

MCDA-75

75th Meeting of the European Working Group on
Multiple Criteria Decision Aiding

Book of Abstracts

Tarragona, Catalonia, Spain

April 12th – 14th, 2012

Index

Session 1 Knowledge-based systems and decision making 7

<i>Tervonen, T., Van Valkenhoef, G., Basturk, N., Postmus, D., “Efficient weight generation for simulation-based multiple criteria decision analysis”</i>	7
<i>Jimenez, A., Suárez-Figueroa, M.C., Mateos, A., Gómez-Pérez, A., Fernández-López, M., “Selecting sports ontologies for reuse: a MCDA approach”</i>	8
<i>Borràs, J., Valls, A., Moreno, A., Isern, D., “Using MCDA techniques to build personalized and contextualized tourist trip plans”</i>	9
<i>Lahdelma, R., Wang, H., Salminen, P., “Complementary judgement matrix method with imprecise information”</i>	10
<i>De Vicente, M., Manera, J., González-Blanch, J.M., “Planning with Electre Tri. An application to enterprise incubators in Madrid (Spain)”</i>	11
<i>Ben Amor, S., Zaras, K., Martel, J.-M., “Additional Information in MCDA with information imperfections: the bayesian model and pre-posterior analysis”</i>	12
<i>Tremblay, J., Abi-Zeid, I., “Value-based argumentation and multicriteria decision analysis – Methodology and a case study of an environmental project in Québec”</i>	13

Session 2 Software for MCDA 14

<i>Mareschal, B., “Visual PROMETHEE - A New Multicriteria Decision Aid Software”</i>	14
<i>Corrente, S., Greco, S., Slowinski, R., “Extending ELECTRE and PROMETHEE methods to Hierarchical Structure of Criteria and Imprecise Evaluations”</i>	15
<i>Bigaret, S., Chiprianov, V., Meyer, P., Simonin, J., “On the Formalization and Executability of the Decision Aid Process with Service Oriented Architecture”</i>	17
<i>Soares de Mello, J.C., Bana, C.A., “Combining DEA with MACBETH”</i>	18
<i>Boggia, A., Corrente, S., Greco, S., Massei, G., Slowinski, R., “Robust Ordinal Regression in Geographical Information Systems”</i>	19

Session 3: Preferences 20

<i>Angilella, S., Corrente, S., Greco, S., Slowinski, R., “Multicriteria customer satisfaction analysis with interacting criteria”</i>	20
<i>Argyris, N., Morton, A., Figueira, J., “A polyhedral approach to preference modelling/ Une approche polyédrale pour la modélisation des préférences”</i>	22
<i>Fernández, E., Olmedo, R., “An approach to group multi-objective optimization using outranking-based measures of collective satisfaction and dissatisfaction”</i>	23
<i>Corrente, S., Figueira, J.R., Greco, S., “Dealing with Interaction Between Bi-polar Multiple Criteria Preferences in Outranking Methods”</i>	24
<i>Kadzinski, M., Tervonnen, T., “Stochastic Ordinal Regression for Multiple Criteria Sorting Problems”</i>	25
<i>Hurson, C., Siskos, Y., “Robustness measures in criteria importance estimation”</i>	26

SELECTING SPORTS ONTOLOGIES FOR REUSE: A MCDA APPROACH

A. JIMÉNEZ*, M.C. SUÁREZ-FIGUEROA†, A. MATEOS* and A. GÓMEZ-PÉREZ†

*Decision Analysis and Statistics Group (DASG)

†Ontology Engineering Group (OEG)

Departamento de Inteligencia Artificial, Universidad Politécnica de Madrid

Boadilla del Monte, Madrid, 28660, Spain

{ajimenez, mcsuarez, amateos, agomez}@fi.upm.es

M. FERNÁNDEZ-LÓPEZ

Escuela Politécnica Superior, Universidad San Pablo CEU,

Boadilla del Monte, Madrid 28660, Spain

mfernandez.eps@ceu.es

Knowledge resource reuse has become a popular approach within the ontology engineering field, mainly because it can speed up the ontology development process, saving time and money and promoting the application of good practices. In this context, the *NeOn Methodology* specifies, among others, some guidelines for reusing different types of knowledge resources (ontologies, non-ontological resources, and ontology design patterns). These guidelines prescribe how to perform the different activities involved in any of the diverse types of reuse processes. One such activity is to select the most appropriate ontologies for reuse in an ontology development, which is a complex decision-making problem where different conflicting objectives have to be taken into account simultaneously, like understandability, integration or reliability. Understandability and integration efforts are estimates of the workload involved in understanding the candidate ontology and for integrating the candidate ontology into the ontology under development, respectively; while reliability refers to an analysis of whether ontology developers can trust the candidate ontology for reuse.

This work illustrates the application of the decision analysis methodology to select a subset of ontologies for reuse in the development of a new ontology in the sports domain. To allay the operational difficulties involved in the decision analysis methodology we use the GMAA system, a user-friendly PC-based decision support system based on an additive multi-attribute utility model. The sensitivity analyses provided by GMAA to exploit imprecise information on the inputs (ontology performances and decision-makers' preferences) are proved to be useful tools for making a final selection, such as the assessment of non-dominated and potentially optimal ontologies and the utilization of Monte Carlo simulation techniques.