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Bulletin of the Association of European Operational Societies (EURO)
distributed quarterly through the National Societies and on the
Internet EURO web server.

B.D.: Bruxelles X; A.K.: Brussel X

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From the President:

Open answer to the letter by Marc Pirlot

Marc Pirlot, President of the Belgian OR Society, has published an open letter to the European OR Community (EURO Bulletin, Vol 6 (2-3), 1997, and AIRO news, Anno II, n.3, 1997) in the framework of an AIRO initiative taken after the meeting of national ORS Presidents during the EURO Conference in Barcelona, July 1997. Questions raised in this letter, in particular the ones concerning relations between National OR Societies and EURO, were discussed during the EURO Execution Committee meeting in January, 1998. The EURO EC asked me to summarize this discussion in the EURO Bulletin.

1. First of all, we are very happy that Marc Pirlot started a discussion, which hopefully will be continued, on the issues which are of vital interest for the future of the European OR Community. We are happy as more as during the last few years we have been asked many times the National Societies for their proposals, comments and opinions on potential new instruments (recently, e.g. Ethics Committee, Best Applied Paper Prize) but the reaction was rather inconspicuous.

2. We very much hope that the letter by Marc Pirlot is a presage of the growing interest from the side of the National Societies to help EURO in improving its service to the OR Community. For example, all actions proposed in the letter and concerning the information about activities of National Societies (announcements and programmes of national conferences, titles and abstracts of papers published in national journals etc.) on the Web site of EURO and/or in EURO Bulletin have been already or can be easily implemented providing that the information will reach the EURO Office in a proper time. We declare our constant willingness to help the National Societies even on a larger scale than until now but we

have to know what kind of help they require.

3. It is obvious that EURO in its present form (i.e. as a part of IFORS and an association of National Societies) needs a wide co-operation with the Societies in all aspects of its activities, starting from the organization of EURO K and other conferences, through the nominations of candidates for EURO Gold Medals, Best Applied Paper Prizes, participants of EURO Summer/Winter Institutes, and ending on the activities of (almost 20) EURO Working groups. I personally strongly support unification processes in Europe but I do not think that, at least in a near future, they will lead (or even should lead) to one European OR Society of individual members. Thus, in the forthcoming years, we should rather assume stability of the existing structure and try to explore possibilities it creates in the most efficient way.

4. The EURO EC has a completely reverse feeling than the one expressed by Marc Pirlot in the last but one sentence of his letter: we feel that we offer to the National Societies more than (at least some of them) are ready to benefit. However, we would like to confront this feeling with opinions of the National Societies, and thus, additionally to the EURO Council meeting and the lunch for Presidents, we plan to organize a special EURO session during EURO XVI in Brussels devoted to the relations between EURO and the National Societies. We warmly invite the Societies, their Presidents and Representatives, to express their opinions on these relations either in a written or/and in a verbal form before and/or during this session. We very much hope to hear from you and to see you in Brussels.

Jan Weglarz
President of EURO

From Vice-President 1 Reminiscing about 1997

EURO XV / INFORMS XXXIV – International Conference held in Spain in July

As I write this caught in the grip of the Scottish winter, warm and sunny Barcelona in July already seems a distant memory - albeit a very pleasant one. I would like to take this opportunity to put on public record our thanks to the Conference Committees for creating the opportunity for over 1100 of us with an interest in OR to meet, learn from each other and exchange news and views in pleasant surroundings. Everyone leaves a conference with their own personal memories; on the academic front I particularly enjoyed the plenary presentations by the two EURO gold medallists; Rainer Burkhard's fascinating tour of the "fractal world of OR" and Jan Karel Lenstra's discussion of the very successful competition to stimulate the interest of Dutch university and school students in OR. I was interested also to pick up, in a couple of talks, on a concern about the declining contribution of OR/MS to Business teaching in the USA. This is in contrast to the UK where OR/MS departments located in Business Schools make a significant contribution - at Strathclyde this amounts to almost 20% of teaching on the MBA programme and I am sure that the picture is similar in Warwick and Lancaster. The more leisurely highlights of the visit were a beautiful day walking in the spectacular Montserrat mountains (including a few exciting bits where we lost the track), the Gaudi architecture (he must have had so much fun!) and the tasty Catalan food (mmm...). I hope your own souvenirs are good ones.

