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Engaging Citizens in Building a Digital Twin for Cultural Heritage in Koper

The MonuPED project tackles the complex challenge of establishing Positive Energy Districts (PEDs) within monument-protected areas (MPAs), where energy-transition goals often conflict with cultural-heritage preservation. This citizen-science initiative, led by the Institute for the Protection of Cultural Heritage of Slovenia (ZVKDS) in collaboration with InnoRenew CoE, focuses on the historic centre of Koper – a densely built urban area with many protected buildings. These protections pose barriers to energy-efficient renovations, such as thermal insulation or solar-panel installation.

To address this, the project will actively engage citizens in data collection, enriching existing datasets with first-hand information about their buildings. This data will support the development of agent-based models that simulate stakeholder behaviour and help identify solutions that balance heritage conservation with sustainable energy practices. The project will use snowball sampling to recruit participants, beginning with interviews and progressing to focus groups and co-creation workshops. These activities will foster dialogue, raise awareness, and empower citizens to become co-creators of change.

The initiative also promotes open science, with a data-management plan aligned with FAIR principles and a commitment to ethical data handling. Educational materials and outreach activities will ensure broad public engagement, while results will be shared with policymakers across sectors – science, culture, energy, and urban development.

Ultimately, the project aims to catalyse a community-led urban transformation in Koper, serving as a model for similar initiatives across Slovenia and Europe. By integrating citizen input into research and planning, the project demonstrates how grassroots participation can drive innovation, improve energy efficiency, and preserve cultural heritage in the face of climate change.

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