Special Session Proposal

Transformational Pathways for Smart Municipalities and Regions: Ecosystems, Synergies, and Governance

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Abstract

The municipalities and regions are confronted with an unprecedented convergence of societal, environmental, technological, and institutional challenges that fundamentally reshape their developmental trajectories. The growing complexity of these challenges—ranging from climate adaptation and demographic transformations to digitalisation pressures and governance fragmentation—necessitates new conceptual and analytical frameworks capable of capturing the interconnected nature of territorial systems. This section focuses on the theoretical underpinnings and applied research that illuminate how municipalities and regions can strategically navigate these dynamics through innovation ecosystems, synergistic transformation processes, and advanced governance models.

The core presumption is that the development of municipalities and regions as multi-layered socio-technical systems whose capacity for transformation is depended not only on the availability of technological solutions, but also on the alignment of social innovation, institutional readiness, data infrastructures, and collaborative governance practices. Understanding *transformation demand*—including latent capacities, structural constraints, and emergent opportunities—represents a crucial starting point for constructing developmental pathways that are both context-sensitive and future-oriented. This perspective highlights the need to analyse territorial potential and community assets not as

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isolated variables, but as elements of a dynamic ecosystem in which innovation emerges through interaction.

Moreover, the session interrogates the role of synergistic effects across social, technological, economic, and environmental innovations, emphasising the importance of multi-dimensional integration for sustainable quality of life. Synergies do not arise spontaneously; they must be identified, designed, and governed. The contributions in this section therefore explore conceptual and methodological approaches that facilitate synergy mapping, cross-sectoral innovation orchestration, and systemic intervention design. Special attention will be dedicated to models drawing on the quadruple-helix framework, manufacturing and creative ecosystem concepts, as well as co-creation processes that engage residents, academia, public institutions, and industry in shared innovation cycles.

A significant strand of discussion concerns the conceptualisation of smart municipalities and regions as innovation ecosystems that evolve through iterative learning, knowledge exchange, and adaptive governance mechanisms. These ecosystems require robust data governance architectures, semantic interoperability, and trustworthy data-sharing mechanisms.

The section invites scholars and practitioners whose work advances understanding of:
– the dynamics of transformation demand and territorial capacities;
– conceptual models for smart, sustainable, and resilient municipalities and regions;
– synergistic innovation processes across socio-technical domains;
– ecosystem-based and place-based governance approaches;
– methodological innovations in co-creation, participatory planning, and behavioural interventions;
– evidence-informed policy-making and the integration of quality-of-life indicators into strategic development.

By bringing together interdisciplinary perspectives, the session aims to enrich the academic discourse on territorial transformation and to deepen insights into how municipalities and regions can co-create robust, future-proof pathways toward sustainable development. Ultimately, the section contributes to shaping a more nuanced understanding of how ecosystemic thinking, governance innovation, and multi-dimensional synergies can be mobilised to design resilient, equitable, and smart regional futures.

Keywords

Smart municipalities; regional innovation ecosystems; territorial transformation; synergy-based innovation; governance models; quadruple-helix collaboration; evidence-informed policy; sustainable quality of life; spatial development strategies; socio-technical systems; community transformation; data-driven territorial governance.