e-Democracy
Advances in Group Decision and Negotiation

Volume 5

Series Editor
Melvin F. Shakun, New York University, U.S.A.

Editorial Board
Tung Bui, University of Hawaii, U.S.A.
Guy Olivier Faure, University of Paris V, Sorbonne, France
Gregory Kersten, University of Ottawa and Concordia University, Canada
D. Marc Kilgour, Wilfrid Laurier University, Canada
Peyman Faratin, Massachusetts Institute of Technology, U.S.A.

The book series, Advances in Group Decision and Negotiation — as an extension of the journal, Group Decision and Negotiation — is motivated by unifying approaches to group decision and negotiation processes. These processes are purposeful, adaptive and complex – cybernetic and self-organizing – and involve relation and coordination in multiplayer, multicriteria, ill-structured, evolving dynamic problems in which players (agents) both cooperate and conflict. These processes are purposeful complex adaptive systems.

Group decision and negotiation involves the whole process or flow of activities relevant to group decision and negotiation – such as, communication and information sharing, problem definition (representation) and evolution, alternative generation, socio-emotional interaction, coordination, leadership, and the resulting action choice.

Areas of application include intraorganizational coordination (as in local/global strategy, operations management and integrated design, production, finance, marketing and distribution – e.g., as for new products), computer supported collaborative work, labor-management negotiation, interorganizational negotiation (business, government and nonprofits), electronic negotiation and commerce, mobile technology, culture and negotiation, intercultural and international relations and negotiation, globalization, terrorism, environmental negotiation, etc.
In group decision and negotiation (GDN), we seek solutions – jointly decided actions – to group problems. With e-democracy, the GDN solution process involves application of GDN concepts, democratic principles, and technology that can extend democracy to a higher level of participation with increased potential for problem solutions that produce connectedness among participants.

How the GDN approach and e-democracy can mutually reinforce each other is at the heart of this noteworthy book. Thus we have a jointly emerging hybrid – GDN/e-democracy – that is well represented in the editors’ overviews in Chapter 1 and 19, and by the contributions of the various authors. These concern political, methodological, technical bases, and case studies of e-democracy. The book is a welcome addition to the ongoing book series, *Advances in Group Decision and Negotiation*.

The world has many difficult problems. GDN/e-democracy can help find solutions that the world badly needs. This book arrives at an opportune time – now.

That is all that is needed for this foreword; the rest is in the book.

New York, NY

Melvin F. Shakun
To a large extent, we view this volume as a culmination of the 4-year European Science Foundation (ESF) programme *Towards Electronic Democracy: Internet Based Complex Decision Support*. We are thus grateful to the ESF for its generous support over those years. We are also grateful to the hundreds of participants at various TED events and our fellow members at the Steering Committee. Over the last 2 years, we have also benefited from our participation in the COST-ESF program in *Algorithmic Decision Theory*.

We are grateful to the authors of the various chapters. Taken together, they provide a wide-ranging and very original, refreshing panorama of e-democracy, showing that it is something more than e-debating and e-voting. The conscientious advice of the referees made our work much simpler. Mel Shakun kindly asked us a few years ago to prepare this monograph and, even more, has prepared a wonderful prologue for our volume. In between, the personnel at Springer have been exceedingly patient with our continuing delays.

David Ríos Insua is also grateful to the Spanish Ministries of Science and Education and its various bodies, as well as the Ministry of Industry for supporting several e-participation projects and the Government of Madrid for supporting the e-Democracia-CM program. He has also benefited from many discussions in these topics over the last years with Jesús Ríos, Javi Gómez, José Rubio, César Alfaro, Eugenio Fernández, Carlos Grima, Roman Efremov, Fabrizio Ruggeri, Alexander Lotov, Raúl Moreno, Julio Holgado, Gregory Kersten, Manuel Arenilla, Marta Sanz, and Josemari Lavín. He also had many discussions on these topics with Sixto Ríos and Sixto Ríos Insua, who are deeply missed.

Simon French acknowledges with much gratitude his funding by various EU and UK bodies. Early on he benefitted from EU Framework programmes targeted on emergency response to nuclear accidents in which public participation is a vital part of the recovery phases. In the UK, he has been funded by the Department of Health and the Food Standards Agency to work on stakeholder interactions. Most recently, he was a member of a project funded by Research Councils UK on Rural Economy and Land Use to explore the involvement of rural stakeholders and the public in handling food risks. He has benefitted from many discussions and collaborations with Gary Barker, Clare Bayley, Peter Bennett, Jo Brown, Emma Carter, Angela
Cassidy, Andy Hart, Jacques Lochard, John Maule, Gabe Mythen, Anne Nisbet, Fabrizio Ruggeri, Duncan Shaw (×2!), Dick Shepherd, Bartel van de Walle, and Corrine Wales.

Last, but far from least, our families – Susana, Sabela, and Ota; and Judy, Kate, and Sarah – have been extremely supporting, especially as other pressures, often institutional, political, and not a little trying, also took our time.

It is our fervent wish that rationality, participation, and deliberative democracy in the spirit embodied in the pages that follow would permeate society and our institutions. Supported by technology, such a spirit of inclusiveness might release us from the current closed door machinations that are still to be found framing much of our lives.

