

Smart and Sustainable Infrastructure: Theory and Practice

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Message from the Guest Editors

The scope of smart and sustainable infrastructure is multifaceted and encompasses various technological, environmental, social, and economic aspects. It aims to create infrastructure systems that meet the needs of the present without compromising the ability of future generations to meet their own needs while minimizing the environmental impact and enhancing the quality of life. Smart and sustainable infrastructure is designed to provide essential services to the population while ensuring sustainability in terms of economic and financial, social, environmental, and institutional aspects throughout its life cycle. Smart and sustainable infrastructure systems are becoming increasingly important as urban areas, particularly in developing countries, continue to grow exponentially. They are more efficient, productive, and environmentally friendly.

For this Special Issue, smart and sustainable infrastructure includes infrastructure that employs a feedback loop to improve the decision-making processes. Smart and sustainable infrastructure is capable of monitoring, measuring, analyzing, communicating, and acting based on data gathered.



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Message from the Editor-in-Chief

Current urban environments are home to multi-modal transit systems, extensive energy grids, a building stock, and integrated services. Sprawling neighborhoods are composed of buildings that accommodate living and working quarters. However, it is expected that the cities and communities of the future will face complex and enormous challenges, including maintenance, interconnectivity, resilience, energy efficiency, and sustainability issues, to name but a few. A smart city uses advanced technologies and a digital infrastructure to improve the outcomes in every aspect of a city's operations. A smart building optimizes the experience of occupants, staff, and management by using a modern and connected environment. Innovations in technology that can bring dramatic improvements to design, planning, and policy are critical in developing the cities and buildings of the future.

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