Dear friends,

We are pleased to share with you the joy and the satisfaction of a very prestigious award to our coordinator Roman Slowinski who has been promoted "Officier dans l'Ordre des Palmes académiques" (https://en.wikipedia.org/wiki/Ordre_des_Palmes_acad%C3%A9miques) by the French Prime Minister to reward his research work in the field of computer science and his unfailing commitment to the development of Franco-Polish relations in the academic and scientific field. The award ceremony took place at the French Embassy in Warsaw on April 12, 2022 (https://pl.ambafrance.org/Remise-des-insignes-d-officier-des-Palmes-Academiques-a-Jerzy-Duszynski-et-a).

We congratulate our coordinator on behalf of the whole EURO Working Group on Multiple Criteria Decision Aiding.

José Rui Figueira and Salvatore Greco
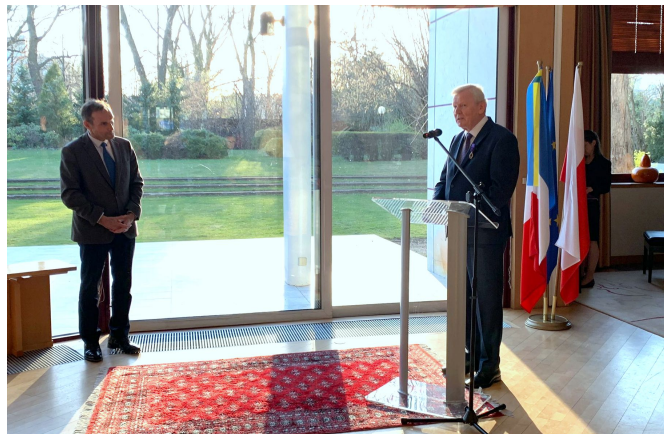
Chers amis,

Nous avons la joie et la satisfaction de partager avec vous l'attribution d'une distinction très prestigieuse à notre coordinateur Roman Slowinski qui a été promu au rang "d'Officier dans l'Ordre des Palmes académiques" (https://en.wikipedia.org/wiki/Ordre_des_Palmes_acad%C3%A9miques) par le Premier Ministre français pour ses travaux de recherche dans le domaine de l'informatique et par son engagement, sans faille, pour le développement des relations franco-polonaises dans le domaine académique et scientifique. La cérémonie de remise des insignes a eu lieu le 12 avril 2022 à l'Ambassade de France à Varsovie (https://pl.ambafrance.org/Remise-des-insignes-d-officier-des-Palmes-Academiques-a-Jerzy-Duszynski-et-a).

Nous félicitons notre coordinateur au nom de tous les membres du groupe de travail EURO sur l'aide multicritère à la décision.

José Rui Figueira et Salvatore Greco

Opinion Makers Section

About the 93rd meeting of the EWG-MCDA in Belgrade, Serbia

The 93rd meeting of the EURO Working Group on Multicriteria Decision Aiding (EWG-MCDA) was held from April 7 to April 9, 2022, in Belgrade, Serbia, hosted by the University of Belgrade – Faculty of Economics. The meeting was organized in a hybrid form. With 37 submitted abstracts from 93 coauthors, and 28 participants registering without an abstract, the meeting met the expectations of this group and its tradition. Out of all registered participants, more than 30 attended the conference live.

The main topic of the meeting was "Multiple Criteria Decision Aiding and Sustainable Development Goals." The United Nations adopted the Sustainable Development Goals (SDGs) in 2015 as a universal attempt to end poverty and protect the planet. At its heart are the 17 Sustainable Development Goals (SDGs), which represent a call for action by all countries in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth while tackling climate change and preserving our oceans and forests. Progressing

toward the desired goal is, fundamentally, a decision-making process. The 93rd meeting of the EURO working group on Multiple Criteria Decision Aiding (EWG-MCDA 93) discussions aimed to pinpoint the potential of multiple criteria decision aiding methods as an ideal support methodology for the SDG goals.

During the conference opening ceremony, Saša Ranđelović, vice-dean for finance and international cooperation of the Faculty of Economics, had the opportunity to greet participants and pinpoint the main information about the Faculty. The vice-rector for research, professor Branislav Boričić then gave a short introduction to the University of Belgrade and explained its significance for this part of Europe and its specific organization, given that the University has 100.000 students and is a specific confederation between 31 schools and universities. Finally, the dean of the Faculty of Economics, professor Žaklina Stojanović opened the conference. Both Roman Słowiński and Mladen Stamenković addressed the audience in front of the program and organizing committee during the opening ceremony.

There are currently 33 working groups within the EURO covering a broad set of sub-fields within the OR/MS. The history of working groups also started in 1975 alongside the foundation of EURO, when the EURO working group on MCDA was created during the first EURO conference in Brussels. The EWG on MCDA is the oldest active working group with the EURO working group on Health Services. Since the foundation, two meetings have been held each year, which is a remarkable achievement. We find it an honor that Belgrade and the Faculty of Economics are now part of such a long history of the EWG.

The next meeting will be organized in Crete, Greece, after which the Jaén meeting will follow. Both organizers presented their institutions during this meeting, and we all hope that the Belgrade meeting is the last for which we have needed the hybrid regime due to safety protocols.

Mladen Stamenković

CONFERENCE PROGRAMME

Session 1
Chair: Sarah Ben Amor
Lola Martin Moro, Salvatore Greco, Meltem Öztürk
Using ELECTRE-Score to define a Non-compensatory Composite Indicator: The Prison Life Index

Milena Lakićević, Keith M. Reynolds
Best worst method to assess sustainable forestry goals

Isaak Vryzidis, Alexandros Psomas, Athanasios Spyridakos, Maria Mimikou
Comparative analysis of Multi-Criteria Decision Aid methods for the evaluation of agricultural management alternatives

Session 2
Chair: Jean-Philippe Hubinont

Jean-Philippe Hubinont, Yves De Smet
A first multicriteria model to assess the difficulty of single improvement sequences when interactions between criteria exist

Grzegorz Miebs, Miłosz Kadziński
Aggregation of incomplete rankings in Multiple Criteria Group Decision Making

Gilles Dejaegere, Mohamed Ayman Boujelben, Yves De Smet
An axiomatic characterization of PROMETHEE II's net flow scores based on a combination of direct comparisons and comparisons with third alternatives