Conference statistics

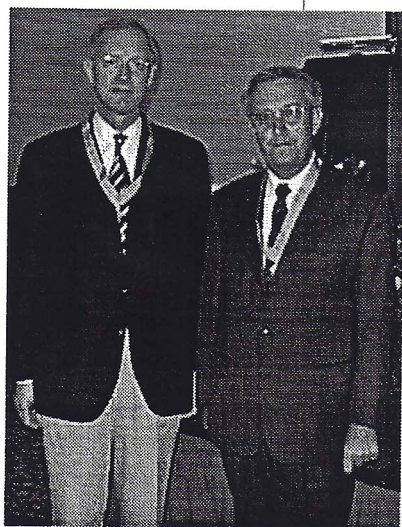
For most participants the conference ended with the closing session, or perhaps when they left Barcelona or waved good-bye to colleagues. Not so for the organisers; not only is there the physical tidying up - notices to be taken down with a mixture of relief that, hopefully, all has run smoothly (at least, from the delegates' perspective) and sadness that

everyone is now departed - but also the analysis and reporting. At EURO XV a total of 1137 delegates attended, from 51 countries: 1114 papers were scheduled in 250 parallel sessions (25 streams for 10 time slots), plenaries and semi-plenaries; the average attendance at the parallel sessions was 16 (I'll leave you to work out how many delegates were actually at the Conference rather than enjoying the many attractions of Barcelona); the no show rate was 12%. This information is monitored by the EURO Executive committee with a view to advising future conference organisers on questions such as whether or not to charge an abstract fee, how many rooms are needed of what size, etc.

The financial outcome of the conference was a surplus of CHF 180,000, shared between EURO, INFORMS and the national society according to a previously agreed formula, which in this case resulted in a roughly equal split. In the case of EURO the surplus goes towards the funding of other, non-income-generating activities such as the Working Groups, the European Summer / Winter Institutes and support for individuals, for example, to enable delegates from Central and Eastern European countries to attend conferences.

Benefits and costs

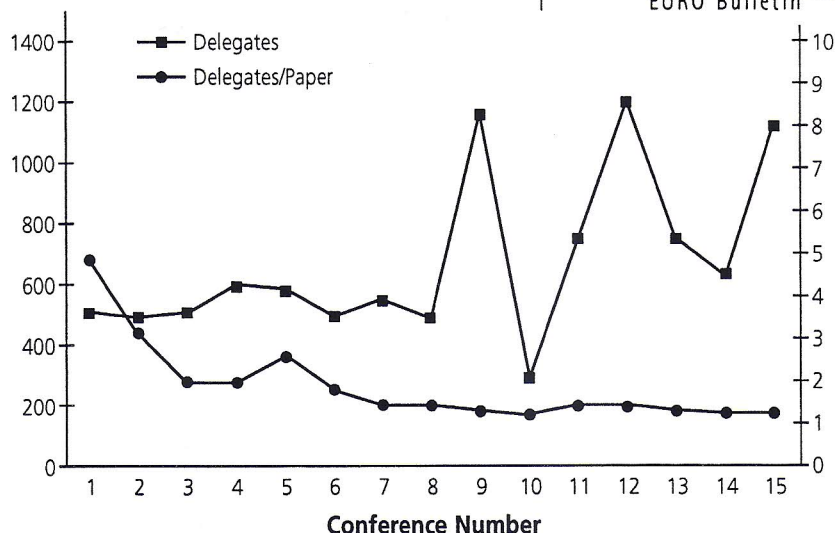
On this occasion the conference was organised jointly with INFORMS, thereby encouraging a greater than usual attendance from the USA and Canada and a larger overall conference, as indicated in the graph (page 3). The years in which joint conferences have been held (previously with TIMS) stand out clearly. These conferences place a substantially increased burden on the organising committees. This is not only because of the increased numbers, but also as result of the more complex organisation and the need to coordinate the wishes and ways of working of two organisations which, although they have a shared rationale, have quite different operational cultures. EURO, a federation of national societies, operates with a low level of administrative support (... but we are very appreciative of what we do have, thanks to Philippe Van



Asbroeck), whilst INFORMS, a society of individual members, has a more substantial administrative infrastructure. Both, of course, rely heavily on individual volunteers who contribute fantastic effort and energy to make events successful. In the case of the Barcelona conference, particular thanks must go to Jaime Barcelo, the chair of the organising committee, to Saul Gass who provided the organisational support from INFORMS, and also to Luis Valadares Tavares and Burton Dean as co-chairs of the programme committee. It is yourselves, as conference delegates, who enjoy the benefits of this work. At least, we hope you do! If you think there are ways of enhancing the benefits to be derived from the conference, or of encouraging the participation of those who currently feel that the benefits do not compensate for the costs, then please let us know your suggestions. Planning is just beginning for EURO 2000, to be held in Budapest, so there is ample opportunity to incorporate good ideas.

