

EURO Bulletin

Bulletin of the Association of European Operational Research Societies (EURO) distributed 4 times a year (Spring, Summer, Fall, Winter) through the National Societies. National Societies or individual members having news for the bulletin are requested to send 2 weeks before distribution their information to the editor: Ph. Van Asbroeck, 108 av. Sleeclox, B-1030 Brussels, Belgium (tel. & fax.: +32 2 245 60 69).

OR NETWORKS

FROM THE PRESIDENT-ELECT

Dear Members of Members, there must be a simpler way of starting a letter than this, perhaps «members²». Perhaps one can borrow an expression from another language. Until then...

A number of people have suggested to me that EURO should encourage some more networks along the lines of the Practitioner's Network already started by Dr Fortuin, Dr Van Beek and Prof. Van Wassenhove. Various subjects have been proposed: Operations Management, Marketing, Just in Time, Total Quality Management, Logistics, Re-tailing, Quantitative Management

Accounting. To each of these topics OR does already make a significant contribution and could do much more in many countries. The aim of networks would be to exchange information on practical applications and thereby disseminate eventually to more and more managers evidence that OR really is a practical «decision-aid», to use the phrase of Bernard Roy.

The Executive Committee of EURO will consider this proposal at its next meeting on 15th January 1993. Before then it needs the views of member societies and practical offers from «members²» who would be willing to start networks on these topics.

Please write to me and let me know. Remember the emphasis of these networks would be on practical application, but there is room for all sorts of networks, so please let me have your ideas for other topics too.

Maurice F. Shutler
President-Elect of EURO

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EURO-officers

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Past Presidents: H. Zimmermann, B. Rapp, R. Tomlinson, J. Brans, D. de Werra, J. Krarup.

EURO-members

Austria: Österreichische Gesellschaft für Operations Research (ÖGOR), c/o Institut für Ökonometrie, OR und Systemtheorie (Prof. G. Feichtinger), Technische Universität Wien, Argentinierstrasse 8, A-1040 Wien;

Belgium: Société Belge pour les Applications des Méthodes Scientifiques de Gestion / Belgische Vereniging voor Toepassing van Wetenschappelijke Methoden in het Bedrijfsbeheer (SOGESCI / BVWB), Renaissancelaan 30 Av. de la Renaissance, B-1040 Brussels, (tel. +2 735 5152, fax +2 735 2421);

Czechoslovakia: CSORS, Czech and Slovak Operational Research Society, Department of Operations Research and Econometrics, The School of Economics, Odbojarov 10, CS-832 20 Bratislava;

Denmark: Danish Operations Research Society (DORS), c/o Spadille Congress Service, Sommervej 3, DK-3100 Hornbaek, (tel. 02-202496);

Egypt: Operations Research Society of Egypt (ORSE), c/o Nasser Wahba, Centre for Middle East Management Studies, The American University in Cairo, P.O. Box 2511, Cairo;

Finland: Finnish Operation Research Society (FORS), P.O. Box 702, SF-00101 Helsinki 10;

France: Association Française pour la Cybernétique Economique et Technique (AF CET), 156 Boulevard Péreire, F-75017 Paris, (tel. 01-47662419);

Germany: Deutsche Gesellschaft für Operations Research (DGOR), Am Steinknapp 14b, D-4630 Bochum 1, (tel. +49 234 462246, fax +49 234 462245);

Greece: Hellenic Operational Research Society (HELORS), Solomou 20, G-11682 Athens, (tel.: 01-3619892, 01-3607532);

Hungary: Committe of OR at the Hungarian Academy of Sciences, Kende u. 13-17, P.O. Box 63, H-1502 Budapest, (Associate Member);

Iceland: Icelandic Operations Research Society (ICORS), University of Iceland, Faculty of Economics and Business Administration, IS-101 Reykjavik;

Ireland: Operations Research and Management Society of Ireland (ORMSI), c/o Stokes Kennedy Crowley, 1 Stokes Place, St. Stephen's Green, Dublin 2 (tel. 735566);

Israel: Operational Research Society of Israel (ORSIS), c/o Faculty of Industrial Engineering and Management, Technion, Haifa, (tel. 04-292239);

Italy: Associazione Italiana di Ricerca Operativa (AIRO), c/o Signora Agnese Martinoli - Bagnasco, Via Serretto 1/4, I-16131 Genova, (tel. 39 10-3777703);

Netherlands: Netherlands Society for Operations Research (NSOR), c/o R. Kuik, Erasmus Universiteit, P.O. Box 1738, NL-3000 DR Rotterdam, (tel. +31 10-4082019);

Norway: Norwegian Operations Research Society (NORS), c/o Polyteknisk Forening, Rosenkrantzgt. 7, N-0159 Oslo 1, (tel. 02-330741);

Poland: Polish Cybernetical Society, Technical University of Poznan, Inst. Automatyki, Piotrowu 3A, PL-60-965 Poznan, or ASPORS, IBS Pan, Nowelska 6, PL-01-447 Warszawa;

Portugal: Associacao Portuguesa para o Desenvolvimento da Investigacao Operacional (APDIO), Cesur-Instituto Superior Tecnico, Av. Rovisco Pais, P-1000 Lisboa, (tel. 807455 / 882992, fax 809884);

Spain: Sociedad de Estadística e Investigación Operativa, Hortaleza 104 - 2 izda, E-28004 Madrid;

Sweden: Swedish Operations Research Association (SORA), FOA, S-172 90 Sundbyberg;

Switzerland: Schweizerische Vereinigung für Operations Research / Association Suisse de Recherche Operationnelle (SVOR / ASRO), c/o Ms T. Häring, Grossmattstrasse 38, CH-4133 Pratteln (tel. +41 61 821 4145);

Turkey: Operations Research Society of Turkey (ORST), Middle East Technical University, TR-06531 Ankara;

United Kingdom: Operational Research Society (ORS), Neville House, Waterloo Street, Birmingham B2 5Lx, (tel. 021-6430236);

Yugoslavia: Yugoslav Society for Electronics, Telecommunications, Automation and Nuclear Engineering (ETAN), Kneza Milosa 9, P.O. Box 356, Belgrade.