Mladen Stamenković, Dragan Stojković, Aleksa Dokić
Multiple channel strategy selection: A roadmap perspective for brick-and-click retailers

Session 3
Chair: Núria Agell

Salvatore Corrente, Sally Giuseppe Arcidiacono, Salvatore Greco
Scoring from Pairwise Winning Indices

Pietro Fronte, Núria Agell, Marc Torrens, Daniel Brugarolas, Judith Carbó
An application of MCDA methodology supporting the activities' evaluation process for the sustainable mobility of the future: the SEAT S.A. case

Alexis Tsoukiàs
Problem statements and problem formulations

Session 4
Chair: Konrad Kulakowski

António Xavier, Maria de Belém Costa Freitas, Rui Manuel de Sousa Fragoso, Carla Antunes
The analysis of the sustainable water use in Portugal: an approach using HJ-Biplot and compromise programming

Hiago Pereira Barbosa, Anne Roué-Le Gall, Marie-Florence Thomas

A multiple criteria decision aiding tool to enable French municipalities to address public health impacts of climate change

Caterina Caprioli, Marta Bottero
Sustainable urban projects: an application of the Best Worst Method in the city of Turin (Italy)

Session 5
Chair: Salvatore Greco

Yannik Zeiträg, José Rui Figueira
Automatic evolving of preference-based dispatching rules for multi-objective job shop scheduling

Lucia Rocchi, Elena Ricciolini, Gianluca Massei, Luisa Paolotti, Antonio Boggia
Towards the 2030 Agenda: the SDG achievement index applied to EU Countries

Session 6
Chair: Vicenc Torra

Vicenç Torra, Jozo Dujmović
Andness-directed operators and the case of the OWA family

Pascal Oberti
Sustainable development goals and multicriteria evaluation: From sustainability to compensatory logic

MCDA Research Groups

Env-Lab: Environmental Laboratory
Antonio Boggia, Gianluca Massei, Luisa Paolotti, Elena Ricciolini and Lucia Rocchi (Dept. Of agriculture, food and Environmental sciences, University of Perugia)

Presentation

Environmental Laboratory is a research group founded in 2010 by Professor Antonio Boggia at the Department of Agricultural, Food and Environmental Sciences, of the University of Perugia. The research activity of the Laboratory consists of studies in the areas of environmental economics, circular economy, environmental evaluation and assessment. Sustainability Analysis and Assessment is particularly relevant as research issue.
Env-Lab does not work exclusively on Multicriteria Analysis, although it is one of the main methods used. In particular, our research in MCDA covered different approaches including outranking methods and systems based on rules, applied to sustainability and environmental problems. Moreover, during

the last years we specialized on the integration of MCDA with GIS as a tool for sustainability analysis. Several plugins working in the open source software QGIS have been developed and they freely downloadable here: https://plugins.qgis.org/plugins/tags/geographic-mcda/. In 2014 we held the European Multiple Criteria Decision Aiding (MCDA) Spring School - *Multiple criteria decision making: a key for sustainability*.
In this context, a sustainability analysis model consistent with the Sustainable Developments Goals has been developed, in collaboration with ARPA Umbria and ISPRA, within the national project CReIAMO PA.
The group is currently leaded by prof. Antonio Boggia and it consists of 1 full professor, 1 assistant professor, 3 post-docs and a PhD student. The official website of the group is the following:
http://www.laboratorioambiente.unipg.it/index.php?id=1&ln=2

Selected paper
• Boggia A., Massei G., Pace E., Rocchi L., Paolotti L., Attard M. 2018. Spatial Multicriteria analysis for sustainability assessment: a new model for decision making. *Land Use Policy*, 71: 281-292.
• Boggia A., Massei G., Paolotti L., Rocchi L., Schiavi F. 2018. A model for measuring the environmental sustainability of events. *Journal of Environmental Management*, 206: 836-845.
• Boggia A., Rocchi L. (2010). Water Use scenario assessment using multicriteria analysis. *Journal of Multicriteria Secision Analysis*, 17(5-6): 125-135.
• Boggia A., Rocchi L., Paolotti L., Musotti F., Greco S. (2014). Assessing Rural Sustainable Development potentialities using a Dominance-based Rough Set Approach. *Journal of Environmental Management*, 144: 160-167
• Fagioli, F.F., Rocchi, L., Paolotti, L., Slowinski, R., Boggia, A. 2017. From the farm to the agri-food system: a multiple criteria framework to evaluate extended multi-functional value. *Ecological Indicators*, 79: 91-102.
• Kadziski M., Rocchi L., Miebs G., Grohmann D., Menconi M.E., Paolotti L. 2018. Multiple Criteria Assessment of Insulating Materials with a Group Decision Framework Incorporating outranking preference Model and Characteristic Class Profiles. *Group Decision and Negotiation*, 27: 33-59.
• Massei G., Rocchi L., Paolotti L., Greco S., Boggia A. (2014). Decision Support Systems for environmental management: A case study on wastewater from agriculture, *Journal of Environmental Management*, 146: 491-504.
• Paolotti L., Boggia A., Castellini C., Rocchi L., Rosati A. (2016). Combining livestock and tree crops to improve sustainability in agriculture: a case study using the Life Cycle Assessment (LCA) approach. *Journal of Cleaner Production*, 131: 351-363
• Paolotti L., Del Campo Gomis F.J., Augullo Torres A.M., Massei G., Boggia A. (2019) Territorial sustainability evaluation for policy management: The case study of Italy and Spain. *Environmental Science and Policy*, 92: 207 - 219
• Rocchi L. (2012). Using Stochastic Multicriteria Acceptability Analysis methods in SEA: an application to the

Park of Trasimeno (Italy). *Journal of Environmental Planning and Management*, 55(2):177-189.
• Rocchi L., Kadzinski M., Menconi M.E., Grohmann D., Miebs G., Paolotti L., Boggia A. 2018. Sustainability evaluation of retroffitting solutions for rural buildings through life cycle approach and multi-criteria analysis. *Energy and Buildings*, 173: 281-290.
• Rocchi L., Paolotti L., Rosati A., Boggia A., Castellini C. 2019. Assessing the sustainability of different poultry production systems: a multicriteria approach. *Journal of Cleaner Production,* 211: 103-114.
• Rocchi, L., Cortina, C., Paolotti, L. & Boggia, A. (2020). Recreation vs conservation in Natura 2000 sites: A spatial multicriteria approach analysis. *Land Use Policy*,99: 105094.

