

Editorial

It is great to present the latest edition of the IFORS newsletter. I trust that the content will be of interest to all. While this edition is a bit late for various reasons, I hope you will nevertheless enjoy reading the variety of articles and news items.

The newsletter starts with a short piece by the new President of IFORS, Professor Dominique de Werra. Dominique took over from Elise del Rosario and hails from Switzerland. He is a distinguished Operations Researcher with a very impressive track record. He has served the profession in various capacities over many years. In his first Presidential column he suggests and promotes very strongly the motto of the new Administrative Committee as being: "Do not do what others can do better, but support it by all means". The same words can apply to us as the OR community in supporting the various endeavours of the IFORS AC during their entire term of office.

IFORS is run and managed by the AC consisting of a number of members, each with a specific role and responsibility in the committee. As the three-year term of office of the previous AC came to an end in December 2009, it is appropriate to introduce the new AC. . The roles and responsibilities of members are outlined very briefly, while a short CV is presented of each of the members. In this way the wide range of activities and the portfolios of the members of the AC are presented while readers of the newsletter also get to know the new AC members. We wish them well in steering IFORS over the next three years!

One of the feature articles is on AIRPORT OR. This article is very interesting and again illustrates the immense impact of OR in this area, as in many other areas, and all the challenges that airport activities offer to operations researchers. It is thus appropriate to have a short article on the airline group of IFORS (AGIFORS) on their 50 years' celebrations. AGIFORS is marking this occasion with an extraordinary annual symposium in Nice, France during September 2010.

The terrible earthquake that hit Haiti at the beginning of 2010 has placed renewed focus on relief efforts. After such an event it is critical that assistance and help are provided as soon as possible. Many organisations provide relief and efforts need to be coordinated properly. More and more people with an OR background are working in the new area, called humanitarian logistics, and many of them assisted in Haiti. The INSEAD Humanitarian Research Group, a group that pioneered much what has happened in humanitarian logistics, presents answers to many of the questions asked about the relief efforts in Haiti.

The 50th member society of IFORS is the Iranian Operations Research Society (IORS), whose membership was confirmed by IFORS late in 2009. This edition of the newsletter contains a short introduction to the IORS. It is great to welcome this society into IFORS! As can be seen this society is already very active and they are inviting papers for their third annual conference!

One of the pioneers of operations research, Russ Ackoff, passed away at the age of 90 towards the end of last year. Although his interests shifted to other fields and disciplines later in his career, he had such a big influence on operations research that it is appropriate to honour his memory. Various articles and obituaries in memory of him have appeared elsewhere in the OR literature. He was indeed an intellectual giant!

Finally I would like to thank all those who contributed to this edition of the newsletter and, as always, I would like to extend an invitation to anyone who wants to contribute, in whatever way, by sending material to me.

Hans W Ittmann
Newsletter editor
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Message from IFORS President Dominique de Werra



"In 2009, when this AC's term ends, IFORS turns 50 years old. This AC will work to see that IFORS reaches its 50th year resplendent in its rich history as well as prepared – and raring – to take on the challenges and the uncertainties of the future."

This was part of the conclusion that my predecessor Elise del Rosario wrote three years ago. Time has gone and IFORS is now 50 years old and it has 50 members. It is undoubtedly prepared to take on the many challenges which are arising on its way. I would like to thank Elise and the previous AC for the excellent work they did during their term and also for their invaluable guidance in our first steps. My gratitude goes also to all members of the (new) AC whom you will learn to know in the next pages with their fields of activity within and outside of IFORS.

As we know IFORS is a federation of national OR societies which are active and hence visible; they contribute to providing an attractive image of OR outside of our community and to showing to the public the countless achievements of our discipline in practice. What can then be the role of a federation? As a motto for the members of the AC I suggested: "Do not do what others can do better, but support it by all means". This reminds us that IFORS was created neither to duplicate the various activities of national societies nor to imitate the programmes of the regional groupings but to bring something different.

According to our statutes IFORS has to "develop OR as a unified science and to advance it in all nations of the world". We should definitely strive to follow this line but let me just say that I am not convinced that our discipline with its multiple facets should be presented as a unified science but our objective would rather be to promote it all over the world for it to be a universally recognized science. One may then wonder whether OR should be reduced to a science; it is most likely more than that, but this is another discussion and we are not going to open it here.