European Summer Institute on Production Scheduling held in Italy in September

Unfortunately I was not able to participate in the fifteenth ESI which was held in the beautiful Aosta Valley in September, but I'm sure those who did took away beautiful memories as well as benefiting from the valuable learning experience. The ESI was ably organised by Roberto Tadei. Seventeen



selected participants presented papers on aspects of production scheduling and thirteen guest speakers contributed their experienced view, as indicated in the table below. However, despite this intensive schedule it was not all work and no play as illustrated by the photograph below showing the party on an excursion up Mont Blanc.

A stream at EURO XVI in Brussels has been organised by participants in the institute - giving everyone the opportunity to discover what was discussed there. If previous ESWIs can be taken as an indication, this is just the start of collaboration which will continue long into the future.



Participants in ESI XV

Martin Alvehus	Sweden	A Production Planning Model Minimizing Inventory Costs Considering Transportation Batches - A Lagrangian Relaxation Approach
Meral Azizoglu	Turkey	Single Machine Scheduling with Two Criteria: Maximum Earliness and Number Tardy
Alexandros Gerodimos	Great Britain	Scheduling the Production of Two-Component Jobs on a Single Machine
Yale Herer	Israel	The Kanban Assignment Problem - A Non-Integral Approach
Daniel Kobler	Switzerland	Operational Production Planning and Inventory Management: A Case Study in the Medical Device Industry
Giuseppe Lancia	Italy	The Two-Machine Loading/Scheduling Problem
Renata Mansini	Italy	Approximation Algorithms for the Subset-Sum Problem
Herbert Meyr	Germany	The General Lotsizing and Scheduling Problem with Sequence Dependent Setup Times
Ebbe Gerard Negenman	Netherlands	A linear programming approach to support production planning
Sigrid Lise Nonås	Norway	A Combined Cutting-Stock and Lot-Sizing Problem
Natalia V. Shakhlevich	Belarus	Complexity of the Mixed Shop Scheduling Problems: a Survey
Kristina Soric	Croatia	The CLWS Heuristic for Single Machine Sequencing Problem
Ana Viana	Portugal	Using Metaheuristics in Multiobjective Resource Constrained Project Scheduling
Gerhard J. Woeginger	Austria	Approximation Algorithms for the Multiprocessor Open Shop Problem
Jannet I. van Zante-de Fokkert	Netherlands	The Assignment of Items to Resources: The Impact of Incorrect Costs Definitions

Invited Speakers

Lucio Bianco	Italy	The Reform Process of the Public Research Organisations
Michael A.H. Dempster	Great Britain	Hierarchical Stochastic Scheduling
Didier Dubois	France	Application of fuzzy constraints and qualitative utility to flexible and uncertain scheduling problems
Giorgio Gallo	Italy	Hyperpaths and Hyperflows as Modelling Paradigms
Costas Pappis	Greece	Meeting some new Challenges for Production Management: Re-engineering and Life Cycle Assessment
Chris N. Potts	Great Britain	Scheduling with batching
Paolo Serafini	Italy	Periodic Scheduling
Maria Grazia Speranza	Italy	Off-line, on-line and semi on-line approximation algorithms for scheduling tasks on identical machines with extendable working time
Roberto Tadei	Italy	The single machine total tardiness scheduling problem
Paolo Toth	Italy	Models and Algorithms for Railway Crew Scheduling
Steeff van de Velde	Netherlands	Machine Scheduling by Column Generation
Gideon Weiss	Israel	Optimal Draining of Fluid Re-entrant Line
Hans J. Zimmermann	Germany	Approximate Reasoning in Manufacturing

And looking to the future

Conferences

As you are surely aware, planning for EURO XVI in Brussels in July is well under way. If you are not up to date, then take a look at the Conference Web Page (<http://image.fpms.ac.be/euro16.html>) which...

Further into the future, the first EURO Conference in the new millenium will take place in Budapest in July 2000. Jacob Krarup and Andras Prekopa as chairs of the Programme and Organising Committee have already started to make plans - look out for a first call for papers later this year. In 2001 we return to the Netherlands, site of EURO III in 1979.

