NEWSLETTER

Operational Research Society of New Zealand (Inc.)

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AUGUST 1987

EDITORIAL

Hopefully this newsletter should reach you before the ORSNZ conference begins or is over! I expect you will be supporting the occasion as this is one of the few opportunities that we as a group can get together and interact. Personally, I look forward to meeting some practitioners, who in the past have been scarce on the ground, so can I make a plea to these OR people in particular to make their presence felt, if not by giving papers, then by keeping the academics in touch with reality with your valued insight at question time.

There's a dearth of information arriving at this outpost in Auckland. What's happened to all those reports of meetings that used to be forthcoming? Does Wellington still have meetings? I know Auckland does not, or very rarely anyway. People in other societies keep telling me OR is dead. Maybe they are right? What do YOU think?

Dave Whitaker

PS They must have a line into my thoughts for there have been two talks in WELLINGTON and to prove it, you can read the newsletter.

ORSNZ 23rd ANNUAL CONFERENCE

VICTORIA UNIVERSITY
WELLINGTON

24-25th August

Contact: Rona Bailey
WN 727-855

SEE YOU THERE!

NEW MEMBERS

Tasman Pulp and Paper
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Mike Darcey	Peat Marwick
Selwyn Gallot	AMD, DSIR
Martin Gimpl	U of Canterbury
Gareth Wilson	BRANZ
Paul Grimwood	BNZ

Southeast Asia Regional Conference of the Academy of International Business

27 – 29 AUGUST 1987
KUALA LUMPUR, MALAYSIA

THEME

ASIA-PACIFIC PERSPECTIVES IN INTERNATIONAL BUSINESS

Jointly organised by:

Department of Management Studies
Small Business Development Centre
UNIVERSITI PERTANIAN MALAYSIA

MANAGEMENT SCIENCE/OPERATIONS RESEARCH SOCIETY OF MALAYSIA

OPTIMISED PRODUCTION TECHNOLOGY (OPT)

by
Dr Vicky J Mabin

Applied Mathematics Division
Department of Scientific and Industrial Research
PO Box 1335, Wellington

Dr Vicky Mabin will be well known to most of our members as present Wellington Branch Chairman and past Council Secretary. On 8th June 1987 she gave a very interesting talk on OPT to a joint meeting of the Wellington Branches of ORSNZ and the NZ Production and Inventory Control Society. The audience was rather different to most ORSNZ branch meetings in that it was largely made up of production managers.

OPT is a relatively new approach to manufacturing planning and control that bears many similarities to Materials Requirements Planning (MRP) and Just-In-Time (JIT), yet is markedly different. It is having considerable success in UK, European and USA firms, lowering inventories and increasing throughputs, enabling these companies to at last rival Japanese competition. OPT is now recognised as one of the big three with MRP II and JIT as being "the only credible methods to control complex factories".

The philosophy of OPT, like JIT, stresses the need for continual change and improvement. It challenges traditional practices such as efficiency measures, cost accounting, economic batch sizes, and the place for batch splitting and expediting. One of the secrets of OPT is identifying the BOTTLENECK resources that cause pileups in WIP inventory, and that concentrating on these bottlenecks is the ONLY way to increase production.

OPT has been successfully applied in several large overseas companies, where inventory reductions ranged from 40-75%. Other benefits include increased throughputs and a greater control and understanding of the factories.

OPT is marketed overseas as a multi-million software package. However it is the PHILOSOPHY that is important. This is widely applicable and can be used WITHOUT the software. A small furniture factory in UK which Vicky visited had applied the OPT philosophy (but not the software) and achieved a 46% reduction in inventory.

In general, the talk was very well received by the meeting. However, there appears to be an unfortunate attitude among managers that what their business needs is a software package that is THE answer. This of course is contrary to the OPT emphasis on continous improvement. Although Vicky stressed the philosophy, questions tended to concentrate on the software.

