complex parts or manage flammable materials.

The advanced manufacturing field can be directly benefited by:

- **Enhancing flexibility**, by empowering robots with AI features, enabling them to adapt a wider range of tasks through enhanced vision, natural language understanding and teaching by demonstration
- **Reducing setup time** by minimizing the need for reprogramming through the use of AI enhanced digital twins and agile production orchestration software alongside process task planning.
- **Increasing productivity and acceptance** by removing the “boring” tasks from the operator, enabling the human to focus on satisfactory tasks and decreasing cycle time. JARVIS focuses on a 40% reduction in cycle time while having as a priority the human acceptance, thus, having a great societal impact and a significant boost of reliant high-speed production.
- **Ensuring safety via robots** equipped with intelligent mechatronics and real-time sensor systems operating alongside humans. Research and development on HRC fields alongside adoption from the industry will boost the standardization process of safety in HRC legislation.
- **Lowering human exposure** to dangerous conditions: Teleoperation technologies developed in JARVIS allow operators to control robots remotely in unsafe environments, such as decontamination tasks in nuclear plants or emergency/maintenance operations in offshore energy sectors.

The JARVIS project showcases how AI and robotics can revolutionize manufacturing by combining human dexterity with robotic precision. It sets a new standard for safety, productivity, and flexibility, enhancing human-robot collaboration through advanced AI interfaces. Adoption of these innovations is expected to boost the European economy while keeping humans central to efficient, flexible industrial processes.

PENELOPE: UNVEILING THE POTENTIAL OF HUMAN-CENTRIC DIGITAL TRANSFORMATION IN LARGE-SCALE COMPONENT MANUFACTURING

Author: Félix Vidal, Head of Smart Systems and Smart Manufacturing, AIMEN Centro Tecnológico

Manufacturing and repairing of large-scale components, often one-of-a-kind components, is a complex and challenging process, typically requires significant manual-labour to carry out a sequence of intricate, time-consuming and often imprecise manufacturing steps across cutting, forming, joining, assembly and outfitting stages. While factory workers remain essential to industrial competitiveness, shifting demographics and increasing skill demands present new challenges, making skilled workers an increasingly scarce resource. Digital technologies, combined with a human-centric approach, offer transformative solutions to these challenges by supporting the workers on key labour-intensive and non-ergonomic tasks, as well as leveraging workers' capabilities and accuracy, preserving workers' knowledge and safety.

PENELOPE incorporates human-centric tools, such as i) augmented reality/virtual reality (AR/VR); ii) wearable and portable technologies providing remote guidance and support to the operators, allowing them to perform intricate tasks with higher accuracy, even if they are not highly skilled, iii) collaborative robots (cobots) working alongside human operators, allowing less skilled workers to execute more complex and labour demanding tasks, iv) exoskeletons as human-centred robot solutions, designed to support and augment the body's natural movements, reducing physical stress and increasing accuracy by providing mechanical assistance to non-ergonomic tasks.

In parallel, digital technologies play a critical role to unlock the potential of data-driven strategies in the manufacturing of large components. Leveraging real-time data, quality assurance, digital twins, production planning, interoperability and connectivity of different equipment and manufacturing processes with advanced data analytics and Artificial Intelligence (AI) offer transformative solutions to a more efficient, high-quality, accurate and adaptable manufacturing, by tracking and optimising the entire production from the initial product ideation and design to the final assembly.



In summary, the implementation of digital technologies from a human-centered perspective paves the way for a more efficient and sustainable production in large component manufacturing. By adopting holistic and data-driven control strategies, these technologies not only optimise production performance but also empower workers by combining human skills with digital precision and accuracy. This reduces the need for rework or repairs, enhancing safety and long-term working conditions.

The PENELOPE concept is being implemented, benchmarked and demonstrated in four industrial real-scale pilot lines, across different strategic industry sectors –i.e., Oil&Gas, Shipbuilding, Bus&Coach, Aeronautics. Moreover, a pan-European network of Didactic Factories across Europe is being established to be operated as multi-sectorial and open access general-purpose showroom facilities (i.e., lighthouses) and enabling EU-wide workforce upskilling and technology adoption by EU industry, ensuring a successful market uptake.



THE EARASHI PROJECT ENTERS ITS NEXT PHASE: A NEW CHAPTER FOR HUMAN-CENTRIC AI

Author: Diana Anichitoei, Communications Manager, CECIMO

The EARASHI project (Embodied AI/Robotics Applications for a Safe, Human-Oriented Industry) seeks to revolutionize Europe's manufacturing by integrating advanced AI and robotics that prioritize worker well-being and safety. Now moving into its second phase, EARASHI reflects on key milestones achieved so far.

In 2023, EARASHI held two open calls, granting €2 million across 10 innovative projects that tackled industry challenges defined by its advisory board. Each project received up to €200,000 to develop solutions aimed at enhancing efficiency, eco-responsibility, and worker safety. Beyond funding, EARASHI provided access to Technical Building Blocks—specialized resources and expertise for technical development. This phase focuses on practical implementation, targeting commercial readiness by 2025.

The 10 selected projects include:

- **AutoANT Project:** Autonomous robots for yard logistics, addressing driver shortages sustainably.
- **MAS-AI Project:** A mobile screwdriving platform for safe assembly/disassembly.
- **Handful Project:** Enhancing safety and well-being in the food industry with task recognition.
- **AIWELD Project:** Improved welding quality control through AI-enhanced radiography.
- **MANIAC Project:** Real-time analytics for predictive maintenance.
- **Project Talos:** Streamlined digital planning for factory operators.
- **Manuvised Project:** Simplified robot teaching for easy operation.
- **Orion Project:** Robotic assistance for heavy-duty tasks with IoT support.
- **SensorStack Project:** Wearable tech turning operators into smart assembly line components.
- **Lever Project:** Human-robot collaboration for safer heavy lifting.



EARASHI Showcases Innovation at INPHO® Venture Summit 2024

As EARASHI's initiatives gained momentum, the INPHO® Venture Summit 2024 in Bordeaux provided an ideal platform for these projects to shine. This exclusive event brought together over 200 industry leaders, investors, and innovators for discussions on the future of technology and manufacturing. Organized by BLUMORPHO, the summit featured intensive sessions on investment opportunities, with startups pitching their solutions to potential partners. Among the 300 participants, five EARASHI-backed companies—including ANT Maschine and RoboTwin—were selected to showcase their innovations on stage, gaining invaluable visibility and opening doors for investment and collaboration.

EARASHI's presence at INPHO extended beyond the pitch stage, as the project also sponsored the 'Industry 5.0, Manufacturing and Sovereignty' workshop. This session explored how human-centric AI and robotics can drive a more sustainable, worker-oriented manufacturing landscape in Europe. By supporting this workshop, EARASHI emphasized the importance of integrating worker-centered approaches with cutting-edge technology, echoing its mission to foster a manufacturing ecosystem that values human skills and safety.



This project has received funding from the European Union's Horizon Europe research and innovation programme under GA 101069994.

