IFORS NEWS

International Federation of Operational Research Societies

INSIDE THIS ISSUE

From the Editor

Happy New Year! New Years have meant new beginnings for most people. For the IFORS AC team, it marks the end of the getting-to-know phase of IFORS initiated and on-going programs, new initiatives, as well as the individual styles of the AC committee members. For the AC team then, New Year marks the beginning of getting things done well, with all the lessons learned from its first year. For the IFORS News, it marks the start of the era of IFORS News Correspondents. Since it was launched, correspondents have kept their news coming from their societies, with the result that this issue features news of conferences coming from all the regions – Africa, Asia, Europe, North and Latin America.

This issue also features IFORS Activities – the IFORS IDL, IFORS Prize and the Teaching Colloquia. Another item on OR Education tackles initiatives in Ireland which may be food for thought for schools serious about their OR courses.

"How do you define OR?" After looking at various alternatives, our IFORS VP proposes an answer. On the other hand, what makes for an OR Hall of Famer is what our book reviewer tells us of Stafford Beer and his work, "Think Before You Think". Coincidentally, if you go over our IFORS Distinguished Lecturer's bio, you will note that Stafford Beer had considerable influence on his career. Of course, we also share the good news of our IFORS President and IFORS ITOR Editor being conferred Doctorate degrees.

Lastly, one of these days in 2011, expect a call from me, recruiting you to be an IFORS News Correspondent. I hope you are ready to say YES! 🌐

- Elise del Rosario

Operations Research: In Search of an Identity

by Hugo Scolnik, hcolnik@gmail.com
IFORS VP at large

After celebrating the 50th anniversary of IFORS, and having had a long and fruitful history of very successful OR applications worldwide, it is rather curious that scientists working in the discipline are frequently asked to explain what OR is.

OR is a discipline that draws from several fields like Mathematics, Statistics, Engineering, Economics, Information Technology, Management Sciences.. Therefore given the fuzzy boundaries, it is often difficult to justify that a given approach rightly belongs to OR and not to another discipline. For instance, scientists working on Optimization may feel that what they are doing belongs to either Mathematics or Computer Science, depending on how close they are to theory or to applications. On the other hand, optimization techniques applied to economic modelling may be argued as belonging to economics. However, since optimization is also applied to problems in fields such as chemical and industrial engineering, management sciences, energy modelling, optimal design, ship building, logistics, transportation, telecommunications, will it be appropriate to identify it with its area of application?

It is also true that OR developed in many countries isolated from the IT revolution, a situation that led many practitioners to look for new frontiers. This situation was discussed in several forums such as the 1984 IFORS triennial conference in Washington DC. SADIO (the Argentine Society for OR created in 1960) decided to incorporate IT within its coverage, to allow for the   changes in the discipline. This historical shift in focus has been forgotten, to the point that such authors as Dominique A. Heger use this definition: "The term Operations Research (OR) describes the discipline that is focused on the application of information technology for informed decision-making."

The other aspect that has been considered is that OR is "Systems Oriented". The usual approach is to consider that all parts of a given system may be interrelated and eventually determine its overall behaviour. OR tends to explore interconnections, aiming to explain the reasons for their existence and the impact on the systems' outputs. But then again, this is what Systems Theory intends to do.

The definition given by the Wikipedia is: Systems Theory is the transdisciplinary study of systems in general, with the goal of elucidating principles that can be applied to all types of systems in all fields of research.

According to it, practically nothing is left outside Systems Theory, including OR and perhaps God.

Therefore, I consider the statement given by EURO as follows:"…it can be described as a scientific approach to the solution of problems in the management of complex systems" as unsatisfactory because similar things can be said of disciplines like Systems Theory.

Thus, it is difficult to define precisely the OR boundaries since they overlap with several disciplines and could be perceived as part of Systems Theory. One may then be tempted to restrict the OR scope to a few specific fields - but I think that this could not be farther from the truth. OR is unique because it encompasses many scientific fields, unlike Systems Theory which intends to be very general, but in practice is restricted and very seldom has concrete applications.

Given the above, I would like to propose this definition: OR is the discipline which, by combining methods from many scientific fields, aims at modelling, understanding, managing and optimizing complex systems.

First-time Host Malaysia Leads a Successful APORS 2010

by Noraini Abdul Karim, knoraini@gmail.com

APORS 2010, the latest conference of the Asia Pacific Operations Research Societies, set a high standard in terms of the diversity of the nations represented and breadth of topics covered. With participants coming from the United Kingdom, Hong Kong, China, India, Iran, Japan, Philippines, Singapore, Korea, and Malaysia, the conference was held in Malaysia for the first time from 5 - 8 December 2010 at the Bayview Beach Resort, Penang. This conference with the theme 'Operations Research Pathways to Sustainable Development' was hosted and organised by Universiti Sains Malaysia (USM) and Management Science/ Operations Research Society of Malaysia (MSORSM) in cooperation with the International Federation of Operational Research Societies (IFORS). The conference was considered as a key tool for building networks among researchers in the region as well as in promoting the collaborative and creative work on development and sustainability. It also aimed to promote interest on the issue of OR for development, apart from encouraging operational researchers to interact and be a part of the larger, international OR community.

▲ **APORS 2010 OPENING CEREMONY, 5 December 2010**
Sitting (L-R): Adam, Zhang, Acting Vice-Chancellor USM, Halim, Ilias.

Distinguished invited speakers from Malaysia, the United Kingdom and APORS member countries -   Philippines, China, Singapore, Hong Kong, Japan, Iran and Malaysia presented their papers during the plenary sessions. On the other hand, papers presented during the parallel sessions covered a wide range of topics, namely, education, mathematical programming, simulation and scheduling, reliability, queuing, capacity planning, inventory, location, optimisation, manufacturing, and finance. MSORSM Patron Datuk Dr Halim Shafie presented the MSORSM Research Awards for 2010 to the six best research papers in the PhD, Master's and Bachelor's levels. Papers presented by researchers, postgraduate students and practitioners from private and public institutions lent a great diversity to the topics and tools covered in the conference. For PhD and Master's students, the event was an invaluable opportunity to link the contributions of their researches to the OR for development community. The conference was instrumental in providing the venue for people to think through the applications and implications of academic contribution to sustainability.

▲ **APORS Council Members take a breather from the Council Meeting.**

The fourth day was devoted to the social interactions when participants took in the sights of the Penang island and discovered for themselves how Georgetown made it to the list of UNESCO World Heritage Sites. Social activites were capped by a dinner where the participants toasted the organizers for the well-organized conference.

Contributing in a big way to the success of the conference were Vice Chancellor USM Professor Tan Sri Dato' Dzulkifli Abdul Razak, Patron MSORSM Datuk Dr Halim Shafie, President MSORSM Dr Ilias Mamat, Dean School of Mathematical Sciences Associate Professor Ahmad Izani Mohd Ismail, Chairman Organising Committee Adam Baharum and IFORS Distinguished Lecture (IDL) Speaker, Emeritus Professor Jonathan Rosenhead, invited speakers IFORS Immediate Past President Elise del Rosario (IFORS), IFORS Vice-President for APORS Xiang–Sun Zhang (IFORS), Janny Leung (IFORS), Alleli Domingo (Philippines) Lai Kah Wah (Singapore), Chun Kwong Han (Malaysia) ,Chun Zhi Wu of IBM (Singapore), APORS member representative speakers Degang Liu (China), Tatsuo Oyama (Japan), Nezam Mahdavi Amiri (Iran), and Chan Yan Chong (HongKong).

The success of the conference owes much to the support of the host and organiser, USM and MSORSM. Special thanks are due to IFORS for its continuous endorsement of APORS activities. Participants' inputs and presentations greatly enriched the discussion and provided a wider network of future applications. MSORSM looks forward to holding future conferences which ensure the continued expansion of networks, thus, facilitating collaborative work in the area of OR for development. 🌐

▲ **Speakers pose after the banquet.**

SOBRAPO Gears Up for 2011 Symposium

by Annibal Parracho, annibal.parracho@gmail.com

National Conference

The Brazilian Society of Operational Research (SOBRAPO, www.sobrapo.org,br) is busy preparing for its 43rd Annual Brazilian Symposium on Operational Research (SBPO) to be held from August 15 to 18 in the beach city of Ubatuba along the coast of São Paulo. For more than four decades, this conference has continued to provide an opportunity for members of the Brazilian scientific community to exchange experiences.

Normally scheduled during the 2nd semester, it has lately been scheduled during the end of the northern hemisphere summer season in order to encourage participation of foreign delegates. The increasing number of foreign participants who submit papers and give plenary talks will continue, with a huge delegation expected from the Red Iberoamericana de Evaluación y Decisión Multicriterio - R.E.D.-M which holds its 5th Meeting in conjunction with the SBPO.

It is interesting to note that in 2010, only one plenary talk was given by a Brazilian, Nelio Pizzolato (Rio de Janeiro). Other plenary papers were given by David Applegate(US), Michel Gendreau and Gilbert Laport,(Canada), Arne Lokketangen (Norway), Victor Parada and Ivan Santelices, (Chile), and Stewart Robinson (UK). Hector Cancela (Uruguay) was invited to teach a short term course. . In 2009 the foreign invited speakers were Jerry Banks, Peter Hahn, Howard Karloff and

Morton O'Kelley (US), Jacques Desrosiers (Canada), Leo Liberti (Italy) and Phillipe Michelon (France). Again, only one Brazilian plenary speaker, Nei Soma(São Paulo) was featured.

