



Technical University of Crete  
School of Production Engineering  
& Management



Hellenic Operational Research  
Society

# **7<sup>th</sup> INTERNATIONAL SYMPOSIUM & 29<sup>th</sup> NATIONAL CONFERENCE ON OPERATIONAL RESEARCH**

**June 14-16, 2018  
Chania, Crete, Greece**

## **Scientific Program**

### **Sponsors**

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**TZIOIA PUBLICATIONS**





# PROGRAM OUTLINE

## June 14, 2018

09:00 – 10:00	Registration
10:00 – 10:15	Opening session & awards (Room: Aristotle)
10:15 – 11:15	Keynote Speech (Room: Aristotle)
11:15 – 11:30	Coffee break
11:30 – 12:30	Keynote Speech (Room: Aristotle)
12:30 – 14:00	Parallel sessions Session 1. Tourism management (Room: Aristotle) Session 2. Transport (Room: Socrates)
14:00 – 15:00	Lunch
15:00 – 16:30	Parallel sessions Workshop in Energy & Climate Policies I (Room: Aristotle) Workshop in Marketing I (Room: Socrates)
16:30 – 17:00	Coffee break
17:00 – 18:30	Parallel sessions Workshop in Energy & Climate Policies II (Room: Aristotle) Workshop in Marketing II (Room: Socrates) Session 3. HELORS PhD Award (Room: Pythagoras)
21:00	Gala dinner ("Mediterranean" Restaurant - MAICh)

## June 15, 2018

09:30 – 11:00	Parallel sessions Session 4. Environment (Room: Aristotle) Session 5. Education (Room: Socrates)
11:00 – 11:30	Coffee break
11:30 – 12:30	Keynote Speech (Room: Aristotle)
12:30 – 14:00	Parallel sessions Session 6. OR applications (Room: Aristotle) Session 7. Planning & Scheduling (Room: Socrates)
14:00 – 15:00	Lunch
15:00 – 16:30	Parallel sessions Session 8. Quality management (Room: Socrates) Session 9. Optimization (Room: Aristotle)
16:30 – 17:00	Coffee break
17:00 – 18:30	Parallel sessions Session 10. Finance (Room: Aristotle) Session 11. Strategy & Innovation Management (Room: Socrates)
18:30 – 19:00	Closing session (Room: Aristotle)

## June 16, 2018

09:30	A guided tour in the Old Town of Chania (registration required)
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# DETAILED PROGRAM

June 14, 2018

- 09:00 – 10:00**     **Registration**
- 10:00 – 10:15**     **Opening session & awards (Room: Aristotle)**
- 10:15 – 11:15**     **Keynote Speech (Room: Aristotle)**  
***Traffic management for the 21<sup>st</sup> century***  
**Markos Papageorgiou** (Technical University of Crete, Greece)  
**Chair:** Constantin Zopounidis (Technical University of Crete, Greece)
- 11:15 – 11:30**     **Coffee break**
- 11:30 – 12:30**     **Keynote Speech (Room: Aristotle)**  
***Managing water and land resources by involving residents: new development in cooperative eco-systems***  
**Gert van Dijk** (Nyenrode Business Universiteit & Tilburg University, The Netherlands)  
**Chair:** George Baourakis (Mediterranean Agronomic Institute of Chania, Greece)
- 12:30 – 14:00**     **Parallel sessions**
1. Tourism management, **Room:** Aristotle **Chair:** Athanasios Ballis (National Technical University of Athens, Greece)

Big Data for personalised agricultural touring recommendations  
**Authors:** Kyvele Constantina Diareme, Theodore Tsiligiridis

The role of Board of Directors in Profitability: Insights from selected Greek hotel companies  
**Authors:** Evangelia Pappa, John Filos, Panagiotis Spanos, Pantelis Papanastasiou

Perspectives for the development of the Greek water airports and seaplane services  
**Authors:** Athanasios Ballis, Tatiana Moschovou, Minas Pagonakis, Nikos Zachariadis

The contribution of air and maritime transport in the development of tourism in the islands of South Aegean  
**Authors:** Athanasios Ballis, Zacharias Petroulakis, Spyros Stathopoulos
2. Transport **Room:** Socrates **Chair:** Michael Madas (University of Macedonia, Greece)

Exploring the Effects of Fairness on Airport Scheduling Efficiency and Level of Service Metrics  
**Authors:** Konstantinos Androutsopoulos, Michael Madas, Vassileios Sitokonstantinou

