Special Issue Future of Smart Cities

FUORI LUOGO

Rivista di Sociologia
del Territorio, Turismo, Tecnologia

Guest Editors
Monica Bernardi
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Fabio Corbisiero

Smart cities: how to unclog the untamed urbanization

Due to the latest dramatic urbanization increase with a future of megacities trends, the concept of smart city has come as one of the several models of urban development in the contemporary society, which is directly based on the production, distribution, and use of knowledge and technology exceptional. The "Department of Economic and Social Affairs" of the United Nations (2018) predicts that 68% of the world's population live in urban areas by 2050. Urbanization is an ongoing trend, cities are constantly growing, and more and more people live in urban areas. This poses many challenges for cities and their management related to societal, environmental, and economic hurdles that must be overcome to enable a good quality of life. Smart city can help successfully master some of these challenges – thanks to numerous technologies that are entering the economy that connect humans, technology, and cities in an intelligent, resource-saving way. The aim of a smart city is to improve the quality of life of its dwellers, by making the city more adaptive and efficient, using new technologies that rely on an ecosystem of objects and services. It means smarter urban transport networks, upgraded water supply and waste disposal facilities and more efficient ways to light and heat buildings. It also means a more interactive and responsive city administration, safer public spaces and meeting the needs of an ageing population. Starting from the assumption that even today there is no univocal definition of "smart city", the adjective *smart* is indebted to the concept of "intelligent city" (Castells and Hall, 1994), mainly involving the relationship between urban space and technology, and including issues such as the ability to generate innovation, transition towards forms of e-governance, social learning, and the possibility to provide ICT infrastructures. A smart city is rather a process, or series of steps, by which cities become more liveable and resilient and, hence, able to respond quicker to new challenges. Among all the most advanced urban contexts, Singapore is probably the city that identified most with the idea of the intelligent city; it funded a huge computing infrastructure project destined to both businesses and citizens as part of its branding as an "intelligent island" (Arun and Yap, 2000). Singapore introduced many smart city projects in all aspects of life, for example, by using an autonomous fleet to help older people or those with limited mobility move around or adopting robotics and AI-powered chatbots talk to the elderly to provide relevant information and reduce loneliness or, yet, digitizing the healthcare system that, amongst other things, allows for TeleHealth video consultations and TeleRehab.

However, many more cities around the world have integrated the vision of the ICT city into their development strategies (Helsinki, Zurich, Oslo, Amsterdam, New York City...). Smarter solutions are nowdays necessary to better address emerging requirements in urban environments.

From the social research perspective, smart cities are inherently transdisciplinary: they require investigation and cooperation across several disciplines, spanning from sociology to other social sciences, from urban planning to infrastructure management. Specifically, researchers are actively pursuing advances in information, communication technologies and artificial intelligence. This has led to many situations where intelligence is pursued for the sake of intelligence, resulting in inefficient use and allocation of resources. Finally, smart cities need to tap not only on the information from various sensors, but on citizens themselves. Indeed, citizens are not only passive actors and final users of smart city services, but can play an active and fundamental role in improving the urban ecosystem and addressing its challenges. In addition, where the state of the art in ICT doesn't allow for automated processing, citizens can collect, filter, and assess information with a crowdsourcing approach. Managing the life cycle of city data requires denoising, cleaning, anonymization, or privacy protection. Integrating heterogeneous sources of urban data - including sensors and social media - calls for further exploration of fusion, interpretation, lifting, aggregation, analysis, and correlation techniques. Smart cities are complex systems that combine material, cyber, cultural and social systems. They are an integration of urban

informatization, knowledge, creative city, sustainable development, and ecological livability and go beyond the perspective of ICT perspective, highlighting the importance of the interactions between the different human e non-human systems.
Faced with the development of this city model, it is necessary to build a sociological approach both from a theoretical and methodological point of view capable of analyzing and understanding the needs of these cities and their population (Kolesnichenko et al., 2021). As regards the methodological aspect, sociology can offer numerous useful tools for the study of the smart city as a social phenomenon as well as the different social processes within it, which see numerous actors involved. Niezabitowski (2022) underlines the usefulness and validity of different social research tools in the study of smart cities. In this sense, questionnaires can be useful in studying citizens' perceptions of infrastructure or in creating quality of life indices. Interviews, in-depth or semi-structured, are a valuable tool for analyzing the most reflective and individual aspects of the actors involved in the smart city, such as personal experiences or memories of the past useful for discovering, for example, the change in the city. Another method is that of comparative studies, which offer the possibility of comparing different realities based on pre-established criteria in order to analyze the effect of the application of technologies in different cities or neighborhoods. Other methods can be Participatory Action Research (PAR), through which researchers and citizens can be involved in different actions within the urban context, such as the implementation of participatory urban policies, or SWOT analysis, useful in the analysis of the external and internal contexts of cities.
Kim and Yang (2023) use *Social Network Analysis* (SNA) to study governance in smart cities, analyzing the connection between cities, services and stakeholders. On the other hand, Rijshouwer et al. (2022) use focus groups as a tool in analyzing citizens' perceptions of the smart city, focusing especially on the subjective construction of the city. Even non-scientific institutions are interested in studying smart cities with a methodological approach. For instance the EU (2023) have identified, through a comparative analysis of various case studies, the main risks and challenges of European smart cities summarized in these six macro groups: a. privacy, surveillance and cybersecurity; b. data loss, inaccuracy and poor reliability; c. digital inequality and exclusion; d. financial (or other) obligations for authorities and service providers; e. economic damage and inequalities; f. loss of trust and approval of the service. One of the latest example of a smart city process, strongly characterized by a focus on proximity and accessibility, is the so-called "15 minutes city" (Moreno, 2016). The idea owes much to its many predecessors: "neighborhood units" and "garden cities" in the early 1900s, the community-focused urban planning pioneered by the activist Jane Jacobs in the 1960s, even support for "new urbanism" and walkable cities in the 1990s. One of the most sensational cases in this way is Paris'hyper-proximity plan. It aims to reduce air pollution and lost commuting time, improve population' quality of life and help the city become carbon neutral by 2050. This process include the installation of cycle lanes on every street and bridge (facilitated by freeing up more than 70% of on-street parking spaces for other uses); the expansion of office space and co-working centers in urban areas; and the use of facilities and buildings outside of normal opening hours; encouraging people to shop locally; creating small parks on campus that are open to the public when students are not using them to create more green space.
Also in this case, the set of sociological tools can offer an important contribution to conceptualize this topic. Tools such as Geographical Information Systems (GIS) can underline the existing connection between individuals and social space, very useful in the analysis of fundamental dimensions in this city model such as walkability (Corbisiero e Napoletano, 2023; Colleoni et al., 2017). This special issue volume of *Fuori Luogo* highlights the need to go even further with respect to the sociological knowledge accumulated to date on the concept of smart cities as well as on socio-political structures to accommodate the modern needs of involving citizens extensively in building these cities, not only figuratively but also literally.

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