Annually, the Symposium accepts around 400 papers for presentation, either in the 20-minute oral or poster presentation. Plenary talks have been scheduled twice a day and four short term courses are taught each year. The conference also features special topic discussions and presentations of research reports by undergraduate students. The Society offers a Prize created to honor the late Roberto Galvão, which carries a US$1000 award given to the best paper presented at the Symposium.

Proposals for short-time courses which should include an abstract and a list of the main topics to be presented in a pair of two hour classes may be submitted until May 14, 2011. Those chosen to be featured at the Symposium will receive their acceptance letters by June 15 and will have until July 25 to send the text of the course for publication in the Symposium Annals. The May 14 deadline applies likewise to paper submissions for oral presentation and publication. Those interested in less elaborate presentations of recent research results in the form of posters have until June 30 to submit a short abstract. The texts may be written in English, Portuguese or Spanish.

XLII SBPO - ABERTURA

Images from the highly successful 42nd Annual Conference.

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OR 2010 in Munich Features OR in Life Sciences and Education

By: **Annette Hohenberger**, METU, Ankara, Turkey, hohenberger@ii.metu.edu.tr   **Giorgio Gallo**, University of Pisa, Italy, gallo@di.unipi.it
Gerhard-Wilhelm Weber, METU, Ankara, Turkey, gweber@metu.edu.tr

The annual conference of the German OR Society (GOR),OR 2010 (http://or2010.informatik.unibw-muenchen.de/) held in cooperation with the AIRO (Optimization and Decision Sciences) was a great success. This report focuses on three featured sessions on the topic "OR in Life Sciences and Education - Trends, History and Ethics" organized by the three EURO Working Groups on: Ethics and OR, Methodology of Complex Societal Problems, and OR for Development.

The choice of the relatively new topic of OR in Life Sciences and Education is an effort to the respond to the rapid changes in the modern world which bring with them a host of challenges and chances. The forum provided OR researchers and practitioners with a scientific forum to address these issues through the tools available to the Operations Researcher. This is evident on the sessions included as follows: *

• **Applications on Societal Criminality Analysis and Medical Tumor Investigations,**
• **OR in Complex Societal Problems I,**
• **OR for Development and Developing Countries, and Intelligent Systems in OR**,
• **Applied to Life and Human Sciences,**
• **OR: Responsibility, Sharing and Cooperation,**
• **Applications of Nonsmooth, Conic and Robust Optimization in Life and Human Sciences,**
• **Data Mining and Optimization in Computational Biology, Bioinformatics and Medicine,**
• **OR, Socio-Cultural Issues and Gender,**
• **Advances in OR, Learning and Data Mining Tools in Life Sciences and Education,**
• **Complex Demands on Social Services concerning Problems of Social Complexity,**
• **Supporting Military Decisions in the 21st Century: Theory and Practice,**
• **OR in Complex Societal Problems II, and OR and Ethics,**
• **OR Methods for Satellite Communication,**
• **Semi-Plenary Session: Manfred Mayer.**

Impressions on the three sessions" OR in Complex Societal Problems I and II" oganized by Dorien de Tombe and "OR - Responsibility, Sharing and Cooperation" organized by Giorgio Gallo and the keynote talk of Giorgio Gallo follow.

In the absence of Dorien DeTombe, "OR in Complex Societal Problems I and II – OR and Ethics", were chaired by Cor van Dijkum and Gerhard-Wilhelm Weber, respectively. The first session featured a short video address in which Dorien introduced the topic of Complex Societal Problems, followed by three presentations, two on Climate Change (its cognitive aspects by Annette Hohenberger, its complex societal aspects by Dorien DeTombe) and one on a complex model of communication between General Practitioner (GP) and patient (Cor van Dijkum and Niek Lam). Dorien's paper was presented through a video seminar complemented with hand outs and copies of her paper in the Journal of Transformation and Societal Change. The second session was thematically related to the first one. Continuity was provided by the third paper which extended a previously introduced communication model between GP and patient, now in terms of statistics and nonlinear differential equations. The paper presented by Willi Weber, on behalf of his collaborators, was on the effect of infrastructure facilities on the quality of primary education mostly in Turkey, through the use of Cross Impact Analysis (CIA). The last paper by Arnold Dupuy gave a model-theoretic and quantitative account of the Russia-Georgia Conflict of 2008 in terms of the Tactical Numerical Deterministic Model (TNDM), with the aim of drawing realistic and unbiased lessons.

The keynote talk on "Ethical Implications of Complexity" by Giorgio Gallo delivered in the September 3 plenary was very intriguing as it was scholarly. The talk developed ethical implications from the OR perspective. It was visionary too, in that it showed with which other scientific fields OR shares commonalities: (practical) philosophy, economics, epidemiology, complexity theory (in a broad sense), and political sciences. With his plenary talk, Giorgio Gallo pointed out on a large scale that ethical considerations are indispensible for OR and OR is indispensible for ethics. After all, "Good OR" is the science and practice of "Doing Good" (Cynthia Barnhart).

▲   **Annette Hohenberger (left)   during the the Evening Reception at "Alter Rathaussaal"**

"OR - Responsibility, Sharing and Cooperation" session involved some last-minute adjustments with the final result that all three session presenters came from Italy.

The first was concerned with a very important problem, the analysis of inter-culture phenomenon in schools. A field research on a large sample of pupils from some Italian schools has been performed, based not only on statistical tools, but also on Saaty's Analytical Hierarchical Approach. The survey showed that foreign students, even the ones born in Italy, have lower scholastic success than the Italians. This result highlights the relevance of the socio-cultural capital of the family with respect to the scholastic success of the children. The authors conclude that the Italian school still has to take further steps to give all the students equal chances in education.

The second focused on the use of archetypal mathematical models, called Policy Models, to summarize knowledge of a politically relevant situation in order to provide guidance in decision making. These are models which arise from the need to analyze and to discuss archetypal situations or even specific concepts, all with ethical content and/or policy implications. They can be thought of as a way to bring order to the complex multitude of interactions and processes which characterize real world situations and can be used by policy makers as a base for policy decisions.

▲ **Giorgio Gallo, Pisa**

The third one presented models and algorithms for improving the efficiency of Solid Waste collection. In this type of problem, decisions about the frequency of service and number of bins must be taken, requiring the joint solution of a routing problem and proper allocation. The authors presented new algorithms for this problem, providing numerical results on sample problems.

It is hoped that the new Selected Topic, along with the efforts of EURO Working Groups and of working groups of national OR societies, would serve to encourage colleagues from all disciplinary backgrounds to meet, to present and further discuss how modern, interdisciplinary OR with its quantitative methods may contribute to urgent problems of our societies, of nature and the environment (e.g., global warming, financial crisis, globalization, swine flu, UN Millennium Development Goals to fight poverty). Special emphasis is given to the "human factor", the "social factor", to the improvement of living conditions and to ethics.

* More detailas are available at http://or2010.informatik.unibw-muenchen.de/information/download/documents/Program_OR2010.pdf

OR in Business
by Dr. Brian Gozun, brian.gozun@dlsu.edu.ph

▲ ORSP national conference panel discussion with (left to right) moderator Bing del Rosario and panelists Wilson Tiu (government), Elise del Rosario (industry), Brian Gozun(academe) and Vic Reventar(consulting).

Reaching maximum potential

Given OR's various applications, why then has OR not fully reached its maximum potential in business and industry? For one, the term OR can be confusing. People with undergraduate or graduate degrees in business know it as management science (MS). In the US, there is a growing move to call OR analytics. Some people even think OR stands for "operating room" (a mistake some people may have made when they read this column's title). Thus, those who are outside industrial engineering and business management fields are not fully aware of what OR is. OR applications are quantitative, which makes it harder to sell to Filipinos who have math-phobia. OR textbooks can easily scare people with their summation signs and long and winding formulas. However, OR is now very accessible, with various software and spreadsheets making it easy for users to apply.

Last November 5, the Operations Research (OR) Society of the Philippines held its annual conference at Eastwood Richmonde Hotel. It was well-attended by members from the academe and industry. I was invited to be a panel member to talk about how OR has many applications in business, government, and even our daily lives.

Solving industry's problems

One of the first things we discussed is the definition and scope of OR. For people in industrial engineering, OR involves a variety of quantitative tools and techniques to solve problems in industry. OR encompasses a wide range of business applications such as logistics, supply chain management, total quality management, simulation, and risk analysis and management. Given the broad scope of OR, why then has its application and appreciation in business been underwhelming?

Elise del Rosario, a panelist and a former OR practitioner at San Miguel Corporation, said that despite the significant contributions that OR can provide, only eight companies in the country have a dedicated OR group. These companies have made headway in the industry, and most of them have successfully applied OR in logistics to efficiently supply goods to their customers. Companies that successfully use and integrate OR in their core functions are more efficient in using their resources. OR paves the way for companies to continuously improve their processes and systems to further satisfy their customers.

Vicente Reventar, an OR consultant and Chair of Ateneo de Manila's John Gokongwei School of Management Quantitative and Information Technology Department, said that OR plays a big role in local business. He said that supply chain management is very common. Banks use OR to maximize their portfolios while insurance companies manage, optimize, and balance their assets to make sure that they have sufficient funds to pay for future liabilities. Wilson Tiu, an OR consultant to various governmental agencies, said that OR can be a tool to depoliticize policy-making processes. Budget allocations, for example, can be more systematically distributed if OR is applied.

