Digital Twin on Smart Manufacturing EU Project

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Abstract:

In an ambitious move to revolutionize the European manufacturing landscape, a consortium of leading educational institutions, innovative small and medium-sized enterprises, and industry clusters from across Europe have joined forces to launch the "Digital Twin on Smart Manufacturing" project. This initiative has been made possible through the Erasmus+ programme, project number 101140156.

“Digital Twin” concept involves creating a virtual model of a physical object, process, or system. This digital representation is designed to accurately mirror the real-world counterpart in all its aspects, from physical properties and behaviours to processes and performance. The purpose is to allow for simulation, analysis, and control of the entity in a virtual environment, which can lead to insights and actions that improve the real-world counterpart's efficiency and maintenance.

The "Digital Twin on Smart Manufacturing" project aims to create a comprehensive European Digital Twin Skills ecosystem. The project will deliver an integral curriculum catering to the emerging professional needs of mid to high-level Information Technology and Operational Technology technicians across the European Qualifications Framework (EQF) Levels 4-8. This curriculum will be available in English and 5 other European languages, ensuring wide accessibility.

The primary objective of the project is to enhance the capacity of educational and vocational training providers to align their offerings with the dynamic requirements of the manufacturing industry. This is expected to result in several tangible outcomes, including:

1. Enhanced performance of companies in commissioning, production, and maintenance operations
2. Improved adaptability of educational and vocational training providers to the evolving demands of the industry

To achieve these goals, the project will develop and disseminate a range of transformative educational resources and tools, some already available at https://digitaltwinproject.eu/ ,including:

- A **Digital Twin Skills Index** detailing essential competencies for Digital Twin sector technicians.
- A **Self-Evaluation Tool** to facilitate personalised learning paths based on prior experience and knowledge.
- A **modular e-learning course available at https://mooc.digitaltwinproject.eu/** covering key areas such as Virtual Commissioning, Industrial Cybersecurity, and the integration of Green Transition principles
- A comprehensive **Digital Twin Training Methodology and User Manual.**
- Practical training opportunities through the establishment of five **Digital Twin labs**.
- Organising **5 National and 1 International Skills competition** to foster innovation and teamwork.

The consortium comprises 2 VET providers, 1 HVET provider, 2 higher education institutions, 4 SMEs, 1 industry cluster, and 1 chamber of commerce from 5 European countries - Italy, Spain, Greece, Sweden and Bulgaria.

The project aims to facilitate fostering a skilled workforce equipped with the latest digital twin technologies, and thus make a significant contribution to the European Green Deal, the digital transformation of Europe, and the support of small businesses. The creation of Digital Twin occupation profiles and issuing micro-credentials will further solidify the project's long-term impact on the European labour market.

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