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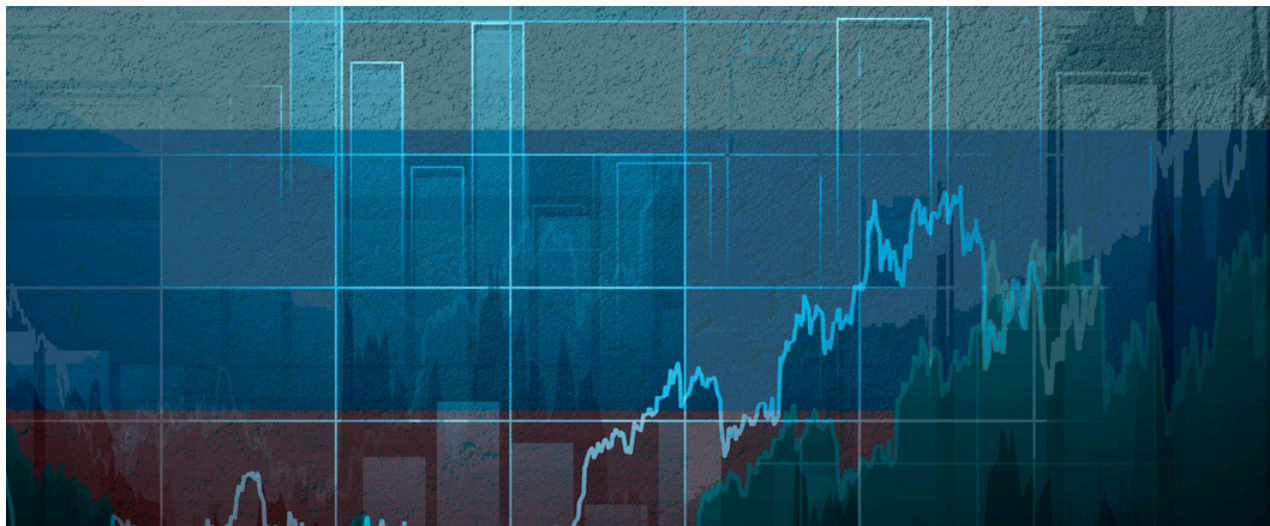
CECIMO NEWS & INSIGHTS



ECONOMIC OVERVIEW

THE EUROPEAN MACHINE TOOL INDUSTRY

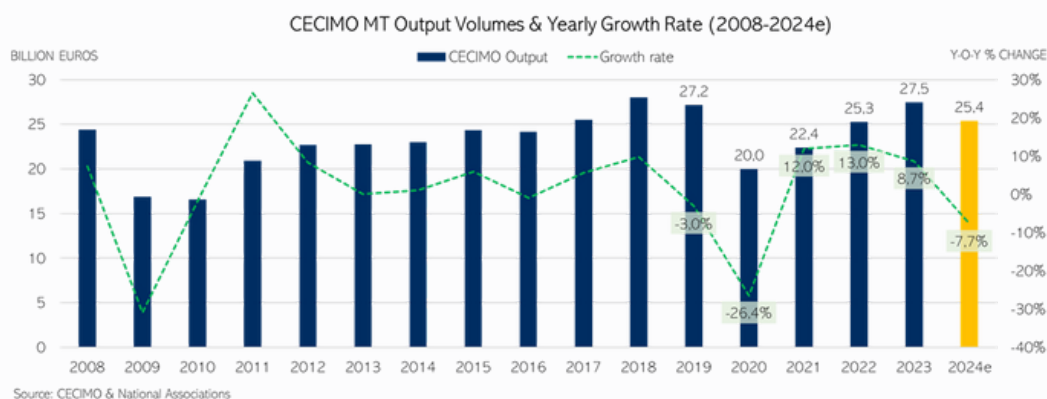
Author: Tommaso Lolli, Economist, CECIMO



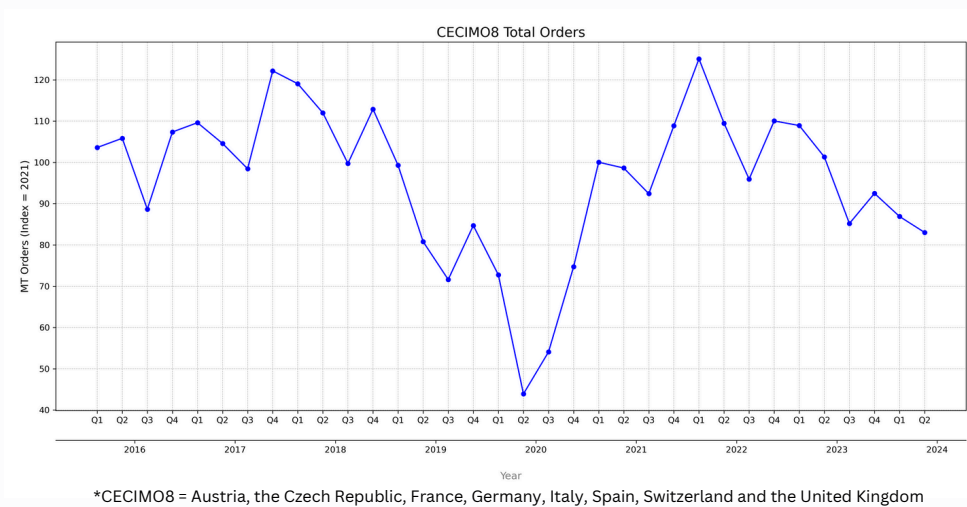
In the first half of 2024, the global and European manufacturing sectors faced significant challenges due to the weakening global economic situation, geopolitically instability and lower demand. Even though there have been notable improvements, for example the inflation reduction close to the central bank targets (even if price pressure persists in some countries) or the easing of supply chain disruption, the general situation has been marked by continuous low business confidence and tighter global monetary policy. This has constrained demand and reduced investments.

According to the IMF's latest World Economic Outlook (October 2024), global growth is expected to be largely unchanged and remaining at its weakest levels in decades from 3.3% in 2023 to 3.2% in both 2024 and 2025. Regarding the EU, IMF reported how the EU economic growth has been revised upwards to 1.1% in 2024 and 1.6% in 2025 as inflation pressures continue to ease with the ECB policy to lower the three key ECB interest rates. This will positively impact economic activity in a moment in which many advanced economies' labour markets are showing signs of decline.

According to our latest database update, global machine tools (MT) production reached 83.8 billion euros in 2023, reflecting an annual increase in production of 3.6. In 2024, CECIMO production is expected to decline at an annual rate of around -7.7% to almost 25.4 billion euro. This negative value indicates a challenging economic and business environment.

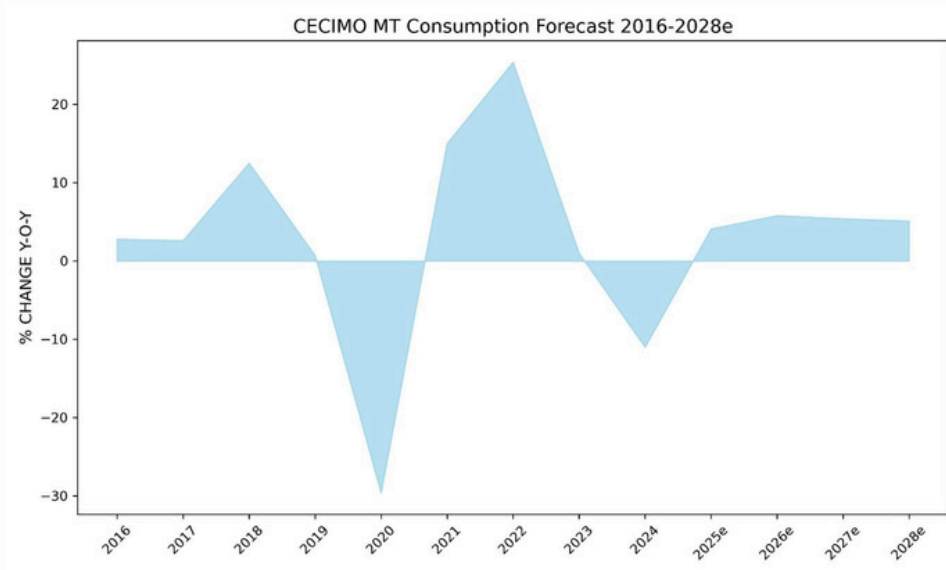


The CECIMO8* index of total new orders recorded a significant further decline in Q2 2024 possibly caused by the uncertainty of the global situation and low business confidence.



