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DESIGN THINKING FOR ECOLOGICAL FUTURES

// TU Dublin, Grangegorman Campus, Dublin, Ireland

// Friday 14 April 2023 → www.aiarg2023.com

All-Ireland Architecture Research Group *(A-IARG)*

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Partners

MANI DHINGRA

Digital and Physical : The Role of Digital Twins in Praxis

Today's sustainability and urbanization challenges call for innovative urban solutions around the efficient use of latest technology and experimenting them in an urban living lab environment. 3D modelling technology presents an opportunity to transform the way we plan, build and operate infrastructure within our cities. Dublin City Council through its smart city unit has begun exploring this technology across a variety of topics including energy consumption, urban planning, public engagement, environment, tourism, and infrastructure management. Previously it has procured and released an open-source model of the Docklands Strategic Development Zone for a 3D hackathon to uncover new insights for efficient decision-making. Other models include the ones used by Dublin Fire Brigade for pre-incident planning and Smart DCU for real-time traffic monitoring. Smart Dublin has also been experimenting with state-of-art data-capture technologies such as drones, photogrammetry, LIDAR, mobile street mapper, and Google AirView. Advancing towards a more sophisticated system, Smart Dublin's Digital Twin programme intends to apply a people-centric approach for effective stakeholder collaboration and explore novel forms of public engagement. While the concept of digital twins has existed for decades, the basis of constructing smart cities has gradually evolved from original static 3D modelling to a dynamic digital twinning using IoT, big urban data, cloud computing, blockchain, and artificial intelligence. One of the potential approaches is to use digital twins as a collaborative tool to engage internal and external stakeholders including citizens for decision-making and co-creating new ideas. The core objective is to ensure that the adoption of digital twin technology meets the needs both of the city, and the citizens who interact not just in technology deployments, but also in processes of engagement. By thinking together towards possible solutions through virtual environments may power new collaborations for future-proofing our cities.