Announcements

Call for the "Bernard Roy Award 2022"
of the EURO Working Group on Multiple Criteria
Decision Aiding (Bernard Roy Award 2022 of EWG
MCDA)

Policy
-The Bernard Roy Award of EWG MCDA (http://www.cs.put.poznan.pl/ewgmcda/) is a recognition conferred to a researcher under 40 years old for an outstanding contribution to the methodology and/or applications of Multiple Criteria Decision Aiding (MCDA).
-The award will be officially bestowed at the opening session of the 94th EWG MCDA meeting, September 2022, Agios Nikolaos, Crete, Greece, if there is a suitable candidate. In this case, following a presentation of the competition by the chair of the Jury, the laureate will be invited to give a talk.

Award
The laureate then will receive the financial award (1000 EUR) and the diploma.

Eligibility
-The Bernard Roy Award of EWG MCDA shall be awarded for a body of work in MCDA, preferably published over the last decade. Although recent work will not be excluded, care shall be taken to allow the contribution to stand the test of time.
-The potential award recipient shall have a recognized stature in the MCDA community. Significance, innovation, depth, and scientific excellence shall be emphasized.

Nominations
-Candidates can be nominated by any three members of the EWG MCDA. Becoming a member is free (http://www.cs.put.poznan.pl/ewgmcda/index.php/members).
-A candidature for the Bernard Roy Award of EWG MCDA is composed of the nomination letter along with a recent and detailed CV, up to 5 best publications, as well as a self-description of the achievements up to 3 page long in a standard
manuscript format. The nominations must be sent to the Jury chair by the due date of **June 30, 2022**.

Selection process
-Only one award may be assigned on each occasion.
-One person may receive the award at most once in her/his lifetime.
-The jury evaluates the nominees essentially on the basis of their scientific activities (papers in top journals, editorials, relevance of methodological proposals and/or applications, ...).

Jury
-The jury for the current edition is composed of Professors Yannis Siskos (chair), Sara Ben Amor, Maria Franca Norese, Salvatore Greco and Roman Słowiński.

Timing
-Deadline for nominations: **June 30, 2022**.
-The Jury chair informs the EWG coordinators who invite the laureate to the meeting: July 31, 2022.
-Preparation of the diploma by the EWG coordinators.

Presentation of the laureate and her/his talk during the EWG MCDA 94 Autumn meeting, September 2022, Agios Nikolaos, Crete, Greece. An electronic copy of the laureate's presentation handed over to the EWG coordinators will be made available on the EWG on MCDA Web Site.

Applications should be sent to Professor Yannis Siskos at: yannsiskos@gmail.com.

Call for Papers

European Journal of Operational Research
Special Issue: Feature Cluster of the European Journal of Operational Research on Explainable Analytics in Operational Research

We invite high-quality submissions addressing theoretical and algorithmic developments advancing the theory and methodology of explainable analytics within OR, as well as real-world innovative implementations in business and society in areas as marketing and sales, supply chain management, education, production and service operations, medicine, bioinformatics, (financial) risk, and fraud.

Topics for contributions to explainable analytics include (but are not limited to):

- Data representation and pre-processing

- Feature engineering and selection methods

- Model-agnostic interpretability methods

- Inherently interpretable algorithms

- Rule-based methods

- Methods for balancing and optimizing predictive performance and interpretability

- Methods supporting model justifiability and actionability

- Privacy-preserving methods

- Methods related to algorithm fairness and bias avoidance

- Interpretable decision-making methods under uncertainty

- Explainable methods for deep learning

- Model visualizations bridging algorithm outcome with domain knowledge

- New model evaluation metrics

- Field tests and real-life experiments that bring analytics closer to the decision-maker

Prospective authors are asked to follow the EJOR guide for authors. Please submit your paper at: https://www.editorialmanager.com/ejor/

Important Dates

- Opening manuscript submission: September, 1st 2022

- Closing manuscript submission: November, 15th 2022

- Final decisions on all manuscripts: September, 30th 2023

- Expected publication of the Feature Cluster: beginning of 2024

Guest Editors

-Kristof Coussement - IÉSEG School of Management, France – k.coussement@ieseg.fr
-Koen W. De Bock - Audencia Business School, France (Managing Guest Editor) – kdebock@audencia.com
-Arno De Caigny – IÉSEG School of Management, France – a.de-caigny@ieseg.fr
-Roman Słowiński, Poznań University of Technology & Systems Research Institute of the Polish Academy of Sciences, Poland – roman.slowinski@cs.put.poznan.pl

Fuzzy Sets and Systems
Special Issue: Uncertainty and reference involved aggregation model with applications – to celebrate Dr. Ronald R. Yager's 80's birthday

Dear Colleagues,

This Special Issue aims to celebrate Dr. Ronald R. Yager's 80's birthday. Dr. Yager (born in 1941) is a famous pioneer in several study fields including fuzzy systems and intelligent decision-making theory, among others. He is one of the most esteemed and respected researchers in the field of fuzzy theory and computational intelligence. He won several awards including IEEE Computational Intelligence Society Fuzzy Systems Pioneer Award (2004), IEEE Outstanding Contributor Award Granular Computing (2006), IEEE Frank Rosenblatt Award (2016), and Lotfi A. Zadeh Pioneer Award of the IEEE Systems, Man, and Cybernetics Society (2018), etc. Dr. Yager is the founder and former editor in chief (1988–2020) of the International Journal of Intelligent Systems. He was a NASA/Stanford Visiting Fellow and a Research Associate with the University of California, Berkeley. He was a Lecturer with the NATO Advanced Study Institutes. Notably, most of his numerous published papers were written independently by himself.

To honor his contributions, this Special Issue will gather research works and reviews from researchers and scientists mainly working in the research areas most impacted by Dr. Yager's research in uncertainty and preference involved decision making and aggregation operators such as the development of theory and application of Ordered Weighted Averaging (OWA) operator and fuzzy measure. The Special Issue welcomes original contributions that advance the state-of-the-art of aggregation operator theory and models that are focused on uncertainty and preference, which include (but not limited to):

- fuzzy logic;

- aggregation operators;

- bi-polar preference evaluation models;

- interval handling and aggregation;

- ordered weighted averaging operators;

- preference and uncertainty involved decision making;

- extended fuzzy sets with application;

- information fusion techniques.