EURO GOLD MEDAL 1992

Bernard Roy

R. Petrovic, President of the Jury of the 7th EURO Gold Medal is not able - for reasons known to all - to attend this conference. On behalf of R. Petrovic, I will have - as a member of the jury - the honour of introducing the EURO Gold Medal 1992.

Still called a "new instrument", the EURO Gold Medal is indeed a magic instrument for several reasons. The first is that the Medal can be according to the circumstances doubled: that happened in Lisbon (EURO VIII, 1986) when both Pierre Hansen and Alexander Rinnooy Kan got each a Gold Medal. It can also be divided: last year in Aachen (EURO XI) the group of O.R. at the Technical University in Poznan, represented by Jacek Blazewicz, Roman Slowinski and Jan Weglarz was awarded one gold medal. Besides this the normal case sometimes occurs where the assignment of medals to recipients is a perfect one-to-one assignment, in fact exactly one medal given to one recipient. Hans Zimmermann (1985), Martin Beale posthumously (1988), Claude Berge (1989) are such examples.

In fact, finding a laureate is a multicriteria and hence difficult decision problem. The Jury consisting of R. Petrovic (President), R. Burkard, P. Dejax, K. Jornsten and the speaker had a most pleasant job in this case. The Jury obtained several excellent proposals and was rather happy about the involvement of the various societies in EURO. In text book examples of multicriteria decision problems, data are manipulated in such a way that no solution optimizes all criteria at the same time. Fortunately the problem of the Jury was one of these nice cases where you may forget about the many criteria because the laureate does optimize most if not all of them.

As a result of the computation made by the Jury, the laureate had to satisfy as closely as possible the following criteria: a) to have Michel as a second name; b) to be borne on March 15, 1934; c) to have Moulins-sur-Allier as a birthplace and an even home phone number.

A good approximation was found but there were two major drawbacks in the proposal of the jury:

- First the laureate was a former officer of EURO, but many of you may have forgotten it, since it was years ago. Besides this, those who can trust their memory will remember that there are precedents: the first Gold Medal was awarded to a former President of EURO.

- Second drawback, if we consider the field of activity of the laureate multicriteria decision making as you may guess - some people will, as in every EURO Conference, complain that the multicriteria fans, frustrated by having not enough space in the regular streams of the conference, managed to invade the opening session as well. This complain is not acceptable: TIMS has joined EURO and has brought a lot of monocriteria streams into the programme giving thus a perfect balance.

On behalf of R. Petrovic, I am happy to tell you that we decided to put these obstacles aside. Our laureate has contributed more than substantially in many areas extending from applied mathematics in economics, social sciences and management to decision theory and multicriteria approaches for decision support.

His work has covered many fields like algebra, probability, combinatorics, computer science, scheduling, discrete optimization and graph theory. In all of these areas, there are basic results and theorems which bear the name of our laureate.

Constantly interested in the use of quantitative models for decision making in real life situations, he was over the years led to expand his field of research to the decision processes in situations where data are uncertain or undetermined. Axiomatic bases were developed for preference modelling and this pioneering work

was simultaneously implemented as convivial software tools and tested in various real life contexts provided by the many industrial contacts that our laureate had through his consulting activities in an underground (but nevertheless famous) transportation company, in the army, in various companies and through the institute he founded in 1976. Author of 8 famous books on Algebra, Graph Theory, Decision Analysis and more than 150 papers, our laureate is founder, editor or member of the editorial board of many international journals of O. R.

Doctor honoris causa of at least 4 universities, the recipient of the 7th EURO Gold Medal is a member of many scientific societies, a former President of a national O.R. Society and of EURO. He has been invited to give courses on various continents. The laureate of the Gold Medal is unique. Bernard Roy is indeed the only one who can make a "lamsade": these are the initials of the Laboratoire d'Analyse et de Modélisation de Systèmes d'Aide à la Décision.

As a founder and a Director of this Institute at Université de Paris-Dauphine, Bernard Roy has been an extremely stimulating leader. His discoveries have undoubtedly influenced in a deep way the approach of multicriteria decision making and more generally of decision processes; people are now talking of the French or even the European School of Decision theory. In one word, Bernard Roy is a humanist: science, psychology, literature, philosophy are among his prime interests. As a modern representative of the 18th Century Encyclopédie, he should already have been awarded the EURO Gold Medal at least two hundred years ago.

I would first like to congratulate Françoise Roy who has been an essential, inspiring and ever present actor in the work of Bernard. On behalf of R. Petrovic, the President of the Jury, let me now extend our congratulations to Bernard Roy and ask him to give a talk entitled "On Operations Research and Decision-Aid" but first to accept the 7th EURO Gold Medal.

Dominique de Werra

OR NETWORKS

NETWORKS OF OR PRACTITIONERS

some lessons from the past

At a time when a network of OR people is being established in Europe (see next page). It may be useful to review the lessons of an earlier exercise in international networking.

Early experience

In the late '50s I was involved in setting up a network of OR people working in the UK, France, Germany, Belgium, Holland, Italy, USA, and Canada. All the people in the network were involved in producing OR solutions to practical problems which arose in the management of various activities in the petroleum industry. The main object of the network was to exchange information on OR applications in order to speed-up the development of OR support in an international organisation.

Although the network proved to be worthwhile in an educational sense, there being few formal OR courses available at the time, its main importance arose from the opportunity it gave to members to exchange information on the commercial value and transferability of particular OR techniques and applications.

Criteria

Most managers are interested in the products of OR if they provide them with the means of acquiring added commercial value to their businesses. Practicality may be a necessary requirement for gaining management support for an OR project, but it is certainly not a sufficient one. Commercial value can be obtained in many ways, amongst which are the following:

- A reduction in cost, manpower & skill,

response time, or size.

- An increase in control, planning horizon, robustness, capacity, availability, confidence or accuracy.

These values are not mutually exclusive, and the products of a particular OR project may provide several of them.