In line with the above negative trends mentioned above, the latest Oxford Economics Global MT Outlook of October 2024 presents a negative scenario for MT consumption for 2024. The new data shows that CECIMO machine tool consumption is expected to decline by around 11% in 2024.

For 2025, consumption levels for the CECIMO countries are expected to increase by 4.1%. With this significant downgrade CECIMO consumption shares are expected to decline from 23.8% in 2023 to 22.4% in 2024.



Despite the challenging geo-political situation, monetary policy is easing in key markets which should signal a turning point in 2025. The recovery is expected to be steady as confidence returns, however significant uncertainties remain, which will dampen the rate of growth. Policy makers should encourage investment in technologies that enhance productivity in manufacturing, which will be beneficial to exports and economic growth.

Marcus Burton, Chairman of the CECIMO Economic Committee

MTI AWARDS

RECOGNISING EXCELLENCE IN THE MACHINE TOOL INDUSTRY

Author: Damir Glas, Director of Communications, CECIMO



The Machine Tools Innovation (MTI) Awards takes place on 2 December at the CECIMO Brussels Forum, marking the second edition of this key event for the machine tool industry. This awards programme recognises outstanding achievements and celebrates companies and innovators who are leading the way in technology, sustainability, and competitiveness. The 2024 awards include three categories: the MTI Award for the best overall solution, the Green Impact Award for sustainability, and the SME Excellence Award, which highlights the contributions of small and medium-sized enterprises.

The event offers participants excellent visibility, valuable networking opportunities, and insights into the latest industry trends. Finalists will have the chance to present their work to an audience of industry leaders and stakeholders, fostering connections that may lead to future partnerships.

The MTI Awards are proud to partner with respected organisations such as EIT Manufacturing, the European Factories of the Future Research Association (EFFRA), the European Round Table for Industry (ERT) and EMO Hannover 2025. These collaborations demonstrate a shared commitment to promoting innovation and excellence across the sector.

MEET THE TOP FIVE FINALISTS OF THE 2024 MTI AWARDS AND READ THEIR TESTIMONIALS



“The Machine Tools Innovation (MTI) Awards offer an excellent platform for ValCUN to showcase our unique approach to metal Additive Manufacturing. ValCUN's Molten Metal Deposition (MMD) technology tackles some of the industry's key challenges—ensuring cost-effective additive manufacturing, material legacy, and promoting sustainability.

Our participation in the MTI Awards reflects our dedication to these goals, demonstrating how ValCUN's technology can reduce energy consumption, broaden material choices—such as aluminium and high-performance alloys—and support more sustainable manufacturing practices overall. MTI Awards recognition would elevate ValCUN's profile in Europe, connecting us with partners who value sustainable, innovative solutions and share our vision for the future of manufacturing.

- Jonas Galle, CEO & Co-founder, Valcun



“AdaptX is delighted to be a finalist for the prestigious MTI Award 2024, recognising our commitment to revolutionising cooling technology in the machine tool industry. Our closed-loop cooling system addresses the critical need for sustainable solutions by eliminating reliance on traditional flood and oil-based coolant systems. With a highly efficient, low-maintenance fluid sealed within the system, AdaptX enables completely dry machining, significantly reducing environmental impact and extending tool life.

Our participation in the MTI Award highlights the crucial role of innovation in creating a more sustainable and resource-efficient manufacturing sector. For AdaptX, this award represents a chance to connect with industry leaders, potential collaborators and customers who share our vision of a sustainable future in manufacturing. Winning would reinforce our mission to push the boundaries of green technology in machining, inspiring wider industry adoption and setting new standards in sustainability.

- Tim Bornemann, Co-Founder, AdaptX



“ For the first time, metal additive manufacturing is entering mass production globally, and Prima Additive is honored to mark this milestone by participating in the CECIMO MTI Awards. Our submission - a robotic solution for the Rapid Coating of brake discs using high-speed laser cladding - meets rigorous durability and environmental standards, aligning with Euro 7 regulations set for 2026. Developed by Prima Additive, Comau, and Siemens, our solution boosts productivity with advanced laser technologies. The first six-system coating line, installed at Stellantis, processes each disc in about 60 seconds with 95% efficiency. It's energy-efficient, reuses metal powders, and is reliable for industrial settings like foundries. The MTI Awards offer a platform to showcase these innovations and connect with industry leaders for sustainable, high-performance manufacturing.

• Paolo Calefati, CEO, Prima Additive



“ It's an amazing opportunity and honour to be selected for the CECIMO Machine Tool Innovation Awards to showcase our advancements in robotic 3D metal printing for medium to large-scale parts with our M1 Metal AM System. Our interest in participating was driven by our commitment to push the boundaries of what's possible in digital fabrication. Moreover, we believe our technology can contribute to strategic autonomy (in-house production) and substantial material/footprint reduction for the European manufacturing sector.

As a finalist, we're driven to advance sustainable manufacturing by reducing waste and maximizing material efficiency. The event connects us with industry leaders to spark collaborations and, with CECIMO's recognition, highlights our technology's value and scalability to new customers.