Nineteen Ninety Nine is an IFORS conference year (to be held in Beijing), but will also see the first EURO Prime Conference, aimed at younger OR analysts, or people beginning their career in OR. This is to be held in Poland, but you will hear more from Vice-President 2.

ESWIs

There is also a full programme of activity planned for the next 2 years. The 16th ESWI is to be held in Warwick, UK, in September this year. The topic is DEA and Performance Measurement - the deadline for submission of papers to your national society is the end of March, so if you hurry there might just still be time to submit. This summer also sees the first of a series of three summer institutes to be

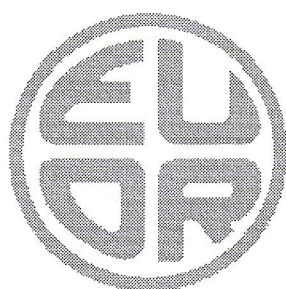
organised on the subject of Managerial Complexity by the EURO/Arab Management School in Granada. Although this is not part of the EURO ESWI programme it is modelled on this programme and has the support of EURO.

Looking a little further into the future, we have two winter institutes. In February 1999 the Finnish OR Society is organising ESWI XVII on the topic "Protection and Exploitation of Renewable Resources", to be held in Mekrijarvi in eastern Finland. You will find the first call for papers in this bulletin on page 12. A year or so later, we move to Switzerland for ESWI XVIII on the subject of "Metaheuristics and Combinatorial Optimisation". There is still time for aspiring participants in these institutes to develop or perfect their skills in skiing.

Still further into the future

Although we have an active programme of conferences and ESWIs for the next two or three years, planning never stops. If your national society is interested in hosting a conference or an ESWI, do not wait to be asked - get in touch now and find out what is involved. It is never too early to start planning!

Valerie Belton
Vice-President 1



EUROFUSE

EURO Working Group on Fuzzy Sets

Call for membership

Introduction

We are proud to announce the rebirth of the EURO Working Group (EWG) on Fuzzy Sets, named EUROFUSE from now on!

After some years of little activity of this EWG, especially in comparison with other EWG's, there were two choices for the EURO Executive Committee (EURO EC): either to reactivate it or to decide about its dissolution. When we were approached by EURO officials asking us to take over the co-ordination of this EWG, we were glad and honoured to accept it.

Next, we want to summarise the history, and set up some ideas about the future activities and plans of EUROFUSE.

History

Ever since the inception of EURO (The Association of European Operational Research Societies) (see http://www.ulb.ac.be/euro/euro_welcome.html), it has provided an organisational framework for EURO Working Groups (EWG). As declared by the EURO Council, the main purpose of the EWG's is to encourage communication and research between small groups of members specialising in particular topics. The cornerstone for both EURO and its working groups was laid at the First EURO Conference (1975), and the EWG on Fuzzy Sets (together with three other EWG's) was set up at the same time.

Purpose

Although fuzzy logic and fuzzy set theory cover much wider subjects than operational research itself, it has nevertheless several important connections with OR (for instance, in the fields of mathematical programming, preference modelling and its applications in multicriteria decision aid, repre-

sentation and exploitation of non-stochastic types of uncertainty, etc.). The purpose of EUROFUSE is to communicate and to promote knowledge of the theory of fuzzy sets and related areas and their applications.

It is a general principle of EURO that EWG's should bring together people with different backgrounds (like industry, university, etc.) who are interested in the same OR topic in order to exchange ideas, experiences and research results. EWG's are free in planning special activities in accordance with the Charter for EWG's.

Since this is a rebirth of the EWG on Fuzzy Sets, we have a lot to do before deciding about real activities. First of all, we would like to encourage individuals, independent of their previous membership, who are active or interested in any OR-related topic to sign up as member of EUROFUSE. Although EWG's are open to any individual, and there is no membership fee, co-ordinators should recommend the members of their EWG to become member of their national OR society if there exists one (for a list, see the EURO home page). Membership will be revised regularly.

After having an updated membership list, the first meeting of the reactivated group will be held during the EURO 16 Conference in Brussels (July 12-15, 1998) (see <http://image.fpms.ac.be/euro16.html>).

