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ET4D

ET4DIGITAL NEWSLETTER

Project Name: ET4DIGITAL – *Empowering Trainers for Digital Innovation in the Construction Ecosystem*

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The construction sector is undergoing profound transformation. Digital tools like BIM, data-driven planning, and Digital Twins are transforming how construction sites are designed, managed, and monitored. However, for many small and medium-sized enterprises (SMEs), digitalization remains out of reach.

ET4DIGITAL was conceived to bridge this gap.

Rather than focusing exclusively on technologies, the project focuses on the people who enable innovation: trainers and educators. Trainers play a crucial role in helping SMEs understand why digitalization matters and how it can be applied in real-world scenarios. When trainers are confident and adequately equipped, innovation can spread more successfully throughout the industry.

ET4DIGITAL, funded by the Erasmus+ program, brings together vocational training providers, universities, research institutes, and innovation-oriented enterprises from all over Europe. The joint purpose is to provide construction trainers with practical tools, clear methods, and hands-on learning experiences that help them understand, use, and apply digital technology.

Throughout the project, partners collaborate to transform complex digital concepts into learning experiences grounded in real-world construction practice. ET4DIGITAL assists trainers in guiding SMEs through the digital transition step by step, combining training experience with real-world case studies and accessible digital solutions.

In doing so, the project contributes to a larger vision of making the construction industry more innovative, appealing to new generations, and better prepared to address future challenges related to productivity, sustainability, and safety.

PROJECT no. 2024-1-IT01-KA220-VET-000249119

Lead partner:
IIPLE, Istituto Istruzione Professionale Lavoratori Edili della provincia di Bologna, Italy

Eight Project Partners
(IT, EL, ES, DE, MK, EE, AT)

Project budget in EUR:
400.000,00

Project Duration:
24 months

Achievements:

From ideas to impact: WP3 results

From April 2025 to January 2026, ET4DIGITAL moved from analysis to action. During these months, the project entered its implementation phase, turning research and concepts into concrete experiences. Three key activities shaped this transition: the development of an innovative Digital Twin demonstrator for the construction ecosystem, a two-day face-to-face training for trainers hosted at the IIPLE headquarters, and the creation of practical guidelines to support the replication of the demonstrator in other training and professional contexts. This phase turned ideas, analyses and digital concepts into tangible results that trainers can actually use.

Instead of producing abstract models, WP3 was driven by a simple but powerful question: *how can digital innovation be experienced, understood and taught in a concrete way?*

1. A Digital Twin you can learn from

The first result of WP3 was the creation of a Digital Twin Demonstrator. What is exactly a Digital Twin demonstrator?

At its heart, the demonstrator is a virtual mirror of a real construction project. This tool allows users to connect a digital 3D model of a small building with planning digital tools, site documentation, and data collected directly from the training site on the Open Project BIM digital platform. OpenProject BIM is an open, web-based platform that brings together 3D models, project planning and real-site information, allowing trainers and learners to explore, control, and understand construction processes in a collaborative and practical way.

What makes this tool special?

It is not about technological complexity, but clarity, accessibility, and reproducibility. The demonstrator shows how digital tools can support everyday construction activities – such as planning work phases, understanding progress, reflecting on safety and organisation, managing projects and members – that trainers and learners can explore together. For many participants, this was the first time concepts like BIM or Digital Twins felt concrete and approachable.

More specifically, the Digital Twin Demonstrator developed within ET4DIGITAL is an educational and operational tool that makes the concept of the Digital Twin tangible when applied to construction. It is not a theoretical model, but a digital replica of a real training site, built by connecting a 3D BIM model, work planning tools, project documentation, and data collected directly from the site through sensors and digital surveys. In practice, the demonstrator allows you to observe and understand how a real construction site can be "read" and managed through its digital twin. All information—from the building model to the work phases, from schedules to costs, to environmental and site presence data—is collected and made accessible on a single, open, web-based digital platform. This allows you to follow the project's progress, compare what was planned with what was achieved, and reflect concretely on work organization, safety, and process efficiency.

For trainers, the Digital Twin Demonstrator is a powerful pedagogical tool. It allows for moving beyond abstract explanations of digital technologies and adopting a learning-by-doing approach: participants can explore a digital construction site, navigate the BIM model, visualize work phases, analyse real-world data, and understand the value of information throughout the construction process. In this way, concepts often perceived as complex—such as BIM, digital planning, or the Digital Twin—become accessible, understandable, and directly connected to the daily practice of professional training.

For construction companies, especially SMEs, the demonstrator demonstrates in a concrete way how digitalization can support daily activities without requiring complex investments or highly specialized skills. The Digital Twin helps understand how to improve project planning, monitor construction site progress, organize teams, manage documentation, and increase awareness of safety and sustainability issues. The goal is not to introduce technology for its own sake, but to demonstrate how simple, integrated digital tools can make work clearer, more efficient, and more controllable.

A key element of the Digital Twin Demonstrator is replicability. The system was designed using open tools and accessible solutions, specifically to facilitate adoption even in training and corporate environments with limited resources. The ET4DIGITAL Digital Twin Demonstrator is therefore not just a technological showcase, but a bridge between training and business, between the real and digital worlds. It is an experimental space that allows trainers and companies to jointly explore the potential of digitalization applied to construction, reducing cultural barriers and making innovation more accessible, understandable, and useful.

2. Learning by doing: Training the trainers

To ensure the demonstrator was not just functional, but *truly useful*, partners in ET4DB organised a Transnational Training for Trainers in November 2025, at IIPLE headquarters.

Experts from the seven European partner countries experienced the Digital Twin firsthand, exploring a digital construction site (built by IIPLE students) that allowed them to observe and grasp the use of technologies that are still not widely accessible to many SMEs today.

