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Group Decision and Negotiation

A Process-Oriented View

Joint INFORMS-GDN and EWG-DSS
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Preface

The Group Decision and Negotiation meetings aim to bring together researchers and practitioners from the fields of humanities, social sciences, economics, law, management, engineering, decision science, and computer science. These diverse areas are characterized by different paradigms, methods of inquiry, and goals. But the challenges are common including the problems faced by decision makers who face tensions and the conflicts during all phases of the individual and negotiated decision processes. These challenges require researchers to gain insights into the dynamics among independent entities and the results of their interactions. Researchers, in an effort to provide practitioners with knowledge and tools, construct models, methods, and systems that are capable of aiding decision makers and even, in some cases, undertaking some decision-related activities on their behalf.

The GDN 2014 conference was the 14th conference of the INFORMS Section on Group Decision and Negotiation. It was organized jointly with the EURO Working Group on Decision Support Systems (EWG-DSS). The EWG-DSS was founded during a memorable EURO Summer Institute on DSS that took place at Madeira, Portugal, in May 1989. Since then, the group has held meetings in various European countries, and has taken active part in the EURO conferences.

While in the past, GDN members participated in the DSS meetings and vice versa, this is the first joint conference that allows the relationships between these two organizations to be strengthened, thereby leading to the enhancement and enrichment of research projects in individual and group decision support, negotiation and auction support, as well as the design of systems and agents capable of actively participating in individual and group processes and in negotiations.

The GDN 2014 proceedings have two volumes, one Springer volume and one local volume. This volume contains 31 papers selected from among 88 submissions. The full-paper acceptance ratio is 35%, following the Springer LNBIP tradition in preserving a high-quality forum for the next GDN joint editions. Each selected paper was reviewed by at least two internationally known experts from the GDN Program Committee and external invited reviewers. The selected authors are academics, consultants, and software developers coming from Asia, Africa, Oceania, Europe, and the Americas. They represent the whole spectrum of GDN and DSS research, including: ethics and morality; advances in methodological foundations; field and laboratory experiments; system design, construction, and implementation; e-marketplaces and socioeconomic transactions; development of negotiation software agents; linguistics and text analysis; and group decision and facilitation. This GDN Springer LNBIP volume includes the contributions, which have been organized in 11 general topics and are described here.

1. Collaborative Decision Making : 3 papers
 - “Cooperative Decision Making: A methodology Based on Collective Preferences Aggregation” authored by Christophe Sibertin-Blanc and Pascale Zaraté
 - “Enhancing Collaborative Decision-Making Processes Using a Web-Based Application: A Case Study of a UK Precision Engineering SME” authored by Jorge E. Hernandez, David Savin, Andrew C. Lyons and Konstantinos Stamatopoulos
 - “Assessing Mergers and Budget Constraint in Multiple-Unit ICT Procurements – The Cooperation/Competition Dilemma” authored by Driss Zahi
2. Auctions : 3 papers
 - “Are Procurement Auctions Good for Society and for Buyers?” authored by Gregory Kersten
 - “The Effect of Bidding Mechanisms in Online Penny Auction” authored by Hsiangchu Lai, Jack Hsu and Hao-Min Tu
 - “Using Biddings and Motivations in Multi-Unit Assignments” authored by Mireille Ducasse and Peggy Cellier
3. Knowledge Decision Support Systems : 3 papers
 - “Knowledge-Based Decision Support Systems: A Survey on Technologies and Applications Domains” authored by Shaofeng Liu and Pascale Zaraté
 - “On the Use of Cognitive Maps to Identify Meaning Variance” authored by Pierre-Emmanuel Arduin
 - “A Framework for Optimizing Inventory Level of Global Critical Knowledge to Support Group Decision Making” authored by Jiang Pan, Shaofeng Liu, Sarah Tuck and Ali Alkhurairji
4. Multi-Criteria Decision Making : 7 papers
 - “Dynamic MCDM for Multi-Group Decision Making” authored by Javad Jassbi, Rita Ribeiro and Fatima Dargam
 - “Kapuer : A Decision Support System for Protecting Privacy” authored by Arnaud Oglaza, Pascale Zaraté and Romain Laborde
 - “An MCDM Approach to Group Processes Using Choquet Integration” authored by Silvia Bortot and Ricardo Alberto Marques Pereira
 - “Spatial Multi-Criteria Decision Analysis-Based Assessment of Land Value in the UAE” authored by Majd Jayyousi, Jacinto Estima and Hosni Ghedira
 - “Rank Ordering Methods for Multi-Criteria Decisions” authored by Mats Danielson and Love Ekenberg
 - “Defining Preferences and Reference Points – A Multiple Criteria Decision Making Experiment” authored by Ewa Roszkowska and Tomasz Wachowicz
 - “Bipolar Approach Applied to Group Decision Making Problems” authored by Yasmina Bouzarour-Amokrane, Ayeley Tchangani and François Pérès