High expectations

Transferability was the *raison d'être* for the OR network. There were high expectations that for similar activities in the same industry there would be high transferability of OR methodology and data. For some activities this expectation was realised, and the time and resources committed to servicing the network were justified. But in every case of a transfer, changes were required to adapt the model and/or data to the new environment. These changes required OR skill and ingenuity.

Transferability

When considering transferability it is worth looking at the OR system as a whole. For example, I have found it useful to view the anatomy of a working OR system as follows:

FRONT-END → MODEL → BACK-END

The «front-end» includes access to system, data capture & checking, and model formulation. «Model» includes model running. «Back-end» includes solution analysis, interpretation of results, saving of case data and results, and system security. For many practical OR systems the front and the back-ends will need to provide for the possibility of recycling

both input and output data from one case to the input or output of another. In many OR applications the «model» will have been acquired from a consultant or an academic institution or another company, and the main job of the OR unit may be to implant such models into their own company's working environment.

Lessons

What lessons can be learned from these experiences?

- 1 Of particular interest to «practical» OR people in the network are the commercial values achieved by the products of OR, and the transferability of particular OR techniques and applications.
- 2 Networks of OR people can help to speed up the development of OR support, particularly where the networks consist of people working on similar problems.
- 3 To be effective, networks need to be regularly serviced by a central body.
- 4 What is transferred in a network will depend on the way that problems and solutions are structured by its members. It is useful to develop a way of structuring the particular class of problems of interest to members.
- 5 It is unrealistic to expect the total transfer of an OR solution from one situation to another. There will always be changes to be made, and sometimes it will be better to start from scratch, rather than to accept a partial transplant.

Ernest Field
OR Newsletter October 1992

OR NETWORKS

OR NETWORK bridging the gap

In the world of Operational Research, the gap between theory and practice is well-known.

Many OR workers have tried to bridge this gap, convinced that it is undesirable, for society as well, as for our profession. This has resulted in articles in professional journals, books and courses especially designed to support managers. But the gap continues to exist, albeit less wide than in the past.

At a very modest scale, we have tried since May 1986 to promote our profession outside academic circles. At the IFORS'90 Conference in Athens, we presented our ideas and achievements so far, and had the pleasure of meeting persons interested in joining an OR network. Later on, we received some very encouraging mail from all over the world. This year, at EURO XI at Aachen, we continued our efforts with the result that more people joined the network.

If you are interested in the OR network and are willing to participate in some way or another, please do contact us:

Dr. Leonard Fortuin, OR consultant, CQM, P.O. Box 41 4, 5600 AK Eindhoven, the Netherlands. (tel. +31 40 758705, fax +31 40 758712).

Professor Paul van Beek, Agricultural University Wageningen, Department of Mathematics, Dreyenlaan 4, 6703 HA Wageningen, the Netherlands. (tel. +31 8370 82387, fax +31 8370 83554).

Professor Luk Van Wassenhove, INSEAD, Technology Management Area, Boulevard de Constance, 77305 Fontainebleau, France. (tel. +33 160 724326, fax +33 160 724242).

F E L L O W S H I P S for 700 young researchers

On the initiative of Vice-President Filippo Maria Pandolfi, the European Commission has selected, within the framework of the «Human Capital and Mobility» programme, a group of projects which, with a second group to be confirmed at the beginning of October, will be supported by 252 mobility fellowships for individual researchers and 239 fellowships for laboratories or research teams which, as a result, will be able to select and receive more than 470 researchers. A total of over 700 young researchers will benefit from these mobility fellowships.

Without precedent

The «Human Capital and Mobility» programme, which comes under the Third Framework Programme for Research and Technological Development in the Community and is an initiative without precedent in Europe, with no real equivalent elsewhere, is one of the most extensive transnational fellowship schemes for young researchers. The principal objective is to promote the mobility of young researchers, mainly at post-doctoral level, and thus contribute to the creation of a truly European scientific and technical community

Two years abroad

To enable young researchers to benefit from the best training available, the programme allows them to work for up to two years in the best European research establishments in a country other than their own. To prevent a «brain drain» towards Europe's most developed regions, researchers from less favoured regions can apply to have their fellowship extended for

an extra year, to return to their country of origin to consolidate the knowledge they have acquired.

Networks

Besides training by research, the activities carried out under the programme are: the setting up of scientific and technical research cooperation networks, measures to promote access to large-scale scientific facilities and the organisation of «Euro-conferences».

Management sciences

The Human Capital and Mobility programme covers all the exact and natural sciences, as well as the social, economic and management sciences relevant to the improvement of European economic competitiveness. It is open to EFTA countries and Central and East European countries with which the Community has scientific and technical cooperation arrangements.

For further information

please contact:

Mr Louis Bellemin, Programme Manager, tel. +32 2 236 61 96;

Mr Paul De Lusignan, Scientific Officer, tel. +32 2 236 61 89.

ESI IX

9th EURO Summer Institute on hierarchical planning

Next year from 24 July to 7 August 1993 EURO organizes in Mannheim, Germany, a Summer Institute for most promising young scientists.

ADMITANCE: Limited to 20 young scientists (age 25 - 35) from different European countries.

ACTIVITIES: Each participant will present a research paper on a topic within the theme. In addition to these seminars, the Scientific Committee will organize lectures by invited experts. A special issue of EJOR (European Journal of Operational Research) will be prepared based on papers presented at the Institute. To facilitate network building among the participants the Organizing Committee will try to prepare a rich and varied social programme including the visit of several industrial companies.

LOCATION: The University of Mannheim, Germany, is situated in the famous Barock Palace which, in the beginning of the 18th Century, replaced the destroyed castle of Heidelberg.

ACCOMODATION: Free accomodation and registration will be provided for the selected participants.

APPLICATIONS: Applicants should submit their curriculum vitae together with an unpublished paper within the theme (Hierarchical Planning) of the Institute to their national OR Society. These Societies will select their national candidates and submit their applications to the organizers of ESI IX before 1 April, 1993. The final choice will be made by the Scientific Committee, and selected candidates notified by 1 April.