• René Backx, CCO, MX3D



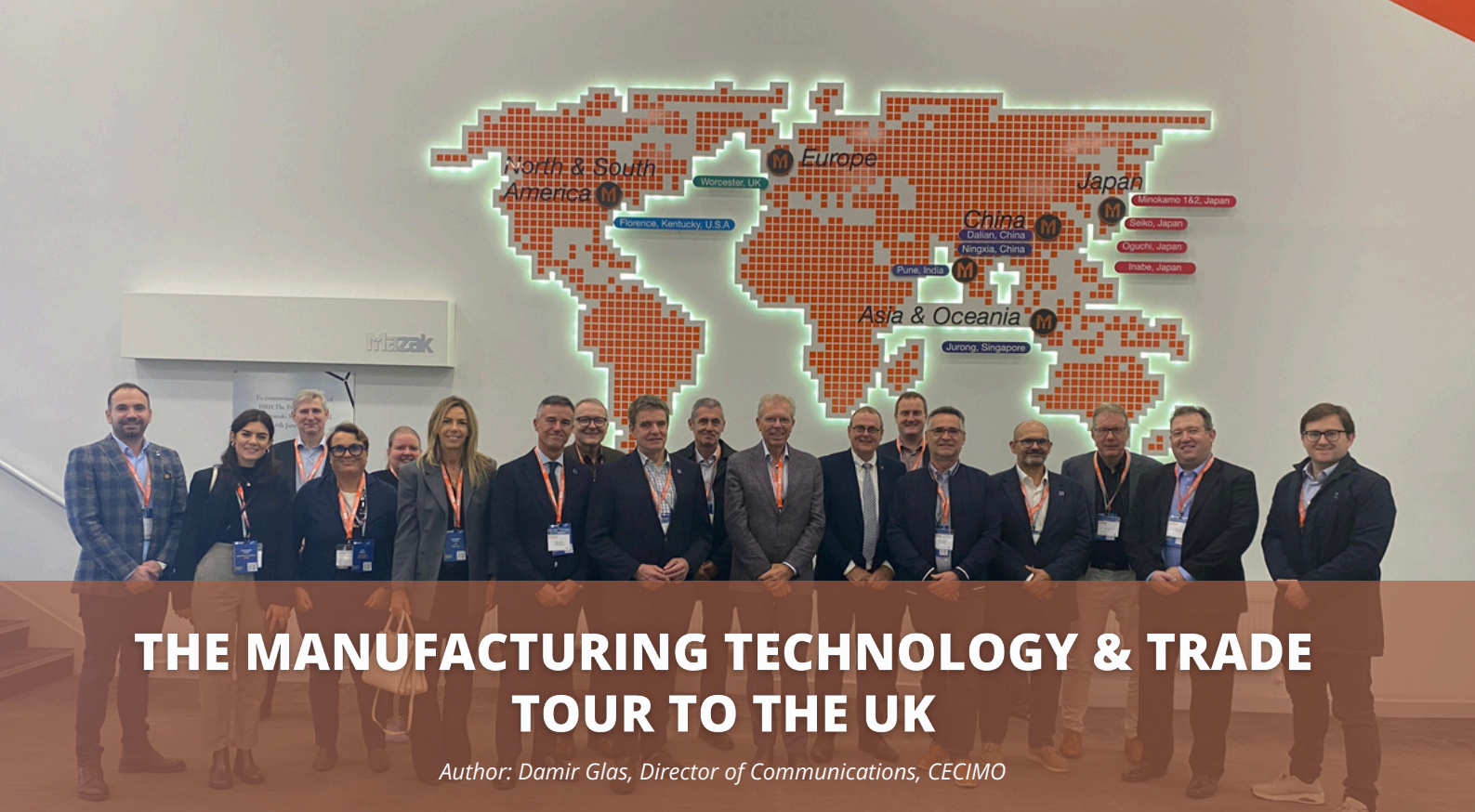
“ DMG MORI is driving Digital Transformation (DX) as a fundamental link between process integration, automation and Green Transformation (GX) within Machining Transformation (MX). This approach addresses future challenges, such as data-driven insights and adaptive optimization in NC manufacturing, aimed at enhancing productivity and efficiency throughout the entire production chain. However, implementing DX in manufacturing is complicated by current issues like skilled labor shortages in both production and IT sectors.

Our primary motivation for participating in the MTI Award is to amplify visibility through CECIMO's extensive network. Many companies, especially small and medium-sized enterprises, are unaware of the benefits of Citizen Development or lack access to no-code platforms. Often, this is due to limited knowledge or perceived barriers to creating custom software. By promoting the “Citizen Developer” approach, we help integrate sustainable digital solutions into production and bridge the gap between IT and manufacturing. Furthermore, the MTI Award offers an invaluable platform for sharing the innovations of CELOS X Factory with industry experts, building connections with potential partners, and gaining insights from other leaders in the field.

• Rinje Brandis, General Manager, DMG MORI

Looking forward, the third MTI Awards will take place at **EMO Hanover from 22 to 26 September 2025**. The MTI Awards programme is open to all European players in the machine tool industry of all sizes, including both established and up-and-coming enterprises.

We will open applications in January, so keep an eye on our website for more updates.



THE MANUFACTURING TECHNOLOGY & TRADE TOUR TO THE UK

Author: Damir Glas, Director of Communications, CECIMO

Building on the success of past company visits, the UK hosted an exceptional Manufacturing Technology and Trade Tour from 15 to 17 October 2024. Jointly organised by CECIMO and the Manufacturing Technologies Association (MTA), the event brought together industry leaders, executives and CECIMO members to explore cutting-edge advancements in manufacturing. This collaborative effort provided attendees with an unparalleled opportunity to gain insights, forge connections, and share expertise in the ever-evolving industrial landscape.

Advancements in manufacturing technology are revolutionising production processes, driving efficiency, sustainability, and global competitiveness. In such a dynamic landscape, staying ahead requires proactive engagement with industry leaders and firsthand exploration of the latest innovations. This hands-on approach is essential for understanding the trends shaping the future of manufacturing and maintaining a competitive edge in the global market.

The tour offered participants exclusive access to some of the most renowned facilities in advanced manufacturing, including Yamazaki Mazak's European headquarters, the Manufacturing Technology Centre (MTC), Renishaw, and the McLaren Group.

Yamazaki Mazak's Worcester facility showcased cutting-edge CNC technology, hybrid multi-tasking machines, and automated solutions, highlighting modern manufacturing efficiency. The visit emphasised the company's commitment to innovation, with a strong focus on product renewal, process improvements to enhance productivity, and the adoption of advanced manufacturing technologies to remain competitive.

The visit to Renishaw highlighted emerging technologies like automated, closed-loop manufacturing systems and non-contact tool setting for blade and blisk production. Live demonstrations proved their functionality, while tours of the STEM Learning Centre Renishaw's commitment to future engineers. Participants also explored the Additive Manufacturing Centre, where around 20 machines produce parts and prototypes for customers.

Participants toured McLaren's facility, gaining valuable insights into its precision engineering and high-performance automotive production, alongside the company's strong commitment to innovation and sustainability in both Formula 1 and supercar manufacturing.

Participants visited the Manufacturing Technology Centre (MTC), an independent research and technology organisation dedicated to bridging the gap between academia and industry. The visit highlighted the centre's focus on improving efficiency and automation through advanced robotic tools, AI-driven systems, and additive manufacturing solutions all aimed at improving efficiency, automation, and sustainability across industries

Testimonials

“ The tour was truly a unique experience both professionally and personally. Visiting cutting-edge organizations in the UK with extremely knowledgeable and experienced individuals to engage with was incredibly stimulating.”

Dr. Beatrice Just, Vice President, MILLUTENSIL S.R.L.

“ The Tour was an excellent opportunity to get to know more closely some of the UK industrial realities of the sector as well as to get interesting insights from different points of view. These kinds of initiatives are also important occasion of networking and exchange of information and opinions among the participants.”

Barbara Colombo, CEO, FICEP S.p.A

“ Besides being a very well-organized tour, I particularly appreciated the MTC visit. I was impressed by the deep and broad knowledge available at MTC, which is a unique platform - an “enabler” - to overcome the technical challenges mechanical industry is facing. I was also impressed by the level of integration of MAZAK and RENISHAW, implying not only significant CAPEX, but also the necessary knowledge and talents. Last but not least, such event is a great opportunity to reinforce the ties and mutual understanding among the CECIMO community (delegates and association members).

