IPA ADRION 406 - GOTOTWIN

FULL NAME: Advancing Renewable Energy in the Adriatic Ionian Region through the Use of Digital Twins

LEAD PARTNER: Faculty of Electrical Engineering and Information Technologies, Ss. Cyril and Methodius University (MK)

DURATION: 36 months

PROJECT BUDGET: **EUR 1.709.812,68**

PROJECT SUMMARY:

The GoToTwin project addresses the common challenge of accelerating the adoption and integration of renewable energy sources in the Adriatic Ionian region. The project leverages digital twin technology to tackle pressing energy and sustainability issues in the region.

The overall objective of the project is to establish a robust and transnational digital twin framework tailored for renewable energy applications. This framework will enable stakeholders to effectively manage energy systems, optimise resource utilisation, and enhance overall system efficiency. By harnessing advanced technologies like artificial intelligence and data analytics, stakeholders will be empowered to make well-informed decisions and maximise renewable energy generation.

The main outputs of the project include:

* Development of a digital twin framework for renewable energy systems: This output involves the creation of a robust and adaptable digital twin framework specifically tailored for renewable energy applications in the Adriatic Ionian region. The framework will facilitate the effective management of energy systems, resource optimization, and enhanced system efficiency. The corresponding project activities entail conducting a thorough market assessment in the Adriatic Ionian region. It involves examining the current state of the renewable energy market, assessing technology readiness for digital twin implementation, evaluating legal and policy constraints, and identifying state-of-the-art solutions. Emphasis is placed on open-source options to enhance accessibility and collaboration.

* Transnational integration and testing of four living labs into the digital twin platform and pilot activities focusing on solar, hydro, and wind power: This output encompasses the setup and integration of regional living labs and pilot projects dedicated to exploring the practical application of digital twin technology in renewable energy systems. These labs will provide the essential infrastructure for stakeholders to engage in experimentation and testing. The pilot action will demonstrate the digital twin platform replicability in a transnational perspective within the living lab environment.

* The establishment of the GoToTWIN network: This output involves actively involving stakeholders from various sectors, including government entities, energy companies, local communities, industry associations, and academic institutions. Calls for experiments,

thematic working groups, and training programs will facilitate collaboration, knowledge sharing, and capacity building among stakeholders.

* Development of a Joined strategy for digital twins on renewable energy in the Adrion to encourage widespread adoption of digital twin solutions for renewable energy: This output focuses on the formulation of a joined strategy aimed at fostering the widespread adoption of digital twin solutions for renewable energy in the Adriatic Ionian region. These strategies will address regulatory barriers, promote favourable policies, and advocate for the utilisation of digital twin technology in renewable energy systems. It provides a shared vision for the future, offering insights into the current state of renewable energy systems, resource management practices, and environmental concerns within the Adriatic-Ionian region.

The project will benefit various regional stakeholders, including government entities, energy companies, local communities, industry associations, academic institutions, transmission system operators, research institutions, start-ups, and technology providers.

The transnational approach is essential because energy challenges transcend national boundaries. By collaborating across borders, the project can leverage diverse expertise and resources to develop innovative solutions that address regional energy needs effectively.

What sets the project apart is its focus on digital twin technology, which offers a novel approach to optimising renewable energy systems. Additionally, the emphasis on stakeholder engagement and policy advocacy ensures the sustainability and widespread adoption of the solutions.