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Special Issue on Smart Cities

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Smart City Research: Contextual Conditions, Governance Models and Public Value Assessment /
Albert J. Meijer, J. Ramon Gil-Garcia and Manuel Pedro Rodríguez Bolívar

Abstract: There are three issues that are crucial to advancing our academic understanding of smart cities: (1) contextual conditions, (2) governance models, and (3) the assessment of public value. A brief review of recent literature and the analysis of the included papers provides support for the assumption that cities cannot simply copy good practices but must develop approaches that fit their own situation (contingency) and concord with their own organization in terms of broader strategies, human resource policies, information policies, etc. (configuration). A variety of insights in the mechanisms and building blocks of smart city practices is presented and issues for further research are identified.

Do smart cities invest in smarter policies? Learning from the past, planning for the future/
Andrea Caragliu and Chiara F. Del Bo

Abstract: Research on Smart Cities has come of age. Intense discussion on this topic has been ongoing for years, and the large academic success of this concept has also engendered several policy initiatives inspired by this label at different administrative levels. However, to date no large scale evaluation of the relationship between urban smartness and smart urban policies has been attempted.

This paper aims at filling this gap. By building on a solid definition of Smart Cities, the paper tests the empirical relationship between urban smartness and the intensity of Smart City policies. A novel data set on four different types of policies and smart urban characteristics is assembled for 309 EU cities.

Empirical results suggest that Smart City policies are more likely to be designed and implemented in cities that are already endowed with smart characteristics. Our findings

also point to a higher probability that Smart City policies are implemented in denser and wealthier urban areas.

These empirical results call for further research on the real effects of actual implemented Smart City policies, with the aim to verify the potential of this policy concept as an overall urban development model encompassing the main drivers of endogenous urban growth.

Smart Governance. Using a literature review and empirical analysis to build a research model / Manuel Pedro Rodríguez Bolívar and Albert J. Meijer

Abstract: The attention for smart governance, a key aspect of smart cities, is growing but our conceptual understanding of it is still limited. This paper fills this gap in our understanding by exploring the concept of smart governance both theoretically and empirically and developing a research model of smart governance. On the basis of a systematic review of the literature defining elements, aspired outcomes and implementation strategies are identified as key dimensions of smart governance. Inductively, we identify various categories within these variables. The key dimensions were presented to a sample of representatives of European local governments to investigate the dominant perceptions of practitioners and to refine the categories. Our study results in a model for research into the implementation strategies, smart governance arrangements and outcomes of smart governance.

Governing smart cities: An empirical analysis / Renata Paola Dameri and Clara Benevolo

Abstract: Smart Cities (SC) are a recent but emerging phenomenon, aiming at using high technology and especially information and communications technology (ICT) to implement better living conditions in large metropolises, to involve citizens in city government and to support sustainable economic development and city attractiveness. The final goal is to improve the quality of city life for all stakeholders. Until now, SCs have been developing as bottom-up projects, bringing together smart initiatives driven by public bodies, enterprises, citizens and not-for-profit organizations. However, to build a long-term smart strategy capable of producing better returns from investments and deciding priorities regarding each city, a comprehensive SC governance framework is needed.

The aim of this paper is to collect empirical evidences regarding government structures implemented in SCs and to outline a framework for the roles of local governments, non-governmental agencies and administrative officials. The survey shows that no consolidated standards or best practices for governing SCs are implemented in the examined cities; however, each city applies its own governance framework. Moreover, the study reveals some interesting experiences that may be useful for involving citizens and civil society in SC governance.

A Participatory Approach for Envisioning a Smart City / Peter van Waart, Ingrid Mulder and Cees de Bont

Abstract: The work we will be discussing here explores how government, industry, the university, and the citizens of a city can arrive through a participatory design approach

at an increased and mutual understanding and a shared vision of a desired smart city of the future. Elaborating upon insights from transition management studies and from the quadruple-helix knowledge production model, our work proposes a participatory approach for prototyping future cities that embraces practice-oriented design research activities, and thus aims for practical impact. We will report on two cases, GovJam and Hackday Data of the Crowds, in which stakeholders were able to acquire through participatory prototyping an understanding of the possibilities of technology in city services of the future. Results from these sessions show that participating stakeholders indeed gained a new perspective upon issues facing the city, due to an increased awareness and understanding of, and empathy for, the interests of other stakeholders. We also found indications that transfer of knowledge was taking place from the prototyping sessions to the daily practice of participants working in the public sector.

