Towards sustainable urban communities

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Abstract. Cities of tomorrow as sustainable communities contribute to creating value promoting social and economic urban growth and development. The aim of the study is to elucidate that cities can follow some pathways to develop the city as sustainable urban community. Cities as sustainable and smart communities should promote continuous innovation within knowledge-based, technological-enabled and learning-oriented society. Cities promote smartness as strategic vision that helps design citizen-centered services driving urban organizational networks and cooperation to develop innovation systems. As sustainable communities, cities develop an urban community that enables all the stakeholders to actively play a key role to support innovation and contribute to value creation. Cities use the potential offered by information technology to design a human-centered and community-oriented city able to support urban growth and development engaging urban stakeholders in innovation processes and systems.

Keywords: smart city, smart community, sustainable urban development.

1 Introduction

Rethinking cities of tomorrow relies on rediscovering sustainable and smart-oriented urban communities that promote social and economic growth. Cities contribute to social and public value within urban ecosystems [1]. As engines and drivers of social and economic change, cities become inclusive, smart and urban communities that support sustainable growth and develop innovation to drive urban competitiveness and improve the quality of life [2, 3]. The future and sustainability of cities relies on smart urban communities that drive knowledge-based and innovation processes [4, 5]. As smart and sustainable communities, cities should identify the smart approach as a vision that enables the city as a knowledge-based and technology-enabled engine able to design and implement urban development and sustainability of urban ecosystems [3, 6, 7].

The aim of the study is to elucidate how cities identify a pathway to evolve as sustainable and urban communities. Cities should select a pathway for sustainability promoting smartness as a human-centered vision to ensure citizen-centered services and drive urban organizational networks and cooperation in order to develop knowledge

management and innovation systems and sources. Within knowledge-based, technological-enabled and learning-oriented society, cities should develop as sustainable and smart communities that promote continuous innovation within services ecosystems.

The paper is structured in six sections. Following the introduction and methodological section, in the third section, cities are sustainable, inclusive and smart communities that drive urban development and contribute technology-enabled innovation and knowledge sources to drive social and economic growth in urban landscape. In the fourth section, it is elucidated how to drive cities become sustainable communities enhancing the smart community and following a smart vision using technology leading to promoting innovation. In the fifth section, a framework of analysis is presented to elucidate how cities identify some pathways leading cities to becoming sustainable urban communities that contribute to urban development. Finally, conclusions are outlined.

2 Methodological section

The study is theoretical and relies on a review of the literature that is related to understanding the concepts of sustainable city, smart city and smart community as drivers that enable urban stakeholders to design services and develop innovation driving the cities to proceed and evolve as sustainable and urban communities. Smart city and smart community are the key words and values that help cities to rethink strategy and action to design and shape future sustainable urban development. The articles considered focus on smart city topic and smart community trend as drivers of city's evolution towards sustainability. In other words, the concept of smart city is evolving from techno-centric to human-centred vision that enhances collaborative and cooperative aspects focusing on social dimensions that involve the design to make smarter the city. Smart community concept is moving from using technology to improve infrastructure and quality of life of the city to developing innovation systems and processes helping to make the city more inclusive in proceeding towards sustainable urban development. The selected contributions are interpreted in a narrative synthesis in order to elucidate new perspectives and advance theoretical frameworks on emerging issues [8, 9].

3 Cities as sustainable smart-driven communities driving urban development

Cities are economic and social systems in space [10] meeting places, services providers and social incubators that drive change and innovation [11]. Sustainable urban development relies on making the city as a system of innovation [12]. Cities evolve as smart-driven communities that contribute to building sustainable urban development and shaping social, inclusive and economic growth. Cities have to select a smart-driven,

