

OR NEWSLETTER

Operational Research Society of New Zealand (Inc.)

Registered at C.P.O., Wellington, as a magazine

October 1991

New Members

A warm welcome to new members since the last newsletter:

Duncan Roper	Lecturer	University of Western Sydney
Chuda Basnet	Lecturer	University of Waikato
Martin Hamilton	Statistics Department	Christchurch
Tristram Scott	Student	University of Canterbury
Geoff Grimwood	Actuarial analyst	Wellington

Editor	Jonathan Lermitt ✉ Electricorp, P.O. Box 930, Wellington ☎ (04) 742-370 Fax (04) 499-1244
Associate Editor	Chris Daké ✉ Ministry of Agriculture & Fisheries P.O. Box 2526, Wellington ☎ (04) 720-367 x8508 Fax (04) 730-118

Letter to the editor

From Prof. Heiner Müller-Merbach

OR - What's in a name?

In the June 1991 issue, p. 7, the editor complains that OR "is widely misunderstood by the public at large". Is it really? Do not the public understandings of OR just reflect the professional understandings of OR within the global OR community?

The professional understandings of OR spread over a wide range between two opinions (with "Systems Science" deliberately chosen as a synonym of OR):

"Opinion 1: Systems Science can contribute to (almost) any problem just by the frame of systems thinking."

"Opinion 2: Systems Science has limited tools which allow only for the solution of problems within a limited range."

(Quoted from "Education in System Science", ed. by Bayraktar, Müller-Merbach, Roberts, Simpson. London, Taylor & Francis 1979, p.6)

When the first Operational Research Group was founded within the Royal Air Force in Great Britain some 53 years ago, the majority would possibly have voted for option 1. Only with the ascent of the many optimisation techniques in the 1950s and early 1960s, the then young generation moved toward option 2 and restricted their understanding of OR to those problems which could be made to fit the requirements of the optimisation technology.

Feuds are common between the option 1 tribes and the option 2 gangs in many OR Societies. The process of the feuds can neatly be modelled by Lancaster type differential equations.

An alternative to such internal feuds could be the development of a climate of mutual understanding within the OR Societies (see my "Letter from the IFORS President", no. 8, August 1983: "Mutual Understanding", e.g. EJOR, vol 25, no. 3, June 1986, pp. 427f. [reproduced below]).

The global community has to live with the situation that everybody who pretends to know objectively what OR really is will immediately be stopped

by new enemies who will try to prove that he is completely wrong. This makes OR unique.

Heiner Müller-Merbach
Past President of IFORS (1983 - 1985)
Universität Kaiserslautern, P.O. Box 3049,
D-6750 Kaiserslautern, Germany.

Mutual Understanding

In 1965, Churchman and Schainblatt published their highly influential paper, "The Researcher and the Manager: A Dialectic of Implementation" (Mgmt. Sci., Vol. 11, No. 4, Feb 1965, pp. B-69 - B-87) in which they pleaded for "*mutual understanding*" between the (operational) *researcher and manager*. Mutual understanding means that the manager understands the operational researcher well and that the operational researcher has a good understanding of the manager. The paper stimulated so much discussion that almost one issue of Management Science (Vol. 12, No. 2, Oct 1965) was dedicated to this theme, containing some 14 commentaries on mutual understanding.

Mutual understanding between the researcher and the manager is important for the successful practice of OR. For OR itself, mutual understanding between different groups, cultures, and schools *within the OR community* is similarly important. From some OR societies one hears about passionate disagreements and heated debates characterising the exchanges between different groups.. There is the everlasting debate on 'theory and practice', sometimes additionally burdened by a completely different understanding or the role, power, and purpose of theory. There is much discussion about the readability of OR journals. There are controversies about different education programmes. Even more fundamentally, there exist quite different images of OR: some consider it a 'subset of mathematics', others in the sense of 'model supported analysis of decisions on how best to design and operate man-machine systems'.