Guest editors:

Prof. Dr. Radko Mesiar (Slovak University of Technology)

Dr. LeSheng Jin (Nanjing Normal University)

Dr. Zhen-Song Chen (Wuhan University)

Prof. Dr. Gleb Beliakov (Deakin University)

Prof. Dr. Luis Martínez (University of Jaén)

Manuscript submission information:

December 31, 2022: Submission deadline for initial submission

March 31, 2023: First-round decisions on all submitted manuscripts

May 31, 2023: Submission deadline for invited revisions
September 30, 2023: Final decisions

Annals of Operations Research

Special Issue: New Trends and Recent Developments in OR Techniques for Sustainability, Environment and Social Transition in Economics and Finance

Annals of Operations Research seeks submissions for a special issue on New Trends and Recent Developments in OR Techniques for Sustainability, Environment and Social Transition in Economics and Finance. In this special issue, we expect high-quality and original research papers. We would especially welcome innovative contributions and applications of methods based on OR tools and their combination with computational aspects in real-life problems and specifically, in all areas of economics and finance related to sustainability, environment and social transition. The major acceptance criterion for a submission will be the quality and originality of the contribution.

This is an open call for high-quality and original research papers. We encourage the participants of The International Conference on Sustainability, Environment, and Social Transition in Economics and Finance-2022, jointly organized by Audencia Business School, University of Southampton, University Paris-Saclay, Telfer School of Management (University of Ottawa) and Paris School of Business with the support of Gaia (Audencia Business School) & Center of Research for Energy and Climate Change—CRECC (Paris School of Business) to be held on December 13–15, 2022 in Paris, to submit their high-quality and original research papers.

We especially welcome innovative contributions related to the main following topics, but are not limited to:

- Mathematical optimization

- Factor identification, timing and forecasting

- Factor optimization

- Feature selection and extraction algorithms

- Optimization models

- Estimating and evaluating asset pricing models

- Climate risk: modelling and assessment

- Network modelling and analysis

- ESG criteria and socially responsible investment

- Computational approaches for classification

- Modelling and classification with big data

- Big data applications

- Green finance and ethical banking

- Artificial intelligence methods for economic and financial modelling

- Machine learning applications for modelling and forecasting

- Ordinal modelling and preference learning

- Multicriteria decision aid

- Applications in sustainability, environment and social transition in Economics and

- Finance

Instructions for authors can be found at:

https://www.springer.com/journal/10479/submission-guidelines

Authors should submit a cover letter and a manuscript by **December 30, 2022**, via the Journal's online submission site. Manuscripts submitted after the deadline may not be considered for the special issue and may be transferred, if accepted, to a regular issue.

Please see the Author instructions on the web site if you have not yet submitted a paper through Springer's web-based system, Editorial Manager. When prompted for the article type, please select **Original Research**. On the Additional Information screen, you will then be asked if the manuscript belongs to a special issue, please choose the special issue's title, **New Trends and Recent Developments in OR Techniques for Sustainability, Environment and Social Transition in Economics and Finance**, to ensure that it will be reviewed for this special issue.

Papers will be subject to a strict review process under the supervision of the Guest Editor, and accepted papers will be published online individually, before print publication.

Guest Editors:

Prof. Ramzi BENKRAIEM
Audencia Business School, France
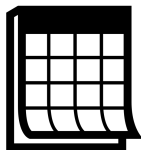E-mail: rbenkraiem@audencia.com

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Prof. Constantin ZOPOUNIDIS
Technical University of Crete, Greece
Audencia Business School, France
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Forthcoming meetings

(This section is prepared by Carlos Henggeler Antunes ch@deec.uc.pt)

20-22/4/2022
EvoCOP 2022 - The 22nd European Conference on Evolutionary Computation in Combinatorial Optimisation
Madrid
http://www.evostar.org/2022/evocop/

18-20/5/2022
ISCO 2022 - International Symposium on Combinatorial Optimization
Online
https://isco2022.sciencesconf.org/

23-25/5/2022
ICDSST 2022: 8th International Conference on Decision Support System Technology
Thessaloniki, Greece
https://icdsst2022gr.wordpress.com

5-8/6/2022
CORS/INFORMS International Conference 2022
Vancouver. Canada
http://meetings2.informs.org/wordpress/2022international/

5-10/6/2022
LION16: The 16th Learning and Intelligent Optimization Conference
Milos Island, Cyclades, Greece
https://lion16.sba-research.org/

7-10/6/2022
SEIO 2022: 39th Spanish Conference on Statistics and Operational Research and 13th Conference on Public Statistics
Granada, Spain
https://www.seio2021.com

7-10/6/2022
International Network Optimization Conference 2022 (INOC)
Aachen, Germany
https://sites.google.com/view/inoc2022/

9-11/6/2022
ECCO XXXV - CO 2022 Joint Conference
Online
https://ecco2022.euro-online.org/

11-24/6/2022
EURO Summer Institute on Location Science
Edinburgh, UK
https://www.maths.ed.ac.uk/ESI2022/index.html

22-24/6/2022
Advances in Decision Analysis Conference
UVA Darden, Arlington, VA, USA
https://connect.informs.org/das/events/ada2022

26/6-1/7/2022
MCDM 2022
Portsmouth, UK
https://mcdm2021.org

2-4/7/2022
INFORMS Conference on Service Science
Tsinghua University, China
https://icss2022.servicescienceglobal.org/

13-17/6/2022
ELAVIO XXIV
Monterrey, Mexico
https://sites.google.com/view/elavio2022/home

13-22/6/2022
EURO PhD School on Data Driven Decision Making and Optimization
Seville, Spain
https://congreso.us.es/epsdata/

20-23/6/2022
CPAIOR 2022: The 19th International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research
Los Angeles, USA
https://sites.google.com/usc.edu/cpaior-2022

3-6/7/2022
EURO 2022
Espoo, Finland
https://euro2022espoo.com/

9-13/7/2022
Genetic and Evolutionary Computation Conference (GECCO)
Boston, USA
https://gecco-2022.sigevo.org/HomePage