François Duval, Managing Director, GF Machining Solutions SAS & CECIMO President



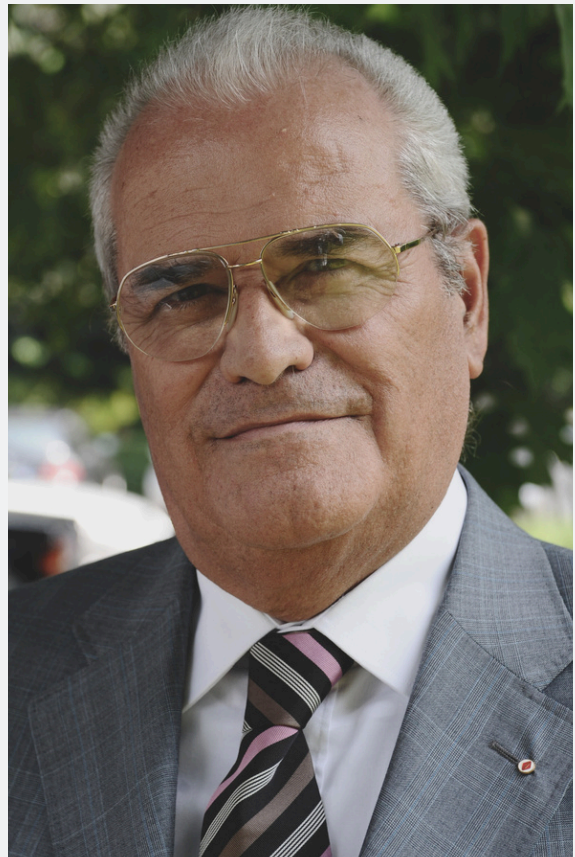
DANTE SPERONI POSTHUMOUSLY HONOURED AS MASTER OF MECHANIC

Author: Claudia Mastrogiuseppe, Head of Communications and External Relations, UCIMU

Dante Speroni, the founder and former owner of the of the Italian company SPERONI (based in Sostegno di Spessa Po, Pavia), has been posthumously honoured as one of the Four Masters of Mechanics for 2024 by FONDAZIONE UCIMU.

The prestigious award was presented at the the 15th edition of the Master of Mechanics, where the jury recognised Speroni for his exceptional contributions to the machine tool industry, not only in his native Italy but across Europe. The nomination highlighted Speroni's pioneering role in advancing tool presetting and measurement systems, which transformed his company, Speroni Spa, into a leading benchmark in the industry. Founded in 1963, the company has since grown into an indispensable innovator in precision tooling.

Born in 1939, Dante Speroni passed away in 2018, left a legacy marked by his vision for mechanical innovation as a pathway to economic growth. His dedication to progress in manufacturing extended well beyond Speroni Spa; he was actively involved in key industry associations, such as UCIMU and CECIMO.



Dante Speroni

In fact , Speroni served as CECIMO's president from 2005 to 2007, during which time he passionately advocated for European initiatives focused on issues directly impacting the sector. Through his leadership, he encouraged national associations and their member companies to engage in collaborative European projects.

The nomination for Speroni's posthumous award was put forth by Filip Geerts, Director General of CECIMO, who commended him as **"a remarkable individual whose contributions have left a lasting impact on our industry."** Unable to attend the ceremony himself, Mr Geerts appointed Luigi Galdabini, Commissioner General of EMO Milano 2021 and board member of CECIMO, to represent the association on his behalf. The award was accepted by Speroni's son, Andrea Speroni, who now leads the company. The ceremony, hosted by BI-MU on October 12 at Fieramilano Rho, was attended by many long-standing employees, who began their careers under Speroni's guidance, attesting to his impactful and lasting influence within the machine tools industry.



The Master of Mechanics Initiative

Founded in 2010 by UCIMU-SISTEMI PER PRODURRE through the UCIMU FOUNDATION, and sponsored by Tecnologie Meccaniche, the Master of Mechanics initiative celebrates individuals whose creativity and expertise propel Italian manufacturing forward. The award honours entrepreneurs, managers, technicians, and workers who have driven the evolution of Italy's mechanical industry through innovation in products, processes, organisational efficiency, worker safety and environmental stewardship.

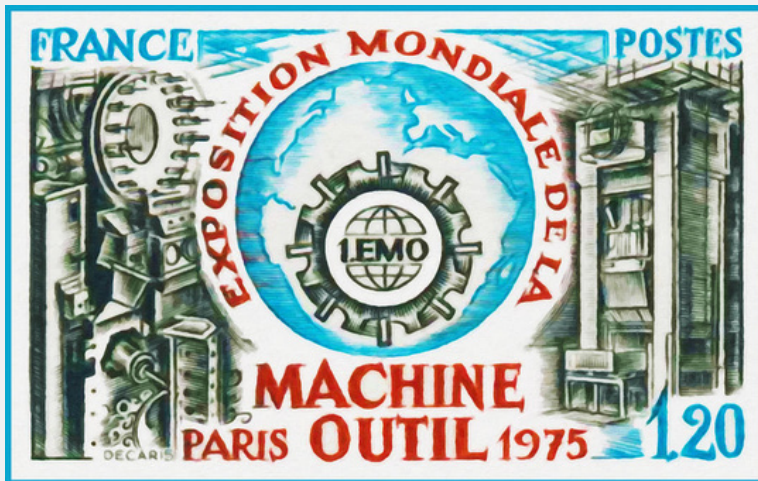
This year's awards were presented by Riccardo Rosa, President of Fondazione UCIMU and UCIMU-SISTEMI PER PRODURRE, alongside Alfredo Mariotti, General Director of the association. Speroni's recognition as a Master of Mechanics highlights a career that has meaningfully shaped advancements in the machine tool industry. His contributions underscore the importance of innovation, precision, and commitment to quality—principles that continue to drive Italian manufacturing forward. Reflecting on Speroni's legacy, Mr Geerts remarked, ***"Dante's work was never just about advancing technology—it was about building a foundation for future generations in our industry. His legacy is a reminder that true innovation serves both industry and society."***



50 YEARS OF EMO

A SUCCESS STORY

Author: Christian Mannigel, Owner of Mannigel Public Relations



On 1st of August 2024, the worldwide dispatch of registration documents for EMO Hannover 2025 marked the start of a very special event: The world's leading trade fair for production technology is celebrating its 50th anniversary. "For half a century, EMO has brought together the right people at the right time in the right place," emphasizes Carl Martin Welcker, General Commissioner of EMO 2025. ***"It is the most important event of 2025 for the international metalworking community."***

Under the motto "Innovative Manufacturing", the trade fair covers the entire value chain of the industry, from machine tools and precision tools to computer technology. "As the most important meeting point between industry and production technology, EMO stands for innovation, internationality, inspiration and the future of metalworking," explains Dr. Markus Heering, Executive Director of the organizer VDW (German Machine Tool Builders' Association). Market leaders from 45 countries exhibited in 2023, and trade visitors came from around 140 countries.

General Commissioner Welcker is convinced: ***"EMO was, is and will remain THE industry platform for inspiring customers, expanding networks and, of course, doing business."*** The trade fair already had this goal 50 years ago, when the European umbrella organization of the machine tool industry, Cecimo, launched it in a difficult economic phase with the significant involvement of VDW.

1975: Exhibitors from other continents at the trade fair for the first time

The global economy had lost much of its strength in the 1970s due to structural upheavals. High inflation, high interest rates and rising unemployment figures led to severe depression and stagflation. Despite this, the European industry associations stuck to their decision to launch the first EMO. In 1975, when the Vietnam War came to an end and the CSCE agreement was adopted, the first trade fair was held in Paris. In addition to the predominantly Western European exhibitors, manufacturers from Eastern Europe were also represented. And for the first time, companies from other continents were also admitted.

