

# OPEN INNOVATION IN SMART CITIES: CIVIC PARTICIPATION AND CO-CREATION OF PUBLIC SERVICES

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## **ABSTRACT**

The purpose of this panel is to discuss actual developments in the co-creation of public services and the role of information science within it. With the advent of the knowledge society, participation and co-creation of public services have become crucial in smart-city decision-making processes. Transfer of knowledge through face-to-face interaction and the transfer of information through digital networks are spurring the process of innovation. The combination of both dimensions needs particular attention in the field of information science to enable suitable methods of knowledge management at a city level. This panel will bring together best-practice examples and research frameworks. In real-world scenarios, citizens are involved in decision-making in the case of public library development. First, frameworks of smart-city assessment and of knowledge management at the city level are discussed. Finally, the role of information science in open innovation processes will be the focus of this panel. For this purpose, the panel brings together researchers and practitioners from library and information science, as well as from neighboring disciplines, to discuss how information and communication technology (ICT) and open innovation

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are changing our society, culture, and urban space.

## **KEYWORDS**

Open innovation, participation, smart city, public services, public library.

## **INTRODUCTION**

Open innovation is understood to mean the free flow of knowledge and innovative ideas between different stakeholders (Chesbrough, 2003). This term originates from economics and describes the flow of ideas from inside and outside of a company and from inside to outside of a market. What is genuinely new is that the role of external ideas is acknowledged as being equally important as internal ideas. Smart-city concepts follow this approach and involve all city stakeholders in decision-making processes (Schaffers et al., 2011). Cities have become “collaborative innovation platforms” (Tukiainen, Leminen, & Westerlund, 2015). Innovation in cities can refer to creating something new, such as start-up businesses, or to improving existing things and processes, e.g., through the use of information and communication technology (ICT). The idea of smart cities becoming an open innovation platform is rather new and in only a few cases has this approach been realized. Many of these developments are described through the term “open government” (Harrison, Burke, Cook, Cresswell, & Hrdinová, 2011). Furthermore, the increasing use and collection of digital data provides us with new opportunities but also additional risks (Castelnovo, 2015; Mainka, Hartmann, Meschede, & Stock, 2015b). Currently, open innovation at the city level is new and experimental. A framework to assess smart-city governance and decision-

making processes is needed (Castelnuovo, Misuraca, & Savoldelli, 2015).

Cities that try to meet the needs of the knowledge society, e.g., through case studies to improve processes or establish new ideas, are “living laboratories” (living labs) (Tukiainen et al., 2015). Stakeholders of the city, whether they are from public services, local firms, or the citizens, work together and spur each other on. Innovative ideas can come from each stakeholder. To implement open innovation at the city level is as difficult as in companies that are mostly deadlocked in hierarchical structures. Thus, open innovation approaches have mostly been implemented experimentally in different cases. In this panel discussion, we will present approaches to practical implementation using, as an example, the case of public libraries. A further real-world example will be the citizen relationship management system 311, which has been implemented in a few cities in the US. In addition, research on knowledge management and the assessment of open innovation approaches at the city level will be discussed with practitioners and researchers. Information science has been widened to a further interdisciplinary research field according to practical city development, urban science, and open government, in which management of open innovation and assessment of value creation are genuinely information science topics. According to Stock (2015), this new research field is called “informational urbanism.”

#### **BEST-PRACTICE EXAMPLES**

##### **Dokk1—A Public Library Development in Aarhus, Denmark**

Dokk1 is the new public library in Aarhus. The key element in Dokk1 is that it is a library for people and the community. Dokk1 should be an innovation hub for the community and, therefore, also a component of the smart city. The building integrates ICT; and large displays around the building are used for civic media purposes. Design thinking and participatory design are key components in a smart city and they are also tools that have been used to develop Dokk1. The library developer is interested in finding out how to involve users, staff, partners, and citizens in the design process in order to create better services and products, and this could be used in a much broader context. Libraries could also contribute to making the smart city more relevant and present in the daily life of the users. The library is an open urban space and this could make it a potential living lab for the smart city.

##### **Transforming Helsinki Public Library**

###### *Participatory design helps libraries in transformation*

Libraries in Finland are transforming into community hubs and important third places (separate from the two usual social environments of home, “first place,” and the workplace, “second place”). The sociologist Ray Oldenburg (1998) argues in his book “The Great Good Place” that third places are important for civil society, democracy, civic

engagement, and establishing feelings of a sense of place. To achieve this new role as an innovative and inspiring working place and an enjoyable community center that promotes self-made culture and is a platform for people’s own initiatives and a facilitator of change, libraries need to reinterpret how they interact with customers and break down barriers to cultivating new audiences. During this transformation, participatory and service design offer great possibilities for libraries.

