

Data-Focused Digital Transformation for Smart Net-Zero Cities: A Systems Thinking Approach

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Abstract : The emergence of developing smart net-zero cities in recent years has attracted significant attention and interest from worldwide communities and scholars as a potential solution to the critical requirement for urban sustainability. This research-in-progress paper aims to investigate the development of smart net-zero cities to propose a digital transformation roadmap for smart net-zero cities with a primary focus on data. Employing systems thinking as an underpinning theory, the study advocates for the necessity of utilising a holistic strategy for understanding the complex interdependencies and interrelationships that characterise urban systems. The proposed methodology will involve an in-depth investigation of current data-driven approaches in the smart net-zero city. This is followed by utilising predictive analysis methods to evaluate the holistic impact of the approaches on moving toward a Smart net-zero city. It is expected to achieve systemic intervention followed by a data-focused and systemic digital transformation roadmap for smart net-zero, contributing to a more holistic understanding of urban sustainability.

Keywords : smart city, net-zero city, digital transformation, systems thinking, data integration, data-driven approach

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