INFORMATION: Available from your national OR Society or from the Organizing Committee.

SCIENTIFIC COMMITTEE: Ch: Schneeweiss (Coord.), S. Axsäter (Sweden), J. Brans (Belgium), B. Fleischmann (Germany), K. Spremann (Switzerland), J. Spronk (Netherlands), L. Van Wassenhove (France), G. Zäpfel (Austria).

ORGANIZING COMMITTEE: Ch: Schneeweiss (Coord.), S. Loinjak, J. Steinbach, V. Söhner, H. Vaterrodt.

REFERENCE ADDRESS:

Prof. Dr. Ch. Schneeweiss
University of Mannheim,
Schloss,
D-6800 Mannheim, Germany
Phone: 621 292 5413
Fax: 621 292 1270

OUTLINE OF THEME

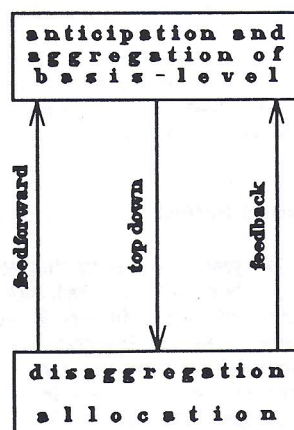
In recent years Hierarchical Planning became increasingly important in at least three situations:

- in planning within a hierarchically structured system;
- in hierarchically structuring a non structured system;
- in using hierarchical planning as a decomposition procedure.

The EURO Summer Institute ESI IX will focus on Hierarchical Planning in a very general sense. It is not restricted to hierarchical production planning following the ideas of the well-known Hax/Meal approach. Instead a much broader view is taken.

Planning is not of course limited to production problems, and the term planning refers also to such problems like structuring of bargaining processes or shaping a principal agent relationship. In particular the following list of examples may further illustrate the range of problems ESI IX will be concerned with:

- Interdependence between different Hierarchical Planning Levels;
- Aggregation - disaggregation in Hierarchical Planning;
- Hierarchical Production Planning;
- Hierarchical Planning within Dynamic Systems;
- Hierarchical Planning using decision trees;
- Flexibility as a Hierarchical property;
- Hierarchical Algorithms;
- Hierarchical Bargaining;
- Principal-Agent Theory;
- Hierarchical Decision Support (DSS) and Man - Machine - Systems;
- Hierarchical Planning and AI - Systems.



EURO COUNCIL 1992

EURO Council Helsinki June, 1992

In keeping with EURO tradition, the EURO Council meeting was held during the period of the EURO XII / TMS XXXI Conference.

The EURO Council meeting included the election of its new officers for the year 1993-94. The Composition of the Executive committee for this period will be:

PRESIDENT: Maurice Shuller, UK;
IMMEDIATE PAST PRESIDENT: J. Spronk, The Netherlands;
PRESIDENT-ELECT: C. Pappis, Grece;
VICE PRESIDENT: T. Kinnunen, Finland;
VICE PRESIDENT: I. Hall-Themido, Portugal;
SECRETARY: C. Roucairol, France;
TREASURER: J. Bovet, Switzerland;
EURO VICE-PRESIDENT OF IFORS: J. Krarup, Denmark

The Council decided to accept the membership of the CzechSlovak society subject to that society's application for membership of IFORS being approved.

The proposal made by Israel to host a EURO Conference in 1995 in Israel was accepted.

Regarding the distribution of the EURO Bulletin, it was pointed out that some of the copies sent to the national OR Societies appear never to be further distributed and only a limited number of the national Societies include the Bulletin, or parts thereof, in their newsletters. On a proposition of the new EURO President-Elect C. Pappis, it was decided to mail the copies to the EURO representatives directly. The EURO representatives are supposed to catalyse the distribution of the EURO Bulletin in their own country.

EURO Bulletin report EURO Council meeting Helsinki June, 1992

Last year the EURO Executive Committee decided to edit the EURO Bulletin as a separate publication and to distribute it directly to the EURO-member Societies and to the EURO Working Group.

This change has been decided, not only on the grounds of space-saving, but because given the small number of EJOR personal subscribers, the Bulletin was no longer reaching those whom it was intended.

Since that times the new EURO Bulletin has been launched as a quarterly publication. Up to now two issues have been edited already:

- a 10 pages Winter issue, its contents is: from the President-elect, EURO-officers and members Societies addresses, EURO Gold Medal, EURO Summer Institutes, new EURO Working Groups, Journals, call for Papers, Events;

- a 16 pages Spring issue devoted to the EURO Working Groups, its contents is: from the Vice President (Isabel Hall-Themido), call for candidatures, EURO-officers & members, EWGs Activity Report on Multi-criteria Aid for Decision, Fuzzy Sets/IFSA European Chapter, OR Applied to Health Services, EURO Banking, Locational Analysis, ESIGMA, Project Management and Scheduling, Financial Modelling, European Chapter on Combinatorial Optimization, Decision Support Systems, Urban Traffic and Transportation, Informations Systems, Miscellaneous, Events.

Regarding the flow of information, our old formal system asks that «Members Societies» having information for the EURO Bulletin are requested to inform their

National Societies. These Societies are requested to send their information to the editor of the Euro Bulletin". This formal system is supported by an informal one with a flow of information coming from individuals, organisations or EURO Working Groups. This last informal system seems to be more efficient than the formal one.

Regarding distribution, the EURO Bulletin is distributed to the EURO-members, EURO-working groups, and to the EURO-, IFORS-officers with the hope that the EURO-member Societies will in turn choose to include a copy of the EURO Bulletin in their own News Bulletin as suggested in the EURO Bulletin cover letter.

A limited survey seems to indicate that the EURO Bulletin is not systematically included in the National News Bulletin of the EURO-member Societies. On the one hand a survey will be made in order to estimate the extent of the distribution made by the EURO-member Societies to their own members. Furthermore a copy of the Spring edition of the EURO Bulletin will be included in the conference wallet in Helsinki in order to induce a demand of the individual members to their National OR Societies.

