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FOREWORD

SPECIAL ISSUE ON BUILDING MULTICRITERIA DECISION MODELS WITH FITRADEOFF

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Decision problems in organizations inherently involve multiple and conflicting objectives. In these situations, Multiple Criteria Decision Making/Aid (MCDM/A) methods can be applied to support decision makers (DMs) in such decision processes. The FITradeoff method is an MCDM/A method that provides a strong axiomatic methodological support in the context of MAVT (Multi-Attribute Value Theory), particularly when using the additive model for aggregating multiple criteria. This method is suitable for solving problems in the scope of the choice problematic (de Almeida et al., 2016); ranking problematic (Frej et al., 2019), sorting problematic (Kang et al., 2020) and portfolio problematic (Frej et al., 2021; Marques et al., 2022). Papers related to this method and its applications have been Awarded on many occasions, as listed at http://www.fitradeoff.org. Among them, the first paper (de Almeida et al., 2016) received the EURO Award for the Best EJOR Paper (EABEP 2019) – Theory and Methodology; the paper on portfolio problematic (Frej et al., 2021) received in 2021 the INFORMS MCDM Junior Researcher Best Paper Award.

Furthermore, it is essential to state that a recent methodological contribution (de Almeida et al., 2021) has advanced the nature of preference modeling. In the decision process with the FITradeoff method, it was always possible to use either: elicitation by decomposition or holistic evaluations. Now, it is possible to combine these two paradigms of preference modeling, which is a key flexibility feature of the method.

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The FITradeoff method is operated by means of Decision Support Systems (DSS), which are freely available at www.fitradeoff.org. These tools can be used towards the support of DMs in facing real-world decision situations. Applications in a variety of areas may be done by building decision models with FITradeoff, representing the preferences of decision makers and the numerous characteristics of real decision problems.

Therefore, this Special Issue (SI) presents ten papers on recent applications and developments on the FITradeoff method, under the background of the foregoing short description. The papers of this SI are described as follows.

The first paper, entitled "A summary on FITradeoff method with methodological and practical developments and future perspectives", is authored by Adiel Teixeira de Almeida, Eduarda Frej, Lucia Reis Peixoto Roselli and Ana Paula Costa. It brings an overview of the FITradeoff method, summarizing the methodological developments and presenting several previously published applications of this method. An important issue highlighted in this paper is the contributions of Behavioral studies with neuroscience tools applied to improve the FITradeoff method in two different ways: enhancing the design of the FITradeoff DSS and also improving the decision process by supporting the analyst with more appropriate recommendation to be delivered to the DM.

The authors Jenny Milena Moreno Rodriguez, Eduarda Frej, Takanni Hannaka and Adiel Teixeira de Almeida, in the paper entitled "A Group decision analysis with partial information: FITradeoff method applied to agricultural research services", present an application of the FITradeoff method in agricultural laboratories in Colombia, considering preferences of multiple decision makers.

An application on the military sector is presented by the authors Almir Garnier Santos, Leonardo Antonio Monteiro Pessôa, Caroline Maria de Miranda Mota and Eduarda Asfora Frej, in the paper entitled "A FITradeoff-based model for strategic decisions on military budget", which addresses strategic decisions of the Brazilian Navy with the aid of the FITradeoff method.

In the paper "Developing and evaluating new alternatives for urban mobility: a case study of Brazilian city", the authors Rayara Oliveira, Danielle Costa Morais and Johannes Siebert approach a public policy decision problem related to urban mobility in the city of Olinda (Brazil). The authors apply the Value Focused Thinking to structure the objectives, and then the FITradeoff method is applied for ranking alternatives.

The authors Marek Czekajski, Tomasz Wachowicz and Eduarda Frej explore the combination of preference modeling paradigms in the FITradeoff DSS, with the paper entitled "Exploring the combination of holistic evaluation and elicitation by decomposition in the FITradeoff decision process: an application of cultural tourism products prioritization in Poland". The flexibility features of the FITradeoff method and the possibility to alternate between two types of preference modeling are well explored in a case of prioritization of cultural tourism products in the city of Czeladź, Poland.

The paper entitled "Circular food economy multicriteria decision problem: householders viewpoint based on the FITradeoff method", authored by Sinndy Dayana Rico Lugo, Bingxin Du, Jônatas Araújo de Almeida and Nariaki Nishino, approaches a problem of prioritization of circular options to reduce environmental impact on supply activities in Agri-Food Supply Chain, using the FITradeoff method for ranking problematic.

The FITradeoff method for portfolio problematic with benefit-to-cost ratio is applied by the authors Lucia Reis Peixoto Roselli and Milena Wanderley Cyreno, in the paper entitled "Application of the FITradeoff Method in a Portfolio Problem in the Context of Reverse Logistics for Wholesale". The authors use Value Focused Thinking to structure the problem, and then the FITradeoff method is applied to select the best portfolio of reverse logistics actions for Wholesale.

The contribution of authors Lucia Reis Peixoto Roselli, Rebeca Correa Lima Costa Carvalho and José Rui Figueira is entitled "Assigning priorities for raw material of a large pet food producer in the context of supply disruption". They apply the FITradeoff method in the scope of supply chain management, with the objective to prioritize raw materials in a pet food producer.

Another prioritization problem is approached in the paper "Prioritization of improvement actions in industrial production: application of the FITradeoff method to order improvement actions identified through the failures modes and effects analysis (FMEA)", in which the authors José Francisco Zanazzi, José Luis Zanazzi and Daniel Pontelli integrate the application of the FITradeoff method with FMEA.

Finally, in the paper entitled "Supporting the Choice of the Best-Fit Model Using FITradeoff", the authors Vanessa Batista Schramm, Adriana Damasceno and Fernando Schramm apply the FITradeoff method to support researchers and practitioners to better select agile models that matches the needs of specific software development projects, focusing on small and medium scale enterprises.

All papers mentioned above present significant contributions and insightful analysis on the FITradeoff method. The editors of this SI would like to thank all the authors who submitted their papers to this special issue, as well as the anonymous referees. The editors are deeply thankful to the new Editor in Chief of the journal Pesquisa Operacional, for inviting us to organize this SI, who has perceived and then confirmed the relevance of the FITradeoff method, which has been developed in Brazil and has received so many credentials from the international MCDM/A scientific community.

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