###### *There are many ways to develop services together with customers and partners*

For Helsinki City Library and the new Central Library, service design means designing the premises and services together with library users. The library has already utilized user-centered methods for longer than other city departments. However, in recent years, there has been a shift in thinking. User-centeredness used to mean examining users as focus groups and targets of design, but nowadays, library users themselves participate in the planning. Visitors of the Helsinki City Library feel stronger ownership of the library and visit it more when they have been included in the planning.

The participatory planning of the Central Library began with a “megaphone invitation” to urban citizens. Opinion leaders and celebrities encouraged citizens to come up with ideas for the role that the library in the center of the town could adopt. Once the open and participatory planning had got off to an impressive start, it was continued in different ways, such as with participatory budgeting, an architecture competition, and with policymaker networking activities. There were also workshops directed at partners, a developer community called the “Central Library’s Friends.”

###### *User-centeredness as Helsinki City Library’s key value*

The participation of urban citizens in generating ideas for the Central Library will not be a one-off event, but instead, the doctrine is to be applied to the whole of Helsinki’s library network. The library wants to make fast progress in adopting user-centeredness. The goal is, for example, to bring an increasing number of employees into direct interaction with the customers<sup>1</sup>.

##### **311—A Citizen Relationship Management System**

The 311 system originated from a simple telephone hotline for governmental non-emergency information and is an example of citizen relationship management technology that has gained importance in recent years. What started as a counterpart to the American 911 emergency hotline has now become a multi-channel service platform that allows citizens to be engaged in governmental decision-making processes. The 311 system allows citizens to request

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<sup>1</sup> See the video:

<http://www.muotoilutarinat.fi/en/project/new-central-library/>

governmental information but also governmental services, e.g., pothole or street light repairs. By means of mobile technologies, requesting governmental services became simpler and faster since citizens can use the 311 apps to take a picture, add a category or description, and to report their issue along with the exact location in a few seconds. Each service request is tracked by an identification number with which citizens can check their request's status. Therefore, not only do citizens feel better informed but also governments learn about their own processes and performance with the help of 311. Many cities report these data on their web portals and visually publish it so that it becomes useful and interpretable for most citizens. For example, the City of New York offers tables and maps that summarize the 311 data for each month on its statistical data portal.

With the help of the 311 data and citizens' feedback, the system was gradually advanced and optimized in order to increase citizen satisfaction and to better manage their expectations. Thus, the 311 system is a good example of how technology can be used for increasing two-way communication, data tracking for self-optimization, and to open new ways for citizen engagement in governmental processes. It is reasonable to assume that the system could also be valuable for many other organizations and institutions, e.g., public libraries. It has still more potential to increase civic participation in decision-making processes and to involve citizens in improving their neighborhood.

## **RESEARCH FRAMEWORK**

### **Assessment of smart-city strategies and policy decision-making**

Smart-city initiatives are highly information intensive and often use citizen-generated information, which raises many problems concerning how this information is actually collected and used. By assuming the concept of co-production as the lens through which to look at citizen's participation, the discussion during the panel will focus on the role of citizens as information providers in smart-city initiatives and on the conditions under which citizens playing this specific role can participate in the development of smart cities. Behind the rhetoric of participation that affects many smart-city discourses, it will be argued that citizens as information providers can play a co-producer role in smart-city initiatives only if they are given back the control over the data they produce by their behavior. On this basis, it will be argued that the development of a user-centric personal data ecosystem is an enabling condition for citizens' participation in smart-city initiatives as information providers.

### **Informational Urbanism**

The term "informational urbanism" was coined by Stallmeyer (2009) to analyze spatial transformations brought about by informational developments. Informational developments can be found predominantly in current and future cities of the knowledge society (Stock,

2011). Such cities are called "smart cities" or "informational cities." Following Castells (1989), in informational cities, the physical "space of places" (buildings, roads, etc.) no longer dominates, but instead, the "space of flows" (flows of power, capital, and information) is dominant. It is a task for information scientists to study information flows in cities by analyzing the city's "informativeness" (Fietkiewicz & Stock, 2014). Informativeness consists of several aspects including cities' digital infrastructures and cognitive infrastructures (Stock, 2015). While urban informatics only emphasizes the roles of people, place, and ICT with a focus on cities (Foth, Choi, & Satchell, 2011), informativeness and informational urbanism include not only ICT but all kinds of information and (tacit as well as explicit) knowledge, be it digital or physical or man or machine generated.