Promoting OR in all nations will then be a goal which can be regarded as essential for a world federation. It implies that IFORS will do its utmost to encourage contacts and exchanges between the regional groupings and between the national societies. Good practices, new developments, original applications, successes and also challenging difficulties met in some applications to real life situations should be spread by IFORS among the users, educators and makers of OR through its conferences and publications including of course the Newsletter. As the motto suggests IFORS should and will support all actions of the national societies or local groupings which contribute to the promotion of OR without frontiers. The federation offers a world class instrument for coordinating, integrating and spreading all efforts made by the OR community. Let us use it.

But an Administrative Committee alone will not do miracles even with the help of OR: we count on all of you and we hope to have fruitful and stimulating interactions during the years to come.

Dominique de Werra
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In Memory of Russ Ackoff

Russell L. Ackoff was one of the pioneers in Operations Research. He passed away at the age of 90 in October last year due to complications after hip replacement surgery. It is appropriate that the OR community honour this pioneer in the fields of operations research, systems thinking and management science.

Those interested in getting to know more about Russ Ackoff I can refer you to the IFORS' Operational Research Hall of Fame article on Russell L Ackoff in the International Transactions in Operations Research, Vol 12 (2005) p 129 - 134 by Maurice Kirby and Jonathan Rosenhead. There are also obituaries on him in the December 2009 edition of OR/MS by Heiner Mueller-Merbach as well as a short obituary in the Journal of the Operational Research Society, Vol 61 (2010) p 713 by John Wilson, editor of JORS. Suffice to say Ackoff qualified as an architect and then obtained a doctorate in philosophy with C West Churchman as his doctoral advisor. He was an outstanding scholar and authored or co-authored 31 books and published over 150 articles in a variety of journals. He co-authored the following most influential early book on OR in 1957, Introduction to Operations Research, with C. W. Churchman and E. L. Arnoff. John Wiley & Sons: New York. During the 70's he became more and more disillusioned with what was happening in OR especially with, in his mind, the so called "technique-dominated Operations Research", and he started proposing very strongly more participative approaches. His two papers published in 1979 in the Journal of the Operational Research Society titled respectively The future of operational research is past and Resurrecting the future of operational research not only got wide acclaim and has been referenced many times but also had considerable influence on the development of OR, at least, in certain countries.

I'd like to quote from the flap text of one of his books, Ackoff's Fables, to give a sense of the man and his work: "...simply listing Russell Ackoff's credentials can't begin to give the reader unacquainted with his work a sense of the joys of reading a book by him. Witty, irreverent, sometimes outrageous...brilliant, insightful, unorthodox, down-to-earth, practical... these are just a few of the adjectives that come to mind when attempting to describe a book by Russell Ackoff. On the one hand there is Ackoff the skeptic and iconoclast, ever ready to challenge the establishment and put the lie to the truisms that hinder individual development and promote organizational inertia. In the course of his investigations, he harpoons a number of sacred cows and cuts to the heart of some of today's toughest problems - from the failure of contemporary education to discrimination, problem solving and "bureaucracy". On the other hand there is Ackoff the pragmatist. Author of many influential books, such as Creating the Corporate Future and The Art of Problem Solving, he offers workable solutions to many of your toughest organizational problems. His most broad-ranging (and free-wheeling) book yet, Ackoff's Fables is bound to have a profound influence on the way you look at a life in business and the business of life". He will be greatly missed.



▲ Russ Ackoff at the University of Washington in St Louis May 1993



WHO does WHAT?

A recent solution to a multi-objective assignment problem.

IFORS Objectives

According to our statutes, the objectives of the Federation shall be to develop operational research as a unified science and to advance it in all the nations of the world. Means to this end shall include:

1. Sponsoring international meetings
2. Providing other means for exchanging information on operational research
3. Encouraging nations to establish operational research societies
4. Supporting standards of competence in operational research
5. Promoting operational research education
6. Promoting the growth of both existing and new fields of operational research.

In order to reach these goals, the 2010-2012 Administrative Committee shall carry out the actions required by the IFORS Statutes.

All **AC Members** shall have the function of External Relations. All AC member are expected to be the "ambassador" of IFORS in or outside their respective regions.