If you would like to investigate the OPT philosophy further, I would strongly recommend the rather diverting text/novel by E. M. Goldratt and J. Cox "The Goal: A Process of Ongoing Improvement", revised edition, North River Press, New York, 1986.

Rona Bailey

"The Modern Forecaster - The Forecasting Process Through Data Analysis"
by Hans Levenbach and James Cleary
537 pages, published by Lifetime Learning Pubs.
Wadsworth Inc., 1984. Price US$31.50

This book continues the modern ideas of Scott Armstrong ("Long Range Forecasting" 2nd Edn. 1985) of looking at forecasting as a process. It is not as all encompassing as Armstrong, and is "designed as a one term course in beginning forecasting methods". The aim "is to prepare a student for the real world of business forecasting through a unified and practical presentation of the subject", and "reflects the most modern methods used by forecasters in leading American corporations". The book is an adaptation of two previous books by the same authors, "The Beginning Forecaster", and "The Professional Forecaster", but is significantly different in being designed more as a class text. Emphasis is on statistical or data analysis methods, although it makes a good effort to put these methods in context. Good for short or medium term forecasts. It appears to cover much of the material in these two books, however.

The book features in particular

(i) the idea that specific forecasting techniques are used within the context of an overall process, of continual assessment of performance,
(ii) usefulness and reliability (track record) in deciding choice of technique,
(iii) preliminary graphical analysis of data,
(iv) focusing on understanding the data, and the process generating it, rather than mechanistic use of computer programs,
(v) use of robust/resistant methods, in addition to traditional methods, to ensure that a few bad data values do not seriously distort conclusions reached.

The book is divided into five parts. The first part introduces the forecasting process, including the fundamental idea of a product life cycle - growth, stability, and decay. Part 2 deals with exploratory data analysis (EDA), and the importance of graphical techniques in displaying and summarising data. Part 3 covers smoothing, regression, and regression models, including residual analysis, and confidence limits for forecast tracking and evaluation. Part 4 deals with the econometric approach, including models for estimation of demand, and demand elasticities. Part 5 deals with time series modelling by Box Jenkins. The book is overall a useful source on quantitative forecasting techniques - and is well worth having on one's shelf. Its content reflects some of the lessons quantitative forecasters have learnt the hard way in the last ten years. It would also be useful as a student text, but would need to be supplemented by a text dealing with the more qualitative methods, which are often the only way of addressing longer range forecasts. Overall, recommended.

Hugh Barr.

"Discrete Computer Simulation in Mid-1987"
Mike Pidd

(Wellington Branch meeting, 1 July 1987)

It was indeed mid-1987 when Mike Pidd took time off from his sabbatical at Monash University, Melbourne to visit the 3 main O.R. centres in NZ.

From Lancaster University, UK, Mike is a simulation specialist. He brought with him considerable industrial experience in the field, as well as having written and published extensively on the subject since joining academia. His main seminar was, appropriately, a state-of-the-art overview of computer simulation in O.R.

Many of the advances in simulation being developments in computing, Mike paralleled the development and use of simulation tools, ie software, with the simulation means, ie the ubiquitous computer.

After a brief historical sketch on the impact of 1st, 2nd and 3rd generation computers on simulation, Mike spent most of his talk on the 4th generation. It is here that the tool of simulation, in its various forms and with rapid advances in computing technology, has gained much wider acceptability among the users of O.R. Mike described how PCs/workstations, networking, software engineering, etc have returned the control of simulation very much back to the user.

Many of us will be aware of how visual (interactive) models have made it so much easier for this type of model to gain credibility in the eyes of the end-users of O.R. - the model logic is so much more transparent.

Mike also spoke of the development of specialised , integrated simulation support environments, from both the simulationist's and the O.R. client's points of view.

As far as the simulation client is concerned, there has been the development, not only of visual interactive modelling, but also of data-driven, user-friendly models which are particular to application areas, eg flexible manufacturing systems. Food plants is where Mike has gained much of his industrial experience and one of his other seminars was "Simulating Automated Food Plants".

