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405

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Adiel Teixeira de Almeida ·  
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# Innovation for Systems Information and Decision

Second International Meeting, INSID 2020  
Recife, Brazil, December 2–4, 2020  
Proceedings

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# Preface

The INnovation for Systems Information and Decision meeting (INSID) 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 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, system engineering (and engineering in general), management science, computer science, and their interdisciplinary related areas. These meetings have allowed discussions among participants as well as the exchange of ideas and critical comments for further improvement since 2008, under the acronym SIDS.

INSID 2020 should have been held at the Federal University of Pernambuco, in Recife-Pernambuco, Brazil, during December 2–4, 2020. However, due to the COVID-19 pandemic, it took place virtually. This was the first time that the event happened in an online format since 2008. However, this was not the only reason it was a historic meeting. This is the first volume of the INSID meeting included in the *Lecture Notes in Business Information Processing* (LNBIP) series.

In total, 84 papers were approved for presentation covering the main topics related to 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 the service systems; and, potential applications of decision and negotiation models. After a thorough review process, 8 of these papers were selected for inclusion in this volume entitled *INnovation for Systems Information and Decision: Models and Applications*.

These selected papers reflect methodological improvements and advances in Multicriteria Decision-Making/Multicriteria Decision-Aid (MCDM/MCDA) oriented toward real-world applications, contributing to the understanding of relevant developments of current research on, and future trends of, innovation for systems, information, and decision.

The first paper by Danielson and Ekenberg explores and tests a robust multicriteria weight generating method under uncertainty covering a wide set of decision situations and exemplify its application with a problem of selecting strategies for combatting COVID-19. Then, a paper by von Nitzsch, Tönsfeuerborn, and Siebert introduces the ENTSCHEIDUNGSNAVI, a multi-criteria decision support system, which besides the basic functionalities of a decision support system, provides training to improve the user's decision-making skills. The third paper by Angelo and Lins deals with a combination of Soft and Hard Operational Research (OR) presenting a multimethodology

named Complex Holographic Assessment of Paradoxical Problems (CHAP<sup>2</sup>) applied to a complex health system.

Zaraté presents the results of multicultural experiments in order to see whether decision-makers feel comfortable with shared preferences and how the need to use private preferences could be seen using a multicriteria Group Decision Support System (GDSS) called GRUS. Eufrazio and Costa propose a synthetic index of quality life for OECD countries called Synthetic Better Life Index (SBLI). It follows a study by Xu, Liu, Kilgour, and Hipel, which presents a new algebraic definition to facilitate calculating of Stackelberg stability in a graph model for conflict resolution with two decision-makers, and a superpower military confrontation is used to illustrate how Stackelberg stability can be applied to a real-world problem.

Fossile, Costa, and Lima deal with a study on the development of a sustainable measurement model of renewable energy sources, aiming to identify the most adequate energy source to be used in Brazilian ports. Finally, the eighth paper by Cunha, Mota, de Almeida, Frej, and Roselli presents an application related to security in the Brazilian Federal Police, applying Value Focused Thinking with the FITradeoff method for the assignment of priorities regarding special operations.

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 the INSID 2020. 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, Ana Paula Gusmão, Mischel Carmen Belderrain, Eduarda Frej, Leandro Rego, Maisa M. Silva, Carolina Lino, Luciana Hazin, and Ana Paula Cabral.

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

Finally, we hope readers will find the content of this book useful and stimulating for further developments and applications of innovation for systems, information, and decision.

December 2020

Adiel Teixeira de Almeida  
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