Activities

Here is a tentative list of possible actions we could take. Each of these actions is up to us, as well as including others. The order does not indicate importance:

- to start a newsletter (this can be electronical);
- to organise sessions at conferences;
- to organise regular meetings in different host countries;

- to publish selected papers of such meetings as an edited volume;
- to decide upon the channel for communication in between newsletters: fuzzy mailing list or an own mailing list;
- to publish special issues of OR-related journals;
- to start a series of working papers (technical notes);
- to co-operate with other EWG's (like the EWG on Multicriteria Aid for Decisions) in different forms;
- to design a home page and install a web server.

There will be invited sessions at the EURO 16 Conference in Brussels, and also at the Seventh IPMU Conference in Paris July 6-10, 1998) (see http://www_apa.lip6.fr/~baslofti/ipmu.html), which are mentioned to be organised and supported by EUROFUSE. This is the first activity after the rebirth!

Co-ordinators

EUROFUSE is, in fact, one of the few EWG with two co-ordinators, expressing the desire to have a representation from both Western and Eastern Europe. You can contact either of us concerning membership, proposal for activities, etc.

Dr. Bernard De Baets
 University of Gent (FSR - Flanders)
 Applied Mathematics and Computer Sc.
 Krijgslaan 281 (S9), B-9000 Gent, Belgium
 Tel: +32-9-264 49 08 - Fax: +32-9-264 49 95
 E-mail: Bernard.DeBaets@rug.ac.be
 URL: <http://allserv.rug.ac.be/~bdebaets>

Application for membership

Please return by e-mail to one of the co-ordinators:

Title (Prof/Dr/Mrs/Mr):

Name:

First Name:

Address:

Country:

Tel:

Fax:

E-mail:

Home Page:

Member of National OR Society (Y/N):

Remarks:

Prof. Dr. Janos Fodor
 University of Agricultural Sciences (GATE)
 Institute of Mathematics and Computer Sc.
 Department of Mathematics
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 E-mail: jfodor@mszi.gau.hu

The View from Everywhere A new Archimedean Stand-point

Getting started...

Starting a new project can be full of surprises. You will certainly know who your client is - the one who has agreed to pay your bills - but you may have only a sketchy idea about other aspects of the subject you are about to research. *You need a way of getting started.*

Most groups in the inquiry business have their own ways of starting out. A government inquiry may start by distributing a standard questionnaire which covers a range of items relative to the subject of the inquiry. My own approach is to use the scoping stage of a Project Management System which requires the analyst to identify all the players in the project and interview them.

I was recently reminded of the start-up problem when I began reading Huw Price's book entitled *TIME'S ARROW*. In the book he adapts the Archimedean Stand-point, *the View from Nowhen*, to the examination of research in cosmology and particle physics, and addresses the question "Why is the future so different from the past?".

Eureka!...

My initial thought was that the *View from Nowhen* might have a place in OR. However, there are some fundamental differences between classical science and OR science, which may make this particular Archimedean Stand-point inappropriate. When I compare the research I did during my time as a petroleum researcher to my OR work, there is a marked difference. That difference is *the way in which people are involved in forming the results.*

In OR there are many people involved in controlling and managing the operations under study. All may have a contribution to make which could affect the solution to the problem. Some may be influential in the way that results are applied within their organisation. In your inquiries you must establish the different ways in which these people view the operations of which they are a part, and form a composite overall view. Following the Archimedes'

precedence I have called this view the "*View from Everywhere*".

So how do we go about starting an OR project? I can best describe this through a practical example. I have chosen one of the several marine terminal studies which I undertook early in my OR career.

Ferry cross the Mersey...

On this occasion my brief was to study the operations of a marine jetty located on the river Mersey, near to Liverpool. The jetty was used by several oil companies to distribute petroleum products to their customers and my client wanted me to address various questions concerning the jetty's future expansion.

I identified three sets of players in the operation of the jetty:

- The Mersey Docks & Harbour Board - the owners.
- The Liverpool tidal observatory - provider of data on tides.
- The oil companies - the users.

Each set of players contributed to my view of the jetty operations, leading me to an appropriate form of analysis. Here are some brief comments on the contributions made by each set.

The Harbour Board...

The Harbour Board provides a number of services such as dredging, maintenance, harbour master, and general management. A further important service is the provision of lighters (barges) for removing part of a vessel's load before it can enter the jetty. It also takes various initiatives for land reclamation and new constructions, like the proposal to extend the jetty facilities.