Finally the distribution of the EURO Bulletin is a good test in order to check the distribution list, it has been shown that such a list is prone to change frequently and need to be updated; this is the reason why the addresses of EURO-officers and members Societies are included in each issue of the EURO Bulletin.

Philippe Van Asbroeck
EURO Bulletin editor

OR MS teaching

MULTI-MEDIA MATERIALS to improve OR MS teaching

A consortium of university MS/OR departments led by Strathclyde, together with Southampton and Aston, have been awarded £470k over the next three years to develop multi-media materials to improve the efficiency and effectiveness of OR/MS teaching.

The venture was initiated at a meeting organised for COPIOR by Simon French, back in April. Following this gathering Mark Elder and Valerie Belton, with enthusiastic support and encouragement from academics at a number of other universities, put together a bid to the Universities Funding Council who are spending £7.5m on their 'Teaching and Learning Technology Programme'. The outcome of this was that ours was one of 40 (out of 125) successful projects.

Over the three years we plan to build modules to accompany most of the material covered in an introductory course on OR/MS. The first five of these will be completed by October '93; these will include LP, Simulation, and Stock Control.

Each module will consist of a

Hypermedia system which is capable of guiding students through a learning programme of text, graphics, examples, video and applications software - all while sitting at a PC. The system even assesses the progress of each student and feeds back progress reports to tutors.

Video will be used to illustrate problem context - factor visits and the like being difficult for groups which might be as large as 200! Hypertext will be used to present a technique, and to describe situations in which it might be used (supported by the video); examples and worked solutions will be given; self assessment exercises will be available for the students to monitor their own progress and tutor assessed work can be submitted (via the computer network) when the student feels confident; applications software or existing teaching software will be integrated in the system. The user will be able to view as much at any one time as the computer screen will allow - for example, they might be in the middle of using LP software, working on an assignment, when they want to check the definition of a 'binding

constraint', or review a video clip to find out the capacity of a storage area.

An important reason for undertaking this project is the benefit it can bring to students in allowing them to work at their own pace, in their own time, creating a stimulating learning environment - they find these methods much more exciting than traditional classes! There will no longer be the need for tedious lectures covering 'text-book' material, how often have you heard the definition that «a lecture is a means of transferring information from the notes of the lecturer to those of the student without passing through the minds of either» and valuable contact time can concentrate on more interesting and challenging case-based material and exercises.

For more information please contact M. Elder or V. Belton at the Management Science University of Strathclyde 26 Richmond Str, Glasgow G1 1XH, UK
tel. +41 552 4400 ext. 3613;
fax +41 552 6686
email M.D.Elder@UK.AC.STRATH.

club EURO k

E J O R special issue on Decision Technology

In 1993 the European Journal of Operational Research is proposing to publish a special issue on the theme of new technology and its impact upon the methodologies of decision analysis and decision-support. This issue is intended to feature innovative developments in the technology-aided practice of individual and group decision modelling, knowledge-engineering, and intelligent decision systems. Applications are solicited from a wide range which may span for example, strategic mapping to medical expert systems. Techniques may range, for example, from influence diagrams, expert-critiquing systems, interactive multicriteria aids through to object-orientated programming. Within this broad interpretation, the emphasis should be upon the modelling process and the way that technology is enhancing the human-computer interaction capabilities. Papers on model validation in this context, as well as comparative studies of technique and reports on application will be particularly welcome.

Papers should be submitted in triplicate, before December 1992, to: Derek W. Bunn, Decision Sciences, London Business School, Sussex Place, Regent's Park, LONDON NW1 4SA, UK.

Club EURO k

B. Tilanus informs us that the veterans club, EURO k, has met at EURO XII in Helsinki and regretted to establish that it had lost one member. The remaining six veterans: J. Brans, B. Dorhout, G. Kreweras, B. Rapp, B. Tilanus and D. de Werra, now run for EURO XIII, Glasgow 1994.

Journal of MULTI-CRITERIA DECISION ANALYSIS

The Journal of Multi-Criteria Decision Analysis will provide an international forum for the presentation and discussion of all aspects of research, application and evaluation of multi-criteria decision analysis.

With an Editorial Board of eminent researchers, scholars and practitioners from all around the world, the Journal of Multi-Criteria Decision Analysis aims to become the recognised, authoritative, international Journal of MCDA.

In addition to the regular refereed papers, the Journal's letters pages seek to provide a platform on which all methodologies for MCDA can present and discuss their rationale, and provide a lively forum for critical discussion.

The Journal seeks to publish material from a variety of disciplines and all schools of thought. Case studies, applications and evaluation of techniques and methodologies will be particularly welcome.

Letters to the editor discussing any aspect of MCDA will be encouraged. Book and software reviews will also be published.

We hope the journal will provide a meeting ground for all workers in the area, decision theorists, behavioural scientists and practising decision analysts, and as General Editor I look forward to receiving your contributions.

Contributors are invited to send:

papers to: S. French, School of Computer Studies, University of Leeds, Leeds, LS2 9JT, UK (tel. +532 335438, fax +532 335468, email sf@uk.ac.leeds.dcs.

books for review to: Ph. Vincke, Université Libre de Bruxelles, CP210, Bd. du Triomphe, B-1050 Brussels, Belgium (tel. +32 2 650 5889, fax +32 2 650 5899)

LOCATION SCIENCE

The primary focus of this new academic journal is on research directed to extending and applying the theory and modeling of location decisions. The journal will also publish papers which address the underlying processes related to locational decisions, the determination of parameters associated with location problems, and issues of implementation. The submission of papers which apply locational constructs to non locational problems is encouraged. In addition, the journal will occasionally publish articles reporting on specific applications of location modeling, as well as invited literature reviews and perspectives. These latter articles will include, but not limited to, recommendations for future research, analysis of failures in past research and historical overviews.