Making more informed decisions

OR is all about the application of quantitative techniques to improve decision-making and problem-solving. One does not really have to be a math guru to appreciate OR. Managers who hate math have a tendency to put OR in the back burner, which should not be the case because OR helps people make better choices. OR was even once called the "science of better." OR uses mathematics, statistics, and economics as major tools for analysis. Given the results of OR, managers can make better and more informed decisions.

The power of OR lies in its ability to do sensitivity analysis. This involves asking "what if" questions and generating various solutions depending on specific scenarios. Just like any quantitative tool or technique, however, OR should not be the sole basis for decision-making.

Government services can be further improved with OR applications of total quality management in health, education and transportation. Businesses will reap the rewards of OR by looking for ways to always improve a customer's experience, whether it be in the fast and efficient delivery of goods and services or the way that quality is embedded in a product. OR is everywhere, and OR is here to make us become more informed decision-makers and problem-solvers.

ORSSA 2010 Makes History

by Hans W Ittmann, CSIR Built Environment, Pretoria,hittmann@csir.co.za

For the first time in its history, the Operations Research Society of South Africa (ORSSA) held an annual conference in one of the historical black universities in South Africa. Organised by the University of Limpopo, The 39th annual conferencet took place September 26 to 29 2010 at the Magoebaskloof Hotel near Tzaneen, one of the most beautiful and scenic areas in the Limpopo Province,75 km east of Polok-wane. Apart from the historical first and the spectacular venue, the conference was well organised with many interesting papers and ample opportunity for ORSSA members to interact socially.

Despite its small membership, the host society mustered a good attendance of around 70 to 80. Delegates descended on the Magoebaskloof Hotel on the Sunday afternoon prior to the start of the confer-ence, including a very strong delegation from Zimbabwe.Scuttling plans was the the terrible road accident where a large petrol tanker overturned causing the entire highway to be shut for several hours. The ORSSA executive meeting scheduled for the Sunday afternoon had be rescheduled because of this accident which delayed the arrival of many executive members. As expected, the welcome function exchanges were dominated by a sharing of various experiences on"what happened on my way to the conference.". The formal programme started on the Monday morning with an address by a representative of one of the major sponsors of the conference, namely Statistics South Africa. The President of ORSSA, Dave Evans, delivered his presidential address after which the keynote address followed. Jim Cochran, from the USA, was the guest of ORSSA during this conference although he had to leave before the end of the conference. The title of his talk was intriguing: "From Scarlett O'Hara to Pretzel Rods to Frankenstein for President to Taxi Wars: One Odd OR Odyssey and Lessons for Africa". Having taken the audience through a long journey of forecasting and prediction examples, he challenged the society to connect with other African countries- a challenge that the society took up immediately.

The normal parallel sessions followed for the next two and a half days. There was however another highlight on the Monday afternoon. For 2010, the SASOL Operations Support, Value Chain Optimization team was chosen as one of the finalists of the 2010 Franz Edelman Award competition. This competition is sponsored and run by INFORMS and it is considered to be the "Oscars" of Operations Research practice. Although SASOL did not win this prestigious award, the team did very well and ORSSA deemed it appropriate to ask this team to repeat their Franz Edelman Award presentation at the conference. The title of their presentation was:"Innovative Decision Support in a Petrochemical Production Environment". SASOL, by far the largest chemical company in South Africa, embraced OR in a big way over the last number of years and it was vividly illustrated through this paper. They can be proud of their achievements. SASOL as a company subsequently honoured this team with the annual SASOL team award for the year 2010.

A total of 38 papers were presented, covering a wide range of topics. Typical of ORSSA conferences, there was no specific focus on any OR problem type nor of problems specific to Africa. What was noticeable was the number of young Opera-tions Researchers that presented papers as well as the signifi-cant number of papers presented by participants from Zimba-bwe and the University of Limpopo. This is very encouraging and bodes well for the future advancement of the society.

The annual general meeting of ORSSA held during the confer-ence featured interesting exchanges, among which was the possibility of holding the 40th conference in 2011 outside of South Africa, specifically, Victoria Falls in Zimbabwe.. A decision on this will be made early in the New Year.

The last evening of a conference is traditionally when the conference dinner is held. Great food and music topped by a presentation of a number of awards made this a memorable event . All the awards went to the University of Stellenbosch. These included the two awards for the Honours and Master student competitions while the very prestigious Tom Rozwad-owski award for the best paper published by a member of ORSSA during the past year also went to the University. This award went to the paper entitled: "Robust multi-objective optimi-zation for water distribution system design using a metaheuris-tic" by Darian Raad, Alexander Sinske and Jan van Vuuren published in the International Transactions in Operational Research, Vol. 16(5), pp 595-626.

ORSSA members enjoyed a great, well organised conference and are looking forward to the coming year for another chance to meet and socialise with OR colleagues and friends.

From the land of the Incas

Latest IFORS member Hosts Second Peruvian Congress on Operations Research and Systems

by Rosa Delgadillo (rdelgadilloa@sistemas.edu.pe), SOPIOS Immediate Past President

Almost a year after its acceptance into IFORS, the Peruvian national OR Society sponsored a conference which featured a total of 89 papers coming from local and international universities. .The Second Peruvian Congress of Operational Research and Systems (COPIOS 2010, http://copios2010.org/) was held from November 4 to 6 in the beautiful city of Arequipa, the second largest in the country located in the southern region of Peru. It is formerly known as the white city owing to the color of houses built out of Ashlars stone obtained from the lava spewed out by the Misti volcano.

▲ Rector and vice-rectors of the UNSA present Mauricio Resende (second from right) and Celso Ribeiro (second from left) with their , Honorary Doctarates.

The conference, organized by the Peruvian Society for Operations Research and Systems (SOPIOS, http://sopios.org/) and the School and Department of Industrial Engineering at the Universidad Nacional de San Agustín de Arequipa (UNSA, http://www.unsa.edu.pe/), took place at the Cultural Center of the University. The event attracted active participation from teachers, researchers, practitioners, graduate and undergraduate students.

One of the conference highlights was the participation of renowned researchers Celso Ribeiro (Brazil), Mauricio Resende (USA), Idalia Flores (Mexico) and Charles Vincent (India). Each of themgave plenary talks and short courses in issues that included: GRASP and heuristics, simulation and optimization of logistic processes, and chance constrained programming. The conference was further enriched by the presentations from Colombia, Chile, Brazil, Argentina and Peru. Another interesting feature was the roundtable discussion participated in by entrepreneurs, researchers and government decision makers of the southern region of the country which tackled, among other things, transportation issues, sustainable development in the region, as well as research and development.

The Congress also presented well-deserved recognitions to Celso Ribeiro and Mauricio Resende, who were bestowed honorary doctorates at the Universidad Nacional San Agustin de Arequipa. The ceremony was chaired by Rector of the UNSA. During the COPIOS 2009, Thomas Liebling and Philippe Michelon were awarded the same honors, by the Universidad Nacional de Mayor de San Marcos (http://www.unmsm.edu.pe/).

The conference provided most of all, an opportunity to share experiences among participants from different universities within and outside the country. This provided SOPIOS with the motivation to continue its work of organizing these events. It is already looking forward toCOPIOS 2011, which will be organized by the Universidad Católica del Perú. The organizers are hopeful that with the society's acceptance into IFORS and its membership in the larger international community, more international participants will be able to make it to COPIOS 2011.

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IFORS

INTERNATIONAL FEDERATION OF OPERATIONAL RESEARCH SOCIETIES

> **Late Breaking News: The submission deadline for entries has been moved to January 15, 2011. All other schedules remain the same.**

Below are the highlights of the Prize:
• Will be awarded at the close of the 19th IFORS Triennial Conference in Melbourne on July 15, 2011
• Carries a grand prize of US$ 4,000.00 and a runner-up prize of US$ 2,000.00
• Automatically considered for publication in International Transactions in Operational Research (ITOR).

Important Dates and Contact Details
• Full paper submission deadline: January 15, 2011.

• Notification of finalists: March 31, 2011
• Oral presentation: July 10, 2011

For more information
• visit www.ifors.org
• Or email the Prize Chair:
Dr. Subhash Datta (subhash.datta@gmail.com)
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INFORMS Data Mining Contest: How They Did in Predicting Stock Price Movements

By Louis Duclos-Gosselin, Louis.Gosselin@hotmail.com
Chair, 2010 INFORMS Data Mining Contest

The INFORMS Data Mining Section (in conjunction with Sinapse) presented the winners of the third annual Data Mining Contest: http://kaggle.com/informs2010 during the INFORMS Annual Meeting in Austin-Texas (November 7-10). . Cole Harris, Christopher Hefele and Nan Zhou presented the methods they used during the INFORMS Annual Meeting. Presentation materials are available at:http://kaggle.com/view-postlist/forum-4-informs-data-mining-2010/topic-190-methodstechniques-used-by-the-top-three-competitors/task_id-2439.

The competition required participants to develop a methodology to predict whether stock price will increase or decrease according to data of 60 minutes before.This contest requires participants to develop a model that predicts stock price movements at five minute intervals. Competitors were provided with intraday trading data (609 explanatory variables) showing: -Stocks price values (at five minute intervals); Sectoral data (at five minute intervals); -Economic data (at five minute intervals); Experts' predictions (at one week intervals); and Indices (at five minute intervals).

A training database was provided to allow participants to build their predictive models. Participants were evaluated according to the arithmetic mean of the AUC on the test database.