In addition, regional VPs are expected to:

- Tap their regional networks and resources that will assist in monitoring planned conferences in their regions;
- Monitor conflicts that may arise from scheduling of conferences way ahead of schedule;
- Coordinate with conference organizers to contribute an IFORS presence, session or speaker where possible.
- Encourage the formation of national OR societies and application for IFORS membership, where such societies already exist, check that applications for membership are properly attended to and followed up both from the side of IFORS and the applicant; and facilitate the application process in general, e.g., make sure that the complete list of requirements are known to the applicant and that English translation of the by laws of the national society is available.

The President – Dominique de Werra dominique.dewerra@epfl.ch

Will provide general leadership and oversight of the activities of the Federation, in addition to the duties stated in the By Laws. The experience of the Immediate Past President – (Elise del Rosario elise@jgdelrosario.com) shall be precious to the new Committee by providing advice, reminding the historical context and the organizational perspectives on decisions and discussions within the Administrative Committee.

The Immediate past President will also take charge of: the website by ensuring that it contains up to date information about the organization, including the Newsletter; and will assist the Education Committee in the web-based IFORS Educational Resources project.

VP-at-Large – Hugo Scolnik hscolnik@gmail.com

Developing Countries

This committee is responsible for the IFORS initiatives in the support of the expansion of OR in developing countries. These activities will be carried out with the close collaboration of Theo Stewart, Theodor.Stewart@uct.ac.za. The AC will be glad to rely on the large experience of Theo Stewart in this area.

Treasurer – Peter Bell pbell@ivey.ca

According to the Statutes the Treasurer takes care of all financial aspects of the IFORS activities. He prepares an annual budget which has to be approved by the AC at its mid-year meeting.

His role is also essential in the process of finalizing the budget of Triennial Conferences and other large scale activities of the Federation

ALIO VP – Nair Maria Maia de Abreu nairabreu@unova@gmail.com

Scholarships and Education Initiatives within ALIO

Liaising with coordinators of programs involving students and young researchers within the region. Ensuring that existing projects (currently the Summer School for Young Scholars or ELAVIO) are properly executed maintained and continuously improved. Recommending to the Education Committee programs appropriate to the region in line with the objective of supporting OR Education and seeing to it that IFORS participation in these programs are acknowledged and documented.

Education Committee

This Committee will take care of:

- reviewing existing programs such as the Teachers' Workshops, TutORial, Educational Resources;
- initiating new; and
- executing programs identified for implementation.

EURO VP – Martine Labbé mlabbe@ulb.ac.be

Publications

This committee will monitor and coordinate the execution of the ITOR and IAOR long range plans and programs that have been put in place by the previous AC.

Scholarships and Education Initiatives within EURO

Liaising with coordinators of programs involving students and young researchers within the region;

Ensuring that existing projects (currently, the IFORS/EURO Exchange of Young Researchers Program (consisting of the EURO Summer/Winter Institute and the IFORS Institute Exchange Program) are properly executed, maintained and continuously improved; Recommending to the

Education Committee; programs appropriate to the region in line with the objective of supporting OR Education and Seeing to it that IFORS participation in these programs are acknowledged and documented.

APORS VP – Xiang-Sun Zhang zxs@amt.ac.cn

Scholarships and Education initiatives within APORS

Liaising with coordinators of programs involving students and young researchers within the region; Ensuring that existing projects (currently the IFORS-APORS Young Scholars Program) are properly executed, maintained and continuously improved; Recommending to the Education Committee; programs appropriate to the region in line with the objective of supporting OR Education and; Seeing to it that IFORS participation in these programs are acknowledged and documented.

NORAM VP – Karla Hoffman khoffman@gmu.edu

Meetings (Triennial and Special Conferences)

The Meetings committee is responsible for:

- monitoring preparations for the Triennial Conference and other special conferences;
- reviewing proposals of other organizations to affiliate with their meetings;
- looking for opportunities to co-sponsor meetings of other organizations if doing so will help
- achieve the objectives of IFORS;
- working closely with regional VPs on potential conflicts in scheduling of meetings;
- coordinating and managing the IFORS Distinguished Lecturer Program; and
- meetings representing IFORS.

Newsletter Editor

– Hans Ittmann (till June 2010)
hittmann@csr.co.za

– Elise del Rosario (from July 2010)
elise@jgdelrosario.com

This committee will be responsible for:

- disseminating information about IFORS, its regional groupings, its activities and the members who make it up;
- facilitating communication among its members;
- producing a newsletter on a regular basis; and
- incorporating the current Developing Countries Newsletter.

