

---

## Editorial

---

### Cathy Macharis\*

Department BUTO – Business Technology and Operations,  
Research Group MOBI – Mobility, Logistics and  
Automotive Technology Research Centre,  
Faculty of Economic, Social and Political Sciences and  
Solvay Business School,  
Vrije Universiteit Brussel,  
Building B (2.20), Pleinlaan 2, 1050 Brussel, Belgium  
Fax: +32-(0)2-629-20-60  
Email: [Cathy.Macharis@vub.ac.be](mailto:Cathy.Macharis@vub.ac.be)  
\*Corresponding author

### Yves De Smet

SMG Research Unit,  
Computer and Decision Engineering Department,  
Ecole polytechnique de Bruxelles,  
Université libre de Bruxelles,  
Boulevard du Triomphe CP 210-01, 1050 Bruxelles, Belgium  
Email: [yves.de.smet@ulb.ac.be](mailto:yves.de.smet@ulb.ac.be)

---

PROMETHEE is a multi-criteria decision aid method that has been initiated by Professor Jean-Pierre Brans in 1982. Since then, numerous researchers have worked on methodological developments, applications and software implementations. Today, about 1,000 publications are related to this methodology.

This success has led to the creation of a yearly international MCDA Workshop on PROMETHEE: Research and Case Studies. The first edition of this event was co-organised by Professor Cathy Macharis and Professor Yves De Smet. It took place at the Vrije Universiteit Brussel on January 22, 2014 and gathered about 50 participants coming from nine different countries. The program of the workshop was composed of 23 presentations covering numerous topics such as methodological issues (rank reversal, synergies with DEA, the management of missing values, etc.), applications (low voltage grid systems in Germany, port investment, design safer and greener road projects, etc.) as well as software implementations (the D-SIGHT web collaborative platform, visual PROMETHEE). Finally, a PROMETHEE – Jean-Pierre Brans price has been awarded at the end of the day to Nils Lerche and Jutta Geldermann for their presentation ‘Integration of prospect theory into PROMETHEE – a case study concerning sustainable bioenergy concepts’.

Following the workshop, a special issue of *IJMCDM* has been dedicated to PROMETHEE methods (the call for papers was not restricted to the workshop participants). Twelve contributions have been submitted and evaluated by (at least) three

anonymous referees. At the end of the review process, six of them were accepted for publication.

On July 28, 2014, our colleague Philippe Van Asbroeck passed away. Among others, Philippe was the EURO Permanent Secretary between 1993 and 2013. He was known for his implication in the development of operational research. More recently, Philippe started to investigate methodological developments in multi-criteria decision aid. In this context, he actively participated to the workshop. His presentation entitled 'PROMETHEE rankings as test of imputed incomplete multivariate data sets' was later detailed in an article submitted to the special issue. Unfortunately, due to this tragic event, this paper did not reach the last step of the review process. We dedicate this special issue to his memory.

In what follows, we give a brief introduction and summary of the papers you will find in this special issue.

In the first paper, entitled 'The 'PROMETHEE' adventure', Jean-Pierre Brans briefly presents his views on operational research and on the necessity to take into account multiple criteria in decision processes. Then, he proposes a survey of the developments associated to PROMETHEE over the last 30 years.

In the second paper, Nils Lerche and Jutta Geldermann investigate findings from prospect theory to PROMETHEE. More precisely, they propose to integrate the elements of reference dependency and loss aversion. Their methodological developments are illustrated using a real case study based on the identification of a sustainable bioenergy concept.

In the third paper, Lauriane Milan, Bram Kin, Sara Verlinde and Cathy Macharis, build a city distribution – multi-actor multi-criteria analysis (CD-MAMCA) which incorporates the different stakeholders in city distribution and their respective objectives. Within the CD-MAMCA, a multi-actor multi-criteria analysis is performed with the PROMETHEE-GDSS method. The methodology is applied on a case study in which Oxfam tested an innovative city distribution concept.

In the fourth paper, Cathy Macharis, Dries Meers and Tom Van Lier integrate multi-criteria analysis in a transport model in order to better model the modal choice decision. An empirical case illustrates the combined methodology.

In the fifth paper, Bastian Schmidtman and Genoveva Schmidtman present a new way to visualise the outputs of PROMETHEE. The method is based on classical multidimensional scaling which is extended by property fitting to integrate each single criterion into the representation. Methods are compared with the classical GAIA method and applied in the context of choice for alternative vehicles.

In the last paper, Karim Lidouh, N. Anh Vu Doan and Yves De Smet investigate how evaluation tables can be presented to decision makers in order to display as much multi-criteria information as possible. First, they make use of classic PROMETHEE outputs to re-arrange the sequence of alternatives and criteria. Then, they formalise this question as an optimisation problem that is solved by the application of a meta-heuristic.

The success of this first workshop, has led to a further continuation. A second workshop was held beginning of this year, now at the Université Libre de Bruxelles (the French speaking counterpart). A new special issue is being prepared for this journal. New contributions to the PROMETHEE methodology or interesting applications are again very welcome to be sent for the new issue. But first, please enjoy this one!