It provided me with maps showing river bed profiles and the location of underwater obstructions such as water flow training walls. The Garston bar

is an underwater ridge which vessels have to clear on entering or leaving the jetty. Much of what I learned from my discussions with the Board influenced the approach I eventually took to modelling the jetty operations.

The river bed at the jetty silted up at about one foot per week. To maintain its operability the facility was dredged for one or two weeks every three months. During most of this period the jetty was not available to the Users.

The Tidal Observatory...

The scientists working at the Tidal observatory were interviewed to determine the effect of tides on the movement of shipping in the estuary. For any vessel manoeuvring to enter the jetty the navigator must know the precise height of water determined by soundings, tide tables, and the state of the weather.

The observatory produces tide tables showing the time and height of the tides for several months ahead. The dominance of tides in the Mersey estuary forms a natural time unit for the movement of vessels into and out of the jetty, equal to the average time interval between high tides.

The Users...

I worked for one of the companies using the jetty, although through its local manager I had easy access to all the other users. This was important because I needed to analyse & model the total operation of the jetty, before partitioning the results between users. I needed to collect data on all the ships using the jetty.

I first observed all the operations at or in the vicinity of the jetty. I also interviewed the jetty manager, the cost & operations manager, the area sales manager, and the scheduling personnel located in the supply & marine departments.

As vessels form the key element in the jetty operations I spent time on board vessels interviewing their captains and chief officers. I used these opportunities to cross check some of my data in their ships' logs. The captain of each vessel is

required to protect the owner's property by keeping to the law and safety regulations.

On arrival at the Mersey bar, a vessel falls within the control of the Harbour master, who I also interviewed. The ship's captain is required to obey the marine rules governing the movement and safety of all shipping. Vessels are required to anchor at the Mersey bar if they are unable to proceed directly to a berth at the jetty. Depending upon the vessel size and cargo, there may be a requirement to proceed to a special anchorage while lightering operations are undertaken to reduce the cargo size.

Safety within the estuary is of paramount importance and takes precedence over economic factors. For example vessels carrying low flash products are given priority over all other vessels arriving on the same tide. The various constraints under which captains must act forms a key part in the formulation of the jetty model.

An important feature of the arriving vessels was the great diversity of ports of embarkation, some vessels having travelled 3500 miles and others only 10 miles. This was one of the factors which served to characterise the set of arrival time distributions used in the model.

The conclusions...

- The process of forming the *View from Everywhere* should be an integral part of your project management system.
- In the scoping stage all players should be identified and interviewed.
- These interviews should be used to clarify project goals, determine problem boundaries and identify data sources.
- Also, the findings of the scoping stage will direct you towards the most appropriate type of analysis.
- The *View from Everywhere* is well worth the effort of forming it.

E.A.Field

Discussion paper

Virtual lifelong learning for OR in Europe

Introduction

In this paper I put forward a proposal for an innovative, large scale project to further Lifelong Learning in OR in Europe. The broad aims of the project, which is described in detail later, are to harness modern computing and communications technology to create a programme for lifelong learning in OR/MS which integrates expertise. Both theoretical and practical, currently scattered in centres across Europe, and makes this widely available to OR practitioners, students and academics.

For such a venture to succeed it needs the cooperation and enthusiasm of many people, in particular the OR Professors and Heads of OR Groups with whom this expertise lies. Thus the purpose of this discussion paper is to float the idea in order to gauge the likely level of support and commitment. The next stage, if support is forthcoming from the OR community, is to develop and put forward a proposal to the EU and other possible sponsors.

Motivation

Lifelong Learning

It is the dream of all good students to be taught by the experts in a field. In the academic sector these experts are the basis of a University's reputation and it is this reputation which attracts students to a particular degree course. In OR practice reputation is founded on a group's success, measured by its size and image. There are many OR experts in Europe, to be found both in academic institutions and in practitioner groups - experienced OR analysts can meet with them regularly at Conferences and Working Group meetings - it is, on the whole, a very open community. However, these people are spread across Europe and it would require great dedication (not to mention wealth) to arrange to study or work closely with more than a small number.

Thus one aim of the project is to create a lifelong learning opportunity which would allow many more - students or practitioners - who have already obtained a grounding in the basics of OR through

a Masters or Undergraduate degree programme, or through practical experience, to learn with the experts via advanced telecommunications media.

Leading Edge

Technology is developing rapidly and has the potential to substantially change the face of conventional education in the next decade. Collaboration across higher education institutes and with employers is likely to become more important. Student expectations are also changing; they will demand more sophisticated delivery mechanisms and greater internationalism. This project aims to position OR at the leading edge in all these respects.