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Know Your IFORS Management Team



Dominique de Werra
IFORS President

Dominique de Werra is an emeritus professor of Operations Research at EPFL (Ecole Polytechnique Federale de Lausanne) in Switzerland. His research fields include Combinatorial Optimization, Graph Theory, Scheduling and Timetabling. After spending a few years as an assistant professor in Management Sciences at the University of Waterloo (Canada) he joined the Math Department of EPFL where his mission was to introduce Operations Research in the mathematics and engineering curricula and also to develop research activities in the field. He conducted a collection of Operational Research projects (applied as well as theoretical) with a number of industrial partners. He is an associate editor of *Discrete Applied Mathematics*, *Discrete Mathematics*, *Annals of Operations Research* and a member of a dozen of editorial boards of international journals.

From 1990 to 2000 Dominique de Werra was the Vice-President of EPFL; he was in charge of the international relations and represented his institution in many academy networks in Europe (like the CLUSTER network of excellence which he chaired). He was also in charge of all education programs of EPFL. In 1995 he was the laureate of the EURO GOLD Medal and in 1997 he was elected President of EURO. He has obtained Honorary Degrees from the University of Paris and the Technical University of Poznan (Poland). In 2006 he was the IFORS Distinguished lecturer at the APORS meeting (Manila).

He supervised a number of PhD students in Operations Research and published over 200 papers in international scientific journals. He also wrote and edited several books. He was member of many committees in various countries of Europe and America (evaluation of institutions, accreditation, strategic orientation, etc.) Dominique de Werra has (co-)organized several international conferences in Switzerland (like EURO conference or a Mathematical Programming Symposium) and he was a member of many program committees of such conferences. In spite of these activities, Dominique de Werra is a newcomer to the IFORS constellation. He was just an IFORS vice-president representing EURO from 1998 to 2000.



Elise del Rosario
Immediate past President / Newsletter editor from July 2010

Elise del Rosario's involvement with IFORS Administrative Committee started when as the IFORS representative of the Philippines, she was tapped to head the Developing Countries Committee, which she chaired for nine years. As its head, she worked on several programs, which pushed the Developing Countries agenda. She was also IFORS Vice President-at-large for 2001-2003.

She spearheaded the formation of the OR national society in the Philippines and was asked to chair international OR conferences held in Manila. As its Manager, the Operations Research Department of San Miguel Corporation garnered the 1992 Operations Research Society of America (ORSA) Prize for outstanding and ongoing use of Operations Research in organizational decision-making.

Upon retirement from the San Miguel Corporation as Vice President in charge of Operations Research, Elise has since gone into consulting – a large part of it, in pro-bono work with the Philippine government, through the Operations Research Society of the Philippines Committee on OR for Public Service (ORSP Corps). Currently, she is the CFO of her family's One Small Step Forward Foundation, dedicated to uplifting Philippine public elementary school education, specifically, in English and Mathematics within the Philippines.

Elise is an alumna of the University of the Philippines, where she obtained her Bachelor of Science in Industrial Engineering and of the Asian Institute of Technology in Thailand from where she earned her degree in Master of Science in Industrial Engineering and Management. She trained at the Stanford Research Institute (SRI) in California as an International Fellow in Physical Distribution and Materials Management. Apart from publishing several papers in OR journals, she has keynoted several national Conferences and has served as editor of various journals.



Hugo Scolnik
IFORS VP-at-Large

Dr. Hugo Scolnik is a Full Professor at the Computer Science Department of the University of Buenos Aires that he founded in 1985. He is also director of the Master in Information Security course of the University of Buenos Aires. He completed his master degree in Mathematics at the University of Buenos Aires in 1964 and his Ph.D. in Mathematics at the University of Zurich in 1973. Scolnik has worked for many years in fields like Nonlinear Optimization, Numerical Analysis, Mathematical Modelling, Robotics, Artificial Intelligence, Cryptography and Automata Theory and has published 50 scientific papers as well as one book. His current research interests include nonlinear optimization, numerical analysis and cryptography.

Scolnik's involvement in IFORS started many years ago. In particular he was the chair of the 1987 triennial conference in Buenos Aires, and acted as ALIO VP from 1995 to 1997. He acted as referee of several journals including *Futures*, *Human Systems Management*, *Optimization Methods and Software*, *SIAM Journal on Numerical Analysis*, *SIAM Journal on Applied Mathematics*, *Pesquisa Operacional*, *Latin-American Journal on Operations Research*, and *International Transactions on Operations Research*. He was a member of the editorial boards of the *Journal of Applied Mathematical Modeling*, *Human Systems Management*, *Pesquisa Operacional* and *International Transactions on Operations Research*.