This was preceded by an intensive and lengthy discussion about the global opening of the EMO, the Exposition Européenne de Machines-Outils, which has been organized since 1951 with purely European participation. VDW campaigned strongly for further internationalization of the trade fair and ultimately gained Cecimo's endorsement. This was accompanied by the renaming of the trade fair to Exposition Mondiale de la Machine-Outil, or EMO for short.

The choice of venues was also discussed beforehand. While the original sequence was Paris - Hanover - Milan - Hanover every two years, the EMO has been held in a Hanover - Hanover - Milan cycle since 2005.



EMO celebrated its premiere in Germany in 1977. While at the first trade fair two years earlier, almost 1,400 exhibitors from all over the world shared around 94,000 net square meters of exhibition space, at the second event in Hanover there were already over 1,600 exhibitors on almost 117,000 net square meters.

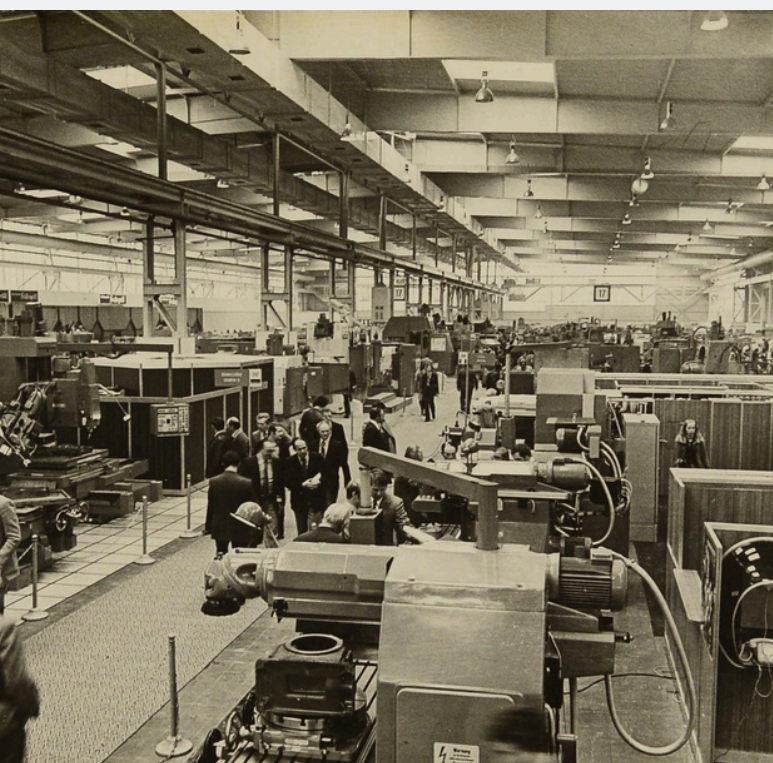
Trend towards complete systems

With the size, the internationality also increased. Exhibitors from 27 countries presented their innovations - and increasingly these were not just machine tools, but complete systems. This trend solidified in the 1980s, as did growth. In 1985, the trade fair set a new record with around 1,850 exhibitors on approximately 160,000 net square meters. These included over 230 companies from more than 20 countries outside Western Europe. No country that manufactured metalworking machines on a significant scale was missing.



To date, the development of the world's most important trade fair for production technology has been very positive. At the last EMO 2023 in Hanover, exhibitors presented themselves in 15 halls on 235,000 gross square meters. They came from 45 countries. Around a third of the approximately 92,000 trade visitors came from Asia. After a four-year break due to the corona pandemic, "we have seen everything here that makes up the future of production: new solutions for automation, networking in the factory and sustainability in production," summarized EMO Commissioner General Welcker at the end of the trade fair.

This is also the goal for EMO 2025, which has been aiming to provide the right answers to all questions about production technology for the last 50 years. The focus is on automation, digitalization and sustainability. Welcker is certain: ***"Participation in the EMO is a must for all key players in the metalworking industry, because this is where the who's who of the industry present themselves."*** In this respect, the world's leading trade fair is the place to be, as no other trade fair in the world brings together so many manufacturing experts on the producer and user side in one place.



NATIONAL ASSOCIATION UNDER THE SPOTLIGHT

Interview with Ires Veerman, General Manager, FPT-VIMAG



1. CAN YOU EXPLAIN HOW FPT-VIMAG'S MISSION AND VISION CONTRIBUTE TO STRENGTHENING THE DUTCH MANUFACTURING SECTOR, PARTICULARLY IN FOSTERING INNOVATION AND COMPETITIVENESS?

FPT-VIMAG's main goal is to stimulate innovation, share knowledge and expertise and strengthen the competitive position of the Dutch technological industry. Therefor FPT-VIMAG connects the Manufacturing Industry by sharing knowledge about innovations and process control within the production technology. This is crucial for the competitive position within the Manufacturing Industry. At FPT-VIMAG we believe that these elements form the necessary steps towards the Smart Factory of the future'. Veerman explains: 'Our products and services enable companies to produce smarter and more efficiently.

Together with partner industry association Nevat (association with a focus on sub-contracting in the metal processing industry), we stimulate progress through the sharing of knowledge and strengthen the position of the Dutch Manufacturing Industry on the global market. Both associations have a large overlap in their core themes. It is therefore logical and practical that both associations are managed by the same director. The back-office team is also identical. Despite the strong cooperation both associations, FPT-VIMAG as well as Nevat, keep their own identity'.

2. WHAT KEY CHALLENGES AND OPPORTUNITIES DO YOU FORESEE FOR THE DUTCH MANUFACTURING INDUSTRY IN THE NEXT FIVE YEARS, AND HOW DOES FPT-VIMAG PLAN TO ADDRESS THEM?

The Dutch Manufacturing Industry faces, according to our vision, major challenges and will experience drastic changes in the coming years. FPT-VIMAG sees that digitalization and robotization are determining the competitive position of the Manufacturing Industry.

Within FPT-VIMAG we will focus the next 2-3 years on three strategic challenges as mentioned before: smart industry, sustainability, statistics. These topics are important to all our FPT-VIMAG members, therefore they will be activated in projects.

FPT-VIMAG will work on challenging questions like:

- *How can AI contribute to productivity improvement?*
- *How can we easily share data technologies and standards?*
- *How can we efficiently increase labor productivity by focusing on chain collaboration and employee development?*
- *How can we improve practical training so that machines and data are used optimally?*
- *How can members inspire and support each other in implementing knowledge and innovation?*

3. WITH DIGITAL TRANSFORMATION RESHAPING THE MANUFACTURING LANDSCAPE, HOW IS FPT-VIMAG SUPPORTING ITS MEMBERS IN ADOPTING ADVANCED TECHNOLOGIES AND STAYING AHEAD IN A GLOBALIZED MARKET?

Digital transformation is important within the entire chain. Members are informed every quarter about the digital transformation and developments within the sector. FPT-VIMAG also organises workshops in which leading experts advise members on this topic and how to implement digital transformation step by step within the company.