I firmly believe that every living vibrant community has its controversies and has to have debates about conflicting, controversial views. The debates both require a certain amount of mutual understanding and tend to intensify mutual understanding. Mutual understanding will keep a community together.

Have we in the OR community developed a sufficient level of mutual understanding between our different groups, cultures, and schools? Do we

still have enough debate between the different cultures of OR in order to intensify mutual understanding? Or do the different cultures tend to have their own journals, their own meetings, and their own organisations such that they need not interfere with each other? In order to remain strong, the OR community relies upon mutual understanding. To intensify such mutual understanding, more open debate of controversial topics, such as those outlined above, will be most important.



NZPICS ANNUAL STUDY AWARD

Applications for this award of \$3500 for the 1992 year, close on 30 November. It is open to any person able to make a contribution to the extension of knowledge in the area of production and inventory management.

Contact NZ Production and Inventory Control Society, Box 26-012 Epsom, Auckland 3, for further details.

Conference cycle

Massey and Waikato Universities are keen to host future OR conferences, and so the previous cycle of Wellington - Auckland - Wellington - Christchurch, will be replaced by

Wellington (1991) - Christchurch (1992) - Auckland (1993) -
Wellington (1994) - Palmerston North (1995) - Hamilton (1996) -
Wellington (1997) - *etc*

Local and International Events

N.B. The editor has some extra details on all these events if you are in a hurry to get further information.

ORSA/TIMS Joint National Meeting Anaheim, California, USA

3-6 November 1991

Contact: ORSA Business Office, 1314 Guildford Avenue
Baltimore, Maryland 21202, USA

International Working Seminar on Production Economics Igls/Innsbruck, Austria

17-21 February 1992

Contact: Janerik Lundquist, Department of Production Economics,
Linköping Institute of Technology, S-581 83 Linköping, Sweden

7th Australian Logistics Management Conference Melbourne, Australia

7 - 9 April 1992

Contact: Conference Secretariat
Logistics Management Association
c/- Convention Network
224 Rouse Street
Port Melbourne, Victoria 3207, Australia

INCOM '92

7th IFAC/IFIP/IFORS/IMACS/ISPE Symposium on Information Control
Problems in Manufacturing Technology
Toronto, Canada
25-28 May 1992

Contact: Mrs Nicole Léger, INCOM '92,
National Research Council of Canada
Montreal Road, Ottawa, Ontario, Canada K1A 0R6

12th International Conference on Decision Support Systems
Information Support for Executives, Managers, and Professionals
Chicago, Illinois, USA

8-10 June 1992

Contact: TIMS DSS-92
290 Westminster Street
Providence, RI 02903 USA

Transition to Advanced Market Economies IFORS - SPC 2
Second IFORS specialized conference
Warsaw, Poland

22-25 June 1992

Contact: Prof A. Straszak, IFORS - SPC 2
Systems Research Institute Polish Academy of Sciences
6 Newelska, 01-447 Warsaw, Poland

International Institute of Forecasters 1992 Conference
Wellington, New Zealand

7 -10 August 1992

Contact: Allan Catt
Business & Economic Research Ltd
Box 10-277, Wellington
☎ (04) 472-5564

8th International Conference on CAD/CAM,
Robotics and factories of the future
Metz, France

17 - 19 August 1992

Contact: Dr J.-M. Proth, Technopôle Metz 2000
4, rue Marconi, 57070 Metz, France
Fax: (33) 87 76 39 77 ☎ (33) 87 20 35 00

VI CLAIO - 6th Latin-Ibero American Congress on Operations Research
México City, México

7- 11 October 1992

Deadline for abstracts: 31 January 1992

Contact: Javier Márquez, Departamento de Administración, ITAM
Rio Hondo N^o 1, Tizapán San Angel
México, D.F., México. C.P. 01000 Fax: +52 - 5 -500-7637

IFORS 93

13th Triennial Conference on Operations Research
Lisbon, Portugal

12 - 16 July 1993

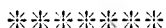
Contact: IFORS 93
Faculdade de Economia
Universidade Nova de Lisboa
Travessa Estevão Pinto
1000 LISBOA, PORTUGAL
fax: (351) (1) 387 1105



Call for papers - European Journal of Operational Research

This journal is planning a special issue devoted to 'Lotsizing Models for Production Planning'. Deadline for submission of papers is 1 March 1992.