Set-partition versus set-cover formulations for column generation based solution methodologies for optimal airline crew scheduling  
**Authors:** Odysseas Moschopoulos, Christos Kaimakamis, George Kozanidis

An Orienteering Problem Approach for City Tourist Trip Design  
**Authors:** Eleftherios Tsakirakis, Emmanouela Rapanaki, Irini Tsampounari, Magdalene Marinaki, Yannis Marinakis

City Logistics: Analysis of Factors Affecting the Development of an Intelligent Freight Transportation System  
**Authors:** Sotiris Gayialis, Evripidis Kechagias, Grigorios Konstantakopoulos, Georgios Papadopoulos, Stavros Ponis

**14:00 – 15:00      Lunch**

**15:00 – 16:30      Parallel sessions**

Workshop in Energy & Climate Policies I. Transitions: policy, business and stakeholder perspectives.

**Room:** *Aristotle*, **Chairs:** Harris Doukas (National Technical University of Athens, Greece), Alexandros Flamos (University of Piraeus, Greece), Jenny Lieu (University of Sussex, UK)

The Triple Point of Energy Transitions: Stakeholder perceptions, Policy Mixes and the Climate Change and Energy Transition Law in Spain

**Authors:** *Alevgul H. Sorman, Xaquín García-Muros, Cristina Pizarro-Irizar, Mikel González-Eguino, Iñaki Arto*

Operational Research in support of energy and climate policy: The case of Greece

**Authors:** *Alexandros Nikas, Vassilis Stavrakas, Vangelis Psarras, Eleni Kanellou, Ioanna Makarouni, Haris Doukas, Alexandros Flamos*

A system dynamic approach for managing the corporate social responsibility strategies

**Authors:** *Thomas Tsalis, Ioannis Nikolaou*

Stakeholders find the missing risks

**Authors:** *Oscar van Vliet, Susanne Hanger-Kopp, Alexandros Nikas, Eise Spijker, Henrik Carlsen, Jenny Lieu*

Consensus building in stakeholder engagement processes for natural resources management

**Authors:** *Luis D. Virla, Ryan Abel, Cecilia Fitzpatrick, and Jenny Lieu*

Workshop in Marketing I. **Room:** *Socrates* **Chairs:** Nikolaos Matsatsinis & Stelios Tsafarakis (Technical University of Crete, Greece)

Visitor's multi-dimensional decision making approach: A pilot case study on a Unesco National Park

**Authors:** *George Fakotakis, Georgios Baourakis, Periklis Drakos, Gert van Dijk, Constantin Zopounidis*

Digital Transformation on Industry Level: Evidence from 5 industries

**Authors:** *Konstantinos Fouskas, Panagiotis Potouris, Maro Vlachopoulou*

Artificial Intelligence in Marketing: an Application for Tourism Development

**Author:** *Ioannis Issaris*

Sentiment Analysis in the Food Sector: The Greek Case

**Authors:** *Anastasios Liapakis, Theodore Tsiligiridis*

Marketing Strategy Decision Support for Technology and Market-Driven Changes

**Authors:** *Dimitrios Mitroulis, Fotis Kitsios, Evangelos Grigoroudis*

**16:30 – 17:00      Coffee break**

**17:00 – 18:30    Parallel sessions**

Workshop in Energy & Climate Policies II. Energy technologies, systems and carriers: top down and bottom up perspectives.

**Room:** *Aristotle*, **Chairs:** Harris Doukas (National Technical University of Athens, Greece), Alexandros Flamos (University of Piraeus, Greece), Jenny Lieu (University of Sussex, UK)

Assessing energy carriers and technology options on the Representative Concentration Pathways

**Authors:** *Athanasios Dagoumas, Stavros Lazarou, Filip Markovic*

Theory and practice of Hydrothermal coordination aligned to the Greek electricity market regulatory framework

**Authors:** *Michael Kounalakis, Petros Theodorou*

Gas stations under the microscope: deciding on station physical locations

**Authors:** *Vasileios Stavrou, Nikolaos Panayiotou*

Achieving a low-carbon power system through empowering consumers to produce and store clean energy at the local level: The case of Greece

**Authors:** *Vassilis Stavrakas, Serafeim Michas, Sotiris Papadelis, Alexandros Flamos*

Workshop in Marketing II. **Room:** *Socrates* **Chairs:** Nikolaos Matsatsinis & Stelios Tsafarakis (Technical University of Crete, Greece)