11-14/7/2022
MIC 2022 - 14th Metaheuristics International Conference
Ortigia-Syracuse, Italy
https://www.ants-lab.it/mic2022/

17-24/7/2022
EURO PhD School Reinforcement Learning Applied to Operations Research
Marienheide, Germany
http://www.stochmod.eu/EPS/

18-20/7/2022
OLA'2022 International Conference on Optimization and Learning
Syracuse (Sicilia), Italy

http://ola2022.sciencesconf.org/

18-29/7/2022
EURO PhD School on MCDA/MCDM
Bilkent University, Ankara
https://www.ie.bilkent.edu.tr/mcdm/

25-29/7/2022
19th International Symposium on Dynamic Games and Applications
Porto, Portugal
https://www.gerad.ca/colloques/isdg2022/

25-29/7/2022
XVI International Conference on Stochastic Programming (ICSP2022)
California, USA
https://gsm.ucdavis.edu/xvi-international-conference-stochastic-programming-2022

31/7-8/8/2022
Twenty-Eighth Conference on Principles and Practice of Constraint Programming CP 2022
Haifa, Israel
https://cp2022.a4cp.org/

14-19/8/2022
ISMP 2022
Online
http://ismp2022.csp.escience.cn/dct/page/1

24-26/8/2022
8th International Conference on Control and Optimization with Industrial Applications – COIA-2022
Baku, Republic of Azerbaijan
http://www.coia-conf.org/

31/8-2/9/2022
ODS 2022 International Conference on Optimization and Decision Science
Florence, Italy
http://www.airoconference.it/ods2022/

6-9/9/2022
OR 2022 - Annual Conference of the Operations Research Society of Germany
Karlsruhe, Germany
http://www.or2022.de

12-16/9/2022
paraoptXII: 12th International Conference on Parametric Optimization and Related Topics
Augsburg, Germany
https://www.uni-augsburg.de/de/fakultaet/mntf/math/prof/opt/team/duer/paraopt/

15-17/9/2022
94th Meeting of EURO Working Group on MCDA
Agios Nikolaos, Greece
http://www.cs.put.poznan.pl/ewgmcda/

14-16/9/2022
EWGLA XXVII
Aveiro, Portugal
http://ewgla.web.ua.pt/

16-19/10/2022
INFORMS Annual Meeting
Indianapolis, USA
https://meetings2.informs.org/wordpress/indianapolis2022/

18-22/9/2022
8th Int. Online & Onsite Conf. on Machine Learning, Optimization & Data Science - LOD 2022
Certosa di Pontignano, Tuscany - Italy
https://lod2022.icas.cc

21-23/9/2022
ICCL2022 - International Conference on Computational Logistics 2022
Universitat Pompeu Fabra, Barcelona, Spain
http://eventum.upf.edu/go/ICCL2022

28-30/9/2022
KOI 2022: 19th International Conference on Operational Research
Šibenik, Croatia
http://hdoi.hr/koi-2022/

2-4/11/2022
ANTS 2022 13th International Conference on Swarm Intelligence
Malaga, Spain
https://ants2022.uma.es

17-18/11/2022
BIOMA 2022. The 10th International Conference on Bioinspired Optimization Methods and Their Applications.
Maribor, Slovenia
https://bioma2022.um.si/

30/10-3/11/2022
15th International Conference on Advanced Systems in Public Transport (CASPT2022)
Tel-Aviv, Israel
http://www.caspt.org/

12-15/12/2022
CLAIO 2022: XXI Latin Ibero-American Conference on Operations Research
Buenos Aires, Argentina
https://claio2022.dc.uba.ar/

April 2023
95th Meeting of EURO Working Group on MCDA
Jaén, Spain

http://www.cs.put.poznan.pl/ewgmcda/

10-14/7/2023
IFORS 2023
Santiago, Chile
https://ifors2023.com/

24-28/7/2023
XVI International Conference on Stochastic Programming
California, USA
https://gsm.ucdavis.edu/faculty-and-research/faculty-conferences/xvi-international-conference-stochastic-programming

September 2023
96th Meeting of EURO Working Group on MCDA
Paris, France
http://www.cs.put.poznan.pl/ewgmcda/

April 2024
97th Meeting of EURO Working Group on MCDA
Madrid, Spain
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Books

D. Marc Kilgour and Colin Eden (Editors). (2021) *Handbook of Group Decision and Negotiation, Second Edition.* **Springer Nature: Cham, Switzerland. ISBN 978-3-030-49628-9**

Last year the 2nd Edition of the Handbook of Group Decision and Negotiation (edited by Marc Kilgour and Colin Eden) was published by Springer.

The Handbook was broad in its aims and is presented as 7 sections from 85 authors: justice and fairness in negotiation; the *context* for group decision and negotiation; crowd scale group decisions; game theory developments for group decision and negotiation; group support systems; multiple criteria analysis for group decisions; and electronic negotiations. Inevitably, there are many topics missed. The Handbook is designed to be a taster for those interested in the range of research and practice in the GDN field.

The section on multiple criteria decisions sought to present the principles of MCDM, the mathematical formulation, and the methods available. The chapters are as follows:

Ahti Salo, Raimo Hamalainen and **Tuomas Lahtinen** start the section with a fulsome *overview of MCDM*. They consider the way in which an MCDM formulation can foster collaboration, lend structure to the decision process, and help in managing problem complexity. They offer guidelines for the design of MCDA-assisted group decision processes, outline widely used MCDA methods, examine behavioural factors related to the MCDA process. They finish with their views about the future of MCDM.

This is followed by a chapter that provides an introduction to the detailed *mathematics of MCDA*: Notation, Problematics, and Main Approaches. **Salvatore Corrente**, **Jose Figueira**, **Salvatore Greco** and **Roman Słowiński** introduce in detail the main principles of MCDM and present the basic approaches and methodologies. These first two chapters of this section provide all of the necessary background to MCDM for group decision and negotiation.

The next five chapters address different methods and issues in the use of MCDM. We start with an overview of preference modelling approaches for aiding Multi-criteria Group Decision Making when only *partial (or imprecise/incomplete) information about preferences is available*.

Adiel de Almeida, Eduarda Frej, Danielle Morais and **Ana Costa** consider how to reduce the amount of information required from the group members in order to conduct analysis that will still lead to a sensible decision. They present a flexible elicitation procedure using an interactive decision support system.

