LCAMP

Learner Centric Advanced Manufacturing Platform

D2.4. Policy Recommendations (III)

WP2: Learner Centric Advanced Manufacturing CoVEs Alliance

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GLOSSARY AND/OR ACRONYMS

CoVE - Centre of Vocational Excellence. A local network of education and training actors — including VET providers, employers, research institutions, development agencies, and employment services — that work together to design quality curricula and qualifications aligned with the skill demands of specific sectors, while contributing to regional economic and social development, innovation, and smart specialisation strategies. Definition adapted from Cedefop's terminology tool, available at https://www.cedefop.europa.eu/en

LCAMP - Learner Centric Advanced Manufacturing Platform for Centres of Vocational Excellence.

S3 – Smart Specialisation Strategy.

SME - The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million (European Commission 2003).

VET - In LCAMP we follow the definition of the 2020 Council Recommendation and we understand VET as "the education and training which aims to equip young people and adults with knowledge, skills and competences required in particular occupations or more broadly on the labour market. It may be provided in formal and in non-formal settings, at all levels of the European Qualifications Framework (EQF), including tertiary, if applicable."

CONTENT TABLE

1. EXECUTIVE SUMMARY

Europe's capacity to innovate depends not only on frontier research and high-technology sectors, but on the ability of small and medium-sized enterprises in traditional industries to adopt and implement incremental improvements. Vocational education and training (VET) is well placed to support this process, yet its potential contribution to regional innovation systems and Smart Specialisation Strategies remains largely unrecognised in both academic literature and policy design. This recommendation argues that Centres of Vocational Excellence (CoVEs), by extending their functions beyond teaching to include applied research and knowledge transfer, can serve as effective innovation partners for SMEs — a case supported by evidence from the LCAMP CoVE project, which delivered 22 innovation projects across six countries with an average SME satisfaction rate of 78.73%. It calls on European, national, and regional authorities to formally embed applied research within VET mandates, fund the scaling of proven collaboration models, and integrate VET institutions as active participants in regional innovation governance.

Innovation is central to Europe's reindustrialisation agenda, its green and digital transitions, and its long-term economic competitiveness. Two features of the European economy are the preponderance of small and medium-sized enterprises (SMEs) and the weight of traditional or mature-technology sectors. In these contexts, improving existing processes, products, and organisations is an economic necessity.

Vocational education and training (VET) is well positioned to drive this kind of innovation. VET operates in knowledge diffusion, experience-based learning, intermediate technical skills, and close engagement with SMEs in traditional industries.

For VET to fulfil this role, VET providers must operate beyond the teaching function. Centres of Vocational Excellence (CoVEs) offer a promising model for doing so. Evidence from the LCAMP CoVE project — 22 applied innovation projects implemented with SMEs across six countries, with an average SME satisfaction rate of 78.73% — demonstrates that structured VET–SME collaboration yields concrete results.

This policy recommendation calls on European, national, and regional authorities to formally recognise applied research as a core VET function, to fund the scaling of successful collaboration models, and to integrate VET institutions as active actors within regional innovation systems and S3 frameworks.

2. THE INNOVATION IMPERATIVE

Closing the innovation gap is a prerequisite for European reindustrialisation, strategic autonomy, and the green and digital transitions. Without sustained innovation, Europe will struggle to raise productivity, achieve economic growth, maintain industrial strength, and decarbonise its economy *(European Commission, 2025; Draghi, 2024b, pp. 228–229)*.

Innovation encompasses both the invention of something new — whether a product, process, organisational form, or market — and the diffusion of that novelty throughout a system *(OECD/Eurostat, 2018; Fagerberg, 2005)*. Economists conventionally distinguish between radical innovation, which causes major systemic disruption, and incremental innovation, which drives smaller, non-disruptive improvements to existing products, processes, or organisations *(Fagerberg, 2005)*. Both are indispensable to the European economy *(European Commission, 2025)*.

Two structural features define the European industrial landscape. First, small and medium-sized enterprises (SMEs) are the backbone of the European economy: with 25 million enterprises employing approximately 100 million people, they account for more than half of Europe's GDP and are central to its competitiveness, technological sovereignty, and resilience *(European Commission, 2020)*. Second, a significant share of European industry is concentrated in traditional sectors specialised in mature technologies — sectors that supply the materials, energy systems, and manufacturing capacity upon which newer industries depend *(Draghi, 2024a, pp. 6, 14, 27–28, 2024b 242)*.

Together, these two features carry an important policy implication: if Europe's economy is to grow, it must find effective ways to diffuse and exploit knowledge within SMEs operating in mature technology sectors. Incremental improvements in these industries matter precisely because they remain a large part of Europe's industrial base, employment structure, and supply chains. Raising their productivity can accelerate the broader transition towards a cleaner, more competitive economy *(Draghi, 2024b, p. 244)*.

