

FACT SHEET - Advanced Manufacturing skills challenges and opportunities

Webinar | Understanding skills challenges and opportunities in the Advanced Manufacturing Industries across European regions



LCAMP ALLIANCE

Webinar | Advanced Manufacturing Skills Analysis

Understanding skills challenges and opportunities in the
Advanced Manufacturing Industries across European regions

19 March 2025
10-11h30 (Brussels Time)

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The information and data included in this fact sheet was shared during **EARLALL's webinar on "Understanding skills challenges and opportunities in the Advanced Manufacturing Industries across European regions"** which took place on 19 March 2025. This initiative was promoted by EARLALL'S Working Group on Skills and Labour Market and the LCAMP Alliance.

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The webinar presentations and the recording are available on **EARLALL's website**



FACT SHEET - Advanced Manufacturing skills challenges and opportunities

Advanced Manufacturing (AM) stands at the forefront of Europe's economic and industrial strategies. It encompasses industries that utilise cutting-edge technologies—including automation, robotics, artificial intelligence, additive manufacturing (3D printing), and the Industrial Internet of Things (IIoT)—to produce high-value products and services.



FACTS & FIGURES

- The sector employs **over 30 million workers across Europe**, with **20%** of these jobs requiring advanced **digital and technical skills**.
- Advanced Manufacturing represents **15% of total EU GDP**, making it a critical driver of economic growth.
- Skills shortages in areas like robotics, data analytics, and cybersecurity are growing rapidly, with **70% of employers in the sector reporting difficulties finding qualified talent**.
- **SMEs**, which account for **99% of the manufacturing landscape**, often face unique challenges in accessing training and upskilling opportunities.



MAIN CHALLENGES

- **Skills Gaps and Mismatches:** rapid pace of technological innovation demands a workforce proficient in advanced digital tools, sustainable manufacturing practices, and new materials.
- **Attracting and Retaining Talent:** The sector faces challenges in attracting younger generations, particularly women, to pursue careers in manufacturing due to outdated perceptions of the industry.
- **Reskilling and Upskilling:** A significant portion of the existing workforce requires reskilling to adapt to new technologies and processes, particularly in regions with traditionally strong manufacturing bases.
- **Regional Disparities:** Some regions in Europe are leaders in advanced manufacturing, while others struggle to modernise their industries and workforce, exacerbating economic inequality.
- **Access to Innovation & Technology:** SMEs struggle to invest in automation, AI, and digitalization due to high costs.

i AI and the EU skilling challenge. First insights from Cedefop's AI skills survey & foresight study

- Cedefop's **AI skills survey and foresight study**, based on a representative sample of 5,342 adult workers across 11 EU countries in 2024.
- **Significant disparities** in AI adoption across countries and sectors.
- AI enhances jobs it also **creates a pressing need for continuous upskilling**.
- **61% of workers** will require new knowledge and skills to adapt to AI's impact, yet **44% believe their employer is unlikely to provide training**.
- There is a need to **prioritize AI training for older workers, women, and employees in SMEs**.
- Early findings from the **automotive sector** revealed key challenges for both **education and industry**, including a **skills gap that education systems currently fail to address**.
- It is needed a **public-private approach** to bridge this gap and ensure a workforce prepared for AI-driven change.



Cedefop's policy brief

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FACTS AND FIGURES FROM EARLALL MEMBER REGIONS



Basque Country: LCAMP project and its impact on the regional VET policies

Advanced manufacturing is an important field of Basque Country Economy:

- Industrial sector in the Basque Country represents **24.1% of the region's GDP** ([see here](#)).
- Included in our smart specialisation strategy.
- An essential field in technological innovation: the automotive industry, a key component of advanced manufacturing, achieved a turnover exceeding **€25 billion in 2023, marking an 11.5% increase from the previous year.**
- A field in which the twin transition will have a great impact.
- A source of good quality employment and the social wellbeing and quality of life that results from it, which is facing many challenges.

LCAMP is a CoVE project of the 2021 call which aim is to support **regional CoVEs working** in advanced manufacturing to become more resilient, innovative and better equipped to train people to successfully face the digital and green transitions.

