Lecture Notes in Computer Science

Commenced Publication in 1973 Founding and Former Series Editors: Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison Lancaster University, Lancaster, UK Takeo Kanade Carnegie Mellon University, Pittsburgh, PA, USA Josef Kittler University of Surrey, Guildford, UK Jon M. Kleinberg Cornell University, Ithaca, NY, USA Friedemann Mattern ETH Zurich, Zürich, Switzerland John C. Mitchell Stanford University, Stanford, CA, USA Moni Naor Weizmann Institute of Science, Rehovot, Israel C. Pandu Rangan Indian Institute of Technology, Madras, India Bernhard Steffen TU Dortmund University, Dortmund, Germany Demetri Terzopoulos University of California, Los Angeles, CA, USA Doug Tygar University of California, Berkeley, CA, USA Gerhard Weikum Max Planck Institute for Informatics, Saarbrücken, Germany More information about this series at http://www.springer.com/series/7409

Efthimios Tambouris · Marijn Janssen Hans Jochen Scholl · Maria A. Wimmer Konstantinos Tarabanis · Mila Gascó Bram Klievink · Ida Lindgren Peter Parycek (Eds.)

Electronic Government

14th IFIP WG 8.5 International Conference, EGOV 2015 Thessaloniki, Greece, August 30 – September 2, 2015 Proceedings



Editors Efthimios Tambouris University of Macedonia Thessaloniki Greece

Marijn Janssen Delft University of Technology Delft The Netherlands

Hans Jochen Scholl University of Washington Seattle, WA USA

Maria A. Wimmer Universität Koblenz-Landau Koblenz Germany

Konstantinos Tarabanis University of Macedonia Thessaloniki Greece Mila Gascó ESADE Barcelona Spain

Bram Klievink Delft University of Technology Delft The Netherlands

Ida Lindgren Linköping University Linköping Sweden

Peter Parycek Donau-Universität Krems Krems Austria

ISSN 0302-9743 ISSN 1611-3349 (electronic) Lecture Notes in Computer Science ISBN 978-3-319-22478-7 ISBN 978-3-319-22479-4 (eBook) DOI 10.1007/978-3-319-22479-4

Library of Congress Control Number: 2015945145

LNCS Sublibrary: SL3 - Information Systems and Applications, incl. Internet/Web, and HCI

Springer Cham Heidelberg New York Dordrecht London

© IFIP International Federation for Information Processing 2015

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made.

Printed on acid-free paper

Springer International Publishing AG Switzerland is part of Springer Science+Business Media (www.springer.com)

Preface

The 14th annual International IFIP Electronic Government Conference (IFIP EGOV 2015) was organized by the International Federation for Information Processing Working Group 8.5 (Information Systems in Public Administration), or IFIP WG 8.5 for short.

IFIP EGOV is a core scientific conference in the domain of ICT and public administration. This is reflected in the high quality of the papers presented each year from distinguished researchers, academics, and practitioners from around the world. Traditionally, the conference provides an environment that is suitable for presenting and discussing academically rigorous research in a friendly and inspiring manner.

As in previous years, IFIP EGOV 2015 was co-located with IFIP ePart, the 7th International Conference on eParticipation (IFIP ePart 2015), which aims at presenting current research on foundations, theories, methods, tools, and innovative applications of electronic participation.

IFIP EGOV and ePart have established a reputation of high-quality, successful conference organizations. At the same time, they continue innovating in an attempt to increase the value they provide to their attendees. In this respect, this year, for the first time, the dual conferences were organized around five tracks:

- The General E-Government Track
- The General eParticipation Track
- The Open Government and Open and Big Data Track
- The Policy Modelling and Policy Informatics Track
- The Smart Governance, Smart Government, and Smart Cities Track

The introduction of tracks aims to highlight important areas that are relevant to the core topics of research of the two conferences. The overall objective of the two conferences remains to attract scholars coming from different academic disciplines to present and discuss their latest research shedding light on different, sometimes even diverse, perspectives. With the introduction of a new organizational model of the dual conference, we were also happy to have as co-chairs a number of distinguished scholars who provide fresh insights into the conferences and who attract new relevant communities.

These proceedings cover completed research accepted for the General E-Government Track, the Open Government and Open and Big Data Track, and the Smart Governance, Smart Government, and Smart Cities Track. The completed research papers accepted in the General eParticipation Track and the Policy Modelling and Policy Informatics Track are published in the LNCS proceedings of IFIP ePart. Like last year, accepted contributions of ongoing research, innovative projects, and PhD papers as well as abstracts of posters and workshops of the dual IFIP EGOV and ePart conference are published in a complimentary joint proceedings volume by IOS Press.

The call for papers of the three tracks covered in this volume attracted a wide range of topics with 68 submissions, which included 25 accepted completed research papers (published in these proceedings) and 22 accepted ongoing research papers (published in the joint IFIP EGOV and ePart proceedings of ongoing research).