Vocational education and training (VET) is well positioned to support SMEs in this process.

3. INNOVATION SYSTEMS AND SMART SPECIALISATION STRATEGIES

Innovation is best understood in systemic terms. An innovation system is a social system in which diverse actors interact in the production, diffusion, and use of knowledge *(Lundvall, 2016, pp. 85–86)*. National and regional innovation systems build on the recognition that innovation is an interactive, systemic process that combines multiple knowledge types across organisational boundaries *(Chaminade, Lundvall and Haneef, 2018)*. Central to this approach is the idea that flows of technology and information among enterprises, universities, and government research institutes determine innovative capacity — and that policies aimed at strengthening these flows are among the most valuable interventions available *(OECD, 1997)*.

Against this backdrop, the concept of Smart Specialisation Strategies emerged around 2008 within the European Commission's Knowledge for Growth expert group, initially established to examine why the European economy lagged behind the United States *(Hall, 2011)*. S3 became highly influential in European policymaking and was adopted as a mandatory ex-ante conditionality for EU Cohesion Policy in the 2014–2020 programming period.

3.1. Where the Literature Falls Short

A persistent weakness in the academic literature on regional innovation systems and S3 is the tendency to overlook dimensions where VET has a critical contribution to make. The table below maps these gaps (Navarro and Retegi 2018):

What Regional Innovation Literature Emphasises	What It Overlooks (Where VET Excels)
Knowledge generation, financial markets and capital	Knowledge diffusion and exploitation
Science-push models of innovation	Interaction-based, experience-driven, and collaborative innovation (e.g. Lundvall's DUI model)
High-technology sectors and large companies	Traditional, low-technology sectors and SMEs
Highly qualified minorities (PhDs, engineers, scientists)	Intermediate technical skill levels
The region as the unit of analysis	Varying local contexts within a region

Table 1. Gaps of the Regional Innovation Literature

This mismatch helps explain why the role of VET in Smart Specialisation Strategies and regional innovation systems cannot be defined through a single template: European regions differ substantially from one another, as do their VET systems.

4. VET PROVIDERS AS INNOVATION PARTNERS

LCAMP understands vocational education and training in line with the *2020 Council Recommendation on vocational education and training for sustainable competitiveness, social fairness and resilience*:

> Vocational education and training is to be understood as the education and training which aims to equip young people and adults with knowledge, skills and competences required in particular occupations or more broadly on the labour market. It may be provided in formal and in non-formal settings, at all levels of the European Qualifications Framework (EQF), including tertiary, if applicable.

For a VET centre to contribute meaningfully to Smart Specialisation Strategies and to support SME innovation, it must be capable of operating beyond the teaching function. The concept of Centres of Vocational Excellence (CoVEs) provides a compatible framework: while definitions vary, there is broad agreement that CoVEs extend their activities well beyond instruction, offering a broader range of services to enterprises and the wider community (Galvin Arribas, 2025).

5. EVIDENCE BASE

There is growing evidence that structured collaboration between VET centres and SMEs yields concrete innovation outcomes. The LCAMP CoVE project has implemented 22 applied innovation projects with SMEs across the Basque Country, Canada, France, Germany, Sweden, and Türkiye, achieving an average SME satisfaction rating of 78.73% (LCAMP 2025).

This LCAMP-generated evidence is corroborated by a wider body of literature pointing in the same direction, reinforcing the case for embedding applied research functions within VET institutions in Europe (Alkorta et al., 2025; ETF, 2023; EfVET, 2024; Etxebeste et al., 2023; Ferretti & Mäenpää, 2024).

6. CONCLUSIONS

Centres of Vocational Excellence have a demonstrable role to play in supporting process and product innovation in small and medium-sized enterprises, particularly -though not exclusively- in traditional industrial sectors. This potential is currently underutilised and requires deliberate policy action to be fully realised.

7. POLICY RECOMMENDATIONS

European level

European bodies and agencies should:

- Continue to promote and consolidate the concept of applied research within VET, explicitly recognising it as a core activity of Centres of Vocational Excellence.
- Launch dedicated funding calls to scale up and replicate successful VET–SME collaboration models across Member States and regions.
- Generate and disseminate knowledge on these types activities through Cedefop, ETF, JRC, and other relevant agencies.

National and Regional level

National and regional authorities should:

- Broaden the functions of VET providers to formally include activities that go beyond teaching, such as applied research, knowledge transfer, and innovation support for enterprises.

- Integrate the iSME innovation support potential of VET into the design and implementation of Smart Specialisation Strategies, treating VET institutions as active participants in regional innovation systems.

8. INDEX OF TABLES

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