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Innovation for Systems Information and Decision

Third Innovation for Systems Information and Decision Meeting, INSID 2021 Virtual Event, December 1–3, 2021 Proceedings

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Preface

The INnovation for Systems Information and Decision (INSID) meeting is an event (http://insid.events) linked to the international network INCT-INSID (http://insid.org.br). This network involves academics and practitioners from different countries, bringing together outstanding researchers from around the world in the field of information systems and decision.

The INSID meetings have provided a stimulating environment for the dissemination of state-of-the-art thinking and knowledge about INnovation for Systems, Information and Decision. This broad theme is transversely related to many areas, particularly to operational research, management engineering (or production engineering), including also systems engineering (and engineering in general), management science, computer science, and their interdisciplinary related areas. These meetings have prompted discussions among participants and the exchange of ideas and critical comments for further improvement since 2008, under the acronym SIDS.

INSID 2021 was to have been held at the Federal University of Pernambuco, in Recife-Pernambuco, Brazil, during December 1–3, 2021. However, due to the COVID-19 pandemic, it took place virtually (as did INSID 2020). Thus, this was the second time that the event took place under an online format. Moreover, this is the second volume of INSID meetings in the Lecture Notes in Business Information Processing (LNBIP) series.

In total, 70 papers were approved for presentation covering the main topics related to the themes and areas of interest of the meeting as follows: methodological advances in decision-making and aid; decision models in the environmental context; decision models in the energy context; decision models in service systems; and potential applications of decision and negotiation models. After a thorough review process, nine of these papers were selected for inclusion in this volume of INnovation for Systems Information and Decision: Models and Applications.

These nine papers reflect methodological improvements and advances in Multicriteria Decision-Making/Multicriteria Decision-Aid (MCDM/MCDA) oriented toward real-world applications, which contribute to the understanding of relevant developments of current research on and future trends of INnovation for Systems Information and Decision.

The first paper by Czekajski et al. develops an application of the FITradeoff method to identify the potential of the cultural heritage of the Czeladź commune and to use it to analyze a possible set of Cultural Tourism Products (CTPs). To do so, they take a formal multicriteria decision-aiding approach. The second paper by Danielson and Ekenberg presents a review of some leading algorithms for automatic weight generation without external parameters besides cardinal and ordinal rankings and provides some guidelines for selecting a surrogate weight-generating function for MCDM applications, in ordinal as well as cardinal information settings. The third paper by Wan et al. combines the Data Envelopment Analysis (DEA) model and a technique for order performance by similarity

to ideal solution (TOPSIS) to evaluate and then rank the efficiency and competitiveness of a Medium-lift Launch Vehicle (MLV).

Rai et al. deal with the analysis of a strategic port alliance in Japan based on cooperative game theory, by examining the International Container Strategy started in 2011 and the designation of Strategic International Ports. Espirito Santo at al. propose an improvement to the intra-criteria evaluation step of the FITradeoff method, by putting forward a new approach for eliciting marginal value functions based on partial information. It follows a study by Mondadori et al. which presents the use of the Multicriteria Partial Information Method for choosing the most suitable online platform to integrate hardware and consulting services for online data acquisition and a manufacturing execution system.

Vieira et al. propose an approach for solving multicriteria decision-making problems with hierarchically structured criteria in the FITradeoff method for choice and ranking problematics. Cimadamore et al. present an innovative approach to conduct pairwise comparisons for AHP based on a UI widget that resembles an interactive data plot. Finally, the ninth paper, by Syrides et al., presents a multimethodology for structuring and proposing interventions called Complex Holographic Assessment of Paradoxical Problems (CHAP^2) to support a post-graduation course on implant dentistry.

The preparation of this volume required the efforts and collaboration of many people. In particular, we would like to thank the Steering Committee and Program Committee for their contributions to INSID 2021. Special thanks also go to all members of the INCT-INSID network. We are also very grateful to the following reviewers for their timely and informative additional reviews: Marc Kilgour, Liping Fang, Pascale Zarate, Tomasz Wachowicz, Ana Paula Gusmão, Mischel Carmen Neyra Belderrain, Eduarda Frej, Leandro Rego, Maisa M. Silva, Carolina Lino, Jonatas de Almeida, Luciana Hazin, Ana Paula Cabral, and Alexandre Alberti.

We would also like to thank Ralf Gerstner, Alfred Hofmann, Christine Reiss, Guido Zosimo-Landolfo, and Anna Kramer at Springer for their excellent collaboration.

Finally, we hope readers will find the content of this book useful and stimulating and that it encourages them to seek to produce further developments and applications of INnovation for Systems Information and Decision.

December 2021

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