



Delft University of Technology

Foreword

Beyond Smart and Connected Governments

Janssen, Marijn

Publication date

2020

Document Version

Final published version

Published in

Beyond Smart and Connected Governments

Citation (APA)

Janssen, M. (2020). Foreword: Beyond Smart and Connected Governments. In J. R. Gil-Garcia, T. A. Pardo, & M. Gasco-Hernandez (Eds.), *Beyond Smart and Connected Governments: Sensors and the Internet of Things in the Public Sector* (Vol. 30, pp. vii-ix). (Public Administration and Information Technology). Springer.

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Foreword

During the last decades, information systems became increasingly interconnected. What started with the Internet has evolved into the Internet of Things (IoT), where sensors and actuators are interconnected to measure and control systems from coffee machines to smart cities. This goes along with the collection of more and more data using IoT devices resulting in real-time availability of data about temperature, geolocation, pollution, gas and water flows, force, acceleration, and traffic throughput. These types of data are used already in our daily life. My smart phone warns me if there is a traffic jam, and I have to leave earlier than usual. The daily life of citizens has undergone drastic change and is likely to undergo even more changes (Chatterjee et al. 2018). In a similar vein, government practice is also changing. IoT-generated data provides immense potential for improving our daily life and can be used by the public sector to create societal value. Such types of changes are already visible in evidence-based policy-making in which data collected by IoT is used to develop better policies based on factual data.

The editors of the book recognized the immense opportunity of IoT on our society. J. Ramon Gil-Garcia, Theresa A. Pardo, and Mila Gasco-Hernandez did a wonderful job in bringing together the most recent advances in this field by covering a range of aspects resulting in a multidisciplinary book covering a comprehensive range of topics. They show that IoT is not a standalone technology and needs to be integrated in public administration practice. The adoption and use of IoT is typically an interdisciplinary endeavor in which organization and technical knowledge need to come together.

The relevance of this book does not have to be explained further when looking at the immense possibilities offered by IoT. For instance, IoT is used in smart homes. When my family and I are coming home and it is too cold, my smart home will detect this and will start heating my place. Governments use traffic and pollution data to guide traffic in different ways on a real-time basis and use the same data for the planning of new roads and public infrastructure. IoT can have many benefits ranging from the technical to the strategic level (Brous and Janssen 2015); however, unlocking the value is not easy. The IoT can be used to collect more and more data which can be used by public decision-makers to acquire the necessary insights in a timely fashion. IoT-enabled capabilities in real-time sensing and responding can

spur digital transformation, serve the public interest, and create public value (Chatfield and Reddick forthcoming). To take advantage of IoT as a transformational technology, new organizational and administrative processes are needed, systems need to be adapted, or new systems need to be developed and organizations need to develop new capabilities. IoT can have a transformative effect which requires considerable changes to profit from this technology (Brous et al. forthcoming).

The book consists of two main parts. In the first part entitled “*Theory, Frameworks, and Concepts on Internet of Things (IoT) in the Public Sector*,” the foundations of IoT in government are discussed. A range of issues from participation to security are part of the foundations and should be covered to advance this field. Although many people talk about the IoT, actual use is often limited to smart cities. Collaboration between agencies can be viewed as a condition for success to advance the use of IoT in government (Chatfield and Reddick forthcoming). In the second part of this book entitled “*Applications, Cases, and Experiences of Internet of Things (IoT) in the Public Sector*,” all kinds of international experiences are presented which can be used as a source of inspiration and facilitate learning. There is a need to share practices and conduct comparative research to learn from each other.

Beyond smart government requires the connection of the data generated from IoT with Artificial Intelligence (AI), which in turn can help to intervene in the environment. Algorithms are becoming an integral part of these connected systems like autonomous cars, smart living environments, and smart energy applications for energy transition (Janssen and Kuk 2016). Within these systems, AI can be used for simple tasks like cleaning data to complex decision-making processes involving data from countless distributed sensors. The intelligence provided by systems enable better information sharing and cooperation resulting in improved user-experiences and personalization, higher levels of efficiency, and a reduction of costs. Connected systems integrate data, algorithms, people, processes, and systems to create, for example, connected cars, smart living, and smart energy applications.

IoT is a new topic that has not been discussed widely. In particular in government, this is an area in which research and comprehensive insight is lacking (Brous and Janssen 2015). In this regard, this book fills the void in literature by being the first comprehensive work in the field of IoT in government. This book contributes to unlocking the value of IoT and provides insight to avoid its risks of violating privacy and avoiding security breaches.

Given the increasing use of devices, the knowledge this book provides is a timely and very relevant contribution for organizations wanting to unlock the societal value of IoT and for researchers working in this field. This is an issue that many organizations struggle with and deserves attention. Collaboration is needed, and public organizations need to develop knowledge in this field. This book can help to raise our understanding on how the digital society is shaped.

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Marijn Janssen

Marijn Janssen is full Professor in ICT and Governance and head of the Information and Communications Technology research group of the Technology, Policy and Management Faculty of Delft University of Technology. He worked for the Ministry of Justice and was involved in large transformation projects. He was involved in EU-funded projects in the past (a.o. EGovRTD2020, eGovPoliNet, Engage, VRE4EIC, and OpenGovIntelligence), is co-editor-in-chief of *Government Information Quarterly*, associate editor of the *International Journal of Electronic Business Research (IJEBR)*, *Electronic Journal of e-Government (EJEG)*, *International Journal of E-Government Research (IJEGR)*, is conference chair of IFIP EGOV-ePart-CeDEM conference series and is chairing mini-tracks at various digital government and information systems conferences. He was ranked as one of the leading e-government researchers in a survey in 2009, 2014, and 2016 and published over 450 refereed publications. He was ranked by Apolitical as one of the 100 most influential people in the Digital Government in 2018 (<https://apolitical.co/lists/digital-government-world100>). More information: www.tbm.tudelft.nl/marijn.

Faculty of Technology, Policy and Management,
Delft University of Technology,
Delft, The Netherlands