The teams that won which did not use future information rankings are, in first place: Anuja Kokrady, Sweta Agrawal, Merin Varghese and Mahesh Kumar Tambi; on second and third place are teams led by Jong-Seok Lee and Piaomiao, respectively.

Since a better prediction of short-term stock price movements is of an international concern and presents endless possibilities for high-frequency traders, it was not surprising that the contest generated some 28,496 visits to the competition website (http://kaggle.com/informs2010), attracted 894 participants, and garnered 147 predictive analysis submissions. In order of decreasing number of participants, 27 countries represented were: United States, Colombia, India, Australia, United Kingdom, France, Thailand, Canada, Germany, Argentina, Japan, Afghanistan, Albania, Austria, Belgium, Chile, China, Croatia, Ecuador, Finland, Greece, Hong Kong, Iran, Poland, Portugal, Slovak Republic and Venezuela.

A similar challenge will be launched for the INFORMS Data Mining Contest 2011. 🌐

OR Education
Initiatives in OR Education

By Cathal Brugha, Cathal.Brugha@ucd.ie
President, Management Science Society of Ireland

This article tackles two initiatives in OR Education led by former ITOR editor, Cathal Brugha.

In 2008the UCD Smurfit School of Business re-launched its MSc in Operations Research / Management Science as an MSc in Business Analytics. Following the success of this launch it launched in 2010 a sister Master's programme, the MSc in iBusiness.

Both programmes are aimed at developing future leaders of innovation in the Smart Economy. Both also are examples of a new business model for 4th level education. The old model was that universities taught what they think is appropriate, and graduates went out to the market seeking jobs where they might be able to use what they have learned. The new model is where the universities make contact with relevant companies, and ensure that their courses are informed by the activities in these companies: relating to their needs, and attracting young executives from the companies to do the masters on a part-time basis; this complements the full-time route where recent graduates in Engineering, Business/ Management, Computer Science, Mathematics, Science, etc. do the MSc immediately after graduating with an under-graduate degree.

As part of their studies students carry out research project in a company / organisation; part-time students do this in their own company over the two years, thus enhancing the transfer of technology, skills and latest management theory into the company. This makes the two MScs similar to an MBA, except that MBAs are more general and for older people. These MScs are aimed at filling the enormous growing gap in the labour market to provide skills for the Smart Economy.

The MSc in Business Analytics is providing graduates to fill the increasing need for people with Business Analytics skills, which has been illustrated in recent surveys. Hundreds of jobs in Business Intelligence/Analytics are to be created in Ireland in the next few years by the rapidly growing users of analytics such as SAS, IBM, Accenture, Intel, Google, etc.

http://www.siliconrepublic.com/strategy/item/16685-survey-irish-companies-mis
http://www.prnewswire.com/news-releases/ibm-expands-a n a l y t-ics-and-risk-management-capability-in-ireland-64488692.html
http://www.idaireland.com/news-media/featured-news/ibm-study/

This was followed in 2009 by the launch of the Analytics Institute (www.AnalyticsInstitute.org), which is building a global Centre of Excellence in Advanced Analytics, bringing together industry, academics, public sector and professionals to change the way organisations interact with Analytics. AI provides a place for all these groups to come together to create public value and is fast becoming the go-to place for those with a passion for improving the field of Analytics.

The Analytics Institute has a number of key objectives:
o Evangelise the business value of advanced analytics – prove the value
o Demonstrate the benefits of analytics in the public service management – control cost, optimise resources and manage risk
o Promote innovation and collaboration between industry, public service, academia – knowledge workers for the knowledge economy
o Develop global standards and best practice accreditation for analytics professionals (IAPA)
o Accelerate the adoption of advanced analytics in solving real world challenges
o Develop Ireland as an Analytics Hub (global centre of excellence); create employment, expertise and intellectual property

The AI was established to create a new generation of analytically minded people that can help senior executives and political leaders answer hard questions and make more informed decisions. The Analytics Institute utilises the best technology platforms and analytic applications combined with experts in business analytics and business management to unlock powerful insights for businesses and public sector organisations. The AI is a not for profit organisation that promotes the use and proves the value of advanced analytics, Its Board of Directors include: John Farrelly, SAS Institute; Norman Gillanders, Office of the Revenue Commissioners; Paul Comerford, Zero Touch IT; Padraig Dalton, Central Statistics Office; Cathal Brugha, Centre for Business Analytics, School of Business, UCD; Mary-Lee Rhodes, School of Business, Trinity College Dublin; and Adele Marshall, Queens University Belfast

The MSc in Business Analytics develops the understanding and skills needed to combine Information Technology with analytical and quantitative decision-making, to get value from the large quantities of data available to the modern enterprise. The MSc in iBusiness is positioned at the intersection of Information and Communication Technology (ICT) and Business. It focuses on how ICT enables businesses to innovate and compete globally.

Both programmes are Business masters with a Technology focus. However, they also welcome applicants with non-Business degrees such as Engineering, Science and Computer Science. Each provides knowledge, techniques and perspectives to meet the growing demand for top-performing graduates to fill high-value jobs in companies committed to better decision-making and innovation, that compete through innovation and information, and that use the latest technologies and data analysis techniques, such as SAS, Accenture, IBM, and Google.

Each program is funded by the Irish Higher Education Authority (HEA's) Graduate Skills Conversion Programme 2010, under the Irish National Development Plan (NDP). For EU citizens, most of the fees are covered, with only the remaining EUR2,500 paid by the student. This funding indicates the importance the Irish Government attaches to these degrees' contribution of these programs to the Smart Economy.
http://www.hea.ie/en/skills+funding

International Teaching Effectiveness Colloquium
Continues to Reap Benefits

by James J. Cochran, jcochran@cab.latech.edu

Over the past several years, INFORMS and IFORS have partnered in an innovative and valuable initiative designed to improve the quality of OR education and foster the development of a worldwide network of operations research professionals (academics and practitioners) who are interested in OR education issues. Through this initiative, which has been under direction of this author since its inception, an annual teaching effectiveness colloquium is

• hosted by a regional operations research society or federation of operations research societies that represents primarily developing nations and

▲ Marcela González Araya and Peter Bell enjoy participating in an active learning exercise

• jointly organized by members of IFORS, INFORMS, and the host operations research society or federation of operations research societies.

These colloquia, which were modeled after the very successful INFORMS Annual Teaching Colloquium Series that was initiated in 1999, consist of 60-90 minute workshops on novel and innovative approaches to teaching OR, and they feature some of the finest and most creative OR instructors from around the world. Each colloquium generally includes 2-3 presenters who represent INFORMS, 1-2 presenters who represent IFORS, and 3-4 presenters who represent the host society.

The initiative has resulted in the addition of teaching effectiveness colloquia to the programs of the following recent conferences:

• the XIII CLAIO 2006 Latin-Ibero-American Conference on Operations Research
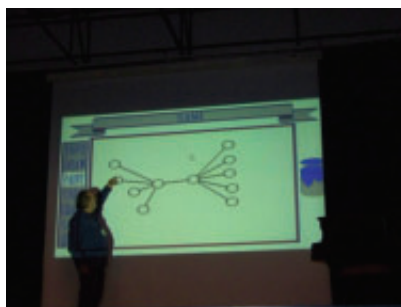
▲ Samuel Jurkiewicz demonstrates software for teaching applications of discrete mathematics

(www.fing.edu.uy/inco/eventos/claio06/eng/) in Montevideo, Uruguay - this was a joint education initiative of INFORMS, IFORS, and the Association of Latin-Iberoamerican Operational Research Societies (ALIO, www.dc.uba.ar/alio/index-en.htm).
• the 2007 ORPA/ORSSA (Operations Research Practice in Africa/Operations Research Society of South Africa, www.euro-online.org/africanOR/) Conference in Cape Town, South Africa - this was a joint education initiative of INFORMS, IFORS, EURO, ORPA, and ORSSA.
• the 2008 Latin-Ibero-American Conference on Operations Research (XIV CLAIO: http://www-2.dc.uba.ar/alio/eventos-en.htm#claio) in Cartagena de Indias, Colombia - this was a joint education initiative of INFORMS, IFORS, and ALIO.

• the 2009 Conference of the Association of Asian Pacific Operational Research Societies (APORS 2009: http://www.apors2009.com/) in Jaipur, India - this was a joint education initiative of INFORMS, IFORS, and APORS (http://www.apors.ms.unimelb.edu.au/).
Each of these colloquia was very successful and:
• attracted 40-60 participants per session;
• generated great enthusiasm among the host organization's members for education related efforts and initiatives;
• created a foundation for further joint initiatives;
• fostered the beginning of the development of a worldwide network of professionals who are concerned about the quality of OR education.

After each of these colloquia, the host society and its members enthusiastically supported the organization of a similar colloquium to be held at its next conference.

The 2010 International OR Teaching Effectiveness Colloquium
The most recent Annual International Teaching Effectiveness Colloquium was held in June 2010 in Buenos Aires with the 2010 ALIO-INFORMS Joint International Meeting (http://meetings2.informs.org/BuenosAires2010/). This colloquium was a joint initiative of the Association of ALIO, INFORMS, and IFORS.

▲ Steve Powell discusses approaches he uses to develop his student's modeling skills

As with previous colloquia, this colloquium was composed of a series of extended (90 minute) workshops that included presentations, discussions, and activities dealing with novel and successful approaches to OR education.

