



Special Session Proposal

Collective smartness to foster sustainability transitions of places: smart cities, regions, and energy communities.

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Abstract

Numerous substantial challenges confront both individuals and society in the contemporary era. These encompass issues such as economic disparities, climate change, political polarization, and the ongoing COVID-19 pandemic. These multifaceted challenges have the potential to wield profound repercussions on the lives of individuals, communities, and the global landscape. Addressing them necessitates a strategic blend of short-term remedies and far-reaching planning endeavors.

Collective actions can foster the sustainability transition of places, which increasingly relies on bottom-up initiatives alongside a multi-stakeholder approach inspired by the quadruple helix model (Carayannis and Campbell, 2009). This topic has been central in the literature on smart cities (Caragliu et al., 2011; Kourtit and Nijkamp, 2012; Blasi et al., 2022), suggesting that modern local development trajectories require a fundamental change in the mindset of policymakers, entrepreneurs, institutions, universities, and society at large.

The socio-environmental sustainability of places is linked to the capacity to solve problems rapidly and to meet the Sustainable Development Goals (SDGs) through the implementation of new technologies for smart mobility, citizen engagement, efficient energy, waste, and water management systems, smart buildings, and intelligent data collection and sharing systems. This has accelerated the adoption of novel tools such as public-private partnerships (Caloffi et al., 2017), public crowdsourcing and crowdfunding (Colovic et al., 2021), and energy communities.

Energy communities are considered critical instruments for EU decarbonization because they implement energy efficiency from renewable sources (EU, 2020). In addition to the energy transition, they also favor consumer empowerment and community-driven initiatives, increase social acceptance, lower energy bills, and stimulate people to adopt virtuous behaviors (Vernay and Sebi, 2020). A key role in energy communities is played by community members and their shift from passive consumers to active participants in the sustainable transition in the form of prosumers—energy producers and consumers (Hahnel et al., 2020). Moreover, they also involve firms, institutions, local authorities, and community organizations that stimulate sustainability at different levels through investing, producing, selling, and distributing energy from renewable sources (Interreg Europe, 2018). From a structural viewpoint, they operate independently from the traditional energy production system and grid; thus, relatively independently from energy crises and price fluctuations in the energy sector. For these reasons, an energy community-based transition is likely to be implemented in a democratic, sustainable, and decentralized way.

Different conceptual and empirical contributions have investigated energy communities or collective and community-based actions and the role they play in leading a sustainable transition. As the discourse about them matures, some research gaps are emerging. First, despite a well-developed literature on the technical implementation of energy communities, we know little about their impacts on the local social well-being of people living and/or working where they are located, as well as the opportunities or drawbacks that may arise for involved firms and jobs. Second, organizational and managerial structures and dynamics, as well as (sustainable) business models' features, entrepreneurial activities, and innovation models of energy communities are still under-investigated. Third, their territorial drivers, as the most relevant socio-economic place-based aspects fostering energy communities' emergence, development, and well-functioning, still need more research effort. Finally, as smart cities and regions are relevantly inclined to design and implement sustainable systems, where energy management and planning play a critical role (Calvillo et al., 2016), energy communities might be adopted as key enabling tools to foster their social, environmental, and energy sustainability. Despite this, possible conceptual and practical interrelations between smart cities, regions, and energy communities remain underexplored.

We hereby invite scholars to contribute to the debate on collective smartness, smart cities, regions, energy communities, or their intersections in the sustainability discourse. More specifically, this track addresses – but is not limited to - the following research issues:

- Conceptual and empirical research development about collective smartness, smart cities, regions, energy communities and the like as models to foster the sustainable transition.
- Conceptual and empirical research development about intersections among collective smartness, smart cities, regions, and energy communities.
- Associations between technological advancements (e.g., artificial intelligence, digitalization, etc.) and the development of collective smartness, smart cities, regions and energy communities.
- Sustainable business models, innovation models, strategical and organizational features likely to explain the functioning of collective smartness, smart cities, regions and energy communities.
- Roles played by both local contexts (e.g., place-based cultures, specific needs, local institutions, and rules) and global challenges (e.g., international crisis across social, economic, energy, political, health-related spheres) in the development of collective smartness, smart cities, regions and renewable energy communities.
- Policy measures for the development and implementation of collective smartness, smart cities, regions and renewable energy communities.

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