Madrid  
Manchester  
February 2010
## Contents

1 *e-Democracy: A Group Decision and Negotiation-Oriented Overview* ................................ 1  
   David Ríos Insua and Simon French

### Part I  Political Bases

2 *Concepts in Democratic Theory* .......................... 15  
   Manuel Arenilla

3 *Participatory Processes and Instruments* ............. 31  
   José M. Lavín and David Ríos Insua

### Part II  Methodological Bases

4 *Problem-Structuring Methods for e-Democracy* .......... 49  
   Ashley Carreras and L. Alberto Franco

5 *Decision Support Systems* ................................ 65  
   Simon French

6 *Collaborative Decision Analysis and e-Democracy* ..... 83  
   Roman Efremov and David Ríos Insua

7 *Voting Theory* ............................................. 101  
   Hannu Nurmi

8 *Real-World Decision Aiding: A Case in Participatory Water Management* .......................... 125  
   Katherine Anne Daniell, Chabane Mazri, and Alexis Tsoukiàs

### Part III  Technological Bases

9 *The Internet and the Web* .................................. 153  
   Simon French

10 *e-Participation: A Discursive Approach* .............. 163  
   Rui Pedro Lourenço and João Paulo Costa
11 e-Negotiation Systems for e-Participation .......................... 185
Morad Benyoucef

12 Web-Based Decision Support: Creating a Culture of Applying Multi-criteria Decision Analysis and Web-Supported Participation in Environmental Decision Making .................................................. 201
Raimo P. Hämäläinen, Jyri Mustajoki, and Mika Marttunen

13 A Generic System for Remote e-Voting Management ............ 223
Carlos Grima and David Ríos Insua

14 Explanation Systems ....................................................... 241
Jutta Geldermann

Part IV Case Studies

15 Transparent Public Decision Making: Discussion and Case Study in Sweden ......................................................... 263
Mats Danielson, Love Ekenberg, Aron Larsson, and Mona Riabacke

16 From Participatory to e-Participatory Budgets ...................... 283
César Alfaro, Javier Gómez, and Jesús Ríos

17 Internet Voting in Estonia ................................................... 301
Ülle Madise and Epp Maaten

18 Consensus Building by Blended Participation in a Local Planning Process: The Case of the Public Stadium Swimming Pool in Bremen ...................................................... 323
Herbert Kubicek and Hilmar Westholm

Part V Future Prospects

19 e-Democracy: The Road Ahead ........................................... 345
Simon French and David Ríos Insua

Index ................................................................. 359
Contributors

César Alfaro Department of Statistics and Operations Research, Universidad Rey Juan Carlos, Madrid, Spain, cesar.alfaro@urjc.es

Manuel Arenilla Department of Political Science, Rey Juan Carlos University, Madrid, Spain, manuel.arenilla@urjc.es

Morad Benyoucef Telfer School of Management, University of Ottawa, Ottawa, Canada, benyoucef@telfer.uottawa.ca

Ashley Carreras Leicester Business School, Leicester, UK, acarreras@dmu.ac.uk

João Paulo Costa Faculty of Economics, INESC, University of Coimbra, Coimbra, Portugal, jpaulo@fe.uc.pt

Katherine Anne Daniell Australian National University, Canberra, Australia, katherine.daniell@anu.edu.au

Mats Danielson Stockholm University and Royal Institute of Technology, Kista, Sweden, mad@dsv.su.se

Roman Efremov Department of Statistics and Operational Research, Rey Juan Carlos University, Madrid, Spain, roman.efremov@urjc.es

Love Ekenberg Stockholm University and Royal Institute of Technology, Kista, Sweden, lovek@dsv.su.se

L. Alberto Franco Warwick Business School, West Midlands, UK, alberto.franco@wbs.ac.uk

Simon French Manchester Business School, Manchester, UK, simon.french@mbs.ac.uk

Jutta Geldermann Georg-August-Universität, Göttingen, Germany, geldermann@wiwi.uni-goettingen.de

Javier Gómez Department of Statistics and Operations Research, Universidad Rey Juan Carlos, Madrid, Spain, javier.gomez@urjc.es
Carlos Grima Department of Statistics and Operational Research, Rey Juan Carlos University, Madrid, Spain, carlos.grima@urjc.es

Raimo P. Hämäläinen Systems Analysis Laboratory, Helsinki University of Technology, Helsinki, Finland, raimo@hut.fi

Herbert Kubicek Institute for Information Management Bremen, Bremen, Germany, kubicek@ifib.de

Aron Larsson Mid Sweden University, Sundsvall, Sweden, aron.larsson@miun.se

José M. Lavín Department of Statistics and Operations Research, Rey Juan Carlos University, Madrid, Spain, josemaria.lavin@urjc.es

Rui Pedro Lourenço Faculty of Economics, INESC, University of Coimbra, Coimbra, Portugal, ruiloure@fe.uc.pt

Epp Maaten Estonian Informatics Centre, Tallinn, Estonia, epp.maaten@ria.ee

Ülle Madise Tallinn University of Technology, Tallinn, Estonia, ylle.madise@vpk.ee

Mika Marttunen Finnish Environment Institute, Helsinki, Finland, mika.marttunen@ymparisto.fi

Chabane Mazri INERIS, Paris, France, Chabane.mazri@ineris.fi

Jyri Mustajoki Department of Automation Science and Engineering, Tampere University of Technology, Tampere, Finland, jyri.mustajoki@tut.fi

Hannu Nurmi Department of Political Science, Public Choice Research Centre, University of Turku, Turku, Finland, hnrmi@utu.fi

Mona Riabacke Stockholm University and Royal Institute of Technology, Kista, Sweden, mona@dsv.su.se

Jesús Ríos Manchester Business School, Manchester, UK, jesus.rios@mbs.ac.uk

David Ríos Insua Royal Academy of Sciences, Madrid, Spain, david.rios@urjc.es

Alexis Tsoukiás LAMSAD-CNRS, Paris Cedex 16, France, Alexis.Tsoukias@lamsade.dauphine.fr

Hilmar Westholm Institute for Information Management Bremen, Bremen, Germany, westholm@arcor.de