

Sustainable Digital Twin Prototypes for Small Towns and Regions

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Keywords

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1. The SciNDTiLA Project

The project “Smart Cities and Digital Twins in Lower Austria” (SCiNDTiLA) seeks to improve the understanding of the digital interaction between smart sustainable solutions and city inhabitants through simulations based on digital twins. To this day, smart city concepts have mainly been implemented in the context of large urban environments. In contrast, SCiNDTiLA seeks to complement this research by adapting such approaches to small town and rural regional sprawl contexts. The project focuses on using digital twins for policy-making and sustainable local governance. It is applied in the context of Lower Austria, which is characterised by the growing number of policy initiatives developed to support “digitalisation of the public sector” and, in particular, so-called “smart initiatives” at both the regional and local level.

2. Workshop Topic: Smart City Digital Twins and Sustainability

Smart city solutions require innovative governance approaches together with the smart use of technologies by city managers and policymakers to cope with so-called “wicked problems”. Smart sustainable cities (SSC) characterise the application of digital technology and innovative solutions to address the needs of their populations and pursue sustainable socio-economic development [1]. Digital twins, virtual replicas of physical systems or processes, represent a key technological approach employed within such SSC frameworks. Originally used in the manufacturing and industrial sectors, digital twins are still in a very early stage of usage for smart city applications [2]. Smart city digital twins (SCDT) are most commonly used in the planning, design, and development of a city, in its core policy agenda, and for both short-term and long-term planning [3].

3. Workshop Program

As part of the SCiNDTiLA Project, three prototype Digital Twin solutions have been developed to evaluate whether this technology can be useful for decision-makers in rural areas. These prototypes are in the domain of traffic planning (bypass road evaluation), shared spaces (3D representation of the changes to a local street), and simulating the effects of an aging population.

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The Goal of this workshop is twofold:

- (1): Demonstrate and discuss the three prototypes with the workshop participants to gain valuable insight and feedback into the solutions' usefulness and the feasibility of implementing a full-scale version of such a digital twin.
- (2): Discuss and evaluate the sustainability of these solutions, especially considering their positive, post-project impact.

Since a transdisciplinary approach is key to the successful further development of SCiNDTiLA, this workshop seeks to involve researchers and practitioners from different disciplines and promote active discussion.

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Declaration on Generative AI

The author(s) have not employed any Generative AI tools.

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