Due to the complexity, strategic importance, and widespread application of location analysis, it has attracted the interest of researchers from many academic disciplines. These include economics, engineering, geography, logistics, marketing, mathematics, management information systems, operations research, regional science and planning among others. It is intended that the journal will be representative of the various academic disciplines involved in location analysis. An important goal of the journal is to encourage interdisciplinary communication and research.

Authors are invited to submit four copies of their research papers to any one of the Editors: R. Church, Dept. of Geography, University of California, Santa Barbara, CA 93106, USA; J. Current, Faculty of Management Sciences, College of Business, Ohio State University, 301 Hagerty Hall, 1775 College road, Columbus, OH 43210-1399 USA; H. A. Eiselt, Faculty of Administration, University of New Brunswick, PO box 4400, Fredericton, NB, Canada E3B 5A5.

EVENTS

Present section was closed on 17 October, 1992. «*» denotes information featured previously.

November 2-6, 1992

Conference on Neural Networks and their Applications, Nimes, France;
Information: Jean-Claude Rault, EC2, 269-287 rue de la Garenne, F-92024 Nanterre Cedex, France (tel. +33 1 47 80 70 00, +33 1 47 80 66 29);

November 17, 1992

LAMSADE Seminar on «l'approche du sur-classement dans une problématique du tri: concepts, méthodes et logiciels» with Wei Yu, Paris, France;
Information: Université Paris Dauphine, LAMSADE, Place du Maréchal De Lattre de Tassigny, F-75775 Paris CEDEX 16, France (tel. +33 1 45 05 1410, fax +33 1 47 55 44 22);

November 17-18, 1992

Seminar on Evaluating and Managing the IT Investment, London, UK;
Information: UNICOM Seminars, Brunel Science Park, Cleveland Rd, Uxbridge, Middlesex, UB8 3PH, UK, (tel. 0895 256484, fax 0895 813095);

November 24, 1992

LAMSADE Seminar on «un système d'aide à la décision pour la prévention des avalanches» with R. Bolognesi, Paris France;
Information: Université Paris Dauphine, LAMSADE, Place du Maréchal De Lattre de Tassigny, F-75775 Paris CEDEX 16, France (tel. +33 1 45 05 1410, fax +33 1 47 55 44 22);

November 24-25, 1992

Seminar on Approaches to Object-Oriented Analysis and Design, London, UK;
Information: UNICOM Seminars, Brunel Science Park, Cleveland Rd, Uxbridge, Middlesex, UB8 3PH, UK, (tel. 0895 256484, fax 0895 813095);

November 24-25, 1992

Seminar on Managing Software Quality in

the 90's, London, UK;

Information: UNICOM Seminars, Brunel Science Park, Cleveland Rd, Uxbridge, Middlesex, UB8 3PH, UK, (tel. 0895 256484, fax 0895 813095);

November 26-28, 1992

EURO Working group on Financial Modelling 12th Meeting, Turku, Finland;
Information: Ms. Leena Juurikas, Turku School of Economics and Business Administration, Business Research Center, Rehtorinpellonkatu 3, SF-20500 Turku, Finland (tel. +358 21 638 3252, fax +358 21 638 3268);

December 7-9, 1992

IAPR Workshop on Machine Vision Applications, Tokyo, Japan;
Information: Prof. Mikio Takagi, Institute of Industrial Science, University of Tokyo, 7-22-1 Roppongi, Minatoku, Tokyo 106, Japan;

December 7-11, 1992

* XVIIth International Biometric Society Conference, Hamilton, New Zealand;
Information: IBC'92 Secretary, Ruskura Agricultural Centre, Private Bag 3080, Hamilton, New Zealand, (tel.: +64(7)856 2839, fax: +64(7)838 5012, e-mail: ibc@ruakura.maf.govt.nz);

December 8-9, 1992

Seminar on Open Systems and Interoperability: Information Systems for Enterprise-Wide Computing, London, UK;
Information: UNICOM Seminars, Brunel Science Park, Cleveland Rd, Uxbridge, Middlesex, UB8 3PH, UK, (tel. 0895 256484, fax 0895 813095);

December 14-16, 1992

* International Conference on Operational Research for Development, Ahmedabad, India;
Information: J. Rosenhead, London School of Economics & Political Science, Houghton Street, London WC2A 2AE, UK, (tel.: 071 955 7637, fax: 071 955 7416, telex: 24655 LSELON G);

December 15, 1992

LAMSADE Seminars on «problèmes et difficultés de la décision assistée par ordinateur» with J. Pomerol, Paris, France;
Information: Université Paris Dauphine, LAMSADE, Place du Maréchal De Lattre de

Tassigny, F-75775 Paris CEDEX 16, France (tel. +33 1 45 05 1410, fax +33 1 47 55 44 22);

December 17-19, 1992

* Silver Jubilee (XXV) Convention of The Operational Research Society of India, Theme: Operational Research & Information Technology - A New Synergy, Ahmedabad, India;
Information: Prof. G. Raghuram, Organising Secretary OR-92, Public System Group, Indian Institute of Management, Ahmedabad 380 015, India (tel.: 91-272-407241, fax: 91-272-467396, E-mail: raghuram @ iimahd.ernet.in, telex: 121-6351-IIMA IN);

December 21-23, 1992

Second International Conference on Parallel Image Analysis, Ube, Japan;
Information: Prof. Katsushi Inoue, Dept. Computer Science and Systems Engineering, Yamaguchi University, Ube 755, Japan;

December 28-29, 1992

9th Israeli Conference on AI and Computer Vision, Tel Aviv, Israel;
Information: Shimon Edelman, 9th IAICV, Dept. of Computer Science, The Weizmann Institute of Science, 76100 Rehovot, Israel;

January 6-8, 1993

Symposium on Applied Mathematical Programming, Programming and Modeling, APMOD93, Budapest, Hungary;
Information: Symposium Secretariat, Ms Eva Sós, Computer and Automation Institute, HAS, H-1518 Budapest, PO box 63, Hungary (fax +361 186 9378, 166 7503);

