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CONFERENCIAS PLENARIAS

Fostering participation and knowledge construction processes in real settings through decision analysis and collaborative value modeling

Profesor Carlos Bana e Costa
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Abstract:

To address the challenge of effectively engaging many stakeholders and experts in real-world knowledge construction and decision analysis processes, we have developed the Collaborative Value Modeling (CVM) framework. CVM combines large-scale participatory Web-Delphi processes with smaller-scale decision conferencing processes to promote agreement in different modeling stages of multicriteria decision analysis. CVM was designed to be a cohesive and flexible socio-technical framework that combines analytical rigor with participatory engagement. It can be tailor-made for diverse and complex evaluation and decision contexts. We will discuss applications in real contexts that include combining evidence with value judgments in the process of building an European population health index, prioritizing measures to mitigate carbon emissions in Brazil, promoting a national consensus on clinical recommendations to deal with an immunology condition, building a national agreement about policy recommendations with the highest potential to improve sustainability and resilience in the Portuguese health system, evaluating health technologies in hospitals and health agencies, and evaluating an enterprise management system.

Bio:

Carlos A. Bana e Costa (PhD, Systems Engineering) has an academic career as Professor of Decision Sciences at the University of Lisbon (IST, 1980-2022) and the London School of Economics (LSE, 1999-2010).

He is a Researcher at the Centre of Management Studies of IST (CEGIST), where he founded a sociotechnical school of Decision Analysis. He is also a Research Associate at the Medical Technology Research Group (MTRG) of LSE. He has published highly cited articles in top international scientific journals. Many of his articles have presented and discussed the foundations and practical uses of MACBETH (the Measuring Attractiveness by a Categorical

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Based Evaluation Technique), a well-known sociotechnical approach for multicriteria evaluation of options using non-numerical value judgements.

As a co-founder and process consultant at BANA Consulting, he helps managers, policymakers and other stakeholders evaluate and prioritize public projects, policies, and strategies by using MACBETH. An example is the IMPACT HTA project, developed in collaboration with colleagues from CEGIST and MTRG, in which they applied MACBETH to assess health technologies under a collaborative value modelling (CVM) framework involving groups of diverse stakeholders in healthcare. CVM is a sociotechnical framework, the application of which was recognised as an outstanding contribution to the practice of decision analysis with the 2023 Decision Analysis Practice Award, jointly sponsored by the Decision Analysis Society and the Society of Decision Professionals.

In 2018, Professor Bana e Costa was also awarded with the Herbert Simon Award for Outstanding Contribution in Information Technology and Decision Making, by the International Academy of Information Technology and Quantitative Management (IAITQM).

Influence and Opinion Change in Networks. Application in Group Consensus Reaching

Francisco Chiclana

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Abstract:

While working towards my PhD on **integrating** several representations of preferences in group decision making, one of the research issues that was investigated by many researchers on preference modelling was the modelling transitivity of preferences, which is referred to as consistency property and linked to the idea of `rationality' of preferences. As it is the case in frameworks based on the concept of fuzzy set theory, the fuzzification of transitivity property of crisp preferences to fuzzy preferences is not unique, and many properties have been proposed to model transitivity of preferences. However, when a preference relation is multiplicative in the sense of Saaty's AHP framework, consistency of preferences is defined uniquely with a property known as multiplicative transitivity property. Since there is a bijection between the set of fuzzy preference relations and the set of multiplicative preference relations, then it is natural to use such bijection to transpose concepts from one preference structure to the other. Saaty's multiplicative transitivity becomes Tanino's additive transitivity for fuzzy preference relations. The key aspect this analytic formulation of the concept of consistency of preferences resides in the possible developing of approaches to measure `levels of consistency' of preference relations,