José Moreno-Jiménez, **Juan Aguarón, María Teresa Escobar** and **Manuel Salvador** introduce the *Analytical Hierarchy Process (AHP)*. They offer three important contributions to the field by considering consistency in group decisions, aggregation of individual preference structures, and the Bayesian approach. They also discuss cognitive orientation in group decision processes.

Peijia Ren, Zeshui Xu and **Janusz Kacprzyk** address the use of intuition in arriving at judgments about preferences. They provide an overview of the use of *intuitionistic fuzzy sets* from the perspectives of information fusion, intuitionistic preference relations, and multi-attribute group decisions. They usefully present a series of practical uses of intuitionistic fuzzy sets in the supply chain management, healthcare, and risk assessment in hydropower station assessments.

Yue He and **Zeshui Xu** complete this section by *using linguistic terms and their extensions* to express the preferences of decision-makers directly. They discuss hesitant fuzzy linguistic term sets, probabilistic linguistic term sets, and double hierarchy hesitant fuzzy linguistic term sets. They introduce and compare methodologies for information fusion, preference expression, and group decision-making. However, they acknowledge many

challenges in the development of group decision-making based on linguistic information, but argue that the approach deserves more attention.

There are 2 volumes and the Handbook runs to 1225 pages. The book is expensive to buy. It has the status of a *Springer Major Reference Work* and so usually resides in University libraries. Access is usually easy, as most Universities have a wide license with Springer that allows the downloading of chapters from Major Reference Works.

Recent contributions in brief

(This section is prepared by Salvatore Corrente salvatore.corrente@unict.it)

Garcia-Bernabeu, A., Cabello, J.M. & Ruiz, F. A Reference Point-Based Proposal to Build Regional Quality of Life Composite Indicators. *Soc Indic Res* **(2021).**
https://doi.org/10.1007/s11205-021-02818-0

Measuring individuals' progress and well-being involves expanding the framework of macro-economic indicators traditionally used as measures of growth. This study introduces the use of a multicriteria reference-based methodology (MRP-WSCI) to build a composite indicator for evaluating the quality of live (QoL) at regional scale. We address two research questions that focus on developing a regional QoL composite index. The first question examines how the decision maker could provide preferential information using reference levels to define different performance intervals for each indicator intuitively. The second question concerns a fundamental issue related to the aggregation of individual indicators, such as compensability.

Three main issues have been taken into account. First, the methodology allows the use of different geographical scales in order to comparatively assess the quality of life of the regions studied. Thus, we provide a comprehensive picture of the regional quality of life using two different geographical scales: the Spanish and the European ones. Second, the study within each geographical scale is done through the use of corresponding statistical reference levels. Finally, two composite indicators are developed for each region, with different compensability levels. The weak (fully compensatory) indicator provides an overall measure of the region's QoL compared to the regions of the geographical scale considered. The strong (non-compensatory) indicator provides information about the worst dimension of each region (again, as compared to the rest of the regions of the scale), thus providing complementary information that would

have most likely remained unnoticed with other methodologies.

To gain a better insight into these issues, we study the Spanish regions to assess their quality of life as a test case. The proposed Regional QoL composite indicator is developed to paint a comprehensive picture of the quality of life in 19 Spanish regions, and provide warning signals to regional and national policy-makers on the areas where the dimensions of quality of life need further improvements. This comparative measurement approach can be a valuable tool to deliver guidance for regional and national level policy-makers.

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Pereira, M. A. & Marques, R. C. (2022). Is sunshine regulation the new prescription to brighten up public hospitals in Portugal?. *Socio-Economic Planning Sciences*, **101219. doi: 10.1016/j.seps.2021.101219**

The provision of health services to the population is ensured by complex organisations known as health systems. However, several socio-economic shifts over the last two decades have brought the issue of health systems' sustainability to the attention of governments around the world besides the typical concerns regarding the access to and quality of the health services they provide. To take all these matters into account, regulation is called for in order to oversee the activities of health care operators in terms of compliance with operating requirements. Furthermore, considering the accountability and transparency principles of New Public Governance, sunshine regulation emerges as a suitable regulatory mechanism that consists in publicly displaying the results of benchmarking exercises to "embarrass" underperforming operators and drive them to improve. This contribution proposes a sunshine regulatory framework applied to the Portuguese public secondary health care providers and modelled via multi-criteria decision analysis. Based on the outranking ELECTRE Tri-nC method, we defined a set of five categories denoting a "hotel-like" five-star rating that sorts operators according to their performances according to access, quality, and resource dimensions. Note that this is an original application of ELECTRE Tri-nC to sunshine regulation in healthcare. Our results revealed that not only almost 70% of the sampled operators belong to the 'Average' category ("Three stars"), but also there are no operators attributed to 'Very poor' or 'Very good' categories ("One star" and "Five stars", respectively). Extensive stability and robustness analyses supported the proposed framework. In the end, our results were compared with the scores of the Portuguese health regulatory body's National Health Assessment System and immediate similarities were found, which attested to the credibility and validity of our proposal and enabled us to derive key public health policy implications.

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Porro, O., Agell, N., Sánchez M., Ruiz F. (2021). A multi-attribute group decision model based on unbalanced and multi-granular linguistic information: an application to assess entrepreneurial competencies in secondary schools. *Applied Soft Computing, 111, 107662.* https://doi.org/10.1016/j.asoc.2021.107662

Advances in multi-attribute group decision making require the development of structures flexible enough to deal with unbalanced and multi-granular linguistic information. It is very common that in group decision making (GDM) environments, experts or DMs do not feel at ease in using numerical values to express their judgements, but rather feel more comfortable using linguistic terms or words.

Natural language is appropriate for expressing uncertain assessments whose nature is vague, imprecise or incomplete. To capture this uncertainty, this paper is based on the use of hesitant fuzzy linguistic term sets (HFLTSs). New distances between linguistic terms are defined to aggregate opinions and measure consensus among decision makers with different profiles.

Firstly, based on the lattice structure of HFLTSs, a perceptual-based distance able to capture differences between unbalanced linguistic assessments is developed. Secondly, a projected algebraic structure is defined to deal with multi-perceptual group decision-making contexts where each decision maker has its own qualitative reasoning approach. To this end, we develop a new hesitant fuzzy linguistic methodology for MAGDM that simultaneously deals with hesitant unbalanced and multi-granular linguistic information.