He was the recipient of the Konex prize in 2003 for the best trajectory in Science and Technology of the decade 1993-2003 in the area of Informatics, the Sadosky prize in 2005 for the best trajectory in Informatics, the Securinfo prize in 2006 for the best trajectory in Information Security and again the Securinfo prize in 2008 for the development of the best information security product. He has worked as a consultant for several international companies and United Nations' agencies.





Martine Labbé
IFORS Vice-President for EURO

Martine Labbé is professor of Operations Research at Computer Science Department of the Université Libre de Bruxelles (ULB) in Belgium. Her main research area is combinatorial optimization, including graph theory and integer programming problems and with a particular emphasis on location, network design and pricing problems.

After spending a few years as an assistant professor at the Université Louis Pasteur in Strasbourg (France) and the Erasmus Universiteit Rotterdam (the Netherlands), she joined ULB, in 1992, as associate researcher of the Fonds national de la Recherche Scientifique. In 1995, she became professor at ULB and started to develop a research group focusing mainly on network design and pricing problems. Since 2007, she is dean of the Faculty of Sciences at ULB.

She was associate editor of *Discrete Optimization*, *Journal of combinatorial Optimization*, *Location Science*, *Operations Research*, *Operations Research Letters* and *Transportation Science*. Presently, she is a member of the Advisory Board of editors of *Transportation*.

She is the author or coauthor of about 100 papers published in international journals and supervised a dozen PhD students in combinatorial optimization.

Martine Labbé was member of program or organization committee for many conferences. In particular, she was the program chair of the IFORS conference, which took place in Hawaii in 2005.

In 2000-2001, she was INFORMS vice-president for international activities and in 2007-2008, she was the President of EURO, the Association of European Operational Research Societies.



Xiang-Sun Zhang
IFORS VP for the Association of Asia-Pacific Operational Research Societies within IFORS (APORS)

As a full research professor of the Institute of Applied Mathematics (IAM), Academy of Mathematics and Systems Science (AMSS) within the Chinese Academy of Sciences (CAS) in Beijing, Xiang-Sun Zhang's research fields cover Mathematical Programming, Combinatorial Optimization, Management Information System, and recently Bioinformatics/Computational Systems Biology. He majored in Operations Research in the Department of Applied Mathematics of the Chinese University of Science and Technology in 1965. After that he has been working in the CAS as an assistant professor, associate professor, professor and the director of IAM (1992-1998) and the deputy director of AMSS (1999-2002). He was elected as the president of the Operations Research Society of China (ORSC) and APORS vice president.

Prof. Zhang is currently the director of Asia-Pacific OR Center (APORC) which organizes two serial international symposiums namely the International Symposium on OR with Applications in Engineering, Technology, and Management (ISORA), and the International Symposium on Optimization and Systems Biology (OSB). He is currently also the Chief Editor of the ORSC's official bimonthly journal: "Operations Research and Management Science".

Since the early 1990s, Prof. Zhang has supervised many PhD students in Operations Research and published over 150 refereed journal papers and more than 20 books/proceedings. He has also engaged in several OR application projects and won the First Prize of the "OR in Development", awarded by IFORS at the 14th International Conference at Vancouver, Canada, 1996, as well as many national prizes. For more details of his career in Operations Research, see his vita at <http://zhangroup.aporc.org/HomePage>.



Karla Hoffman
IFORS VP for Association of North American Operations Research Societies (NORAM)

Dr. Karla Hoffman is Professor in the Systems Engineering and Operations Research Department at George Mason University and has served as Chair of that department. From 1975-1985, she was a Mathematician at the National Institute of Standards and Technology.

Dr. Hoffman's primary research areas are optimization and auction theory. She has served as a consultant to the Federal Communications Commission on auction design, software development and testing, and to the Federal Aviation Administration on the use of market-clearing mechanisms to manage congestion at airports and in the airspace. She has developed real-time scheduling algorithms for the airline, bus and trucking industries, consults to the military on a variety of scheduling, manpower-planning-problems, and portfolio optimization problems and has advised the telecommunications industry on capital budgeting.