- Fosters **collaboration among schools on mobility projects**, identifies technology trends and skills needs, and develops learning factories within VET environments.

LCAMP's regional impact:

- The Basque Country government incorporated the initiative into its latest regional plan for vocational education and training, elevating CoVEs on the policy agenda.
- **20 VET schools** specializing in advanced manufacturing have joined the network.
- The government has promoted the **creation of Learning Factories by reducing teaching hours for teachers at 22 VET schools**, allowing them time to establish and develop these factories.

[Join the LCAMP Conference](#)



Catalonia: looking at EXCEED project, working towards the twin transition

Advanced Manufacturing (AM) industries in Catalonia:

- **1,111 companies** in the sector, generating approximately **26,394 jobs.**
- While **cybersecurity** has the highest number of companies, **AI and the Internet of Things (IoT)** firms lead in turnover.

Challenges and opportunities:

- AM has been strongly impacted by the twin transition, generating disruptive changes, beside the urgency to foster industry decarbonization.
- VET providers can play a crucial role preparing the work force and the society of the future.

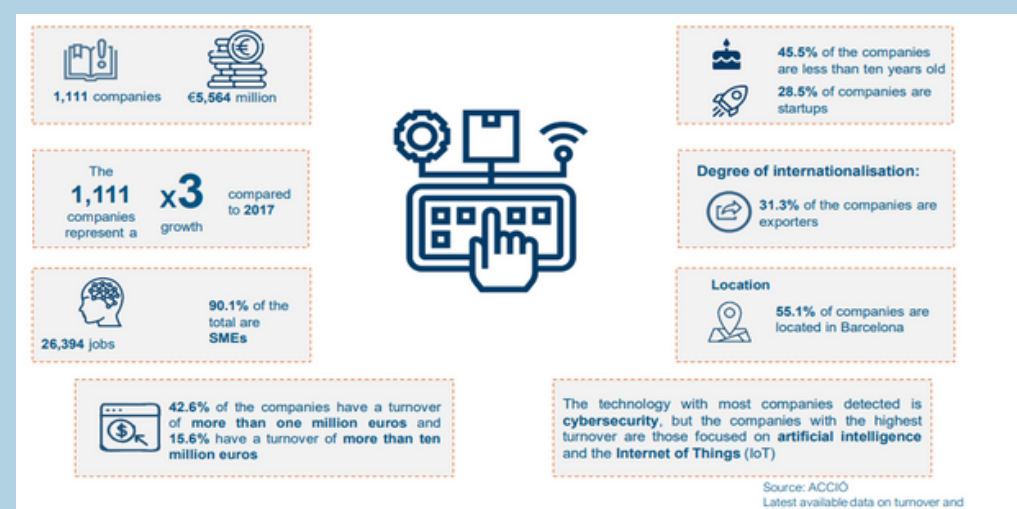
EXCEED - Excellence in Green and Digital Manufacturing

which aims to drive innovation and sustainability in AM while ensuring vocational education aligns with future workforce demands:

- Establishing talent factories.
- Innovating curricula.
- Developing international talent hubs.
- Supporting global mobility programs.

EXCEED is its commitment to gender equality:

- Gender Equality Plan for VET providers, that embodies our dedication to inclusivity and diversity.
- Standout initiative is **Escola del Treball's EDtWomendays**, which includes **sessions for primary schools and early secondary education students**, encouraging young learners—especially girls—to explore opportunities in advanced manufacturing.



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Flanders: labour shortage in the AM Sector and innovative projects

Manufacturing industry Belgium:

- 87 billion € added value.
- 573,000 jobs (11% total working population).
- Jobs :
 - Electronics
 - Plastics/synthetic materials processing
 - Mechanical engineering
 - Metal products
 - Textiles
 - Transport equipment
- **Main problems:**
 - Jobs not filled in.
 - Labor Market mismatch.
 - Rapid technological transformation and digital revolution
- **Main challenges:**
 - Activation.
 - Finding and retaining qualified people.
 - Forming people with competences of future.
 - Attracting young people to engineering and technology professions.
- **Possible solutions:**
 - Revalue technical and vocational education.
 - Companies : academies + training programs
 - Regional Technology Centers in every Province.
 - Attracting young people to engineering and technology professions.

