

**EURO**

**The Association of European  
Operational Research Societies**

THIRTIETH ANNIVERSARY

1975 - 2005





*Thanks to*

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*For more about O.R.:*

- [www.scienceofbetter.co.uk](http://www.scienceofbetter.co.uk)
- [www.scienceofbetter.com](http://www.scienceofbetter.com)
- [www.euro-online.org](http://www.euro-online.org)



## WHAT IS O.R.?

Operational Research (O.R.) is the discipline of applying advanced analytical methods to help make better decisions.

By using techniques such as problem structuring methods and mathematical modelling to analyse complex situations, operational research gives executives the power to make more effective decisions and build more productive systems based on:

- a better understanding of the problems
- more complete data
- consideration of all available options
- careful predictions of outcomes and estimates of risk
- the latest decision support tools and techniques

In its evolution O.R. merged contributions from cognitive sciences, computer science, economics, mathematics and organisation theory. At the same time it became relevant to engineering, management, environmental and political sciences, but also to artificial intelligence, molecular biology and data mining as well as to archaeology, forestry and modern art.

The benefits flowing from O.R. are all around us. From better scheduling of airline crews to the design of queuing policies at Disney theme parks, from water distribution to mobile telecommunications. From two-person start-ups to global leaders. From resource planning for National Health Services to wide ranging decisions in central and local government. All benefit directly from O.R.



## WHERE DO WE COME FROM?

Is it possible to talk about decisions in a formal way? Is it possible to see within real life problems an abstract and formal (possibly mathematical) structure? Despite O.R. being a relatively young research area, the above questions are old as science. Aristotle in the 4<sup>th</sup> century BC used to describe “preferences” as “rational desires”, thus introducing a formal dimension to an everyday human activity: express preferences and decide.

O.R. has always been an “applied” discipline. It has always derived ideas and stimuli from real life and its complex decision problems:

· in the 18th century, just before the French revolution, the first decision problem to become the object of scientific investigation was voting (Borda vs. Condorcet in the French Academy of Science);

· during the Second World War, the term Operational Research was established to describe the scientific support provided to the British army facing crucial decision problems;

· in the post-war period when the challenge of managing complex systems, from industrial plants to economic districts, from railway networks to regional development, has shown that deciding can be the subject of scientific investigation and the object of precise methodologies.

O.R. has been around since the 40s. Dantzig in 1948, von Neumann and Morgenstern in 1944 and the O.R. and Decision Theory pioneers (Ackoff, Beer, Berge, Blackett, Churchman, Vajda, not to mention the Nobel prize winners Allais, Arrow, Kantorovich, Koopmans, Nash and Simon) established a discipline on how decisions can be taken, should be taken and can be aided to be taken. These disciplines have been applied by generations of researchers and practitioners.

O.R. is not just another management buzz-word.

In more than 60 years of scientific tradition it has helped to shape many of the economic, industrial, technological and societal achievements of our world. Today O.R. professionals continue to find ways to use O.R. to increase revenues and profits, to improve sustainability and to manage our complex world better.





## WHAT IS EURO?

✕ [www.euro-online.org](http://www.euro-online.org)

- The Association of Operational Research Societies in Europe (within IFORS).
- Established the 29th of January, 1975, in Brussels. Representing today more than 10000 OR practitioners and academics all around Europe.
- 29 National Societies and 27 EURO Working Groups, establishing a structured European network.
- The European Journal of Operational Research (EJOR), with its 24 issues per year, one of the top ranked O.R. Journals worldwide.
- A forum for O.R. in Europe, from large congresses to specialised conferences and dedicated workshops.
- A strong commitment to the support of young O.R. researchers through the EURO Summer Institutes and the ORP<sup>3</sup>.
- A special attention to the East European countries and the African continent.
- A number of awards including the EURO Gold Medal, the Management Science Strategic Innovation Prize, the European Doctoral Dissertation Award and the Best Applied Paper.
- The EURO permanent office in Brussels.



THE 29 NATIONAL SOCIETIES OF EURO

Austria

Belarus

Belgium

Bulgaria

Czech Republic

Croatia

Denmark

Finland

France

Germany

Greece

Hungary

Iceland

Ireland

Israel

Italy

Lithuania

Netherlands

Norway

Poland

Portugal

Slovakia

Serbia and Montenegro

South Africa

Spain

Sweden

Switzerland

Turkey

United Kingdom



## THE 27 EURO WORKING GROUPS

EWG MCDA - Multiple Criteria Decision Aiding

EWG EUROFUSE - Fuzzy sets

EWG ORAHS - OR applied to health services

EWG EUROBANKING - Special interest group in banking

EWG EWGLA - Locational analysis

EWG ESIGMA - Special interest group on multicriteria analysis

EWG Project management and scheduling

EWG ECCO - European Chapter on combinatorial optimization

EWG Decision support systems

EWG Transportation

EWG Group decision and negotiation support

EWG MODEST - Modelling of economies and societies in transition

EWG WATT Working group on automated time tabling

EWG Environmental planning

EWG PAREO - Parallel processing in operational research

EWG EPA - Efficiency and productivity analysis

EWG DDM - Distributed decision making

EWG Methodology for complex societal problems

EWG EUROPT, EURO Continuous Optimization

EWG HCP - Human Centered Processes

EWG E-CUBE - European Working Group on Experimental Economics

EWG EU/ME: European chapter on Metaheuristics

EURO Working Group on Ethics and OR

EWG ESICUP - EURO Special Interest Group on Cutting and Packing

EWG OR in Agriculture and Forest Management

ENOG - European Network Optimization Group

EWG Financial Modelling



## THEORETICAL ACHIEVEMENTS OF O.R.

- Linear and Non-Linear Programming and Extensions
- Combinatorial Optimisation and Graph Theory
- Arrow's Theorem and Social Choice
- Decision under uncertainty and risk
- Heuristics and Complexity Theory
- Bounded Rationality
- Nash equilibrium and Game Theory
- Discrete Event Simulation
- Visual Interactive Simulation

This is only a partial list of some of the most important theoretical achievements of O.R. since the 40s.