Another example is our Technology Roadmap. This was created in collaboration with Saxion University of Applied Sciences. Digitalisation was an important subject in this roadmap. As a result, a number of working groups have been created. External experts in digitalisation joined FPT-VIMAG members and provided them with input and advice on future-related topics. This resulted in a step-by-step plan for the themes: software, planning and engineering. The output of these working groups has of course been shared with the other FPT-VIMAG members.

There is intensive cooperation with FME at national level, this is an important partner when it comes to transitions and creating support. At European level, the collaboration with CECIMO is highly valuable. Veerman says: *"To remain competitive in the world, we must work together as one Europe and make each other smarter. We must build good 'highways' to find each other easily and thus continue to operate together at the highest level."*

4. SUSTAINABILITY IS BECOMING INCREASINGLY CRITICAL IN MANUFACTURING. COULD YOU HIGHLIGHT SOME OF FPT-VIMAG INITIATIVES AIMED AT PROMOTING SUSTAINABLE PRACTICES AMONG YOUR MEMBERS?

As an association, we do many activities to create awareness in the field of sustainability and to use sustainability profitably. Here too, Europe is an example for the rest of the world and Dutch companies often belong to the leading group. We must further develop this with the association and ensure that we learn from each other. We use speakers to create awareness, create working groups to develop road maps and conduct market research with sector specialists, banks and research agencies. In this way, members are stimulated and inspired to implement sustainability initiatives in their own company.

From 2025, FPT-VIMAG will work on sustainability indicators in collaboration with partner industry associations. In this way, we will raise awareness industry-wide, and deliver concrete tools to the members on how to implement sustainability in their company.

5. COLLABORATION IS KEY TO DRIVING INDUSTRY-WIDE CHANGE. HOW IS FPT-VIMAG FOSTERING PARTNERSHIPS BETWEEN COMPANIES, EDUCATIONAL INSTITUTIONS, AND GOVERNMENTAL BODIES TO PROMOTE TALENT DEVELOPMENT AND INNOVATION WITHIN THE SECTOR?

At a local level, FPT-VIMAG members regularly organise open days to promote the sector and meet talent. Therefore there is close cooperation between regional companies and secondary schools. At FPT-VIMAG we wholeheartedly support these initiatives.

An important pillar of FPT-VIMAG is the organization and support of the TechniShow, the largest trade fair for the Manufacturing Industry in the Benelux. 'We are aware of the changing world in the trade fair landscape and use the TechniShow for more purposes than just active sales.

Veerman says: *"Together with our industry association partners, we want to positively promote and strengthen the image of the Manufacturing Industry. High tech is one of the building blocks for a greener world, and we are in an important sector to demonstrate the innovative power of the Benelux. We must use and emphasise this. TechniShow is the event to put the Dutch Manufacturing Industry on the European map!"*



MEET A CECIMO DELEGATE

Interview with Vincent Affolter, Managing Director, Affolter Group



1. WHAT DO YOU SEE AS THE KEY BENEFITS OF BEING A CECIMO MEMBER?

I represent a medium-sized family business that has been active in the manufacturing industry for over a century. Being a member of CECIMO gives me a better understanding of the state of this industry in Europe. To be able to look at its future challenges from a broader perspective. Finally, and very importantly, it allows me to forge links with other CECIMO members who share the same concerns and passion for the manufacturing industry.

2. AS DIGITAL TRANSFORMATION CONTINUES TO RESHAPE MANUFACTURING, HOW CAN COMPANIES EFFECTIVELY NAVIGATE THE CHALLENGES OF THE GREEN AND DIGITAL TRANSITIONS?

Digitalisation and green technology have become buzz words. Politicians and the media are talking a lot about it, and pressure is being put on industrial companies in this way. This can be frustrating for entrepreneurs, because it can take a long time to implement a transformation in a product or process. And especially in a medium-sized company, the resources available are used for the tasks at hand.

The best way to navigate the green and digital transitions is to make these buzz words concrete at the level of the company, its employees and its customers. Where can we save energy? What consumes the most electricity in our machines, and how can we reduce this consumption? What processes take time to carry out manually, and how can we automate them? These are the kinds of questions that make the transitions concrete. They give us the energy to solve concrete problems that concern us. Making things concrete increases people's spontaneous involvement.

3. WHAT RECENT PRODUCT OR DEVELOPMENT STANDS OUT AS THE MOST REMARKABLE FOR YOUR COMPANY, AND WHY?

We have developed a fully automated, self-controlled machining production line. The material enters at the start of the line, passes through several machining, washing and inspection cells, and at the end of the line, 100% good parts are produced with virtually no human intervention. This production line can operate at night and at weekends. The machined parts are used in very high-quality watch movements. The machining line corrects itself automatically by working in a closed loop between the measurement of the parts and the axes of the machining cells. A project like this requires a great deal of knowledge in mechanics, software and electricity, as well as in machining itself.

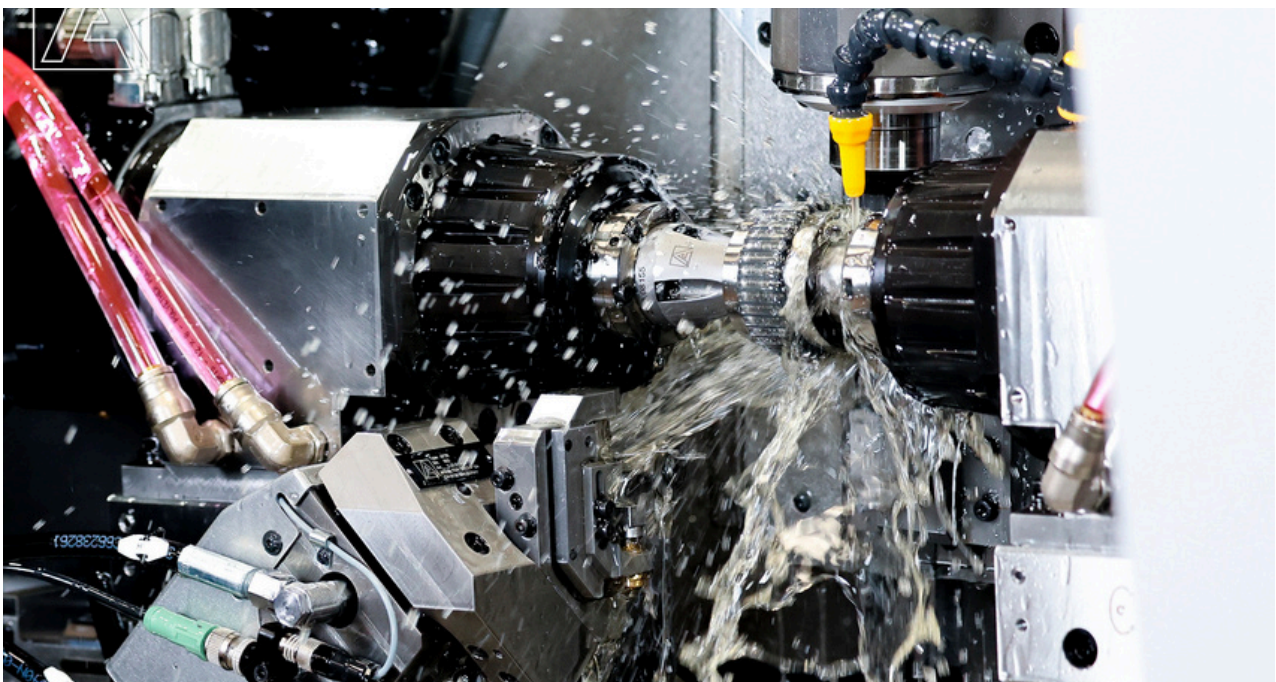
“ THE BEST WAY TO NAVIGATE THE GREEN AND DIGITAL TRANSITIONS IS TO MAKE THESE BUZZ WORDS CONCRETE AT THE LEVEL OF THE COMPANY, ITS EMPLOYEES AND ITS CUSTOMERS.