• Good practices:

- Adecco's Workforce Academy 4.0 – a forklift and reach truck driving program
- Connectief – Diagnose Car – training focused on modern automotive technology
- Wine Harvest – Corda Campus Collaboration – an innovation project with GO! Hotel School

These programs demonstrate ongoing efforts to bridge the gap between education and industry needs while promoting technical and vocational training.



Lombardy, insights from the Fondazione Ergo

• Advanced Manufacturing in Italy

- Most of manufacturing companies in Italy are SMEs, but they face challenges in accessing training and innovation.
- **38.4% of manufacturing companies** have invested in innovation in recent years.
- **70% of businesses struggle** to find skilled workers in robotics, data analytics, and cybersecurity.

• Challenges & Opportunities for SMEs:

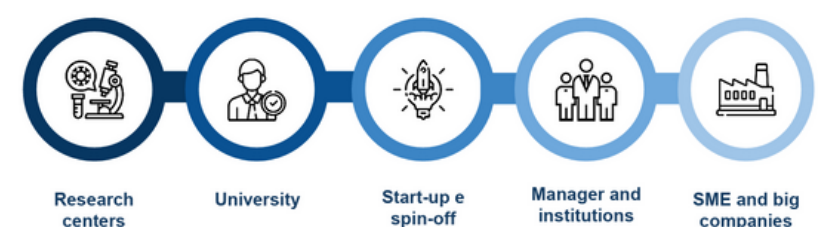
- **Access to Innovation & Technology:** SMEs struggle to invest in automation, AI, and digitalization due to high costs.
- **Skills Gap:** most of companies report difficulties in finding qualified talent.

• Good practice:

- **SMARTT VALLEY**, the industrial innovation hub in Varese (Lombardy) aimed at boosting the competitiveness of the local manufacturing industry.

- The hub is structured around **three thematic areas: Industrial sustainability, Social sustainability in factories and Material sustainability and circularity.**
- SMARTT Valley operates on **three pillars:** an academy for skills development, a research center, and a technology transfer platform, ensuring that innovation is both accessible and impactful for SMEs.
- Focus: **Innovation and education for Varese.** A project to foster: **SMEs** (innovation, industry 5.0 and Training & Consulting), **Workforce** (train and career guidance) and **Industry 5.0.**

SMARTT Valley - Connector of an ecosystem



GLOBAL CONNECTIONS

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EU INITIATIVES FOR THE DEVELOPMENT OF SKILLS FOR THE AM

- **Centres of Vocational Excellence (CoVE)** provide training in specific areas for the initial training of young people as well as for continued up-skilling and re-skilling of adults.
 - **LCAMP - Learning Community for Advanced Manufacturing Professionals.**
 - **EXCEED - Excellence in Green and Digital Manufacturing.**
- **Industrial Ecosystems and Partnerships, Large Scale and Regional Skills Partnerships under the Pact for Skills**, which fosters partnerships between industry, education providers, and policy-makers
- **Clean Industrial Deal (CID)**, strategic initiative aimed at decarbonizing industries while bolstering their competitiveness. To address the need for a skilled workforce capable of driving the green transition, the European Commission plans to **invest up to €90 million through the Erasmus+ programme.**



MAIN OPPORTUNITIES & LESSONS LEARNED

- By 2030, the European remanufacturing market is projected to grow to **€100 billion**. This will create **500,000 new jobs**.
- **Public-private** approach to bridge skills gap and ensure a workforce prepared for AI-driven change.
- There is a need to **prioritize AI training for older workers, women, and employees in SMEs.**
- **Regional cooperation**
- Fosters collaboration among schools on **mobility projects**
- VET providers can play **a crucial role** preparing the workforce and the society of the future.
- **Enhance** the value of technical and vocational education.
- Foster **company-led academies** and specialized training programs.
- Establish **Regional Technology Centers** in every province.
- **Inspire and engage young talent** in engineering and technology careers.