As for the simulationist, software developments such as improved debugging aids, increasing ease of experimentation and, again, graphics and animation have all made it much easier for him/her to develop and validate simulation models.

Aside from his formal talks, Mike also gave very generously of his simulation and general O.R. knowledge and expertise. We gained much from his presence in Wellington. We know that he enjoyed his time here, too.

Gary Eng

I.F.O.R.S.

INTERNATIONAL FEDERATION OF OPERATIONAL RESEARCH SOCIETIES

letter from the president

THE SUBJECTIVITY OF MATHEMATICAL MODELS

No. 2, February 1987

Many scientists - not only in the OR world - believe or seem to believe that models are objective representations of reality. This is doubted by others who keep warning them and emphasize the subjective nature of any man-made model.

One may refer to the Irish philosopher George Berkeley (1684 - 1753). He wrote the famous formula "esse = percipi". This formula represents his extreme position of subjectivity. He taught that things exist only through our perception and thinking. There was much controversial discussion about Berkeley's philosophy, and we do not have to go as far as he went. But we may derive the formula "model = f(perception)" from his one. That means we can not model anything that we do not (mentally) perceive. Since perception is subjective, it follows that modelling has to be subjective. No model would exist without its human designers.

Models are limited in their representation of reality. Albert Einstein (1879 - 1955) once stated that theory defines what we can observe. This refers in an objective way to mankind and the full set of knowledge in the world. It can also be applied to the individual model builder. His theoretical understanding of reality defines what he can model.

But it is not only the individual's set of knowledge which influences his modelling. Models depend on many other factors which may be covered by the terms "psyche" and "values" (see K.E. Boulding "The Image" 1956). An optimist may design other models than a pessimist, a converger others than a diverger, an introvert others than an extravert. And a Christian perceives the world differently from a Buddhist, a conservative differently from a socialist, a manager differently from a union leader.

There can not be any doubt: a model designed by an individual represents only his subjective view of the world. Even if several individuals participate in the model building, the model is still a subjective representation - but may be less extreme if the participants represent different sets of knowledge, have different psychological structures and believe in different values. The jointly designed model is carried by a high amount of consensus and may perhaps receive better acceptance by others. But still, it will never provide an objective picture of the world.

Do we in OR not always claim to have the optimal solution of a problem? If we accept the subjectivity of a model, we must not pretend to have the optimum. We should only sell our optimal solutions.

All this discussion may not be understood by those who follow the "Given the problem ..." ideology. By this phrase they immunize their model from the designer's subjectivity - even if it is as subjective as thinkable.

Heiner Müller-Merbach
Immediate Past President of IFORS

APORS '88

First Conference of the Association of Asian-Pacific Operational Research Societies within IFORS

SEOUL, KOREA
AUGUST 24-26, 1988

ORGANIZED BY

APORS (Association of Asian-Pacific Operational Research Societies within IFORS)

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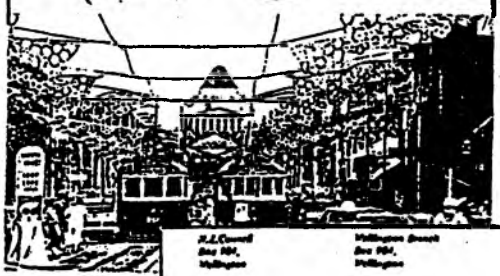

FIRST ANNOUNCEMENT

MANAGEMENT SCIENCE/OPERATIONS RESEARCH REGIONAL SYMPOSIUM

ON

MANAGEMENT SCIENCE/OPERATIONS RESEARCH AND INFORMATION TECHNOLOGY – CURRENT ISSUES AND FUTURE TRENDS

15 – 16 October, 1987

in conjunction with

FIRST ASIAN SCIENCE AND TECHNOLOGY CONGRESS
(Science Asia '87)
KUALA LUMPUR, MALAYSIA
(An event of First Malaysian National Science Week)

Organised by

Management Science/Operations Research Society of Malaysia
Operational Research Society of Singapore
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