This volume includes completed research organized in four topical threads as follows:

- Foundations
- Open and Smart Government
- Services, Processes, and Infrastructure
- Application Areas and Evaluation

The Paper Awards Committee was again led by committee chair Olivier Glassey of IDHEAP, Lausanne/Switzerland. The Organizing Committee carefully reviewed the accepted papers and granted outstanding paper awards in various areas. The winners were awarded in the ceremony during the conference dinner, which is a highlight of each IFIP EGOV conference. The names of the award winners of IFIP EGOV can be found on the conference website: http://www.egov-conference.org/egov-conf-history/egov-2015/.

As in every proceedings volume we feel the need to thank the members of the IFIP EGOV 2015 Program Committee for their efforts in reviewing the submitted papers. The quality of the conference is directly related to the quality of peer reviews and we would like to once again acknowledge the work that the Program Committee members did.

This year, EGOV and ePart were organized in Thessaloniki, Greece, under the aegis of the University of Macedonia. The University of Macedonia has long been active in research in the areas of eGovernment and eParticipation. However, the success of a conference takes much more. We would therefore like to thank the team of the University of Macedonia and particularly Eleni Panopoulou but also Maria Zotou, Elina Nanopoulou, and Eleni Kamateri for their efforts in the excellent organization of the dual conference.

The University of Macedonia is a relatively new and small university. Its departments of Applied Informatics and Business Administration have worked together for these conferences. The University of Macedonia is located in Thessaloniki, Greece; a city with 2,500 years of history and at the same time a lively, artistic city and one of the largest student centers in South-Eastern Europe. The conference dinner was held at the Byzantine Museum and was preceded by an exclusive museum tour especially organized for conference participants. It could not have been more appropriate! It was a real pleasure to have the conferences in such a suitable location and we are looking forward to IFIP EGOV 2016.

August/September 2015

Efthimios Tambouris Marijn Janssen Hans Jochen Scholl Maria A. Wimmer Konstantinos Tarabanis Mila Gascó Bram Klievink Ida Lindgren Peter Parycek

Organization

Conference Chairs

Efthimios Tambouris	University of Macedonia, Greece
Hans Jochen Scholl	University of Washington, USA
Marijn Janssen	Delft University of Technology, The Netherlands
Maria A. Wimmer	University of Koblenz-Landau, Germany
Konstantinos Tarabanis	University of Macedonia, Greece

General E-Government Track Chairs

Hans Jochen Scholl	University of Washington, USA
Marijn Janssen	Delft University of Technology, The Netherlands
Maria A. Wimmer	University of Koblenz-Landau, Germany

Open Government and Open and Big Data Track Chairs

Marijn Janssen	Delft University of Technology, The Netherlands
Bram Klievink	Delft University of Technology, The Netherlands
Ida Lindgren	Linköping University, Sweden

Smart Governance, Government, and Cities Track Chairs

Hans Jochen Scholl	University of Washington, USA
Mila Gascó	Escuela Superior de Administración y Dirección de
	Empresas (ESADE), Spain
Peter Parycek	Danube University Krems, Austria

Program Committee and Reviewers

Suha Alawadhi	Kuwait University, Kuwait
Vincenzo Ambriola	University of Pisa, Italy
Kim Normann	CBS, Denmark
Andersen	
Renata Araujo	UNIRIO, Brazil
Karin Axelsson	Linköping University, Sweden
Paul Brous	Delft University of Technology, The Netherlands
Wojciech Cellary	Poznan University of Economics, Poland
Bojan Cestnik	Temida d.o.o., Jožef Stefan Institute, Slovenia
Yannis Charalabidis	National Technical University Athens, Greece

Wichian Chutimaskul King Mongkut's University of Technology Thonburi, Thailand Flavio Corradini University of Camerino, Italy Ministry of State of Administrative Development, Egypt Ahmed Darwish Anna De Liddo The Open University, UK Yogesh Dwivedi Swansea University, UK Elsa Estevez United Nations University, Macao, SAR China Istituto Superiore Mario Boella, Italy Enrico Ferro Regione Emilia-Romagna, Italy Sabrina Franceschini National Tax and Customs Administration, Hungary Ivan Futo Corvinno Technology Transfer Center Nonprofit Public Andras Gabor Ltd., Hungary Kaunas University of Technology, Lithuania **Rimantas Gatautis** Christos Georgiadis University of Macedonia, Greece Centro de Investigación y Docencia Económicas, Mexico J. Ramon Gil-Garcia Lausanne University, Switzerland Olivier Glassev Johann Höchtl Danube University Krems, Austria Copenhagen Business School, Denmark Helle Zinner Henriksen Tomasz Janowski UNU Operating Unit on Policy-Driven Electronic Governance, Portugal Arild Jansen University of Oslo, Norway Luiz Joia FGV. Brazil Nikos Karacapilidis University of Patras, Greece Ralf Klischewski German University in Cairo, Egypt Mid Sweden University, Sweden Katarina Lindblad-Gidlund Euripidis Loukis University of the Aegean, Greece Luis Luna-Reyes University at Albany, SUNY, USA Gregoris Mentzas National Technical University of Athens, Greece Michela Milano DEIS Università di Bologna, Italy Carl Erik Moe Agder University, Norway Adegboyega Ojo United Nations University - International Institute for Software Technology, Macao, SAR China University of Macedonia, Greece Eleni Panopoulou Theresa A. Pardo Center for Technology in Government, University at Albany, SUNY, USA Vassilios Peristeras European Commission, DG DIGIT, Interoperability Solutions for European Public Administration (ISA), Belgium Rimantas Petrauskas Mykolas Romeris University, Lithuania European Research Center for Information Systems Michael Räckers (ERCIS), Germany University of Camerino, Italy Barbara Re Nicolau Reinhard University of São Paulo, Brazil