INFORMS was represented by
• Patrick S. Noonan, Emory University, USA (Project Courses: Adopting Best Practices from the Consulting Profession)
• Stephen G. Powell, Dartmouth College, USA (Why and How to Teach Modeling)

IFORS was represented by
• Peter C. Bell, Richard Ivey School of Business, Canada (Introducing Real Problem Solving into an OR Course)
APORS was represented by
• Mariana Funes, Universidad Nacional de Córdoba, Argentina (Using Classroom Games to Support the Learning Process)
• Marcela González Araya, Universidad de Talca, Chile (Experiences in Cooperative Learning using Real-World Based Problems in OR Courses)
• Samuel Jurkiewicz, Universidade Federal do Rio da Janeiro, Brasil (Discrete Mathematics in the Classroom)
•   Richard Weber & Nelson Devia, Universidad de Chile, Chile (Using Interactive Case Studies to Teach Operations Research) >>

▲ Results of one participant's effort to find the optimal arrangement of newspaper ads in an active learning exercise

(Aberdare, Amboseli, Arabuko Sokoke, Hells Gate and Mount Longonot, Kora, Lake Nakuru, Marsabit, Meru, Mount Kenya, Mount Elgon, Nairobi, Ndere Island, Ol Donyo Sabuk, Ruma, Saiwa Swamp, Sibiloi, Tsavo, and Tsavo West) offer palm fringed white sand beaches, warm turquoise Indian Ocean waters, coral reefs, incredibly diverse landscapes, lakes of almost unimaginable size, and tremendous diversity of wildlife. In addition, cities such as Nairobi and Mombasa offer great history and opportunities to learn about Kenyan society and cultures. I encourage you to contact me (by email at jcochran@cab.latech.edu, by telephone at +1 318 257 3445, or by SKYPE at jame.j.cochran) if you are interested attending the 2011 ORSEA Conference and/or contributing to the 2011 International OR Teaching Effectiveness Colloquium. 🌐

ALIO was also to be represented by Sira Allende, Universidad de la Habana, Cuba (Postgraduate Education on OR: Towards a Multidisciplinary Approach to Applications). Unfortunately Professor Allende had to cancel in early June due to poor health.

The conference program also featured an education-oriented keynote presentation (Some Epiphanies on or Education) given by this author.
The 3rd ALIO/INFORMS/IFORS Teaching Effectiveness Colloquium was very successful and:

• attracted 30-60 participants per session;
• generated great enthusiasm among the host organization's members for education related efforts and initiatives (we have been invited back to the host organization's next conference to jointly organize and conduct another colloquium);
• built on the foundation for further joint initiatives;
• fostered the continued development of a worldwide network of professionals who are concerned about the quality of OR education.

ALIO is now also actively exploring the establishment of an education-oriented special interest group for its members. Several ALIO members have also either submitted or are working on manuscripts to submit to INFORMS Transactions on Education (archive.ite.journal.informs.org/), the peer reviewed, free access, online journal dedicated to the advancement of OR/MS education at all levels worldwide.

Next Step - The 2011 International OR Teaching Effectiveness Colloquium
We are currently working with members of the Operations Research Society of Eastern Africa (ORSEA) to organize the 2011 International Teaching Effectiveness Colloquium in conjunction with the 7th Annual International Operations Research Society of Eastern Africa Conference. The ORSEA conference is tentatively scheduled to be held at the Kenyatta International Conference Center (http://www.kicc.co.ke/) in Nairobi, Kenya on October 20 - 21, 2011. This is a tremendous opportunity to establish relationships with the OR communities of Kenya, Tanzania, Uganda, Rwanda, and Burundi (the primary countries of ORSEA) and other OR communities in the region. Kenya is renowned for its natural beauty, and so the location of the conference will also provide participants with tremendous opportunities for pre-conference and post-conference excursions. The nation's eighteen national parks

OTHER NEWS

IFORS President Receives Honorary Doctorate

On November 15 the University of Fribourg (Switzerland) conferred an Honorary Doctorate to Dominique de Werra. The laureate was introduced by the Dean of the Faculty of Economics and Social Sciences, Professor Marino Widmer (EURO Treasurer). In his laudatio he said: Exactly as for the General Assembly of the United Nations whose president is the Swiss Minister J.Deiss the Federation IFORS which represents the world of Operational Research is in the hands of a Swiss citizen! 🌐

Stafford Beer: Learning More About an OR Legend

by Hans W Ittmann, HIttmann@csir.co.za
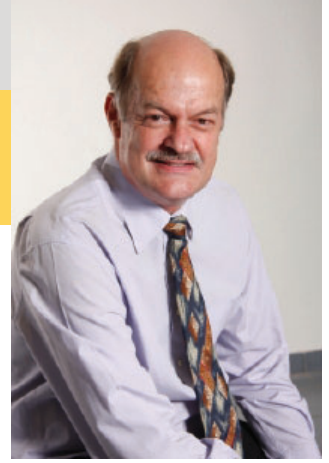
During the late nineties Stafford Beer visited my institution, South Africa's Council for Scientific and Industrial Research, for a whole week. What was very annoying was that we weren't informed about this until a few days before his arrival. One of the world's great geniuses was coming here and it was 'kept a secret'! Nevertheless, he was going to lecture on systems theory. While I was not able to attend all the presentations, I was exposed to, inter alia, the viable system model and the syntegrity model.

A number of things from his visit still stand out for me. Firstly, getting exposed to cybernetics and a whole new world of unfamiliar terminology, for example, homeostatis, the law of requisite variety and autopoiesis. I still struggle to grasp and understand what all these terms mean and represent. Secondly, I was very fortunate to meet and interact with this incredible man of stature. And the highlight was when I (accompanied by my wife) had the privilege of hosting Stafford for dinner. I was asked belatedly whether I would take Stafford to dinner on the Friday night, the last night before he would return to the UK. The previous night, the people who hosted Stafford got to bed only around three in the morning. I agreed, but on condition that we have an early night. With great food, lots of wine and an incredible guest in the person of Stafford, it was a pity we had to return him to his guest house long after midnight! This man obviously has a special place in my life and I was surprised to see a new book by him being published recently.
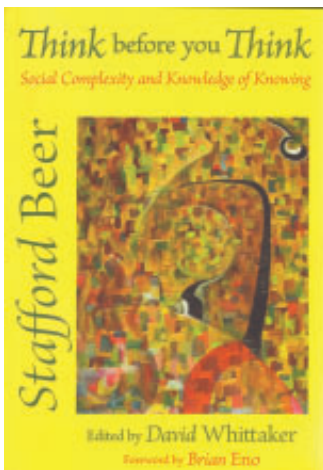
Think before you Think – Social Complexity and Knowledge of Knowing by Stafford Beer, edited by David Whittaker, 2009, Wavestone Press, Oxon, UK, pp. 384. ISBN: 9780954519469. 20 Pounds.

Think before you Think is a selection of the work written by Stafford Beer during his lifetime. Many of these pieces or articles were published previously, but there are also a number of ones that have not appeared elsewhere. David Whittaker, the editor of this book, is a second-hand book dealer and through this he got to know Beer very well. Whittaker compiled this new anthology of Beer's writings with the aim of making Beer's work more accessible but also to bring a fresh perspective to the man and his work. There are some 24 chapters in the book, each capturing a different aspect of Beer's work. These pieces represent and "exhibit Beer's major ideas for the transformation of self and society – they have a timeless relevance for a world in permanent distress".

What is it that makes Stafford Beer so special and of interest to operations researchers? The Second World War prevented him from completing his studies. He was, to a large extent, self taught. He told me, even as a youngster, how he had spent long hours in the library studying various subjects, thus becoming much more informed about these than those people he had interacted with. In 1945, he was enlisted and sent to India where he learnt the various languages of the country as well as studying yoga and meditation. These had a major influence on his future life. Soon after demobilisation, he joined United Steel in the UK where, after some management training, he established one of the first civilian operations research (OR) group in the world.

It was during this time that he invented the stochastic analogue machine and introduced simulation and calculation techniques using manual and nomographic techniques. Hearing about this machine from Stafford himself, was just fascinating. Remember this was in the early fifties - Beer was way ahead of his time. In 1956 the British Steel Company invited Beer to establish the Department of Operational Research and Cybernetics to service the entire company. Some five years later Beer established SIGMA (Science in General Management), the first operational research and cybernetics consultancy in the UK. He published a book titled Decision and Control in 1966, for which he won the Lancaster Prize from the Operations Research Society of America. Although Beer is recognised as one of the pioneers in OR, he devoted most of his life to the subject area called cybernetics – an area, according to Beer that "is not so much an interdisciplinary science as a transdisciplinary science".

The title of the book, Think before you Think, is also interesting. Beer was never keen on writing an autobiography: "I have refused, although I have often been asked, to write an autobiography. The reasons are embedded in that first sentence. It starts with the personal pronoun; its content is boastful in principle, and it is of no interest whatever to anyone in his right mind". Later in his life Beer did start an autobiography which he called "Think before you Think" but sadly he did not finish it – it only goes to age four! A large part of this autobiography is published as chapter 23 in the book.

The material in Think before you Think is varied, including a book review (review of Laws of Form); memorial lectures (i.e. Laws of Anarchy); pieces for ASC Forum; papers published in scientific journals (i.e. The Will of People in JORS, Vol. 34, No. 8, 1983; The Viable System Model; its Provenance, Development, Methodology and Pathology in JORS, Vol. 35, No. 1, 1984 and "I am the Emperor – and I want Dumplings" in Systems Practice, Vol. 2, No. 3, 1989); a letter to special friends for Christmas 1978 (a wonderful piece on personal power); chapters in books and also two Festschrift in honour of Russell Ackoff and C West Churchman, respectively (both appeared in Systems Practice).