knowledge-based and innovation-oriented vision to contribute to sustainable development of urban communities [4, 5, 13, 14]. Sustaining smart growth relies on revitalizing economic growth in urban areas by developing smart cities and communities that contribute to promoting innovation processes [15]. Cities are communities made of people who through their lives, actions, thoughts and beliefs influence and drive history, values and beliefs of their cities [16]. Developing cities as sustainable communities relies on strengthening social capital [17], making the cities as socially inclusive communities [6] and empowering citizens to actively contribute to urban value creation and sustainability [18]. Sustaining smart city and community development relies on using and developing the potential of information technology to empower individuals and groups in promoting change within communities opening up new opportunities for urban innovation and development for improving the wealth of urban communities [5, 19, 20]. Building sustainable urban development relies on improving the quality of life for people in a city without a burden can occur on the future generations. Technology helps cities to identify a pathway for urban sustainability as long-term goal [21] preserving the ecosystem and improving the quality of life within a community [22], developing a pathway for urban sustainability promoting social interaction and participation within the community [23] without threatening the viability of the natural, built and social system upon which the achievement of such development depends [24].

4 Driving cities as sustainable communities

As evolving and social organisms, cities aliment dynamic processes that involve all the urban stakeholders to contribute to making the city as a sustainable community. Cities should follow a smart approach as a vision to drive urban growth and service innovation by using information technology. Cities as smart communities are engines of social and economic innovation that involve all the urban stakeholders. Cities as sustainable urban communities contribute to creating social and economic value developing knowledge sources to achieve social and policy issues and to build innovation-oriented and knowledge-driven inter-organizational relationships [5, 20].

4.1 Developing a smart vision for urban development and growth

Smart cities use information technology to develop smart industries and smart economies, promoting smart mobility, sustaining smart government, relying on smart people and enhancing smart living and smart environment [25]. Technology helps cities to design a path for sustainability relying on following a smart approach for development [6]. Smart cities promote and extend high quality of life in urban environments strengthening the connections between productivity, economic growth and human capital, enhancing service systems and capabilities in an urban network and ecosystem [26, 27]. The introduction and use of smart urban technologies can significantly contribute to sustainable urban development leading to cities as urban communities that promote innovation processes [15]. Smarter cities develop innovation to promote governance and community development sustaining collaborative organizational within urban services and ecosystems [28]. Driving cities as smart and sustainable cities is a long term change

process to be planned involving policy-makers and key stakeholders [29]. Cities adopt smart city strategies to improve urban quality of life, drive and identify for urban sustainability [30], defining implementation stages of smart sustainable city design [31]. Cities are rethinking urban planning following a sustainability-oriented and smart strategy, involving stakeholders and citizens strengthening participation and multi-actor decision-making [32, 33]. With aiming to adopt a smart vision to urban development cities become communities that «have strong economic growth, are socially inclusive in their growth, and are environmentally responsible» [6] promoting sustainable urban development improving the wealth of people within a community [14]. Cities promote smartness as a human-centered vision to urban development in order to drive urban transformation of the city [34], and to develop a change-oriented smart community promoting sustainable inclusive growth and participatory governance to ensure high quality of life [35, 36] by enabling businesses, public bodies and citizens to build urban values, cohesion and innovation [37]. Cities adopt a smart strategy «for improving the operational and managerial efficiency and the quality of life by building on advances in ICTs and infrastructures» (p. 186) [38]. Smarter cities should develop innovation for rediscovering governance and community [39].

4.2 From services to innovation within smart communities

Cities as communities select a knowledge-based strategy to drive urban social and economic growth using technology as a catalyst to transform the economy of an urban community by knowledge sources in order to drive sustainable growth [5]. Promoting smartness within cities helps shape urban community development. Cities are smart communities and better places to live and work proactively promote sustainable well-being for people [33]. Chourabi *et al.* (2012) refer to smart communities as cities that interact with citizens sharing data, information and knowledge for problem solving [40]. Smart communities help all the members of a community (local government, business, education, healthcare institutions and the public) to learn to work together rediscovering the potential of information technology to transform the community in a positive way [20]. Smart communities enable citizen participation in services co-production [41] and support urban innovation, citizen empowerment, knowledge creation and exploitation [42]. In particular, participatory citizen engagement helps a citizen centricity vision that enables democratic city decision making processes and social innovation issues [43]. Government, industry, academy and the citizenry drive urban future development sharing the governing process to help community to face the challenges in the digital era [5]. Cities should be *loci* of innovation and innovative milieus [44] where government, business and communities build partnership and collaboration [45]. Cities promote urban growth, innovation and development by embracing a triple helix model and rediscovering the active cooperation among industries, government, university, citizens and civil society to supports innovation processes [28, 46]. Cities are the main drivers of economic growth and open innovation, encouraging multi-level private-public partnership and cooperation to co-create, co-design and co-implement innovative solutions and action, promoting innovation as a means for public governance and