Changing users' energy consumption behavior using IoT

**Authors:** *Eftychios Protopapadakis, Anastasios Doulamis, Maria Kaselimi*

Measuring preferences of Airbnb users: a conjoint analysis study

**Authors:** *Stelios Tsafarakis, Georgios-Spyridon Bekos*

A Hybrid Multi-Criteria Hotel Recommender System using online ratings and reviews

**Authors:** *Yannis Zisos, Nikolaos Matsatsinis, Nikolaos Tsotsolas*

Analysing customers' satisfaction data via MCDA and fuzzy set methods

**Authors:** *Evangelia Krassadaki, Stelios Tsafarakis*

3. HELORS PhD Award **Room:** *Pythagoras* **Chair:** Yannis Siskos (University of Piraeus, Greece)

Optimal allocation of flight and maintenance hours to mission aircraft: Formulations, solution algorithms and computer implementations

*Andreas Gavranis*

The composition and the weak-link approaches to Network Data Envelopment Analysis

*Grigorios Koronakos*

A methodological framework for treating uncertainty in experts' opinion when evaluating maritime safety. Application to Ship-to-Ship (STS) cargo transfer operations

*Dimitrios Stavrou*

**21:00    Gala dinner ("Mediterranean" Restaurant - MAICH)**

**June 15, 2018**

**09:30 – 11:00    Parallel sessions**

**4. Environment Room: Aristotle Chair: Athanasios Vavatsikos (Democritus University of Thrace, Greece)**

A User-Oriented Approach to Provide Online Decision Support Services: The AquaNES DSS Experience

**Authors:** *George Arampatzis, Patricia Stathatou, Dionysis Assimacopoulos, Panagiotis Scaloubakas*

Deciding to Go Green: Challenges and Benefits of the Leed Green Building Rating System

**Authors:** *Alexandros Iliopoulos, Konstantinos Kirytopoulos, Emmanuel Dermitzakis*

Green supplier selection and evaluation using multicriteria decision analysis

**Authors:** *Stratos Kartsonakis, Evangelos Grigoroudis, Nick Szirbik*

Assessing Decarbonisation Pathways towards 2050: A multicriteria approach

**Authors:** *Aikaterini Papapostolou, Charikleia Karakosta, Haris Doukas, John Psarras*

Renewable Energy Land Use Suitability Analysis Using Spatially Estimated Net Present Value

**Authors:** *Athanasios Vavatsikos, Sotirios-Orestis Alexandris, Eirini-Agni Theodorou*

**5. Education Room: Socrates Chair: Michalis Doumpos (Technical University of Crete, Greece)**

Proposing a New Dynamic Framework of Digital Skills: A Bottom-Up Approach

**Authors:** *George Barboutidis, Emmanouil Stiakakis, Fotis Kitsios, Maria Kamariotou*

Applying an excellence model to assess the Leadership best practices in Primary Education

**Authors:** *Konstantinos Christopoulos, Panagiotis Mitropoulos, Ioannis Mitropoulos*

Students' experience and Course evaluation: An MCDA analysis approach

**Authors:** *Ioannis Sitaridis, Stavros Stefanakakis, Maria Kamariotou, Fotis Kitsios*

**11:00 – 11:30    Coffee break**

**11:30 – 12:30    Keynote Speech (Room: Aristotle)**

***New trends in Multicriteria Disaggregation Theory***

**Yannis Siskos** (University of Piraeus, Greece)

**Chair:** Nikolaos Matsatsinis (Technical University of Crete, Greece)

**12:30 – 14:00    Parallel sessions**

**6. OR applications Room: Aristotle Chair: Yannis Siskos (University of Piraeus, Greece)**

A robust evaluation of European e-government using the multicriteria PROMETHEE II method and bipolar robustness control

**Authors:** *Eleftherios Siskos, John Psarras*

Computational aspects, duality and applications of nonlinear models in data envelopment analysis

**Authors:** *Maria Trnovska, Margareta Halicka*

A Stochastic model for Air Transportation of Agricultural Goods under uncertainty

**Authors:** *Yue Wu, Lin Zhu*

Evaluating Operational and Quality Performance of the Health Services in EU Countries with Dynamic Network DEA

**Authors:** *Panagiotis Mitropoulos, Ioannis Mitropoulos*

7. Planning & Scheduling **Room:** *Socrates* **Chair:** Yannis Marinakis (Technical University of Crete, Greece)

A Study on the Effects of Quality on Market Share in Single Stage Manufacturing Systems with Customer Class Dependent Satisfaction