January 12, 1993

LAMSADE Seminar on «Learning from Multiple Criteria Analysis» with V. Belton, Paris, France;
Information: Université Paris Dauphine, LAMSADE, Place du Maréchal De Lattre de Tassigny, F-75775 Paris CEDEX 16, France (tel. +33 1 45 05 1410, fax +33 1 47 55 44 22);

January 21-22, 1993

7th National Conference on Quantitative Methods for Decision Making ORBEL 7, Brussels, Belgium;
Information: Bertrand Mareschal, Université Libre de Bruxelles, Institut de Statistique, Bld. du Triomphe CP210, B-

EVENTS

1050 Bussels, Belgium (tel. +2 650 58 84, fax +2 650 58 99);

January - February, 1993

* IFIP Conference on Computational Techniques of Stochastic Programming, Seregelyes, Hungary;
Information: Dr. Istvan Deak, Deputy Head of the O.R. Dept., Computer and Automation Institute, Kende u. 13-17, H-1111 Budapest XI, Hungary;

February 2, 1993

LAMSADE Seminar on «méthodes d'exploitation de relations de préférence valuées» with D. Bouyssou, Paris, France;
Information: Université Paris Dauphine, LAMSADE, Place du Maréchal De Lattre de Tassigny, F-75775 Paris CEDEX 16, France (tel. +33 1 45 05 1410, fax +33 1 47 55 44 22);

February 2-3, 1993

Seminars on Software Architecture for Parallel Computing: Tools and Applications, London, UK;
Information: UNICOM Seminars, Brunel Science Park, Cleveland Rd, Uxbridge, Middlesex, UB8 3PH, UK, (tel. 0895 256484, fax 0895 813095);

February 3-4, 1993

Seminars on High Performance DB's: Evaluation and Measurement of Performance, London, UK;
Information: UNICOM Seminars, Brunel Science Park, Cleveland Rd, Uxbridge, Middlesex, UB8 3PH, UK, (tel. 0895 256484, fax 0895 813095);

March 9-11, 1993

* International Symposium on Systems Analysis and Management Decision in Forestry, Chile;
Information: A. Weintraub, Department Engineering, Industrial University of Chile, PO box 2777, Santiago, Chile, (tel.: +56 2 68 99403, fax: +56 2 68 97895);

March 11-12 or 18-19, 1993

* 37th Meeting of EWG "Multicriteria Aid for Decisions", Liège, Belgium;
Information: G. Colson, Université de Liège, FEGSS, Bâtiment B.31, Bte.50, B-4000 Liège, Belgium;

March 22-26, 1993

2nd International Conference on Interface to Real and Virtual Worlds, Montpellier, France;
Information: Le Corum, Secretariat of INFORMATIQUE '93, EC2, 269 rue de la Garenne, F-92024 Nanterre Cedex, France;

March 29 - 30, 1993

* 1st European Conference on Information Systems, Henley, UK;
Information: Prof. G. I. Doukidis, Athens University of Economics and Business, Informatics Dept., 76 Patission Street, GR-10434 Athens, Greece (tel.: 30 1 823 3523, Fax: 30 1 822 6204);

April 20-23, 1993

International Conference on Integrated Broadband Communication Networks and Services, Copenhagen, Denmark;
Information: Conference Secretariat, IBCN&S, Spadille Congress Service, Postboks 9, DK-3100 Hornbaek, Denmark (tel. +45 42 20 24 96, fax +45 42 20 01 60);

May 3-6, 1993

* 6th International Symposium on Applied Stochastic Models and Data Analysis, Chania, Crete, Greece;
Information: J. Janssen, CADEPS-ULB, Ecole de Commerce Solvay, 50 av. F.D. Roosevelt cp 194/7, B-1050 Brussels, Belgium, (tel.: 32-2-6503883, fax: 32-2-6502785) or C. H. Skiadas, Department of Production Engineering and Management, Technical University of Crete, 73132 Chania, Crete, Greece, (tel.: 30-821-59627, fax: 30-821-42176);

May 10-13, 1993

XXV CIOSTA-CIGR V Congress (Commission internationale de l'Organisation scientifique du Travail en Agriculture - Commission internationale du Génie Rural 5ème Section), Wageningen, The Netherlands;
Information: IAC-Section OCC, PO box 88, NL-6700 AB Wageningen, The Netherlands (tel. +8370 90 111, fax +8370 18 552);

May 17-21, 1993

* 12th International Conference on Electricity Distribution (CIRED), Birmingham, U.K.;
Information: CIRED General Secretariat, Galerie Ravenstein 4 Bte, B-100 Brussels, Belgium (tel.: +32 25 11 1970, fax: +32 25

11 2938, telex: 62409 UEBVE B);

May 25-27, 1993

CORS 93 SCRO Conference, Halifax, Canada;
Information: J. Pemberton Cyrus, Department of Industrial Engineering, TUNS, PO box 1000, Halifax, N.S. B3J 2X4, Canada (fax +1 902 420 7858);

June 2-4, 1993

Industrial Conference on Industrial Engineering and Production Management, Mons, Belgium;
Information: Conference Secretariat, FUCaM, Ch. de Binche 151, B-7000 Mons, Belgium (tel. +32 65 32 32 17, fax +32 65 31 56 91);

June 8-10, 1993

* AFCET'93 Congress, Versailles, France;
Information: AFCET, 156 bld. Péreire, F-75017 Paris, France (tel.: (1) 47 66 24 19, fax: (1) 42 67 93 12);

June 15-18, 1993

3rd International IMACS Workshop on Qualitative Reasoning and Decision Technologies, Barcelona, Spain;
Information: Prof. Nuria Puiera, Universitat Politecnica de Catalunya, Department de Matematica Aplicada II, c/- Pau Gargallo 6, E-08028 Barcelona, Spain;

June 16-18, 1993

Conference on Applied Probability in Engineering, Computer and Communication Sciences, Paris, France;
Information: François Baccelli, INRIA Sophia Antipolis, 2004 route des lucioles B.P. 93, F-06902 Sophia Antipolis Cedex, France (tel. +33 93 65 77 99, fax +33 93 65 78 58, email baccelli@sophia.inria.fr)

