

## The African Working Group Multicriteria Decision Aid

ONLINE FREE SEMINAR

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### What is a decision problem?

**Prof. Alexis Tsoukiàs**

*CNRS research director at LAMSADE, PSL University, Université Paris Dauphine. Former vice-president of ROADEF and former President of EURO and coordinator of the Peace Studies Master at Université Paris Dauphine.*

**Abstract:** The talk presents a new general framework of what a decision problem is under a formal point of view (set partitioning). The framework does not make any reference to existing decision support methods. We introduce a number of primitives (the strictly necessary information for defining a decision problem) and we show that the number of archetypes of decision problems is finite. We then show that real world decision aiding processes consist in handling sequences of formal decision problems;

### Holistic MCDA methods for organizing the decision support in electronic negotiation systems

**Prof. Tomasz Wachowicz**

*Associate professor, University of Economics in Katowice · Department of Operations Research, Head of GAIOR research group*

**Abstract:** Electronic negotiation systems (eNS) have been designed for over two decades to support the parties in negotiating profitable and fair contracts via the web. Since most negotiations are multi-issue, various multiple criteria decision-aiding (MCDA) methods can be used in designing decision-support units of eNS. The most popular negotiation supportive tools are based on the additive scoring model and use simple direct rating techniques to evaluate to negotiation template and build the scoring system, such as point's allocation or SMARTS. However, many experimental studies show that using SMART-based approaches may cause problems with the quality of the resulting scoring systems. They raise the issues related to the misuse and misinterpretation of SMART-based scores by the negotiators. Some cognitive biases and heuristics may also affect the correct definition of the priorities using crisp scalar numbers. Therefore, other MCDA methods have been developed that avoid direct operations with numbers. Some of them utilize the ideas of preference disaggregation and assume the preferences for negotiation solutions may be declared holistically using the examples of some complete negotiation packages.

In this talk, we show how some notions derived from UTA and MARS MCDA methods can be combined to design a comprehensive prenegotiation protocol that allows negotiators to define their preferences cognitively easier and with better accuracy. Further, we show how such a protocol was implemented in our electronic negotiation system eNego. We also discuss the results of some electronic negotiation experiments conducted in eNego and compare the use and usefulness of the decision-aiding protocol to the one that uses the direct rating approach.

### Multicriteria Decision Analysis as Focus for Strategic Planning

**Prof. Theodor Stewart**

*Emeritus Professor of Statistical Sciences, University of Cape Town, Former Editor in Chief, Journal of Multi-Criteria Decision Analysis*

**Abstract:** Many discussions of strategic planning are relatively qualitative in nature, and say little about the role of analytical support. Useful discussion of the structure of the strategic planning process is provided by Simon and Mintzberg, and we shall focus particularly on the three phases identified by Mintzberg, namely (a) Identification, (b) Development and (c) Selection. A naïve view may be that the domain of Multicriteria Decision Analysis (MCDA) is restricted to the third (selection) phase, but this view is challenged.

Analytic support to the first two phases might well be provided by "soft" OR, or Problem Structuring Methods (PSMs) preliminary to MCDA. We have however previously argued that MCDA itself can act as, and be utilized as, a PSM in the full sense of the expression, so that MCDA as a potentially integrating role throughout.