Beer also loved writing poetry and painting. He would have loved to have had more time for both these activities. An entire chapter is devoted to these activities of Beer and a number of his poems and paintings have been published. Interestingly, one of the poems is titled "The Cost Benefit Analysis Song". In addition to the normal chapters, the book has three appendices. These are titled: A. Threads from a life – a Narrative Chronology (a very short biography of Beer); B. The Chilean Experience; and C. Cybernetics in a Nutshell. Numerous photographs not published previously are also contained in this anthology.

One of the highlights of Beer's career was being invited by the Chilean President Salvador Allende to implement his cybernetic thinking in reorganising the Chilean public sector. Allende was the first elected socialist head-of-state in Latin America and he wanted Beer to install a regulatory system for the social economy. This project was called Project Cybersyn, an abbreviation of cybernetic synergy. Sadly, international politics intervened in Chile and Allende's government came to a fall. This had a tremendous and devastating effect on Beer. There is not much in this book about this tragedy in Chile, except the short appendix. A further book dedicated to this topic is planned by Whittaker.

In his last public address delivered in 2001, titled "What is Cybernetics", Beer explained that, sadly, the field of cybernetics had a poor track record in the public domain of ideas. He did this via an anecdote, which is appropriate to repeat here: "If I may be allowed one joke in a dignified discourse, it concerns three men who are about to be executed. The prison governor calls them to his office, and explains that each will be granted a last request. The first one confesses that he has led a sinful life, and would like to see a priest. The governor says he thinks he can arrange that. And the second man? The second man explains that he is a professor of cybernetics. His last request is to deliver a final and definite answer to the question: what is cybernetics? The governor accedes to this request also. And the third man? Well, he is a doctoral student of the professor – his request is to be executed second." Could this maybe be a reason why Beer has not been that well known?

Reading the works and writings of Beer is not easy; it requires time to reflect and assimilate what is presented. However, there is no doubt, and let me quote Russell Ackoff, that: "Stafford Beer is undoubtedly among the world's most provocative, creative, and profound thinkers...and he records his thinking with a flair that is unmatched. His writing is as much art as it is science". Think before you Think contains material which I believe can be read over and over again, since it is so rich that there will always be something new for any scholar.

IFORS Distinguished Lecture
Is Operational Research Sustainable?

by Jonathan Rosenhead, Prof Emeritus, London School of Economics
APORS Conference, Penang, Dec 5 2010

Climate change is a subject that attracts controversy because of its complexity, and because it is potentially so important. The talk summarises the basic mechanisms leading to an accumulation of greenhouse gases (notably CO_2) in the atmosphere which reduces the transmission of heat away from the earth. Among the main factors in this process is that CO_2 is generated in large quantities by burning fossil fuels; and its absorption is reduced by de-forestation.

Because CO_2 is long-lasting, world temperatures will continue to increase for very many years even if there were to be a sharp decrease in emissions – of which there is no sign despite a dozen years of trying to achieve it. The potential consequences of a rise of 2% in world temperatures are 30% loss of species, island nations submerged, and mass malnutrition, poverty and migration. The chances of keeping the average temperature rise to 2% are becoming remote. We will need both mitigation (to reduce the scale of the increase) and adaptation (to better live with the consequences). This is a problem of supreme importance, on which the quality and quantity of life of future generations depends.

▲ IFORS President (2007-2009) Elise del Rosario presenting Jonathan Rosenhead the IFORS Distinguished Lecture Award

Why should this concern OR? Choose any two out of
i) OR has no automatic right to survive if it is not performing important tasks for our society
ii) OR has some generic skills that ought to be relevant to the situation

We should find historical motivation by taking a step back to the birth of OR at the outset of World War II. This was an international crisis where defeat would have meant the triumph of fascism over Europe at least. The talk takes the Battle of the Atlantic (1942-3) to exemplify the creative achievements of the first operational researchers, dealing with problems that had never been tackled before; with no established techniques, they developed the tools they needed.

We are again at a point of international, no global, crisis. In some ways we are better off than those first operational researchers. We have the accumulated quantitative craft skills of the profession. Just a few of our tool-bag of techniques might be relevant – those which can deal with situations without a single decision maker or an agreed set of objectives; those which deal with systematic feedback; and we now have interactive model-based methods (Problem Structuring Methods) that can handle complexity and interactive dialogue while diverse stakeholders try to make progress with a common problem.

The talk makes some initial suggestions about ways in which OR might be able to make a contribution to both the debate about mitigation, and the arrangements for adaptation. Can OR be sustainable if the organisation of society it serves is not?

About the Speaker: Jonathan Rosenhead was born in England, and educated at the University of Cambridge and University College London in Mathematics and Statistics respectively. Early operational research (OR) employment was in the UK steel industry in Sheffield and in management consultancy in London (both groups founded by Stafford Beer), as well as in the group led by Russ Ackoff at the University of Pennsylvania. Beer and Ackoff are both major figures who found that the limitations of operational research as practised in the 1960's and 70's excluded it from many social problems of significance, and as a result left OR for the systems movement. Rosenhead has remained within OR, and has been one of the significant figures working to develop methods appropriate to 'messy' problems characterised by multiple stakeholders, uncertainties, intangibles and conflict.

Rosenhead has been a teacher at the London School of Economics since 1967, and Professor of Operational Research there since 1987. He was awarded the President's Medal of the British Operational Research Society in 1979, its Goodeve Medal in 1987, and its Beale Medal in 1992. He was President of the Society in 1986-7.

His edited collection Rational Analysis for a Problematic World published in 1989 was the book which established Problem Structuring Methods as a group of methods for messy or 'wicked' problems. This was substantially revised and updated in Rational Analysis for a Problematic World Revisited, with John Mingers (Wiley, 2001). He has worked and published extensively on the application of OR in third world development; in health care; and on the history of OR. He is also credited with launching the community operational research movement, which provides decision support for grass roots organisations

The 19th Triennial Conference of the International Federation of Operational Research Societies (IFORS2011) will be hosted by the Victorian chapter of the Australian Society for Operations Research (ASOR). IFORS2011 will be held in Melbourne from 10-15 July 2011 at the new Melbourne Convention and Exhibition Centre and will bring together operational researchers from around the globe for this major international event in operational research.

The Scientific Program will be extensive and diverse with an impressive list of academics and practitioners sharing their knowledge, experience and insights on theory, methodology and application of operational research to issues of vital concern to the global community.

Melbourne is a dynamic city of 3.8 million people and is one of Australia's most exciting destinations. A large modern city with a rich heritage, it bustles and pumps with a unique fusion of culture, cuisine and beauty. It's also Australia's sporting capital and the heartland of the nation's fashion industry. The Melbourne Convention and Exhibition Centre is perfectly located right on the Yarra River in the heart of Melbourne and provides easy access to all of Melbourne's attractions.

Call For Papers

Recent natural catastrophes and man-made crises have underscored the inter-connectedness of our world. Any upheaval leads to momentous reverberations across the globe with impacts well into the future.

Now more than ever, Operational Research is of strategic importance to address problems critical to the economy and the environment. Academics and practitioners are invited to share their knowledge, experience and insights on theory, methodology and application of operational research to issues of vital concern to the global community.

Opening Plenary

The Opening Plenary talk "Optimal Choice Sets: How tightly should we regulate?" will be given by Sir James Mirrlees, Trinity College, Cambridge, Nobel laureate in Economics 1996.

DATES TO REMEMBER
Deadline for Abstract Submission: Monday, 31st January 2011
Super Saver Registration Deadline: Tuesday, 1st March 2011
Early Bird Registration Deadline: Saturday, 30th April 2011
Accommodation Booking Deadline: Wednesday, 1st June 201

Summer School in Kiev Learn More About IFORS

Ielyzaveta Korotchenko, student, SSA NTUU (KPI), Kateryna Pereverza, PhD, vice head of SSA NTUU (KPI),
Alexis Pasichny, PhD, head of SSA NTUU (KPI), Gerhard-Wilhelm Weber, Professor, Middle East Technical University, Ankara, Turkey

▲ **Group photo from the Stream on OR at Summer School AACIMP.**

use of English for most courses accounted for the good turnout of 100 participants. OR was an essential part of the Summer School program, having been represented this year by outstanding lecturers:

• Professor Leonidas Sakalauskas (Institute of Mathematics and Informatics, Vilnius, Lithuania; representative of LitORs and OC Chair of EURO 2012) with eight hours' course on "Stochastic Programming and Applications", and
• Professor Alexander Makarenko (National Technical University of Ukraine "KPI", Kiev, Ukraine; early advisor to the "AACIMP" series) with ten hours' course on "Mathematical Modeling", and
• Professor Gerhard-Wilhelm Weber (Middle East Technical University, Ankara, Turkey; representing several EURO working groups, Advisor to EURO-k Conferences) with his ten hours' course on "Modern Operational Research and Its Mathematical Methods" and short sub-course on "Financial Mathematics".

The School provided an opportunity for students to be members of the EURO Working Groups, thus enabling them access to the

Group as they conduct their research. An evaluation of the School from Maxim Shepel, 21 reads: "At the Summer School, under the tutelage of brilliant lecturers, I have gained an important insight into the theoretical side of the subject. Apart from that, I learned more about the activities performed by EURO and IFORS -." The positive feedback of tutors and participants brought up the possibility of having a separate OR stream in the future.

