



# Operations Research in Switzerland

## The way forward

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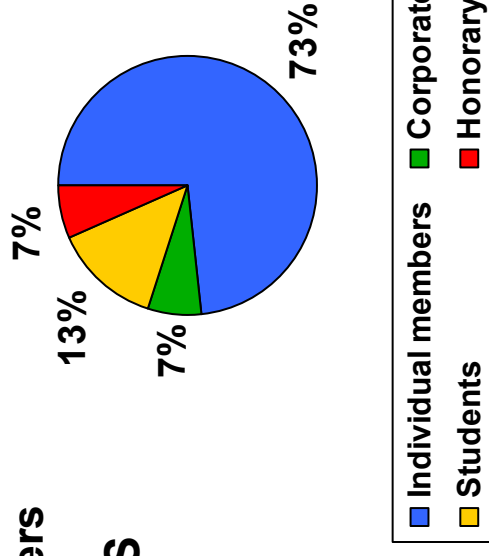
Daniel Costa  
President of the Swiss OR Society

40th Anniversary of IFOR  
ETHZ – August 27th, 2007

# SVOR/ASRO – The Swiss OR Society

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- **Founded in 1961 by Dr. H.P. Kuenzi**
- **Mission :**
  - **Promote applied and theoretical Operations Research in Switzerland**
  - **Represent the interests of the Swiss OR Community in all relevant national and international organizations. SVOR/ASRO designates delegates among its members**
- **Member of IFORS, EURO, SATW, SGVS**
- **Small society - 140 members**



Note : SATW = Schweizerische Akademie des Technischen Wissenschaften  
SGVS = Schweizerische Gesellschaft für Volkswirtschaft un Statistik

## The SVOR/ASRO executive committee

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- The SVOR/ASRO executive committee is elected by the General Assembly every three years
- The following persons are members of the SVOR/ASRO executive committee since May 2005 :
  - President : Daniel Costa      [president@svor.ch](mailto:president@svor.ch)
  - Vice-President : Luca Maria Gambardella      [vice-president@svor.ch](mailto:vice-president@svor.ch)
  - Treasurer : Michela Thiémard      [treasurer@svor.ch](mailto:treasurer@svor.ch)
  - Secretary : Heinz Ulrich      [secretary@svor.ch](mailto:secretary@svor.ch)
  - Bulletin editor : Pius Hättenschwiler      [editor@svor.ch](mailto:editor@svor.ch)
  - Office : Bernard Ries      [office@svor.ch](mailto:office@svor.ch)

# Achievements of SVOR/ASRO over the years

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Bridge the gap between the theory and the practice of OR and create links between OR researchers and practitioners

- Awards to students for outstanding research work as part of their Master and Ph.D. thesis.
- Annual competition for high-school students
- Joint conferences with the French and German OR Societies : FRANCORO and GOR
- Organisation and sponsoring of national and international events :
  - 3° Cycle Romand de Recherche Opérationnelle
  - Swiss OR days with IBM
  - GO meetings
  - TRISTAN
  - SVOR/ASRO Tutorials
- Annual general assembly with emphasis on theory or practice (company visits)
- Bulletin and internet site with up-to-date information



# OR Groups in Swiss Universities – the landscape is changing

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**Lausanne**  
**EPFL- ROSE, ROSE, TRANSP-OR**  
**T. Liebling, D. de Werra, M. Bierlaire**

**St. Gallen**  
**Uni SG- IOR/CF**  
**K. Frauendorfer**

**Zürich**  
**ETHZ-IFOR, Uni ZH-IOR**  
**H. Lüthi, K. Fukuda, P. Kall, D. Klatte, J. Mayer**

**Bern**  
**Uni BE- QM**  
**N. Trautmann**

**Genève**  
**Uni GE - HEC**  
**J.P. Vial, A. Haurie**

**Lugano**  
**IDSIA**  
**L.M. Gambardella**

**Fribourg**  
**Uni FR - DSS**  
**H. Gröflin, M. Widmer, P. Hättenschwiler**

**Neuchâtel**  
**Uni NE – OPMA & Logistics**  
**G. Reiner**

# Strenghts and weaknesses of OR as a professional discipline

## STENGTHS

- OR is an interdisciplinary science -
- OR is everywhere -

- Public Transportation
  - Half of the World Population lives in town
- Production Scheduling
  - More and more complex
- Timetabling - Curricula tend to become "A la carte"
- Pensions and Funds - Flexible Models
- Telecommunications - Network and Tarrifs Structure
- Stock Management - Just in Time, Reduced Working Capital