It is due to such achievements that large industrial, management and government problems have been solved.

Nobel prize winners who heavily contributed to the development of Operational Research and Decision Theory:

P. M. S. BLACKETT (1948)

K. J. ARROW (1972)

W. LEONTIEFF (1973)

L. V. KANTOROVICH and T.C. KOOPMANS (1975)

H. A. SIMON (1978)

M. ALLAIS (1988)

H. MARKOWITZ (1990)

J. C. HARSANYI and J. F. NASH (1994)

A. SEN (1998)

D. KAHNEMAN (2002).



A decorative grid of light blue plus signs (+) covers the left side of the page. The grid is approximately 10 columns wide and 10 rows high. The text 'O.R. APPLICATIONS' is centered within this grid, and the first plus sign in the second row, fifth column is replaced by an 'X' symbol.

## O.R. APPLICATIONS

- Telecommunications
- Transportation and logistics
- Production management
- Energy policy
- Health care management
- Water and Natural Resources management
- Environmental assessment
- Evaluation of Public Policies
- Regional Planning
- Airline Industry
- Agriculture and Food Industry
- Biology, Medicine and Genomics
- Finance and Banking
- Hardware and Software design
- Timetabling


Again this is a partial list of domains where O.R. has been successfully applied allowing modern industrial societies as well as developing countries to efficiently solve hard economical, organisational and societal problems.

We are proud to consider that all “better” solutions to many of the problems of our world have been possible thanks to O.R.



## FUTURE CHALLENGES

- Mobility and networks
- Environmental Management
- Governance
- Humanitarian Security
- Molecular Biology
- Algorithmic efficiency
- Knowledge extraction from large data sets
- GRID computing
- e-Business and e-Government



O.R. is today at the front-run of most of the most important challenges of the modern world. From hard combinatorial problems such as the sequencing of the DNA to complex societal challenges such as the management of security and the establishment of new governance standards in the private and public sector, O.R. is contributing to shape, identify and implement “better” options, solutions and ideas.

LIFE ITSELF IS A MATTER OF O.R.

Just about everything we do every day has some “O.R. Inside”. We get fresh water, we make telephone calls, we drive cars and we fly in aircrafts, we manage complex industrial plants, we schedule sport competitions, we book holidays, we ship containers, we manage health care, we use public facilities and appreciate social welfare: all of these things are achieved thanks, in part, to the contribution of O.R. and the thousands of Operational Researchers all around the world who dedicate their efforts to conceive, analyse and implement “better” solutions.

As “the science of better” O.R. practitioners can only promise to keep doing better.

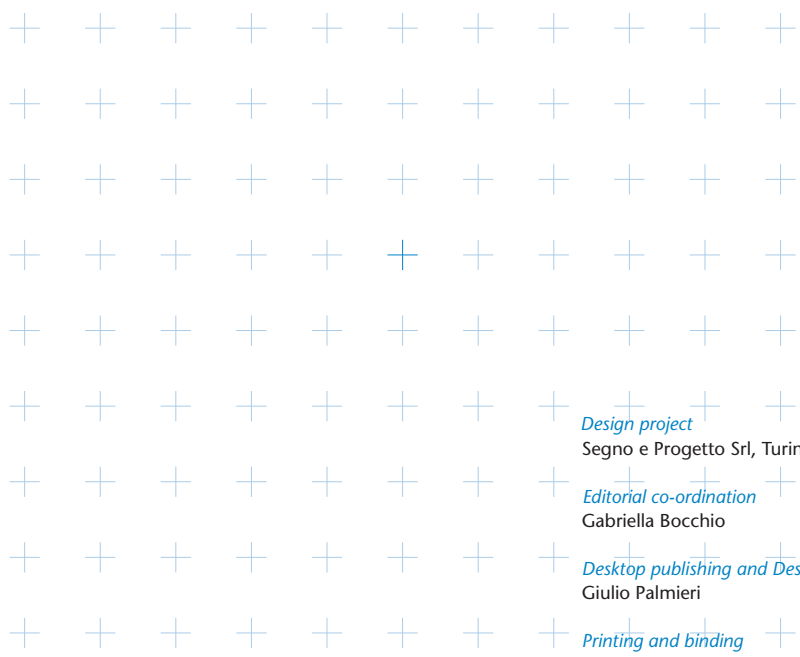
Aware that, as the Turkish poet Nazim Hikmet wrote in 1945, the best is yet to come.

*The most beautiful sea  
hasn't been crossed yet.*

*The most beautiful child:  
hasn't grown up yet.*

*Our most beautiful days:  
we haven't seen yet.*

*And the most beautiful words  
I wanted to tell you  
I haven't said yet...*



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## **EURO**

**The Association of European Operational Research Societies**

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