4. IN PREPARING FOR THE FUTURE, WHAT DO YOU THINK ARE THE MAJOR CHALLENGES THAT COMPANIES FACE IN RESKILLING AND UPSKILLING THEIR WORKFORCE TO MEET THE DEMANDS OF THE EVOLVING MANUFACTURING LANDSCAPE?

The manufacturing industry employs many operators or technicians specialising in a technical field. Human beings normally like to be in their comfort zone and, if possible, do not want to face change. In many professions, digitalisation is changing the game, making it possible to achieve greater efficiency and precision with less effort. However, this means changing the way we work and acquiring new knowledge, sometimes far removed from the job we have learned. So, it's always the same challenge: to get people on board with the change and expand their comfort zone.

5. WHICH SKILLS DO YOU BELIEVE WILL BE CRUCIAL FOR EMPLOYEES TO THRIVE IN THE FUTURE OF MANUFACTURING, PARTICULARLY AS INDUSTRIES INCREASINGLY EMBRACE DIGITAL TOOLS AND SUSTAINABLE PRACTICES?

Creativity will be crucial for employees to thrive in the future of manufacturing. Employees will have to bring their creativity and critical thinking to their workplace, especially if most of the job is done by a machine that was taught by another machine.



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Prima Power



Giuseppe SCEUSI, President
Marposs Italia spa



Ires VEERMAN, Branch Manager
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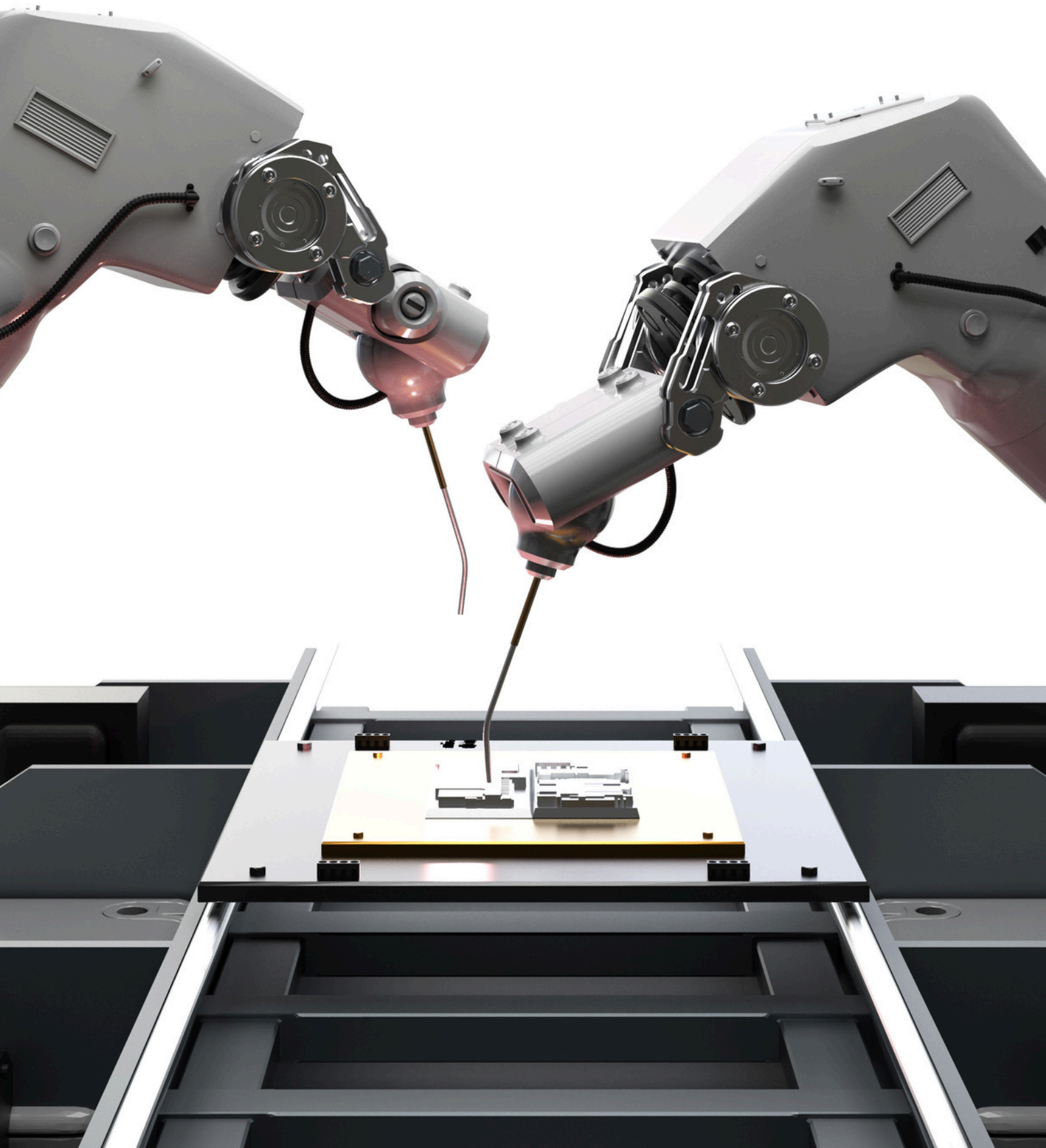
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OUR MEMBER ASSOCIATIONS

Austria: FMTI, Association of Metaltechnology Industries
www.metalltechnischeindustrie.at

Belgium: AGORIA, the Federation of the Technology Industry
www.agoria.be

Czech Republic: SST, Svazu Strojírenské Technologie
www.sst.cz

Denmark: DI - Confederation of Danish Industry
www.di.dk

Finland: Technology Industries of Finland
www.teknologiateollisuus.fi

France: EVOLIS, Organisation Professionnelle des Bénéficiaires d'Équipement
www.evolis.org

Germany: VDW, Verein Deutscher Werkzeugmaschinenfabriken e.V.
www.vdw.de

Italy: UCIMU, Associazione dei costruttori Italiani di macchine utensili robot e automazione
www.ucimu.it

Netherlands: FPT-VIMAG, Federatie Productie Technologie / Sectie VIMAG
www.fpt-vimag.nl

Portugal: AIMMAP, Associação dos Industriais Metalúrgicos, Metalomecânicos e Afins de Portugal
www.aimmap.pt

Spain: AFM Cluster for Advanced and Digital Manufacturing
www.afm.es

Sweden: SVMF, Machine and Tool Association of Sweden
www.svmf.se

Switzerland: SWISSMEM, Die Schweizer Maschinen-, Elektro- und Metall-Industrie
www.swissmem.ch

Türkiye: MIB, Makina Imalatçıları Birliği
www.mib.org.tr

United Kingdom: MTA, The Manufacturing Technologies Association
www.mta.org.uk

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