Anticipated Benefits for European OR

The anticipated benefits of such a programme are:

- Participants learn directly from recognised experts (academics or practitioners).
- The involvement of academics, practitioners and participants from across Europe will strengthen international links and help to forge a shared identity for OR across Europe.
- The involvement of academics and practitioners together with the participants will facilitate the integration of theory with practice, and industry with academia.
- The utilisation of the latest computing and telecommunications technology will help to strengthen the image of OR as being at the forefront of the field.

How would it work?

There are, of course, many possibilities; the following are some suggestions based on the current state of the art (at least, my knowledge of it) :

- Multimedia teaching materials to be developed by experts and made available on the WWW or by other appropriate means.
- On-line seminars/discussion groups including the experts.
- Video conferencing seminars/discussion groups - incorporating, for example, client/analyst interviews/workshops.

- Computer supported cooperative work - international participant groups build shared models of problem situations (possibly advised or facilitated by experts in the particular modelling approach; possibly with the aim of addressing a problem put forward by a practitioner participant).

Of course, it is important not to neglect the importance of social contact in learning and opportunities for face-to-face meetings must be incorporated in the programme. These may take any of the following forms:

- If numbers permit, participants could be attached to a local centre which would permit relatively frequent face-to-face meetings.
- Annual "subject based" workshops to allow participants the opportunity to meet with "experts".
- A regular "conference/workshop" (6 monthly or annual) to bring together participants and experts, perhaps to work on "real" problems presented by practitioners.

The following is an example of a possible learning scenario:

An International Problem Workshop

Stage 1

An international study group of participants is presented with a real problem in a video conference with a client in the British Airways OR group.

Stage 2

Following an on-line discussion over the internet the group decide to structure the problem using a cognitive map. A further video conference with the client is necessary to develop the model. They contact Professor Colin Eden to advise on the structure and analysis of the map. It emerges from analysis of the map that fuzzy conflict analysis may be useful in modelling an aspect of international relations. The group refers to materials available on Fuzzy Modelling, developed by Professor Hans Zimmermann, and on Conflict Analysis, developed by Dr Peter Bennett. Information on International Aviation Law is obtained from the WWW. It turns out to be necessary to email Professor Zimmermann and Dr Bennett to discuss aspects of the proposed solution and they both agree to participate in a presentation to the client.

Stage 3

A video conference is held to discuss the analysis with the client.

Administrative structure

I do not want to get too bogged down in a discussion of administrative issues which might detract attention from the more innovative aspects of the proposal. There are, of course, many issues which would need to be resolved if such programme were to go ahead and these would need to be addressed in a detailed proposal. At this stage, the following are issues to consider:

- Would participants receive "credits" for their learning?
- Would learning be assessed? If so, how and by whom?
- Would there be an award for achieving a certain number of credits?
- What would it be called? (A European Fellowship in OR?)
- Who would validate it? (a consortium of institutions across of Europe?)
- Who would administer it? (EURO Office? allow institutions to bid?)

An important issue would, of course, be the specification of areas of expertise to be covered. The aim should be to foster collaboration not to create divisions - I would hope that this issue can be handled in a way which engenders maximum support for the project and avoids offence by omission.

Required Expertise

If this proposal is to be taken further, a project team comprising the following expertise should be convened:

- Subject area expertise
- Practitioner involvement
- Development of multimedia teaching/training materials
- Use of WWW in teaching/training
- Telecommunications expertise
- Computer supported cooperative work
- Project management

Valerie Belton

Announcement EURO Winter Institute (EWI)

Ilomantsi, Finland, February 26 - March 14, 1999

Theme: Protection and Exploitation of Renewable Resources

Scope: This EURO Winter Institute will focus on issues of methodology and applications of OR concerning protection and exploitation of renewable resources. In particular, application areas to be covered will include e.g. forestry, agriculture, fishery, and energy.

Applications: EURO Summer and Winter Institutes (ESWI) are organised to encourage good social and working relationships among promising young OR scientists in Europe. One important purpose of a EURO Institute is to establish a network of promising young researchers (age < 35) who will continue to work together in future, e.g. as a working group. The participation is limited to a group of about 25. Participation is an honour and a person can be a participant in an ESWI only once in her/his career.