Contact: Dr Marc Solomon
Erasmus University, Rotterdam School of Management
P.O. Box 1738, 3000 DR Rotterdam
The Netherlands ☎ +31 - 10 - 4082021



A Note on Forecast Errors

Vicky Mabin

I was most interested in David Jack's opening speech at our recent **Operations Research and Management** Conference. He mentioned that forecasting and capacity planning were two areas least well dealt with in practice.

Following his and several other speakers' criticisms of forecasting in practice, I'd like to draw members' attention to the fact that most of the standard packages containing exponential smoothing for forecasting have a fundamental error in them. I encountered this problem when asked by a large corporation to advise on their supply system, and as part of the review, I looked at their forecasting system. I couldn't work out why their forecasts consistently lagged the trend. The forecast for the next period was basically what I would have forecast for the current period, not the next one.

I then came across a series of articles by Everette S. Gardner Jr, one of which is titled "The Strange Case of the Lagging Forecasts", *Interfaces* 14: 3 May-June 1984 (pp 47-50).

He traces the problem back to an earlier article by Brown (father of much of Inventory Control) in 1959. In that article, Brown gives only part of the equation, though in his book, also published in 1959, he gives the full equation. It seems likely that others have used his incomplete forecasting equation when writing computer codes that have been used as a basis for virtually all forecasting packages containing exponential smoothing.

So if you have a commercial or home-grown forecasting package, I suggest you check it out to see whether yours contains the same mistake. If it does, it could go part of the way to explaining why your forecast is always so wrong and your staff could do better!

Advertisement

PraxiComp International

RISK CONTROLLED QUOTES

ASPIRING is an integrated accounting package for small businesses. It features invoicing, debtors, stock control, creditors, fixed assets, general ledger, job costing and quoting, making it ideal for a variety of small businesses.

The thing that sets it apart from the multitude of equivalent programs is the quoting facility. This facility can produce "risk controlled quotes" (RCQ). This uses the traditional PERT type of 3-estimate calculation; of a variable figure. Three time estimates applied to various cost centres plus three time estimates applies to stock quantity estimates enable the computation of an expected cost and the cost variance.

The user is given a range of quotes at specified risk levels to select from (expected cost plus a multiple of the cost standard deviation). The program provides for making job/quote comparisons after doing the job to refine the estimating process as well as the usual billing and accounting requirements.

The program was written by ORSNZ foundation member Paul Bieleski, Whangapoua Road, Coromandel (☎ (0843) 58-068)

National Contribution

for the

**IFORS XIII Triennial Conference
Lisbon, Portugal 12-16 1993**

As a member of IFORS, ORSNZ has the right to submit a 'National Paper'. This has to be in to the program committee by 1 April 1992. Hans Daellenbach is coordinating the NZ contribution. Please contact him if you would like to have your paper considered.

I.F.O.R.S.

INTERNATIONAL FEDERATION OF OPERATIONAL RESEARCH SOCIETIES

letter from the president

In the June, 1990 issue of **Money*** magazine in the U.S.A., Michele Morris wrote about the "15 Fast-Track Careers: The Hottest Jobs in the Next Decade Will Fatten Your Bank Balance and Enrich Your Life." "Operations research analyst" was one of these 15 careers. Indeed, the U.S. Department of Labor projects an increase in OR analysts in the U.S. from 55,000 persons (1990) to 85,000 persons (year 2000). [*Any of our members' bank balances been fattened recently?* -Ed.]