stakeholder involvement [15]. Knowledge-oriented cities use technology to drive urban development and support learning environment [13, 32, 47]. Cities contribute to strengthening open innovation linking technology, people and territory to develop knowledge and reinforce the cohesion of urban communities [6]. Cities as smart communities acquire intellectual capital attracting and retaining skilled and talent people sustaining innovation systems by reinforcing knowledge and intellectual infrastructures involving public and private actors to drive social and urban development [13, 46]. Cities as smart communities become collaborative spaces that enable dialogue and co-operation between all the stakeholders or *helices* of urban environments (government, industry, university and civil society) [5, 20].

5 Discussion

Rethinking cities as sustainable urban communities that shape urban development relies on cities as smart communities improving the quality of life and competitiveness in urban, local and global environments. Increasingly, cities become incubators and spaces that enhance social and economic sustainability and innovation.

As shown in figure 1, the main contribution of this study is to identify a framework of analysis to understand how cities tend to identify some trajectories of sustainable development within urban ecosystems. The analyzed framework is presented in order to elucidate how cities identify a pathway to drive urban communities to proceed towards sustainability as a source for action and vision for change within urban ecosystems.

Figure 1 – Driving cities towards sustainable urban communities

	technology-focused	human-centred	
from Cities	Smart Cities	Cities building Community	from services
to Communities	Cities driving innovation	Sustainable Communities	to innovation

Cities as communities look at the future developing smartness as a strategic view relying on technology-enabled services by managing knowledge for driving urban development and innovation that relies on collaboration and social networks within urban ecosystems. Cities develop innovation to help urban communities to drive social and economic growth and promote development by involving all the stakeholders of urban ecosystem, mobilizing organizational and managerial competences that enhance public value creation. As future-oriented communities, cities plan initiatives in urban planning

in order to develop innovation-driven and community-oriented pathways. Smart and sustainable cities contribute to building the community as a source for development.

Technology-enabled and services-oriented urban communities develop knowledge helping organizational and individual learning in order to enable value creation within urban service and innovation ecosystems. As sustainable communities, cities promote smart growth to develop the urban community and support a sustainability-oriented pathway moving from ensuring services to involving all the stakeholders to actively play in the urban value co-creation process, rediscovering knowledge sources and promoting innovation to construct better policies for urban governance and entrepreneurship.

6   Conclusion and future research

Cities of tomorrow should evolve as communities living in urban service and innovation ecosystems. Technology is a necessary but not sufficient source to enable cities to acquire, use and manage knowledge for breeding innovation and sustaining urban learning within ecosystems. Smart city and smart community concepts as key drivers of sustainable urban development within cities looking at the future. In particular, the evolution of smart cities from techno-centric to human-centred vision stress the role of the community as key actor in driving processes of urban development. Strengthening the attributes of smart community within urban spaces helps cities focus on innovation systems and processes as a source to make the city both sustainable and inclusive in fostering participatory approaches to urban development and social and economic growth. Cities should use technology in order to plan a human-centered and community-oriented urban design for growth and development engaging with urban stakeholders and investing in human resources and urban intelligence as engines of sustainable, social and economic development. There are managerial, organizational and social implications. Cities should develop technological and knowledge sources to enable innovation processes that help drive sustainable growth in urban ecosystems. The study is conceptual and provides only a theoretical framework of analysis. It does not provide any empirical analysis. Future research perspectives imply to consider how cities use information technology to develop innovation in services, knowledge creation and governance as drivers of value creation within Italian local autonomies.

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