Dr. Hoffman has been actively involved in INFORMS activities for over 30 years. She served on the ORSA Board during the formation of INFORMS, and was actively involved in the ORSA-TIMS merger that created the organization. She was President of INFORMS in 1998, and served on INFORMS' Executive Committee from 1995-1999.

She has also been active in the Mathematical Programming Society, where she served on its Board for three years was general chair for the INFORMS Summer meeting in 2007 in Puerto Rico and currently serves on the Board of the Parkinson Foundation of the National Capital Area. She is a Fellow of INFORMS. >>





Nair Maria Maia de Abreu

IFORS VP for the Association of Latin-Iberoamerican Operational Research Societies within IFORS (ALIO)

Nair Maria Maia de Abreu is a Professor of Production Engineering at the Federal University of Rio de Janeiro, Rio de Janeiro, Brazil. Her research areas include Spectra Graphs, Graph Theory and Combinatorial Optimization. She is a fellow in productivity in research of the Brazilian Research Center (CNPq). Since 2009, she has been the Coordinator of the Scientific Committee of Production Engineering of the Brazilian Research Center (CNPq). She is a member of several international scientific societies such as IFORS, INFORMS, AMS, MPS and ICA.

She has supervised several PhD students in Operational Research and Spectral Graph Theory and published a number of papers in journals such as the European Journal of Operational Research, Discrete Applied Mathematics, Linear Algebra and its Application, Linear and Multi-linear Algebra, among others.



Peter Bell

IFORS Treasurer

Prof. Peter Bell has been teaching Management Science at the Richard Ivey School of Business, The University of Western Ontario, since 1977. A past President of IFORS, he also served as President of CORS/SCRO, and Vice-President, International Activities of INFORMS. His company, the Strategic Management Science, Inc. provides consulting services to corporations, hospitals, small businesses, charities, and government agencies.

A year after winning the INFORMS Prize for Teaching the Practice of Management Science in 2005, he was elected Fellow for the Institute for Operations Research and the Management Sciences. In 2007, he was presented the Award of Merit by the Canadian Operational Research Society (CORS/SCRO).

Peter's research program has produced some 50 articles in academic and business journals, 13 books including Management Science/Operations Research: A Strategic Perspective, SouthWestern College Publishing (1999), and about 100 cases. Currently, he teaches EMBA at Ivey's Toronto and Hong Kong campuses. He has been with Ivey since 1977. His Bachelor's degree was completed, with honors, at Oxford, and his MBA and PhD degrees at the University of Chicago. He was Visiting Fellow at the Warwick Business School, Visiting Professor at London Business School, C-I-L Distinguished Lecturer at Wilfrid Laurier University, and Chevron Distinguished Visiting Professor at Simon Fraser University.



Hans Ittmann

Newsletter editor till June 2010

Hans Ittmann is the Executive Director of CSIR Built Environment, one of the seven operating units of the Council for Scientific and Industrial Research (CSIR) in South Africa. The CSIR is the largest R&D organisation in Africa. Initially trained as a pilot, Hans joined the CSIR in the seventies as an operations researcher. For the last twenty years he has managed an OR group within the CSIR. They have focused on contract R&D and over the years the group has been involved in a wide variety of projects for both the private and public sectors. The group has focused on optimisation, simulation, statistical analysis and also supply chain management. In the latter case Hans was instrumental in publishing the annual South African State of Logistics survey.

He serves on the editorial boards of two journals, was President of the Operations Research Society of South Africa (ORSSA) on two occasions, served the society in other capacities as well and is a Fellow of ORSSA. He has twice been a co-recipient of the annual Tom Rozwadowski award of ORSSA for the best publication.



Mary Thomas Magrogan

IFORS Secretary

Mary Thomas Magrogan serves as the appointed Secretary on the Administrative Committee of the International Federation of Operational Research Societies (IFORS). Mary is an association professional who has specialized in operations research for more than 25 years. During that time, she has worked with many of the leading operations researchers in the world. Mary started her career in association management in 1982 when she joined the staff of the Operations Research Society of America (ORSA), which merged with TIMS in 1995 to become The Institute for Operations Research and the Management Sciences (INFORMS.) Mary has worked on many initiatives and accepted numerous responsibilities at INFORMS. She is currently the INFORMS Director of Subdivisions and International Activities. She has a Bachelors degree in Business with an emphasis in Information Systems from the College of Notre Dame of Maryland and is a member of the American Society of Association Executives and the Council of Engineering and Scientific Society Executives. ■



HUMANITARIAN LOGISTICS

15 FREQUENTLY ASKED QUESTIONS ON THE RELIEF EFFORTS IN HAITI

1. *What makes the disaster in Haiti different from others?*

Primarily, this situation is unique because Haiti, although a poor country, had a reasonably well prepared system (e.g., many troops, international organizations and local NGOs). But these were all hit badly by the earthquake. Casualties (within the organizations themselves and in their families and communities) abound. It took a while to get these people back up on their feet and able to help with the relief efforts.