The feasibility of the proposed framework is demonstrated with the application of the method to a pilot test which is motivated by the need of the Andorra Government to develop an innovative evaluation framework to assess the entrepreneurial competency of young students in its secondary schools. With the proposed methodology, these results consider the degree of consensus as a weighting factor, as well as the introduced perceptual maps.

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Costa, A. S., Lami, I. M., Greco, S., Figueira, J. R., & Borbinha, J. (2021). Assigning a house for refugees: An application of a multiple criteria nominal classification method. Operational Research - An International Journal, 21(4), 2651–2687. https://doi.org/10.1007/s12351-019-00508-x

In recent years, the number of people in need of protection and assistance because of forced displacement has drastically increased. The city of Turin (Italy), as many other European cities, offers accommodation to those people for a limited time span. However, these places are insufficient and often inadequate. Though, in Turin, there are several underused buildings and abandoned sites as potential places for hosting refugees. Combining these two aspects, this study aims at contributing to the definition of an urban strategy and improve the decision aiding process related to the accommodation system in Turin, studying the suitability of underused buildings located in Turin to forced displaced people with distinct migrant status. We address a nominal classification problem, using the CAT-SD method, where twenty-two underused buildings are assigned to categories that represent different migrant status, considering criteria related to the buildings features. Thus, we build a decision model in interaction with experts and perform a robustness analysis of the model. Using the on-line platform DECSPACE to obtain the results, we identify an adequate category (or categories) for each building. This study contributes to define a direction for adaptive reuse of existing vacant buildings for housing and integrating displaced people, which may raise socio-spatial sustainability.

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Ricciolini E., Rocchi L., Cardinali M., Paolotti L., Ruiz F., Cabello J.M., Boggia A. 2022. Assessing Progress Towards SDGs Implementation Using Multiple Reference Point Based Multicriteria Methods: The Case Study of the European Countries. Social Indicators Research; Springer. https://doi.org/10.1007/s11205-022-02886-w .

Agenda 2030 and its Sustainable Development Goals (SDGs) represent a road map for the world in the next decade. In the current economic, political and social context, are crucial for achieving a sustainable development. Their importance has been widely recognized, but assessing progress towards achieving the Goals remains a complicated issue and possible approaches are still limited.

It remains difficult to establish a clear picture of the situation because of the large magnitude of the goals, the coverage of more than one theme in a single objective, the language often ambiguous, as well as the contemporary presence of different scales, from regional to global.

We propose the application of the multi-criteria method for the assessment of the sustainability of the 28 countries of the European Union (pre-Brexit) with reference to the Agenda 2030. The countries were analyzed by considering their evolution across three reference years: 2007, 2012 and 2017, in order to study the evolution of each country over the decade and at the same time obtain a ranking between them.

The method applied is the Multiple Reference Point Weak-Strong Composite Indicators (MRP-WSCI) and its partially compensated version (MRP-PCI); the basic assumption of the methodology is the creation of Composite Indicators (CI), which allow to measure multidimensional concepts, such as sustainability, that cannot be integrated by a single indicator.

Furthermore, by means of the individual achievement functions and their corresponding weights, are obtained the Weak Composite Indicator (WCI), which imply a total compensation between the indicators and the Strong Composite Indicator (SCI), which do not allow any type of compensation between the indicators, so that only the worst values of each factor are considered and the Partially Composite Indicator (PCI) which permits different levels of compensation. The possibility of carrying out an analysis from different perspectives, and of combining the CI together, is a great advantage in the interpretation of the

results because it permits to visualize the situation more in a general way and at the same time to go into the specific strengths and weaknesses of each country; it therefore provides an assessment for the three pillars (economic, social and environmental) separately as well as an overall picture. Moreover, through the use of weights derived from European policy documents, it was possible to include the political dimension in the research.

Identifying and measuring the level of sustainability, through its three dimensions, is a priority. Studies such as the present one allows a baseline to be established to measure specifically where we are in relation to the achievement of global objectives and how far we still have to go.

The proposed methodology and the results of the work could support public decision-making, as it is crucial that they consider the sustainability perspective in strategic planning decisions.

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Pelissari, R., Abackerli, A. J., Ben-Amor, S., Oliveira, M.C., Infante, K.M. (2021). Multiple criteria hierarchy process for sorting problems under uncertainty applied to the evaluation of the operational maturity of research institutions. Omega, 103, 102381. https://doi.org/10.1016/j.omega.2020.102381

This paper introduces a novel hierarchical multi-criteria sorting algorithm based on FlowSort called SMAA–FFS–H. It has been applied to the evaluation of operational maturity of research institutions funded by EMBRAPII (Brazilian Association for Industrial Research and Innovation). The institutions had to be classified into categories of different maturity levels based on their evaluations with respect to nine operational processes. This sorting problem requires the criteria to be hierarchically structured and, furthermore, the criteria weights to be defined at all levels of the hierarchy.

To achieve this goal, we proposed a modification of the Multiple Criteria Hierarchy Process (MCHP), which we implemented in SMAA-FFS-H. In the original MCHP, one needs to define weights only for the elementary criteria, and the weights at higher levels are calculated according to formulas given by the MCHP. In order to allow for more freedom in the decision- problem modeling phase, we proposed to define weights for each node of the hierarchy. This may increase the difficulty in applying the method since it is challenging for the DM to specify all the weights. To overcome this difficulty and to easily allow weights to be defined at all levels of the hierarchy, the SMAA methodology is applied, and, therefore, an indirect elicitation of weights is conducted. Furthermore, other challenges related to imprecision and uncertainty in decision-making problems are treated within the SMAA framework using fuzzy theory to model imprecise data and probability theory to model uncertain data. In addition to the classification of the alternatives into predefined categories, the proposed method indicates the criteria and sub-criteria to be improved in order to enhance the overall result and provide decision information at all levels of the hierarchy. This information can be obtained using the single-criterion flow concept,

which has already been discussed in the literature for the PROMETHEE method.

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Amenta P., Lucadamo A., Marcarelli G. (2021). On the choice of weights for aggregating judgments in non-negotiable AHP group decision making European Journal of Operational Research, 288(1), 294–301 https://doi.org/10.1016/j.ejor.2020.05.048

In this paper we propose a formal method to compute a suitable set of coefficients and aggregate individual judgments in a common group preference matrix. In our procedure we assume that there is a large dispersion and decision makers are unwilling or unable to revise their judgments and, in any case, the weights are not negotiable.