This hands-on experience was an occasion for all members to test the platform, follow guided activities to familiarize with it, discuss challenges regarding the barriers to the adoption of such technologies, and reflect on how the approach could be adapted to their own teaching contexts. This two-day event was an immersive journey through virtual reality, 3D models, and smart sensors, designed not only to “teach how to use software,” but to help participants understand how digitization can truly transform their daily work.

The feedback was clear: practical experience with digital technologies promotes confidence. Trainers reported feeling empowered to explain digitization to SMEs and implement these strategies into their education programs. The training additionally showed that a common European methodology may function across educational systems and levels of digital awareness.

3. Making innovation transferable: guidelines for the replicability of the demonstrator

The final phase of Work Package 3 focused on ensuring that the results achieved through the Digital Twin Demonstrator could be sustained over time and transferred beyond the project itself. To this end, ET4DIGITAL developed specific *Guidelines for the Replicability of the Demonstrator*, conceived as an operational support tool for trainers, training providers and construction organisations interested in reusing and adapting the Digital Twin experience in different educational and professional contexts.

The guidelines describe a flexible and modular approach based on tools that are already used in everyday construction practice. The Digital Twin is built starting from a concrete project—such as a laboratory activity, a training site or a small real-world intervention—which becomes the reference point for the digital representation of the construction process.

From an educational perspective, the documentation explains how the demonstrator can be adapted to different training contexts by adjusting:

- the complexity of the real project;
- the level of detail of the information model;
- the degree of data integration (descriptive, documentary, or measured);
- the way the collaborative platform is used.

This flexibility makes the Digital Twin suitable both for initial vocational training and for continuing education or professional development, while keeping experiential learning and work process analysis at the core of the approach.

A particularly relevant aspect concerns the demonstrator's usability for construction companies, especially small and medium-sized enterprises. The guidelines highlight that the ET4DIGITAL model is based on:

- open and accessible collaborative platforms;
- interoperable information models (e.g. IFC format);
- low-complexity planning and data collection tools;
- simple, cost-effective, and easily integrable sensors and monitoring systems.

This approach allows companies to gradually engage with the concept of the Digital Twin, without the need for immediate investments in advanced or costly technologies. The demonstrator can support companies in better understanding work organisation, activity sequencing, site operating conditions, and the relationship between planning and execution.

The guidelines also emphasise that the real value of the Digital Twin lies not in the technology itself, but in the method: observing the project as a dynamic system, linking activities to time and data, and using information as a basis for reflection and continuous improvement. This methodological approach is equally relevant in both

training and professional contexts.

In this sense, WP3 contributes to building a concrete bridge between education and the world of work, offering a replicable model that supports continuity between acquired skills and professional practices. The Digital Twin Demonstrator thus becomes a tool to accompany the digital transition, adaptable to different contexts while maintaining methodological coherence and operational value.

What's next:

🔧 What's next: from training to replicability

In the coming months, ET4DIGITAL will enter a decisive phase: after building and testing the Digital Twin demonstration, the project is preparing to take a step further: it will bring this experience and expertise to those who guide and inspire the construction industry every day.

The goal is simple: ensure that the Digital Twin is not confined to a single project but can be adapted by anyone.

The next chapter: building new training paths

At this stage, ET4DIGITAL is opening a new front: the co-design of four innovative training courses dedicated to trainers in the construction sector.

Which will be the main topics addressed?

- Digital technologies applied to construction sites,
- BIM for SMEs,
- the world of Digital Twins,
- and how to overcome the cultural barriers that currently hinder innovation.

The courses will be designed to be practical, accessible, and immediately useful.

Sharing, engaging, growing

With the end of WP3, the project delivered a fully functioning Digital Twin demonstrator for educational use, supported by a European-wide training course, accessible digital resources, and replicability guidelines. Open-access formats will be available to ensure that other institutions and SMEs can adopt the tools without barriers.

While the technology is already within reach, the real challenge lies in enabling educators and professionals to use it confidently and effectively in different environments.

Finally, each partner country will organize local events to share results, engage new stakeholders, and continue to build a European community capable of supporting SMEs in the digital transition.

ABOUT ET4DIGITAL

ET4DIGITAL is a transnational Erasmus+ project co-funded by the European Union under the KA220-VET action, which supports cooperation partnerships in the field of Vocational Education and Training (VET). The project brings together public institutions, training providers, research organisations, and innovation-driven SMEs from different European countries, working collectively to strengthen digital competences in the construction sector.

Through coordinated Work Packages and cross-border collaboration, the project addresses common challenges in digital upskilling and supports the development of a shared European training model. Activities are designed to deliver practical solutions, such as methodological frameworks, competence maps, training modules, and pilot experiences, all aimed at empowering VET trainers as key enablers of digital transformation.

ET4DIGITAL is co-financed by the European Commission, with each partner contributing in line with Erasmus+ rules. The project reflects the broader goals of the EU Digital Education Action Plan (2021–2027) and is fully aligned with key reference frameworks like DigComp, DigCompEdu, and ECSO, ensuring high-quality and future-oriented results.

With a duration of 24 months, ET4DIGITAL builds on the results of previous EU-funded initiatives while introducing innovative tools and methodologies specifically tailored to the needs of construction SMEs and vocational training institutions. The project has a strong focus on sustainability, inclusion, and impact, contributing to the European Union's twin transitions—digital and green—by equipping trainers with the competences needed to support modern, resilient, and environmentally responsible practices in the construction industry.

ET4DIGITAL will serve as a blueprint for future European capacity-building initiatives, offering scalable models and resources that can be adapted at national and local levels to support the evolving needs of VET ecosystems.

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