Smart Cities Governance: the need for a holistic approach to assessing urban participatory policy making / Walter Castelnovo, Gianluca Misuraca and Alberto Savoldelli

Abstract Most of the definitions of a 'smart city' make a direct or indirect reference to improving performance as one of the main objectives of initiatives to make cities 'smarter'. Several evaluation approaches and models have been put forward in literature and practice to measure smart cities. However, they are often normative or limited to certain aspects of cities' 'smartness', and a more comprehensive and holistic approach seems to be lacking. Thus, building on a review of the literature and practice in the field, this paper aims to discuss the importance of adopting a holistic approach to the assessment of smart city governance and policy decision-making. It also proposes a performance assessment framework that overcomes the limitations of existing approaches and contributes to filling the current gap in the knowledge base in this domain.

One of the innovative elements of the proposed framework is its holistic approach to policy evaluation. It is designed to address a smart city's specificities and can benefit from the active participation of citizens in assessing the Public Value of policy decisions and their sustainability over time. We focus our attention on the performance measurement of co-design and co-production by stakeholders and social innovation processes related to Public Value generation. More specifically, we are interested in the assessment of both the citizen-centricity of smart city decision-making, and the processes by which public decisions are implemented, monitored and evaluated as regards their capability to develop truly 'blended' value services – i.e. simultaneously socially inclusive, environmentally friendly and economically sustainable.

Decision Model for Policy-Makers in the Context of Citizens Engagement: Application on Participatory budgeting / Imen Boukhris, Raouia Ayachi, Zied Elouedi, Sehl Mellouli and Nahla Ben Amor

Abstract: Citizens' engagement is considered as one of the important dimensions for the development of smart cities since, in the vision of a city of the future (smart city), citizens will be more and more involved in the decision-making process of different issues related to the development of a city. In this context, policy-makers face a decision

problem where they have to integrate a new dimension, which is the voice of the citizens' decision. This paper proposes a tool based on Multi-Criteria Decision Making (MCDM) methods to provide decision makers with the best alternative(s) that are based on citizens' opinions. In order to tackle the potential interdependencies between criteria and also between alternatives in the selection process, we apply a hybrid model integrating the Analytical Network Process (ANP) and an extended version of Technique for Order Performance by Similarity to Ideal Solution (TOPSIS) to support group decision making. The proposed model is applied in the context of participatory budgeting (PB) where citizens decide on the projects in which the money can be invested. This process is complex since it encompasses multiple interdependent criteria, that may be conflicting with each other, and that are used to take decisions. To illustrate our approach, we will apply the proposed technique for the case study of La Marsa, a city in the north of the capital Tunis (Tunisia) that adopted, since 2014, a PB strategy in which citizens proposed alternatives on how an amount of money can be used to lighten specific streets in the city.

Smart City Implementation through Shared Vision of Social Innovation for Environmental Sustainability: A Case Study of Kitakyushu, Japan / Akemi Takeoka Chatfield and Christopher G. Reddick

Abstract: Environmental sustainability is a critical global issue that requires comprehensive intervention policies. Viewed as localized intervention policy implementations, smart cities leverage information infrastructures, distributed renewable energy smart micro-grids, smart meters, and home/building energy management systems to reduce city-wide carbon emissions. However, theory-driven smart city implementation research is critically lacking. This theory-building case study identifies antecedent conditions necessary for implementing smart cities. We integrated resource dependence, social embeddedness, and citizen-centric e-governance theories to develop a citizen-centric social governance framework. We apply the framework to a field-based case study of Japan's Kitakyushu smart community project to examine the validity and utility of the framework's antecedent conditions: resource-dependent leadership network, cross-sector collaboration based on social ties, and citizen-centric e-governance. We conclude that complex smart community implementation processes require shared vision of social innovation owned by diverse stakeholders with conflicting values, and adaptive use of informal social governance mechanisms for effective smart city implementation.