

The role of innovative forms of public-private engagement in fostering sustainability transitions of (smart) cities

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Extended abstract

1. Introduction

The sustainable development of places involves a double track: a social and an environmental dimension. This process encompasses the ability of Public Administrations to reduce economic disparities, slow climate change and improve citizens' quality of life. Urban sustainable growth is strictly tied to the ability of municipalities to offer efficient public services and to achieve the Sustainable Development Goals (SDGs), as set out in the UN 2030 Agenda. The Agenda stresses the central role of cities in achieving those goals; specifically, smart city projects are considered a driver of the socio-environmental sustainability of places (Mori & Christodoulou 2012).

A smart city is a data-driven urban center that is able to preserve the needs of the entire urban ecosystem, both from an environmental and a social perspective (e.g. infrastructure and governance, pollution and waste, energy and climate change, social issues, economy and health) (UNECE, 2021; Silva et al., 2018; Höjer and Wangel, 2014). We consider the development of a smart city relying on the implementation of an urban ecosystem, based on a multi-stakeholder approach under the quadruple helix model (Carayannis & Campbell, 2009). In fact, the smart city ecosystem involves multiple actors - which engage each other in many services and activities (Appio et al. 2019) - so that perspective seems to be the most suitable for innovative urban projects.

Researchers emphasize that both sophisticated ICT technologies and inputs from civic groups are required in order to create a smart city (Hollands, 2008; Schuurman et al., 2012). Collective actions can strongly foster the sustainability transition of smart urban centers consequently. These instruments include public-private partnerships (Caloffi et al. 2017), crowdfunding and crowdsourcing (Colovic et al., 2022), among others. Urban centers increasingly rely on bottom-up initiatives in order to establish a fruitful conversation with their citizens. The smart city literature suggests that urban development initiatives can greatly benefit from a participatory approach (Caragliu et al., 2011; Kourtit and Nijkamp, 2012; Blasi et al., 2022).

However, innovative forms of public-private engagement are arising nowadays. The interaction of urban actors is facilitated by the diffusion of new legal and technological tools - such as the digital crowdsourcing platforms (Rossi et al., 2022). These instruments stimulate the active involvement of citizens as an important asset for urban governance. Innovative forms of public-private engagement elicit proposals and ideas coming from various stakeholders, which might increase the potential of smart urban centers in a sustainable direction. These novel forms of public-private engagement have been underdeveloped in the definition of a smart city ecosystem. The smart city literature (Cocchia 2014; Meijer & Bolívar 2016; Lim et al. 2019; Zhao et al. 2021) identifies it as a critical area of inquiry that has to be further explored in order to understand the sustainability transition more deeply.

Consequently, our paper aims to investigate how innovative participatory instruments affect the evolution of smart urban ecosystems through (a) an explicative literature review and (b) an in-depth analysis of real smart city projects.

2. Methodology and data

2.1 A bibliometric analysis of the literature

Our investigation starts from a structured literature review for two reasons: it helps us to (1) map the structure and arrangements of our research topic; and (2) investigate published case studies that could demonstrate the effective role of innovative participatory frameworks in fostering the sustainability transition of urban areas.

We will implement a bibliometric analysis of the literature using data from SCOPUS, a database of peer-reviewed publications. As it is not limited to ISI (International Scientific Indexing) journals, SCOPUS seems to be the most useful database for mapping an emergent field of research.

The sample of readings covers a time window from 2013 to 2023 and is obtained thanks to a keyword selection. The search terms are “co-creation”, “ppp” or “public-private partnership”, “crowdsourcing” and “innovation partnership”. Targeted readings embrace both articles and book chapters. Our initial database is composed of 3.962 papers, but we manually filtered out duplicates and publications that were off-topic.

The literature review is conducted using a bibliometric analysis, which represents a powerful toolkit for studying the structure and process of scholarly communication (Borgman and Furner, 2002) in this field. Bibliometric data are analyzed using *bibliometrix*, a flexible tool for conducting comprehensive mapping analysis (Aria and Cuccurullo, 2017).

2.2 Use cases analysis

In the second phase of our study, we examine existing smart city projects in order to understand the real impact of new forms of public-private engagement in driving the sustainable urban transition. We look at national and foreign urban initiatives cited in dedicated European portals (e.g. Smart Cities Marketplace) and crowdsourcing platforms (e.g., Challenge.com, Desafios, Ennomotive, Foldit Lab, GitHub, Hackster.io, HeroX, Inocrowd, IdeaScale Crowd, InnoCentive, Innoget, JOGL, Kaggle, MyGov, OpenIdeo, Starhubs, Synsapien).

Our research allows identifying the types of partnerships and intervention carried out in urban projects. We isolate the initiatives related to our area of inquiry by performing a thematic research. By analyzing these use cases, we are able to detect the fundamental characteristics of innovative collaborative instruments and their role in driving the sustainability transition of cities. The best-performing projects will be appointed according to a multidimensional score that takes into account issues of economic and social performance.

3. Results and Conclusions

The results offer a broad overview of the role of innovative forms of public-private engagement in the development of a sustainable urban ecosystem. With respect to the literature review, our study puts forward a theoretical framework of novel participatory tools,

identifying their main pillars and pertinent trends. At the same time, our analysis of current use cases detects the real impact of collaborative instruments in the definition of a smart city ecosystem as well as their main drivers. This approach allows us to detect best practices for the development of innovative forms of public-private engagement within the urban context.

These results might have a huge impact for our society, supporting policymakers in addressing urban sustainability transformations and promoting the achievement of the Sustainable Development Goals consequently.

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