June 21-24, 1993

EuroPLA '93 Conference on the Application of Artificial Intelligence, Robotics and Image Processing to Civil Engineering, Building Engineering, Architecture, Urban Design and Urban Planning, Delft, The Netherlands;
Information: EuroPLA '93 Conference Secretariat, Poo - k.2.24 Faculty of Civil Engineering, Delft University of Technology, Stevinweg 1, NL-2628 Delft, The Netherlands (tel. +31 15 78 48 93, fax +31 15 78 52 63);

EVENTS

June 22-24, 1993

23th International Symposium on Fault Tolerant Computing, Toulouse, France; Information: Marie Thérèse Ippolito, LAAS CNRS, 7 Avenue du Colonel Roche, F-31077 Toulouse, France (fax +33 61 55 35 77);

July 6-9, 1993

6th International Workshop on Computed Aided Scheduling of Public Transport, Lisboa, Portugal; Information: 6th Workshop, DEIO Faculdade de Ciências, Universidade de Lisboa, Bloco C/2 Campo Grande, Cidade Universitária, P-1700 Lisboa, Portugal (tel. +1 397 8313, fax +1 397 8308, email paixao@UL.PT);

July 9-11, 1993

* 4th Meeting of EWG "Decision Support Systems", Lisboa, Portugal; Information: A. Rodriguez, Centro de Estatística e Aplicações da Universidade de Lisboa, Av. 24 Julho 134 /5, P-1300 Lisboa, Portugal;

July 12-16, 1993

* IFORS XIII on OR: Expanding Horizons, Lisboa, Portugal; Information: IFORS '93 Secretariat, Faculdade de Economia, Universidade Nova de Lisboa, Travessa Estevao Pinto, P-1000 Lisboa, Portugal (fax +351 1 387 1105);

July 19-23, 1993

International Federation of Automatic Control World Congress, Sidney, Australia; Information: IFAC Congress Technical Secretariat '93, c/o Department of Electrical and Computer Engineering, University of Newcastle, University Drive, Callaghan NSW 2308, Australia (tel.: (+61 +49) 21 6025, fax: (+61 +49) 60 1712, E-mail: eecg @ cc. newcastle . edu . au);

July 24 - August 7, 1993

9th EURO Summer Institute on Hierarchical Planning, Mannheim, Germany; Information: Prof. Dr. Ch. Schneeweiss, University of Mannheim, Schloss, D-6800 Mannheim, Germany (tel. +621 292 5413, fax +621 292 1270);

August 23- 27, 1993

XIII World conference of World Futures Studies Federation on Coherence and

Chaos in our Uncommon Futures, Visions, Means, Actions, Turku, Finland; Information: Prof. Pentti Malaska, WFSF Secretariat, Turku School of Economics, Rehtorinpellonkatu 3, SF-20500 Turku, Finland (tel. +358 21 638 3310 or 638 3360, fax +358 21 330 755, email pmalaska@utu.fi);

August 24-27, 1993

2nd International Conference on Systems Science and Systems Engineering, Beijing, China; Information: Prof. W. M. Zheng, ICSSSE '93 Secretariat, School of Economics and Management, Tsinghua University, Beijing 100084, China;

August 25-27, 1993

* 3rd IFAC International Workshop on Artificial Intelligence in Economics and Management, Portland, Oregon; Information: Prof. R. Krishnan, School of Urban and Public Affairs, Carnegie Mellon University, Pittsburgh, Penn. 15312, USA;

August 30 - September 2, 1993

* IFCS'93 - Conference of The International Federation of Classification Societies, Paris, France; Information: AFCET, 156 bld. Péreire, F-75017 Paris, France (tel.: (1) 47 66 24 19, fax: (1) 42 67 93 12);

September 7-10, 1993

1st European Congress on Fuzzy and Intelligent Technologies, Aachen, Germany; Information: ELITE Foundation, Prof. Dr. h.c. H.-J. Zimmermann, Scientific Director, Korneliuscenter, Promenade 9, D-Aachen, Germany (tel. +49 24 08 69 69, fax +49 24 08 9 45 82);

September 29 - October 1, 1993

Annual Conference of the Associazione Italiana di Ricerca Operativa on Innovation Management in Transportation and Logistic Systems, (Models, Algorithms, Tools), Capri, Italy; Information: AIRO '93 Secretariat, Dipt. di Informatica e Sistemistica, Università di Napoli «Federico II», Via Claudio 21, I-80125 Napoli, Italy (tel. & fax +39 81 768 3376, fax +39 81 768 3186);

October 17-20, 1993

International Conference on Systems, Man and Cybernetics, Systems Engineering in

Service of Humans, Le Touquet, France; Information: IEEE, SMC '93 Conference, Ecole Centrale de Lille, Boulevard Paul Langevin BP 48, F-59651 Villeneuve d'Ascq Cedex, France;

1994

EURO XIII Conference, Glasgow, UK; Information: EURO Secretariat;

June July, 1994

EURO Summer Institute on Combinatorial Optimization, Jouy-en Josas, France; Information: EURO Secretariat;

August, 1994

11th International Conference on Multiple Criteria Decision Making, Coimbra, Portugal; Information: J. Climaco, INESC, Rua Antero de Quental 231-CV, P-3000 Coimbra, Portugal;

August, 1994

IFAC Symposium on Identification and System Parameter Estimation, Lyngby, Denmark; Information: Prof. Mogens Blanke, Aalborg University, department of Control Engineering, Institute for Electronic Systems, Fredrik Bajers Vej. 7, DK-9220 Aalborg, Denmark;

1995

EURO Summer Institute on Maintenance, UK; Information: EURO Secretariat;

1995

EURO XIV Conference '95, Israel; Information: EURO Secretariat;

National Societies or individual members having news for the EURO Bulletin are requested to send their information to the editor: Ph. Van Asbroeck, 108 av. Sleeckx, B-1030 Brussels, Belgium (tel. and fax +32 2 245 60 69).