It was also an opportunity for EURO representatives to discuss with Ukrainian scientists the possibility of establishing a Ukrainian OR society. As of this writing, the grounds for the creation of the Ukrainian OR society are being laid.

It can be said that the Summer School greatly contributed to the dissemination of knowledge among the youth, strengthening of multicultural understanding and constituting new scientific links.

Members of the EURO Working Groups on Continuous Optimization Working Group (EUROPT), Working Group on OR for Development, Working Group on Methodology of Scietal Complexity, Working Group on Ethics and OR, Working Group on Computational Biology, Bioinformatics and Medicine, were on hand to acquaint Summer School participants with the activities and aims of the EURO and IFORS during the August 5 to 15 Summer School at the National Technical University of Ukraine (KPI).

From a small gathering of 25 who first met at in 2006, the Summer School has evolved into an international offering which this year attracted students, postgraduates and young scientists from Ukraine, Russia, Belarus, Georgia, Turkey, Germany, Tunisia, Iran, and Hungary. Sessions covered the following streams: Applied Mathematics; Information Technologies; Sustainable Development; and Physics, Chemistry and Living Systems. The shift from the use of Russian in 2006 to the

Gerhard-Wilhelm Weber lectures ▲
on Financial Mathematics.

EUROPT Participates in ICOTA 8

**Xiaoling Sun (Department of Management Science, Fudan University, Shanghai, China),
Gerhard-Wilhelm Weber (Institute of Applied Mathematics, METU, Ankara, Turkey)**

EURO

With ten years of partnership with POP (The Pacific Optimization Research Activity Group), EUROPT (EURO Working Group on Continuous Optimization), actively took part in the 8th International Conference on Optimization: Techniques and Applications (ICOTA 8) held at Fudan University, Shanghai from December 10 to 13, featuring 200 papers with 320 delegates coming from 30 countries.

Pleanry speakers featured are well-known to the OR community, as follows: Kurt M. Anstreicher: "Optimization with Copositive and Completely Positive Matrices";Aharon BenTal: "Tractable Solutions to some Challenging Optimization Problems";Christodoulos A. Floudas: "Towards Large Scale

▲ **Plenary Speaker George L. Nemhauser**

Deterministic Global Optimization";Graham C. Goodwin : "Some Applications of Optimization in Control Engineering";Jean B. Lasserre: The "Joint+Marginal" Approach in Optimization";Shinji Mizuno: "A Bound for the Number of

Different Basic Solutions Generated by the Simplex Method";George L. Nemhauser: "Polyhedral Theory for Optimization Under

Plenary Speaker Aharon BenTal ▲

Uncertainty";Shuzhong Zhang (The Chinese University of Hong Kong, Hong Kong, China): "The Price of Anarchy and Myopia: a Study of System Inefficiencies".

The EUROPT-POP partnership has enabled scientific exchange in different fields of optimization theory and related areas of Operational Research between the Pacific region and Europe. It is worth noting that during the EURO 2006 in Reykjavik, Iceland, one of the founders of POP, the late Prof. Alexander Rubinov, was awarded the EUROPT Fellow 2006. EURO/IFORS representative, Prof. Gerhard-Wilhelm Weber informed ICOTA participants and his hosts at the Fudan University about forthcoming activities of EURO,EUROPT and some other EURO working groups, with a special emphasis on EURO XXV 2012 in Vilnius, and IFORS 2011 in Melbourne, including the IFORS Price for OR in Development. Weber's travel to Shanghai and Fudan University was made possible by the support of EURO.

Selected Papers from the EURO Conference

Stochastic Modeling and Simulation - Problems, Trends, and Perspectives

The 24th European Conference on Operational Research XIV) featured a wide range of researches and applications in the area of stochastic modeling. The following is a review of presentations in the stream on "Stochastic Modeling and Simulation" organized by Erik Kropat (Universität der Bundeswehr München, Germany), Zeev Volkovich (ORT Braude College Karmiel, Israel) and Gerhard-Wilhelm Weber (Middle East Technical University, Turkey).

Data Mining and Knowledge Representation

In the presentation "Fractal dimension cluster validation criteria", Dvora Toledano-Kitai, Renata Avros, Zeev Barzily and Zeev Volkovich dealt with the cluster validation problem. Their approach is based on a fractal dimension cluster quality model. The cluster dimension values in a partition are repeatedly assessed by means of simulated sample occurrences in groups such that the proximity of the result obtained is interpreted as partition goodness. The empirical distribution most concentrated at the origin of the calculated dimension differences indicates the estimated number of clusters.

An optimization method particularly suited for classification problems with large and redundant data sets was the subject of the talk "Learning

parameter optimization of stochastic gradient descent with momentum for a stochastic quadratic" of Memmedaga Memmedli and Engin Tas. The authors propose to learn the required parameters using the second-order information embedded in the Hessian. As a result, the convergence speed of stochastic gradient descent with adaptively tuned learning parameters can be compared with standard stochastic gradient descent on the Rosenbrock performance function.

The estimation of the number of clusters in a dataset was addressed by Zeev Volkovich, Oleg Granichin, Dmitry Shalymov and Renata Avros in their talk "A randomized algorithm for estimation number of clusters". In the proposed "elbow" method, the true number of clusters is recognized as the discontinuity point of the differential risk function, where the position is allocated by a randomized optimization algorithm. In particular, the numerical experiments demonstrate the good performance of the method and its low complexity cost in the case of a high number of clusters.

V.N. Surikov and I.A. Kravchenko gave a presentation with the title "On the number of coincidence of two homogeneous random walks with positive paces". Practical problems connected to genetic objects recognition and complex information systems monitoring often lead to objects identification tasks. The authors presented results that can be used to separation hypotheses about the membership of two samples to the same object in the presence of noisy data or to close different states of the same object.>>

In the presentation "Comparing partitions: visual aids", Ana Alexandra Martins and Margarida Cardoso addressed the problem of clustering evaluation and the visualization of the relationship between two partitions as well as the distance between the corresponding groups. In the proposed approach, the association between two partitions is depicted by a contingency table reflecting the similarities between two partitions. Multidimensional scaling is then applied for the visualization of the relationships between the partitions.

Sandrine Mouysset, Joseph Noailles and Danielle Ruiz gave new insights in spectral clustering in their talk "On the efficiency of spectral clustering: interpretation, parallel computation and results". In this approach, data points are clustered in a low dimensional data space by selecting dominant eigenvectors of a Gaussian affinity matrix. The authors reformulated the spectral clustering algorithm as an eigenvalues problem. In addition, a domain decomposition strategy for parallel spectral clustering was proposed.

In the presentation "WhiBo – A platform for component-based design of partitioning cluster algorithms", Kathrin Kirchner, Boris Delibasic, Milos Jovanovic, Milan Vukicevic and Johannes Ruhland proposed the design of new clustering algorithms by structuring and combining existing ones as sets of reusable components. For an evaluation the system was integrated in a white box machine learning platform for RapidMiner.

Queueing Systems

Queueing systems with nongeometric tail behavior were analyzed by Mark van Lokeren, Bart Steyaert and Herwig Bruneel. In the system under consideration, two types of customers with different arriving behavior are involved. A customer of type A enters the system surely, whereas customers of type B show a so-called discouraged arrival, that means, the probability that an customer of type B enters the system depends on the total number of customers already present in the system. The authors discussed the non-geometric tail behavior of the total number of customers in the system and presented several performance measures.

Dragana Makajic-Nikolic, Gordana Savic, Mirko Vujosevic, Novak Novokmet presented their model of postal service queues with two channels based on Petri nets. Several scenarios for distinct rules of additional channel activation were simulated and data envelopment analysis was applied for efficiency evaluation.

The presentation of Giang Nguyen, Peter Taylor and Guy Latouche was concerned with queues with boundary assistance that can be modeled by a quasi-birth-and-death process. A simple example of such a queuing system is a model with two queues, where each queue has its own Poisson-stream of customers and its own server with an exponentially distributed service time. In this model, a free server can serve a neighboring customer, providing boundary assistance.

The effect of the number of servers in quasi-random input queues was addressed by Moshe Eben-Chaime. The finite source population of quasi-random input queues creates state dependent arrival rates. Since probabilities and performance measures
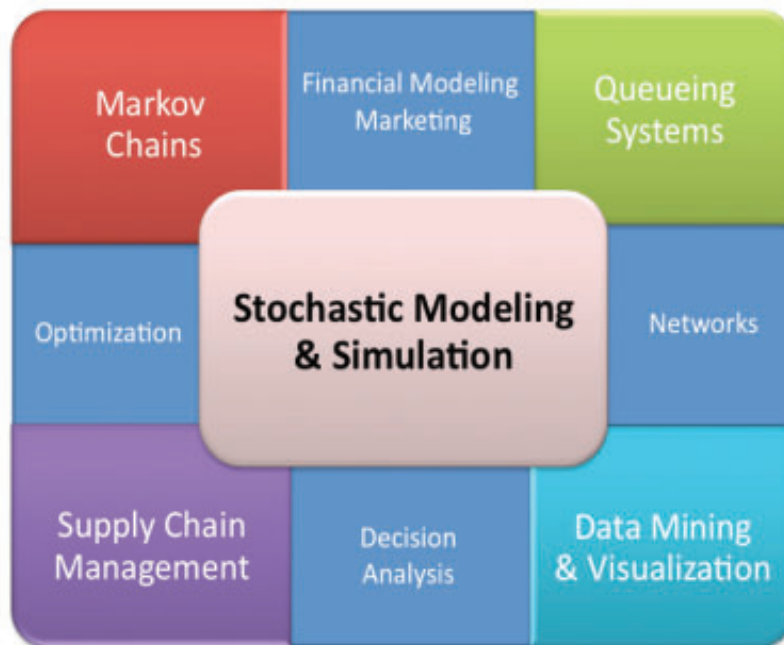
Topics of the stream Stochastic Modeling and Simulation

admit no closed form expression, analytical results are difficult to obtain. The author presented new results and demonstrated the monotone effect of the number of servers on most performance measures.