In the article, Ms. Morris stated "the computer allows an (OR) analyst to process enormous amounts of information about a company's daily activities, then filter the data through mathematical models that help determine the most effective way to allocate human and financial resources, design work space and distribute products or services."

Many of us in OR have made such statements but usually to ourselves or a limited audience of business and/or government managers. Ms. Morris has brought OR to the attention of a much greater audience and since she is not a member of our community, she is viewed as having "no axes to grind". That is, she is unbiased.

I urge you to bring this news to others within and without the OR community. It may not apply in all countries (indeed maybe not even apply in the U.S. since it is a forecast based on her research into careers for the 1990s). But I personally believe it does and will apply in most countries. The reason I have this belief is that important problems that OR can help solve are everywhere in the world. Furthermore, with the power of micro-computing even those developing countries which do not have access to super or other very large computers now have the power to handle major large-scale problems. Also, our methodologies are now better and improving, our modelling capabilities are enhanced particularly in validation and reliability and our work with other disciplines continues to increase.

But now we have an implicit challenge from outside via Ms. Morris. *We must deliver on our potential for the decade.*

It is here that IFORS can and must help.

* **Money** is a large circulation, popular monthly magazine that advises people on how to improve their finances and their lives.

The question becomes what can and should IFORS do, the regional OR associations do and the member countries do to meet this challenge? With limited financial and human resources we need to choose our projects/activities carefully to make the most impact in a resources effective manner. We also could use a world-wide strategic plan with measurable objectives to coordinate or at least communicate our activities. Such a plan is currently beyond our information or delivery capabilities but better communication may be possible.

At present, I propose that we ask all of our member and regional organizations what they are doing and planning to do to strengthen OR in their communities. I also propose that IFORS take a leadership role to communicate these activities and when feasible to help to coordinate interactions across our organizations and other organizations. With regard to OR and related meetings, IFORS already publishes this information in our bulletins. Unfortunately, this information often receives limited circulation in the OR community. Furthermore, it doesn't cover many other activities and information needs of interest to our members.

To meet this communication and information need, I propose that IFORS in some way establish in international OR information journal with world-wide circulation to individuals, libraries and other organizations. The objective would be: "To provide and disseminate international information to all persons, libraries, corporations, and government agencies who may be interested in topics of timely interest concerning such items as operations research and related disciplines activities, knowledge breakthroughs, important practice and applications, short summaries/surveys importance substance areas/topics, and directions for future growth and activity".

My last proposal is that you contact your regional or national organization and give me feedback, including:

1. Where do think OR is going in your region or country this decade?
2. What can and should IFORS do to meet the challenge implicitly proposed by Ms. Michele Morris.
3. What do you like or don't like about my proposal for an OR international information journal?
4. Would you and your colleagues in your societies buy such an journal?

Obviously, this isn't a true market survey, but your input would help.

William P. Pierskalla

[slightly abridged - Ed.]

Science Photography Competition

Sponsored by the

Wool Research Organisation of New Zealand

New Zealand science is to get a boost from a science photography competition organised by the country's only general-interest science magazine, the *New Zealand Science Monthly*.

Awards for scientific and artistic merit are to be made in the biological sciences and physical sciences, and a \$200 grand prize will also be awarded. The cash prizes have been donated by the Wool Research Organisation of New Zealand (WRONZ).

Entries are open to colour slides and black-and-white and colour prints, with the deadline 31 October 1991. The best will be published in the Dec/Jan issue of the *New Zealand Science Monthly*. Entries, with information about the photograph and photographer, should be sent to:

Now available!

Operational Research '90 - *Selected papers from the 12th International Conference on Operational Research, June 1990.*

Available from:- Pergamon Press, Headington Hill Hall,
Oxford OX3 6BW, UK

Price £90.00 [gulp! - Ed.]