Øystein Sæbø Rodrigo	University of Agder, Norway Universidad Autonoma del Estado de Mexico, Mexico
Sandoval-Almazan	
Sabrina Scherer	University of Koblenz-Landau, Germany
Margit Scholl	TH Wildau, Germany
Henk Sol	University of Groingen, The Netherlands
Mauricio Solar	Universidad Tecnica Federico Santa Maria, Chile
Maddalena Sorrentino	University of Milan, Italy
Witold Staniszkis	Rodan Systems, Poland
Yao-Hua Tan	Delft University of Technology, The Netherlands
Dmitrii Trutnev	e-Government Center of ITMO University, Russian Federation
Jörn Von Lucke	Zeppelin Universität Friedrichshafen, Germany
Petra Wolf	TU München, Germany
Anneke Zuiderwijk	Delft University of Technology, The Netherlands

Contents

Foundations

Channel Choice: A Literature Review Christian Ø. Madsen and Pernille Kræmmergaard	3
Conceptualising the Digital Public in Government Crowdsourcing: Social Media and the Imagined Audience	19
Steering the Digital Agenda at Arm's Length. All Wobble, No Spin: The Contextual Lens	31
E-Government Systems Design and Implementation in Developed and Developing Countries: Results from a Qualitative Analysis <i>Catherine G. Mkude and Maria A. Wimmer</i>	44
Theoretical Support for Social Media Research. A Scientometric Analysis Laura Alcaide Muñoz and Manuel Pedro Rodríguez Bolívar	59
Open and Smart Government	
Big and Open Linked Data (BOLD) to Create Smart Cities and Citizens: Insights from Smart Energy and Mobility Cases	79
Open Innovation Contests for Improving Healthcare – An Explorative Case Study Focusing on Challenges in a Testbed Initiative Siri Wassrin, Ida Lindgren, and Ulf Melin	91
Public Accountability ICT Support: A Detailed Account of Public Accountability Process and Tasks <i>Rui Pedro Lourenço, Suzanne Piotrowski, and Alex Ingrams</i>	105
Mediating Citizen-Sourcing of Open Government Applications – A Design Science Approach	118
Processing Linked Open Data Cubes Efthimios Tambouris, Evangelos Kalampokis, and Konstantinos Tarabanis	130

Scrutinizing Open Government Data to Understand Patterns in eGovernment Uptake	144
Advancing e-Government Using the Internet of Things: A Systematic Review of Benefits Paul Brous and Marijn Janssen	156
Understanding Public-Private Collaboration Configurations for International Information Infrastructures Bram Klievink	170
Services, Processes and Infrastructure	
Inter-organizational Public e-Service Development: Emerging Lessons from an Inside-Out Perspective	183
What Is This Thing Called e-Service? Interoperability Challenges in e-Service Modelling. Svein Ølnes and Arild Jansen	197
Removing the Blinkers: What a Process View Learns About G2G Information Systems in Flanders	209
Makers and Shapers or Users and Choosers Participatory Practices in Digitalization of Public Sector	222
Why Realization Mismatches Expectations of e-Government Project Benefits? Towards Benefit Realization Planning Dian Balta, Vanessa Greger, Petra Wolf, and Helmut Krcmar	233
Electronic Data Safes as an Infrastructure for Transformational Government? A Case Study Joachim Pfister and Gerhard Schwabe	246
An Ontology of eGovernment Arkalgud Ramaprasad, Aurora Sánchez-Ortiz, and Thant Syn	258
Application Areas and Evaluation	

XIV

Contents

Privacy in Digital Identity Systems: Models, Assessment, and User	
Adoption	273
Armen Khatchatourov, Maryline Laurent, and Claire Levallois-Barth	

Comparing Local e-Government Websites in Canada and the UK Laurence Brooks and Alexander Persaud	291
Evaluating a Passive Social Media Citizensourcing Innovation Euripidis Loukis, Yannis Charalabidis, and Aggeliki Androutsopoulou	305
Three Positives Make One Negative: Public Sector IS Procurement	321
Proactivity Postponed? 'Capturing' Records Created in the Context of E-government – A Literary Warrant Analysis of the Plans for a National e-archive Service in Sweden	334
Author Index	349