Applicants should submit an unpublished paper within the theme of the Institute together with their curriculum vitae to their National OR Society. Each National Society of EURO will then select up to two candidates and submit the information to the Winter Institute. The scientific committee will make the final choice of the participants.

Activities: At the Institute there will be lectures given by invited speakers, but the main emphasis is on the participants' presentations and on the discussion about the papers. A special issue of EJOR (European Journal of Operations Research) will be prepared based on papers presented at the Institute. Also visits to research institutes, factories and firms which use renewable resources are organised. Besides the scientific activities there are social activities to establish a strong network and friendly relationships for co-operation during the institute and in the future. For this purpose the organisers of EWI will prepare a rich and varied social programme, including a visit to a woodwork

art exhibition, a visit to the Finnish-Russian border and the easternmost place of the European Union, snow activities, a survival trip, the original Finnish sauna, and Finnish folk music with the traditional Finnish harp playing.

Location and expenses: Scientific activities and accommodation will be sited at the Mekrijärvi research station of the University of Joensuu in Ilomantsi. Ilomantsi is the easternmost commune of Finland and the European Union and it is situated 80 km from Joensuu. The cost of stay at the EWI (scientific programme, accommodation, meals, and social activities) is covered by EURO, the Finnish OR Society and other sponsors. The participants will have to cover the costs of travel expenses to Joensuu or Ilomantsi. However, EURO encourages the National OR Societies to give support to their participants to cover these costs.

Schedule: Deadline for submission of papers to National Societies: To be decided by the National Society.

Deadline for submission of information about the candidates by the National OR Societies to EWI: October 30, 1998.

Announcement of selected participants by the Scientific Committee of the EWI: November 30, 1998.

EWI Protection and Exploitation of Renewable Resources: February 26 – March 14, 1999.

Information: Information is available from the chairperson of the organising committee:

Tuula Kinnunen, Turku School of Economics and Business Administration, ehtorinpellonkatu 3, FIN-20500 Turku, Finland,

Tel.: +358 2 3383304 - Fax: +358 2 3383302, E-mail: Tuula.Kinnunen@tukkk.fi

or from the other members of the organising committee: Tomi Seppala from Turku School of Economics and Business Administration; Tarja Joro, Markku Kuula, Margareta Soismaa and Leena Tanner from Helsinki School of Economics and Business Administration, P.O.B. 1210, FIN-00101 Helsinki, Finland, Tel.: + 358 9 43131.

EURO events calendar

13-15/05/98	EWG	ECCO XI : Copenhagen, Denmark pisinger@diku.dk
14-15/05/98	EWG	Financial Modelling : Paris, France Molenaar@few.eur.nl
24-27/06/98	EWG	Decision Support Systems : Granada, Spain jelassi@insead.fr
7-9/07/98	EWG	Project Management and Scheduling : Istanbul, Turkey pms98@boun.edu.tr
8-10/07/98	EWG	PAREO 98 : Versailles, France pareo98@prism.uvsq.fr
12-15/07/98	EURO-K	XVI : Brussels, Belgium euro@mathro.fpms.ac.be http://image.fpms.ac.be/euro16.html
12-15/07/98	EWG	Environmental Planning : Brussels, Belgium pappis@unipi.cc.unipi.gr
19-24/07/98	EWG	OR applied to health services : Roma, Italy http://rosd.sta.uniroma1.it/orahs98/opening.htm
16-26/08/98	ES&WI	Data Envelopment Analysis : University of Warwick, UK c.s.Sarrico@warwick.ac.uk
8-10/09/98	EWG	MODEST : Lancaster, UK nahorski@ibspan.waw.pl owsinski@ibspan.waw.pl
9-11/09/98	EWG	Transportation : Goteborg, Sweden mipat@math.chalmers.se
24-25/09/98 or 1-2/10/98	EWG	48th Meeting of MCDA : Quebec, Canada Jean-Marc.Martel@fsa.ulaval.ca
8-10/10/98	EWG	Financial Modelling : Krakow, Poland Molenaar@few.eur.nl
26/02/99 - 14/03/99	EWI	Protection and Exploitation of Renewable Resources : Ilomantsi, Finland Tuula.Kinnunen@tukkk.fi
Spring 1999	EWG	Financial Modelling : Valencia, Spain Molenaar@few.eur.nl

ES&WI : EURO Summer & Winter Institute

EURO-k : EURO Conference

EWG : EURO Working Group Meeting