## WEAKNESSES

- Many clusters -

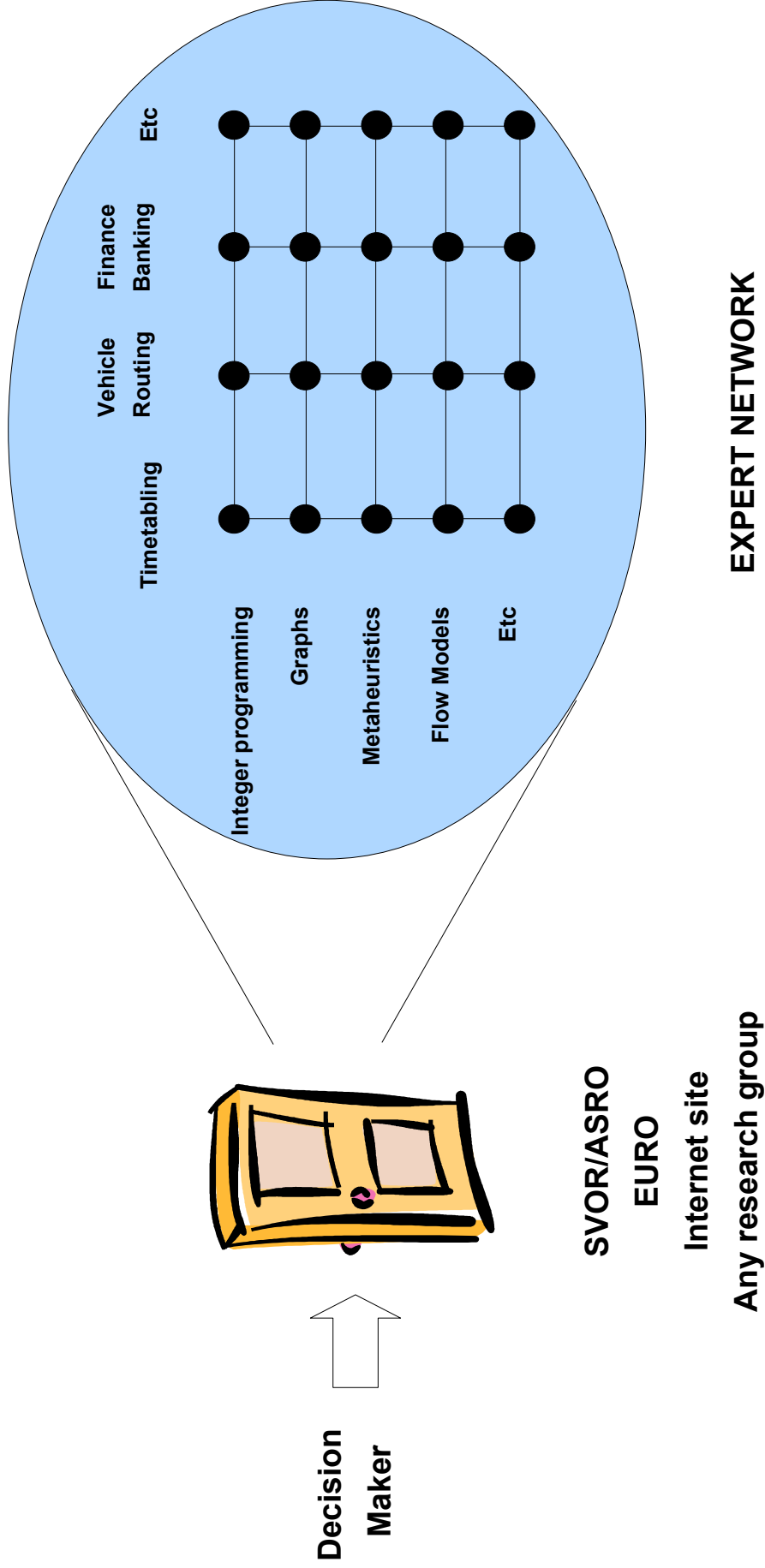
In Switzerland, in the last ten years, the OR discipline has become less visible in academia and in industry

- Management Services
- Strategic Supply Chain
- Engineering
- Decision Support
- Computer Science
- Transportation Services



