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LEARNING FACTORIES for VET

LF4VET: Learning factories for the pedagogical and digital transformation of VET systems

The **LF4VET project** addresses the urgent need to strengthen the capacity and readiness of Vocational Education and Training (VET) institutions to effectively manage the digital and green transition of technical education systems. In particular, LF4VET supports VET centres in implementing a systematic and human-centred approach to Learning Factories (LFs), enabling the structured acquisition of digital, technological and sustainability-related competences aligned with Industry 4.0 and Industry 5.0 principles.

Within the LF4VET project, the consortium will develop an integrated **LF Framework for VET**, combining pedagogical guidelines, technological evaluation tools and sustainability-oriented workplace design principles. This framework will enable VET centres to implement or upgrade LFs in a structured and scalable way, while ensuring alignment with labour market needs and European digital and green priorities.

LF4VET will deliver a comprehensive toolkit including:

- A **VET-adapted Learning Factory pedagogical model**, promoting interdisciplinary, hands-on and problem-based learning.
- A **Technology-Status Evaluation Tool**, supporting VET institutions in assessing their digital readiness and capacity for Industry 4.0/5.0 integration.
- A **Learning Methods Catalogue** for training key enabling technologies such as AI, IoT, digital twins, robotics, cybersecurity and smart manufacturing systems.
- **Guidelines for Human-Centric and Sustainable Learning Factory Workplaces**, embedding Industry 5.0 principles into educational environments.
- Policy recommendations to support long-term institutional and systemic transformation.

The project aims to support teachers, trainers and VET management staff in navigating pedagogical and digital transitions. Through structured methodologies and pilot implementations across four European regions, LF4VET will enhance educators' competences in digital pedagogy, interdisciplinary learning design and technology integration, empowering them to effectively transfer new skills and approaches to their students. LF4VET also supports learners by improving their job readiness, digital resilience and sustainability awareness. By replicating real industrial environments within LFs, students will experience authentic, human-centred and technology-rich training scenarios, facilitating a smoother transition from education to employment. Furthermore, the LF4VET approach is designed to ensure scalability and transferability across Europe. The developed tools and methodologies will be applicable not only to VET centres, but also to higher education institutions, adult education providers and workforce upskilling initiatives that wish to adopt or enhance LF environments.

The LF4VET consortium consists of:

- Instituto Específico de Formación Profesional Superior Miguel Altuna (Spain) – Project Coordinator and advanced VET centre with strong experience in Collaborative Learning Factories and Industry 5.0 initiatives.
- École Nationale Supérieure d'Arts et Métiers (France) – Engineering university contributing expertise in evolutive learning factories, sustainability and pedagogical innovation.
- FH JOANNEUM Gesellschaft mbH (Austria) – University of Applied Sciences operating the Smart Production Lab and specialising in applied industrial research.
- Teaching Factory Competence Center (Greece) – Competence centre for advanced manufacturing technologies, workforce training and Industry 4.0/5.0 implementation.

Through this collaboration, LF4VET contributes to strengthening Europe's VET ecosystem by embedding digital readiness, sustainability, and human-centric innovation into vocational education systems, ensuring that future technicians and professionals are equipped with the skills required for the manufacturing systems of tomorrow.

You can find more information on: **LF4VET website**

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