Important aspects of smart (or informational) cities are knowledge institutions and governments. In the knowledge society, libraries will find new functions in the space of places (library buildings and their spaces) and in the space of flows (digital libraries) (Mainka et al., 2013). Additionally, knowledge management at the city level is needed (Stock, 2011). What are the new functions of libraries and governments in smart cities? Who will give ideas to change such institutions? Where do the ideas of future development come from? And who does decide on development paths?

Here, "open innovation" enters the stage. For Chesbrough (2003, p. xxiv), "open innovation" is a "paradigm that assumes that firms" (and we'd like to add, institutions, such as libraries and governments, as well (Feller, Finnegan, & Nilsson, 2011)) "can and should use external ideas as well as internal ideas." While internal ideas come from experts of the institutions, external ideas are those of the institutions' stakeholders, in particular, the city's citizens. To give a sound database to the citizens, all stored (non-personal) data must be open, i.e., published and reusable (Mainka et al., 2015b). With the help of citizens, such data can be transformed into value-added services such as city-specific mobile applications (Mainka, Hartmann, Meschede, & Stock, 2015a). Furthermore, library innovations can be co-driven by customers, partners, and other actors in society (Elkjær, Haugaard, Råbjerg, & Trads, 2014).

## **PANEL STYLE**

The panel should last 1.5 hours. Each panelist will present his research focus, including a real-world example, and will give a short review of the work on this topic in 10–15 minutes. At the end of the presentation, each panelist raises questions according to his or her topic that will be discussed in the panel and with the audience. The presentations and questions should motivate the audience to think about the future role of library and information science according to smart cities.

## PANELISTS

### Sidsel Bech-Petersen

As a library transformer, I have supported the process of transforming the Main Library into our new library in Aarhus, Dokk1. We have been involved in service design and many development projects to try to find out how the library should be in the future.

Since 2013, we have been working on a joint project with Chicago Public Library and IDEO about how to accelerate change in libraries. The end result is the toolkit Design Thinking for Libraries, which is a comprehensive new resource for any staff member hoping to advance their library by using human-centered design methods.

Education: Master of Information Science and Multimedia from Aarhus University.

### Walter Castelnovo

I am Assistant Professor of Information Systems at the Department of Theoretical and Applied Sciences at the University of Insubria (Italy). In my recent publication, “Smart Cities Governance: The Need for a Holistic Approach to Assessing Urban Participatory Policy Making,” my colleagues and I developed a framework to measure the public value of smart-city decision-making. In the panel, I will discuss how citizens can contribute to the development of smart cities by actively participating in smart-city initiatives, thus providing their smartness to the cities in which they live in.

### Sarah Hartmann

I am a Research Assistant at the Department of Information Science at the Heinrich Heine University, Düsseldorf, and my research interests are in e-government and civic participation. In recent years, I was involved in research projects on governments’ use of social media, mobile applications based on open government data, and opportunities for civic engagement by means of innovation competitions.

The topic that I would like to discuss in the panel is city governments’ use of ICT and open data in order to offer more efficient services and to engage citizens in governmental processes. In my most recent study, I investigated the interaction between citizens and governments through the American 311 non-emergency system in three US cities and would like to discuss how the system could be extended and 311 data could be used to increase civic participation and satisfaction and to improve city life.

### Agnes Mainka

I am a Doctoral Candidate at the Department of Information Science at the Heinrich Heine University, Düsseldorf. In my doctoral thesis, I explore the indicators and best practices of today’s informational/smart cities real-world examples. According to this, I am interested in the fusion of citizens, urban places, and ICT in an open innovative way.

In the panel, I will take over the role of the moderator and raise questions for a fruitful discussion, especially the role of information science in smart-city research and development.

### Virve Miettinen

I am currently working on enabling people—both customers and our partners—to participate in the development of library services and planning of the new Helsinki Central Library. My fields of interest include service design, co-design, better solutions for the public sector and the citizens, and new practices of open culture and decision-making.

### Wolfgang G. Stock

I am interested in research questions concerning informational cities as prototypical cities of the knowledge society. Here, with “informational urbanism,” a new scientific field is emerging that combines information science, library science, and computer science on the one hand and architecture, urban studies, city planning, city economics, and city sociology on the other. At our department at Heinrich Heine University, Düsseldorf, we have conducted empirical research on informational world cities, as well as regional investigations on informational cities in Japan and on the Arabian Gulf. In total, we visited, described, and analyzed more than 40 cities all over the world.

As a panelist, I will introduce informational urbanism, smart (or informational) city research, and the role of open innovation in informational cities using the examples of open government and open library innovations.

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