**Authors:** *Stratos Ioannidis, Dimitrios Konstantas, Vassilis Kouikoglou, Evangelos Grigoroudis*

Heuristic Approaches for Cooperative Covering Location Problems

**Authors:** *Maria Michopoulou, Ioannis Giannikos*

A Production Cost System for Supply Chain Decision Making in Metal Industry

**Authors:** *Nikolaos Panayiotou, Sotiris Gayialis*

A Firefly Algorithm for the Permutation Flow-Shop Scheduling Problem

**Authors:** *Andromachi Taxidou, Ioannis Karafyllidis, Dimitra Trachanatzi, Manousos Rigakis, Magdalene Marinaki, Yannis Marinakis*

**14:00 – 15:00**      **Lunch**

**15:00 – 16:30**      **Parallel sessions**

8. Quality management **Room:** *Socrates* **Chair:** Evangelos Grigoroudis (Technical University of Crete, Greece)

Airline Efficiency Benchmarking with Data Envelopment Analysis: The Effect of Alliance Membership

**Authors:** *Angelos Kottas, Michael Madas*

A new business excellence framework for adaptation in times of turbulence

**Authors:** *Ioannis Metaxas, Dimitrios Koulouriotis, Prodromos Chatzoglou*

A multicriteria approach to assess the weights of the EFQM excellence model's criteria

**Authors:** *Yannis Politis, Evangelos Grigoroudis*

Defining customer satisfaction criteria categories using MCDA and Kano's model

**Authors:** *Evangelia Krassadaki, Evangelos Grigoroudis*

9. Optimization **Room:** *Aristotle* **Chair:** Maria Trnovska (Faculty of Mathematics, Physics and Informatics, Comenius University, Slovakia)

Entropy Analytics of Online Ratings: A mixed GEO-BIN Model

**Author:** *Yiannis Dimotikalis*

Artificial Bee Colony Algorithm for the Solution of Multiobjective Fuel Consumption Multi-Depot Vehicle Routing Problem

**Authors:** *Emmanouela Rapanaki, Iraklis-Dimitrios Psychas, Eleftherios Tsakirakis, Magdalene Marinaki, Yannis Marinakis*

Evolving Strategies for the Iterated Prisoners Dilemma via a Binary Firefly Algorithm

**Authors:** *Manousos Rigakis, Dimitra Trachanatzi, Andromachi Taxidou, Ioannis Karafyllidis, Magdalene Marinaki, Yannis Marinakis*

A Gravitational Search Algorithm for the Open Vehicle Routing Problem

**Authors:** *Irini Tsampounari, Eleftherios Tsakirakis, Magdalene Marinaki, Yannis Marinakis, Nikolaos Matsatsinis*

**16:30 – 17:00**      **Coffee break**



**17:00 – 18:30    Parallel sessions**

**10. Finance Room: Aristotle Chair:** Constantin Zopounidis (Technical University of Crete, Greece)

A novel group decision making methodology for multicriteria portfolio selection

**Authors:** Haris Doukas, Panos Xidonas, John Psarras

Jumps in Commodity markets: What do we learn?

**Author:** Christos Floros

Robust Optimization Approaches for Portfolio Selection: An Empirical Comparative Analysis

**Authors:** Antonios Georgantas, Michalis Doumpos

Portfolio Formation Using Geographic Information Systems, Multi-Criteria Decision Making Models and Integer Programming Models: A Case Study in Wind Energy Exploitation

**Authors:** Athanasios Vavatsikos, Aikaterini Arvanitidou, Dimitrios Petsas

**11. Strategy & Innovation Management Room: Socrates Chair:** Yiannis Dimotikalis (Technological Educational Institute of Crete, Greece)

E-Business Strategy: Mission statement and performance of digital businesses

**Authors:** Timoleon Delimpasis, Fotis Kitsios

Strategic Decision Making using Multicriteria Analysis: Information Systems Performance Evaluation in Greek SMEs

**Authors:** Maria Kamariotou, Fotis Kitsios, Evangelos Grigoroudis

MCDA framework to sustainable innovative strategy

**Authors:** Dimitrios Mitroulis, Fotis Kitsios, Evangelos Grigoroudis

A multicriteria Approach for Evaluating the Performance of Startup Companies in the sector of Smart Cities

**Authors:** Christos Nikoloudis, Niki Karali, Konstantinos Aravossis

Turning the difficulty into blessing-Operating Competitive SMEs during crisis: Current Management Perspectives

**Authors:** Christos Lemonakis, Alexandros Garefalakis, Georgios Xanthos, Georgios Apladas

**18:30 – 19:00    Closing session (Room: Aristotle)**

**June 16, 2018**

**09:30    A guided tour in the Old Town of Chania (registration required)**