5. Multi-Agent Systems : 2 papers
 - “Adapting Agent’s Interactions in Dynamic Contexts” authored by Pascal François Mbissane Faye, Samir Aknine, Onn Shehory and Mbaye Sene
 - “Interaction Protocols Adaptation for Negotiation in Opened Multi-Agent Systems” authored by Wassim Chtourou and Lotfi Bouzguenda
6. Negotiation Analysis : 2 papers
 - “Modeling Negotiation as Social Interaction for ENS Design: The PROSPER Approach” authored by Bo Yu and Rustam Vahidov
 - “SAW-Based Rankings vs. Intrinsic Evaluations of the Negotiation Offers – An Experimental Study” authored by Ewa Roszkowska and Tomasz Wachowicz
7. Preference Analysis : 4 papers
 - “Making Sense of Intransitivity, Incompleteness and Discontinuity of Preferences” authored by Hannu Nurmi
 - “Preference Elicitation for Group Decisions” authored by Lihi Naamandery, Inon Golan, Meir Kalech and Lior Rokach
 - “On Developing a Web-Based Time Preference Elicitation Engine: Implications for E – Negotiations” authored by Aseem Pahuja, Venkataraghavan Krishnaswamy and R.P. Sundarraj
 - “Using Value Ranges to Reduce User Effort in Preference Elicitation” authored by Emmanuelle Grislin-Le Strugeon
8. Data Analysis : 2 papers
 - “Conflict Analysis Between Environment Protection and Economic Development Based on GM-DEA Theory” authored by Jianfeng Ding, Haiyan Xu and Keith W. Hipel
 - “Analysis of Data from a Corporate Prediction Market” authored by Daniel E. O’leary
9. DSS / GDSS Use : 2 papers
 - “An Integrated DSS Framework for Strategic Planning in Higher Education Institutions” authored by Osama Ibrahim, David Sundgren and Aron Larsson
 - “On Facilitating Group Decision Making Processes with VIP Analysis” authored by Alecsandra Ventura, Luis Dias and João Clímaco
10. Network Analysis : 2 papers
 - “The Network Perspective of Supply Chain Risks to Support Group Decision Making in Fast Moving Consumer Goods in Middle East Region” authored by Karim Soliman, Shaofeng Liu and Dongping Song
 - “A Distributed Decision Making and Propagation Approach for Trust-Based Service Discovery in Social Networks” authored by Amine Louati, Joyce El Haddad and Suzanne Pinson
11. Semantic Tools for Group Decision Making : 1 paper
 - “Semantic Web Tools and Decision Making” authored by Francisco Antunes, Manuela Freire and João Costa

We would like to take this opportunity to express our gratitude to all those who contributed to the 2014 GDN research events in Toulouse, including authors, reviewers, the Program and Organizing Committees, and institutional sponsors.

Collaboration leads to growth, which engenders accomplishment. The GDN 2014 Conference was made possible through the dedication and support of so many. We are very grateful to all participants of the GDN 2014 Conference and also to those who could not attend the meeting. Their contributions, their help in the organization of the sessions, and their efficient and very effective reviewing of the papers made both the meeting and these proceedings possible.

As in all previous GDN meetings, Melvin F. Shakun led us with his good spirit and helping hands. He, together with Colin Eden, Keith W. Hipel, Marc Kilgour, and Floyd Lewis, helped us to adhere to the traditions that took roots from the first meeting in Glasgow, in 2000. Following the memorable meetings in Vienna organized by Rudolf Vetschera, in Karlsruhe hosted by Christof Weinhardt, in Montreal hosted by Gregory Kersten, in Coimbra hosted by João Climaco and João Paulo Costa, in Delft hosted by Gwendolyn Kolfshoten, in Recife hosted by Adiel Teixeira de Almeida, and in Stockholm hosted by Bilyana Martinovski, the GDN 2014 meeting took place in Toulouse and it was hosted by Pascale Zaraté.

We thank the reviewers for their work. It is because of them that we are able to maintain the high academic standard of GDN meetings. Their work is greatly appreciated, especially since they were given little time. Our thanks go to the Program Committee members and the following reviewers : Ehsan Shahamatnia and Leonilde Varela, both from Portugal. Your excellent reviews provided the authors with much-needed feedback.

There have been many people who participated in all the aspects of the meeting and its preparation. Frédéric Amblard, Guy Camilleri, Michèle Cuesta, Véronique Débats, Marlène Giamporcaro, Daouda Kamissoko, Marie-Anne Laplaine, Evelyne Terral.

Financial and in-kind support donated by Toulouse 1 Capitole, Paul Sabatier University, IRIT, Région Midi-Pyrénées, EURO, and INPT-SAIC is gratefully acknowledged.

Finally, we hope you find the contents of this book useful and interesting. We hope the contributions can help you cope with many of the challenges involved in group decisions and negotiations and decision support systems, and that they will be referenced in the future when addressing any of the research areas mentioned.

April 2014

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