The effect of correlations in the processing times of make-to-order systems was studied by Michael Zazanis. The analysis was based on Markovian queueing models and matrix-geometric techniques. In particular, correlated processes with exponential marginals derived from the Kibble-Moran-Downton bivariate exponential distribution were considered. In addition, assemble-to-order systems with correlated demands were analyzed.

Antonio Gomez-Corral studied the balking behavior of customers in the single-server queue with vacations. In the model under consideration, arriving customers can decide whether to enter the system or balk. This decision is based on a reward-cost structure that includes both the desire for service and the unwillingness to wait. The author identifies equilibrium strategies and socially optimal strategies.

Markov Chains and Decision Analysis in Marketing and Financial Modeling

Markov chains and decision support systems are useful tools for modeling in almost all fields of modern Operations Research. In the sessions "Markov Chains" and "New Achievements in Stochastic Models and Optimization" several authors presented their studies on both theoretical and practical aspects of these important statistical modeling approaches.

In the session on Markov Chains, Thomas Archibald and Kuangyi Liu presented a general Markov decision model for operations management of start-up firms addressing inventory, capacity expansion and marketing decisions. The profit maximizing objective is extended to a survival maximizing objective with a constraint on capital that can be more suitable for start-up firms.

In a presentation on theoretical aspects of Markov chains, Vladimir Ejov and his co-authors Nelly Litvak, Giang Nguyen and Peter Taylor analyzed singularly perturbations of a Markov chain that correspond to a stochastic policy. They proved that the trace of the fundamental matrix is minimized at policies corresponding to Hamiltonian cycles.

Nadine Losch and Klaus Möller proposed a Markov chain approach to model the dynamics of customer equity. As a particular feature, a segment specific customer equity based on classification and regression trees was used.

Liberalized telecommunication markets were reviewed under the aspect of decision analysis in marketing and financial modeling by Takashi Shibata. The author investigated the effects of an asymmetric access charge regulation on competitive investment strategies. Since entrants of such a market have disadvantages at incumbents, an asymmetric access charge regulation for such asymmetric firms can stimulate competitive investment. In particular, it is shown that an entrant with a cost disadvantage has an incentive to invest as a leader under an asymmetric access charge regulation.

In the presentation "On some antagonistic game related to majority voting", Michael Khachay investigated the stability of collective decisions. The author gave the example of simple majority voting as a classical approach to aggregation of individual decisions suggested by a committee of experts. The stability of such a decision, subject to an exclusion of a fixed number of experts, was analyzed.>>

Supply Chain Management, Stochastic Models in Finance and Production

As consumers become more and more aware of environmental issues, companies might think about a re-evaluation of their supply chain and the implementation of green policies. A restructuring of the manufacturing processes and an improved environmental performance might lead directly to financial gains. In addition, companies can find cost savings by reducing the environmental impact of their business processes. In the presentation "Design and planning of green supply chains: A fuzzy approach", Tânia Pinto-Varela and Augusto Novais addressed the optimal design and planning of logistic structures with regard to the trade-off between profit and environmental impacts. As a generic mathematical framework a so-called Resource-Task Network was proposed. For an analysis of the corresponding bi-level optimization a symmetric fuzzy linear programming approach was applied.

The role of the uncertain interaction and the impact of communication between the participants of a supply chain were discussed in the presentation "Interaction analysis of participants in supply chains" of Ivana Kovacevic and Biljana Panic. Transactional analysis was used to describe and reveal the behavioral patterns and social interactions of participants. The problem of vendor selection and quantities supplied with price breaks was analyzed in the presentation "An application of the revised weighting method in vendor selection with price breaks" of Tunjo Perić and Zoran Babic. The authors investigated the possibility of an application of the revised weighting method and tested the proposed method on the example of flour purchase.

The manufacturing process of a single product in a certain number of plants with heterogeneous characteristics and specific stochastic production capabilities was analyzed by Baruch Keren, Zohar Laslo, Gregory Gurevich in the presentation "Operating overall production under chance constraints". The authors presented a model that can be used to determine the required budget and its distribution among the plants in order to ensure the fulfillment of the periodic demands of the product according to due dates and pre-given confidence levels.

In the presentation "Rollover optimization under uncertain regulatory approval date for products with bass demand rate", Hiba El Khoury, Christian van Delft and Laoucine Kerbache were concerned with the decision problem of a company that plans to phase-in a new product and to phase-out an existing one. The production of the existing product should be neither stopped to early nor to late, because of potential losses in profit or unnecessary costs. The authors studied the rollover of products that follow a Bass demand rate, with the new product subject to an uncertain regulatory approval date. In particular, the costs associated with the rollover are minimized and optimal rollover strategies are determined.

Kwai-sun Leung and Lixin Wu established in their talk "Inflation derivatives: HJM framework and market models" a Heath-Jarrow-Morton type framework that governs the co-evolution of the term structure of both nominal and inflation rates. Based on this framework, the authors proposed a market model with forward inflation rates using displaced diffusion processes. This resulted in a closed-form pricing for inflation caplets and inflation swaptions.

Complex Systems and Networks under Uncertainty

The presentation of Sophie Hautphenne was concerned with extinction probabilities of decomposable branching processes. Such processes arise for example in telecommunication and biological systems when some types of individuals are not able to generate other types. In this situation, partial extinction of some classes can occur whereas the whole process may not necessarily become extinct. The authors established criteria for partial as well as total extinction and analyzed in detail the partial (total) extinction probability.
Daniel Villa Monteiro and his co-authors Thierry Mautor and Dominique Barth addressed the problem on how to find an optimal alliance composition in an interdomain network. In this particular network, the domains have to satisfy service requests. A subset of domains, where members share knowledge and provide a routing service to other members is considered as an alliance. Both heuristics and exact solution methods have been applied to find the best alliance that gives to the members the highest increase in service satisfaction.

Tommi Tervonen and his co-authors Gert van Valkenhoef, Bert de Brock and Douwe Postmus addressed "Quantitative release planning in extreme programming". This methodology tries to improve software quality with regard to changing customer requirements and is considered as a particular agile software development methodology with frequent releases in short development cycles. The authors provided a multiple knapsack model to assist release planning where the selected plan maximizes the expected business value.

In the presentation "Synergic process of speech signal energy transmission", Vladimir Zhuravlev and Dorovshykh Anatoliy analyzed the imperfect adequacy of speech and hearing process theories. They propose a mathematical model for speech signal energy generation and receiving that is based on synergic analysis of speech signal informational components in communication channel energy transfer speed and substance carriers.

Assignment Problems, Graph Theory and Combinatorial Optimization

A variety of theoretical contributions ranging from assignment problems and graph-theoretical models to combinatorial spaces were presented in the sessions on "Complex Systems under Uncertainty: Networks and

Data Mining" and "Stochastic Modeling and Simulation I &II".

In the presentation "Probabilistic analysis of multidimensional assignment problems" Pavlo Krokhmal investigated a generalization of linear and quadratic assignment problems. Properties of large-scale randomized instances of multidimensional assignment problems under the assumption that their assignment costs are independent and identically distributed random variables.

Multidimensional assignment problems were also addressed in the presentation "Approximation algorithms for the general multi assignment problem" of Ron Adany, Sarit Kraus and Fernando Ordonez. The authors presented a problem where personalized advertisements have to be assigned to viewers in order to maximize revenue. It is assumed that each viewer has a limited capacity and each ad has a given length whereas a revenue is obtained if is assigned to a certain number of viewers. Two bi-criteria approximation algorithms of the Ads Packing Problem were presented: Extra-Packing and Deep-Search-Replacer.

In a theoretical contribution, Kamal Kabyl and his co-author Abdelhafid Berrachedi considered the embedding of trees in a hybercube. The major goal is to find the smallest dimension of a hybercube in which a given tree is embeddable. In particular, the authors identified four new classes of trees for which the cubical dimension is established.

In another presentation on theoretical aspects of combinatorial optimization, Sergii Sirenko introduced a new formal approach for defining important notions such as a combinatorial optimization problem, a combinatorial space and combinatorial objects. With this new perspective countable combinatorial spaces can be considered. In addition, with the proposed definition of directed segments it is possible to provide constructive mechanisms for solving of combinatorial optimization problems.

Alexander Kolodzey gave a presentation on "On goodness-of-fit tests for random combinatorial objects". The author studied random combinatorial objects which possess the decomposition property of the individual components. The weight of the objects equals the sum of the components weights. In addition, a joint distribution of the number of components with a given weight can be represented as the joint conditional distribution of several independent Poisson random variables.

In the talk "Identification of local distortions in random sequences", Alexander Grusho, Elena Timonina and Zeev Volkovich consider sequences of consistent random distributions. As the main result, the authors demonstrate that it is possible to find local distortions in a random sequence, where the corresponding distribution is well-defined. 🌐