**Challenge for the swiss OR Community :**  
**Re-create a strong identity**

# One entry point to an expert network in Operations Research



# Two illustrations – RFID in the ice cream business

RFID tags to accept specific ice cream bags only

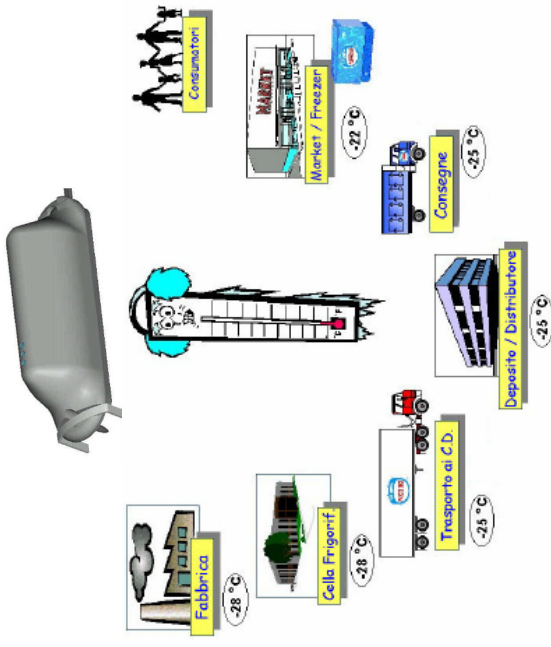


University of Parma

RFID Lab, ID-Solutions

Expert Network

RFID sensors to measure the temperature along the cold chain from factory to point of sale



Politecnico di Milano

University of Neuchâtel, IP 01

Expert Network



# Future OR challenges

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OR is about applying analytical methods to help make better decisions. Over the years OR has played a significant role in addressing the major challenges of the modern world.

**TODAY :** The benefits of OR are all around us.

**TOMORROW :** Sustainable development of our societies, economies and technologies.

The contribution of OR is essential in the following areas which will shape the future societies, organisations and everyday's life.

- Biology, Medicine and Genomics (DNA sequencing)
- Environmental Management
- Algorithmic and hardware efficiency
- Data Mining (Knowledge extraction from large databases)
- **Mobility and Transport/Logistics Networks**
- **Inventory Management**

# Mobility and Transport/Logistics Networks

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- Half of the World Population lives in a city
- Mobility and travelled distances are increasing
- Transportation distances keep increasing as a consequence of dedicated production sites and cheaper materials/manpower abroad
- Flows are no longer balanced

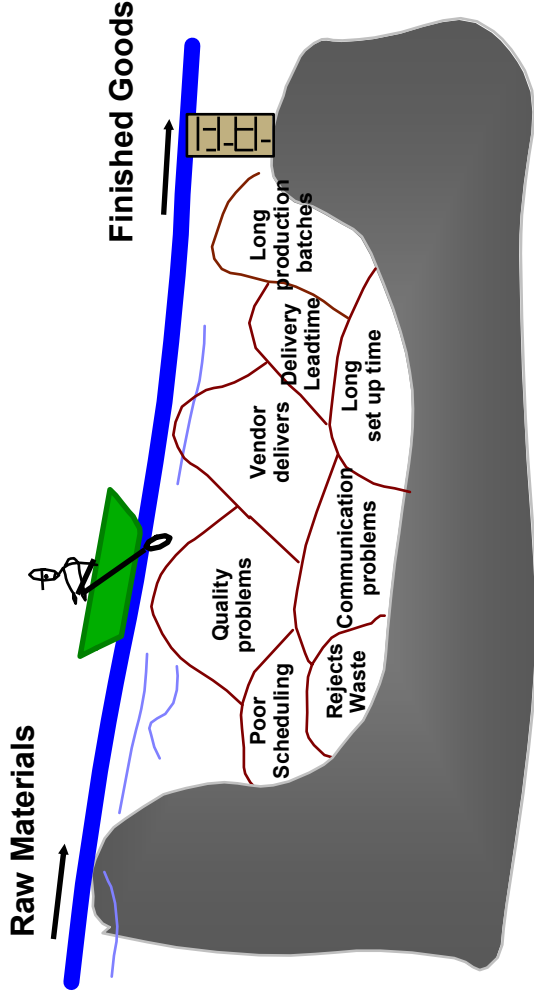


- Roads are congested
- Loads are not always saturated
- More frequent quality and reliability issues



**Global Logistics Players**  
**Integrated and Flexible Networks**  
**Alternative and Sustainable Transport**

# Inventory Management – Reducing stock levels reveals the hidden problems



**Swedish proverb :**  
*Every ship has a good captain in calm weather !*

