Chapter 15
The Smart City and Its Citizens:
Governance and Citizen Participation in Amsterdam Smart City

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ABSTRACT

Smart cities are associated almost exclusively with modern technology and infrastructure. However, smart cities have the possibility to enhance the involvement and contribution of citizens to urban development. This work explores the role of governance as one of the factors influencing the participation of citizens in smart cities projects. Governance characteristics play a major role in explaining different typologies of citizen participation. Through a focus on Amsterdam Smart City program as a specific case study, this research examines the characteristics of governance that are present in the overall program and within a selected sample of projects, and how they relate to different typologies of citizen participation. The analysis and comprehension of governance characteristics plays a crucial role both for a better understanding and management of citizen participation, especially in complex settings where multiple actors are interacting.

INTRODUCTION

Urbanization and digitalization, together with others such as globalization, climate change and the rise of inequalities, are two of the major global trends shaping our societies. With urbanization rate expected to reach by 2050 66% globally and 80% in Europe, up from the current 54% and 73% respectively (United Nations, Department of Economic and Social Affairs, & Population Division, 2014) and the pervasiveness of technological innovation, urban planning processes need to acknowledge the changes that are happening. Smart cities represent a point of contact between cities and digital technologies. However, smart cities go beyond the application of digital innovation to urban development processes. Urban planning can capitalize on ICT applications, enhancing its responsiveness, efficiency and the level of citizen participation (Anthopoulos & Vakali, 2012; Neirotti, De Marco, Cagliano, Mangano, & Scorrano, 2014). A broad study aiming at mapping smart cities in Europe, conducted on behalf of the European Parlia-

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ment's Committee on Industry, Research and Energy (Manville et al., 2014), has identified Amsterdam as a leading smart city example, along with Barcelona, Copenhagen, Helsinki, Manchester and Vienna. At European level, the Amsterdam Smart City program is seen as a model for allowing bottom-up projects within different fields (Papa, Gargiulo, & Galderisi, 2013). In order to allow citizens and small and medium enterprises to participate actively in the development of smart city projects, the presence of adequate levels of human capital and technology alone are not sufficient. This work argues that the governance model of a smart city initiative can influence the outcome of projects, also regarding the participation of citizens in their development. Along with the aims of enhancing efficiency, environmental performance and quality of life, smart city programs can influence citizen participation (Vanolo, 2014). This study analyses the role of governance in relationship with citizen participation within a smart city program. Different typologies of citizen participation are present in the Amsterdam Smart City (ASC) program. A large number of actors are involved in the program through the participation in specific projects. By analysing the governance model and how it determines the interaction between actors and their selection, it is possible to highlight relationships between governance characteristics and typologies of citizen participation. This research aims at assessing the relationships between governance characteristics and citizen participation typologies within a specific smart city program. In such context, the application of the network governance model is linked with the presence of stronger elements of citizen participation (Nam & Pardo, 2011b). The ASC program allows experimental approaches, both in terms of technological applications and of project governance, resulting in the presence of different typologies of citizen participation among the smart city projects. The next section will explore the literature related to the topics of smart cities, governance and citizen participation. The following sections will present research methods, research results, their discussion and concluding remarks.

LITERATURE REVIEW

The smart city paradigm represents one of the emerging trends in urban planning, integrating technological innovations into city development processes. The smart city concept is composed of various dimensions and characteristics. A variety of conceptual relatives of smart city are found in literature and practice, as shown in Table 1. According to Nam & Pardo (2011a), a smart city can be defined in relation to three dimensions: technological, human and institutional (see Table 1). ICTs play an increasingly important role in how cities are planned, developed and managed (Gibbs & Tanner, 1997; Graham, 2002). The smart city dimensions can also be considered as factors explaining the economic development of cities (Caragliu & Del Bo, 2012; Caragliu, Del Bo, & Nijkamp, 2011). The human dimension, including the elements of knowledge (Yigitcanlar, O'Connor, & Westerman, 2008) and creativity (Florida, 2003) is another determinant of the development of cities, together with their capacity to learn from other experiences (Campbell, 2012). The institutional dimension represents the way technological and human capital are used by urban communities composed of business, knowledge institutions, governments and citizens (Lindskog, 2004).

According to an extensive body of research (Caragliu et al., 2011; Giffinger, Fertner, Kramar, Pichler-Milanovic, & Meijers, 2007; Vanolo, 2014), beside the aforementioned three dimensions, the six characteristics shown in Table 2 define the smart city concept.

Comparative studies have assessed smart cities' performance using indicators based on the six characteristics, showing either correlations with economic growth (Caragliu & Del Bo, 2012; Caragliu et al.,