

## Editorial

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# Smart government, citizen participation and open data

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## 1. Introduction

The use of Information Technologies in government (or e-government) has evolved during the last few years to make the interactions between government and citizens (G2C), government and businesses (G2B), and inter-agency relationships (G2G) more effective, democratic and transparent [1,6,8]. Moreover, in the most recent years we have observed two important trends with an impact in all these interactions. On the one hand, governments around the world have engaged in a movement to open data with open licenses and in easier to re-use formats. On the other hand, technology ubiquity is contributing to the production of impressive amounts of data that have the potential to help us better understand complex social problems as well as to improve government relationships with citizens, private organizations, NGOs and other governments. Both trends together with a more extensive use of information technologies have been referred to as smart government or intelligent government. Smart government is considered as one of the key trends that governments have to follow for the next 10–15 years [7]. The concept of a smart community refers to the use of information and communication technologies by local governments and cities to better interact with their citizens, taking advantage of all available data to solve important problems [2]. However, in order to deliver the expected values, governments need not only to create new services to their citizens based on these technologies in order to improve their quality of life, but also to engage citizens in this new set of services. Hence, there are two main components to be considered: the extensive use of technology by governments, which we refer to as smart government, and the extensive use of technology by citizens to interact with governments, which we will refer to as citizens' engagement.

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Citizens' engagement is a new form of democracy in which citizens are part of the decision-making process with regard to the development of their society [3,4]. It is an interactive process among citizens themselves, and between citizens and government representatives in order to contribute significantly to the making and implementation of public policies and decisions in a transparent and responsible manner [9]. In other terms, citizens' engagement can be seen as forms of individual or collective actions in order to identify and deal with questions of public interest [5]. The effectiveness of citizens' engagement depends on the willingness of citizens to participate in public debates. In fact, citizens' engagement means that citizens have to believe that their engagement is consequential and will have a positive impact to their community.

Citizens' engagement introduces new ways for governments to formulate decisions by integrating citizens' point of view. In order for citizens' to engage meaningfully and intelligently, they need to be empowered with more useful, relevant, and complete set of information from the government. The foundation of the information provided by the government is referred to as open data, sets of data published by government that can be read and interpreted by either humans or machines. This special issue includes a collection of best papers from the 14<sup>th</sup> International Conference on Digital Government Research (dg.o 2013), and that contribute to the conversation around smart government, citizens participation, and open data.

The first two papers of this special issue address the problem of implementing an open and big data strategy. The third and fourth papers discuss the issues related to citizens' engagement and smart cities. The final paper identifies the different entities that can be interested in using the data provided by governments. The paper of Bertot introduces the concept of transformational government that uses big and open data as ways to foster collaboration between government entities and create new valuable information for decision-makers. On the other hand, Zuiderwijk et al. provide four elements to be at least considered in order to build an open data ecosystem for enabling easy publication and use of open data.

As shown, open and big data are important issues that governments have to deal with in order to improve their services. Citizens can interact with governments with technology. In this context, Kavanaugh et al. presents the Virtual Town Square (VTS) to provide local citizens with an engaging way to interact with information and identify the most relevant local issues to them, such as a road construction site. The system can be used in a smart city. Doran et al., presents the importance of using Geographical Information Systems as a tool to develop smart cities. As stated in Kavanaugh et al., geolocation is very important to engage citizens with local authorities. However, in a general perspective, citizens' engagement can be extended to all government levels. One of the forms that citizens' engagement can take is the exploitation of data released by government agencies. To this, Graves et al. identifies the different stakeholders that may be interested in exploiting data released by governments, and the return of investment in using this data for the community.

We believe that the set of papers presented in this special issue constitute a valuable contribution to understand smart government, citizens' engagement, and open data. In the following paragraphs, we briefly describe each of the papers in this special issue.

## **2. Papers in the special issue**

The first paper, by Bertot et al., is about big and open data. It mainly focuses on the transition from smart government to transformational government by reviewing current government interaction and involvement with Big and Open Data in the United States. A field study was conducted to answer four questions to government officials about big and open data. The results conclude that a good governance

of data consists of nine essential elements. Among these elements, we highlight the importance of data accuracy, data privacy, or data curation.

Zuiderwijk and her colleagues focuses on the open data ecosystems by providing an overview of essential elements of open data ecosystems for enabling easy publication and use of open data. To create an open data ecosystem, at least four key elements should be captured, namely, 1) releasing and publishing open data on the Internet, 2) searching, finding, evaluating and viewing data and their related licenses, 3) cleansing, analyzing, enriching, combining, linking and visualizing data, and 4) interpreting and discussing data and providing feedback to the data provider and other stakeholders. Furthermore, to integrate the ecosystem elements and to let them act as an integrated whole, there should be three additional elements 5) user pathways showing directions for how open data can be used, 6) a quality management system, and 7) different types of metadata enabling the connection of the elements.

The third paper, by Kavanaugh and her colleagues, describes an information aggregator, called the Virtual Town Square (VTS), to support and facilitate local discussion. It supports a location-based interface for users to access the information collected. The aggregator is built with different focus groups of local citizens in order to understand their needs for such a tool. Results show that 52% of the participants found the system easy to use, 72% agreed that most people would learn to use the system very quickly, while 15% said they found the system unnecessarily complex. The results also indicate that 53% of the participants thought the functions in the system were well integrated, and 34% said they would like to use this system frequently. These results indicate that the participants generally found the system simple to use and the system had a low learning curve for these participants.

Doran and Daniel introduce in the fourth the importance of Geographical Information Systems (GIS) for the development of smart cities. In fact, GIS give quick access to different layers of information that may be combined and integrated to facilitate analysis of a situation and make the best decisions. This paper identifies distinctive features of the concept of smart city, and discusses the issues and challenges that need to be addressed when considering the emerging geomatics-driven solutions in the context of Smart City.

Finally, Graves and Hendler discuss in the fifth paper how Open Government Data (OGD) initiatives can be exploited by third parties using visualization tools. The data published covers a broad set of areas, including environment, budget and education among others. This paper claims that even there are different entities interested in OGD such as activists or journalists; they do not have all the skills that allow them to take advantage of these data. These skills may include techniques to collect, merge, and/or make sense of data among others. The paper proposes visualizations as a tool to overcome these skills limitations because visualizations provide a simple mechanism to understand and communicate large amount of data.

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