We introduce a measure of congruence between DMs and propose an approach by optimizing a criterion based on the Frobenius norm to compute the suitable set of coefficients. This criterion allows to highlight the discordant behaviours of the DMs by means of the introduction of a measure of congruence computed on the pairwise comparison matrices (PCM). Moreover, it introduces the concepts of majority and minority in computing the final priority vector. Our approach provides then a final solution based on the congruence existing among all the DMs. If there is a majority (positive or negative) then our method allows it to play a major role in defining the final solution, without penalizing too much the minority. Our proposal enables the Supra DM to choose what kind of solution the final vector must respect, because another solution of the final priority vector can be considered: it rewards the minority of the DMs without penalizing too much the majority.

We point out that the final solution does not change if we modify the order of the alternatives beforehand.

Finally, our approach overcomes some drawbacks of other proposed methods based on the Principal Component Analysis criterion (e.g. Scala et al., 2016). Our further researches are concerning the level of the effect of the majority on the final solution.

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Dell'Anna, F., Dell'Ovo, M.: A stakeholder-based approach managing conflictual values in urban design processes. The case of an open prison in Barcelona. Land Use Policy. 114, 105934 (2022). https://doi.org/10.1016/J.LANDUSEPOL.2021.105934.

The design process is conceived as a set of actions aimed at supporting designers in achieving specific goals by developing new solutions grounded on the combination of different strategies or identifying an existing alternative. Decision Aiding can help the Decision-Maker (DM) formulate an opinion on the problem to be solved by a careful and in-depth preliminary analysis that considers social, technological, economic, environmental, and political

reasons. Moreover, subjective requirements prove to be decisive in the design process in the face of the heterogeneity and multiplicity of possible responses of the actors involved.

The contribution aims to support DMs in the preliminary stages of the design project, to provide a global view of the multidimensionality of the urban context and the feedback of the actors that come into play. The main objective is to create a hybrid assessment framework (DADO, Dell'Anna, Dell'Ovo) to support architects, planners, and policymakers measure the positive and negative impacts of urban transformation problems. The approach integrates the Stakeholder with the SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis to compose an impact matrix based on Community Impact Evaluation (CIE).

The methodology was tested to develop an open prison in the city of Barcelona (Spain). The application has the main objective of obtaining a preliminary evaluation of the current state (Time 0) and the proposed project (Time 1) in line with the elements identified through the SWOT analysis and considering the interests of different stakeholders groups.

Within the application of the case of the open prison, it is evident how it is rare to solve a problem with a mono-criterion approach. Where several conflictual values are involved, and potential strategies can be based on a preliminary analysis of the territorial context, a multicriteria approach can support having a global vision of the transformation process.

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Siskos E., Burgherr P. (2022). Multicriteria Decision Support for the Evaluation of Electricity Supply Resilience: Exploration of Interacting Criteria, *European Journal of Operational Research***, 298(2), 611-626.**
https://doi.org/10.1016/j.ejor.2021.07.026

The resilience of an energy system and especially of the national electricity supply is a complex and multidimensional concept. Being currently at the center of international interest and at a top-priority especially for Europe, sustaining the resilience of the energy supply and safeguarding energy security are of paramount importance for energy policy making. Building on the increasing risks of extended electricity supply disruptions and severe electricity price fluctuations, we develop and implement a transparent MCDA evaluation framework for the resilience of electricity supply in Europe. The framework adds to the whole assessment the subjective nature of the preferences of a European energy expert, which serves the objectives to achieve a personalized resilience ranking and provide guidelines and areas for improvement at a country level.

Within this context, we propose a synergy of preference elicitation techniques to support the application of the Choquet integral utility function, which we approach and assess as an importance indicator. The elicitation techniques we introduce combine a procedure, based on the rationale of the Simos method and a novel interactions identification and quantification framework, including direct pinpointing of the criteria interactions and the addition of certain heuristic questions. Ultimately, we evaluate and rank the 35 countries

of the European Network of Transmission System Operators for Electricity (ENTSO-E), based on their performance on 17 evaluation criteria, which are categorized on the three major resilience dimensions of "Resist", "Restabilise" and "Recover". The results are illustrated in a classification format in the figure. Among the practical benefits, due to the development of new sound elicitation techniques and communication protocols, we acknowledge the reduction of the cognitive burden of the decision maker to conceive the concept of criteria interactions and adequately provide her/his preference information.

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Gasparini G., Brunelli M., Chiriac M.D. (2022). Multi-period portfolio decision analysis: A case study in the infrastructure management sector. *Operations Research Perspectives***,100213**,
https://doi.org/10.1016/j.orp.2021.100213

SET Distribuzione is the electric energy distribution provider in the Province of Trento, Italy. The company, with a strong participation of public stakeholders, manages 12,000 km of networks, more than 4000 electrical substations, and distributes electricity to over 160 municipalities and 330,000 customers. The problem faced by the company was about selecting and planning the execution of investment activities, from a pool of more than 300 potential investment activities, to improve the service provided to its customers. Portfolio Decision Analysis (PDA) was used and extended to find an optimal schedule, over a time horizon of five years, for the execution of some selected investment activities. The problem was structured in two phases. The first phase was based on multi-attribute value theory and concerned the assignment of a value to each potential investment activity. In particular, four relevant attributes were found for each investment activity: total number of benefiting customers, resiliency improvement, quality of service improvement, and setup time. The second phase took the values of potential investment activities as inputs for a combinatorial optimization problem whose outcome was a complete plan of action for the next five years. The greater the value of an activity, the more likely the activity is to be selected and executed soon. A number of constraints were considered as, for instance, a limit on the number of overlapping projects in each moment of the planning horizon, the impossibility of executing some of them in nonths with unfavorable weather, and some precedence relations to be respected. The problem is non-trivial and it was solved with Gurobi. The paper presents the different phases of the analysis and presents figures illustrating the structure of the obtained solutions, from which it is evident that the most valuable projects are chosen and executed before the less valuable ones.

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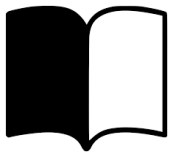
Articles Harvest

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