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## **Urban scale digital twins and urban planning decision-making: Big data and network society**

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### **Smart Development And Growth In Cities And Regions**

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The paper examines the impact of the virtual public sphere on how urban spaces are experienced and conceived in our data-driven society. It places particular emphasis on urban scale digital twins, which are virtual replicas of cities that are used to simulate environments and develop scenarios in response to policy problems. The paper also investigates the shift from the technical to the socio-technical perspective within the field of smart cities. Despite the aspirations of urban scale digital twins to enhance the participation of citizens in the decision-making processes relayed to urban planning strategies, the fact that they are based on a limited set of variables and processes makes them problematic. The paper aims to shed light on the tension between the real and the ideal at stake during this process of abstracting sets of variables and processes in the case of urban scale digital twins. The paper examines the critiques of 'digital universalism', reflecting upon the role of urban scale digital twins in data-driven decision-making concerning urban policies and urban planning. It also explores how Manuel Castells's theory could help us better understand the relationship between big data and urban planning in our data-driven society. The point of departure of this paper is the necessity to shape methodological tools offering the possibility to develop new forms of social advocacy around big data. Its main objective is to explore how the intensification of the use of urban scale digital twins for decision-making in urban planning makes indispensable to investigate the risks that digital universalism and the use of big data entail. In order to render explicit its arguments, the paper examines urban scale digital twins such as the digital twin of the Docklands area in Dublin, the digital twin of the city of Zurich, Virtual Singapore, the digital twin of Hervanta in Tampere and Kalasatama district in Helsinki, and the project 'Digital Urban European Twins'.

**Mots clés** : Data-driven society, data-driven decision-making, urban scale digital twins, big data, digital universalism

#### **Références :**

Borgman, CL . *Big Data, Little Data, No Data: Scholarship in the Networked World*. Cambridge, MA: The MIT Press, 2015.

Loukissas, YA . *All Data Are Local: Thinking Critically in a Data-Driven Society*. Cambridge, MA: The MIT Press, 2019.

Chan, AS . *Networking Peripheries Technological Futures and the Myth of Digital Universalism*. Cambridge, MA: The MIT Press, 2014.

Milan, S, Treré, E. Big data from the South(s): beyond data universalism. *Television & New Media* 2019; 20(4): 319–335. DOI: 10.1177/1527476419837739.

Castells, M . *The Rise of the Network Society*. Second edition with a new preface. Chichester, West Sussex: Wiley-Blackwell, 2010.