Also, it is a very concentrated disaster, and there are few points of entry. The destruction is in a very small, very densely populated and poorly laid out city. Hence, obvious bottlenecks exist to get supplies and help into the country and then to transport them from the airport to the city (due to destruction, lack of resources, etc.). Further, security (even before the earthquake) is an issue.

2. *Why is it taking so long to help the people?*

First, there are priorities. The primary need is to save lives and to treat badly wounded people. These rescue operations are the focus of the first five days following a disaster. Although it is unpleasant to think about, it is very important to properly dispose of corpses, which can create huge health problems in addition to trauma problems for those in the affected areas.

Second, there are barriers to entering a country. The country is sovereign, so international help actually has to be invited by the government of the affected country. Other factors could also delay entry, such as obtaining visas and/or overcoming other bureaucratic obstacles. Security can also be a constraint inhibiting access to the population and delivery of the goods.

Third, infrastructure in Haiti is weak. The port is destroyed, and the airport is too small for all the volume and frequency. Roads are blocked or heavily damaged. In the case of the airport in Port-au-Prince, for the first few days after the earthquake, capacity was limited to receiving only 25 flights per day. This has now been increased to 100 flights per day, but the capacity of the airport is at its maximum. This infrastructure limitation greatly inhibits the ability to reach those in need.

Fourth, there are limited resources available. For example, there are issues concerning refuelling, telecommunications, and other essential services that support the functions of the different organizations.

Fifth, logistics coordination is a great challenge in Haiti at this time. This disaster is unique since virtually all national organizations (e.g., the government, police, army, fire workers, UN staff and staff from other international organizations, as well as local NGOs) were severely hit by the earthquake. Most had casualties (or casualties in their families) to which they needed to attend



first. It took quite a while for these people to get back on their feet and become operational again (which they were able to do, in part because of the emotional and practical support from people who came in from outside the country). Thus, in Haiti, much of the coordination is being carried out by international teams with limited knowledge of the region and its people. Additionally, it is also a risk that support will be carried out on a bilateral basis (i.e., countries and organizations acting on their own) with little coordination among themselves. This is partly resolved by the recently instated cluster system discussed below.

3. *What are the biggest risks facing people right now (and in 6 months)?*

3.5 million people have been severely affected in Haiti (i.e., more than a third of the population). That is a huge blow to the country.

The greatest risk now is disease. There are thousands of corpses, which need to be properly disposed of to halt the spread of disease. (This is called dead body management.). Also, tens of thousands of wounded people need help that is not readily available. Older people and sick people (in fact all weak sections of the population) may die for lack of simple things like water. Lack of clean water could easily bring epidemics. The humanitarians should be able to deal with all of these issues in the coming weeks as the machine gets up to full steam.

In six months, the greatest risk will be to overcome fatigue (people may forget about Haiti) and focus on the future. We need to give these people dignity again: a decent living and opportunity. The big challenge is indeed to give the Haitian people new perspectives and to engage and help them in building a much more resilient and prosperous future. We owe it to them. There is no reason why Haiti should not be prosperous given where it is located and the potential of its population. We cannot let politicians forget in six month's time the promises they are making now!

4. *There are mixed reviews in the press about the climate in Haiti. There are images of looting, fighting, mixed with hopeful stories and small pockets of progress – what is really happening?*

There are people trying to rebuild and there are people trying to survive; some are trying to do both. Then there are thousands of aid workers and military trying to get to know the place, the needs, and the people in the shortest amount of time to deliver on their promises. Naturally, there are bound to be tensions, which only get worse as time goes on. The media can choose to focus on either type of these people. Their challenge, and ours as viewers, is to try to capture a balanced picture of the climate on the ground.

Haiti already had quite a bit of unrest and crime before the earthquake happened. Obviously, the tension of a disaster does not improve this. So, it is no surprise that security is an issue. As humans, we tend to have short memories. After Katrina, the national guards had to be sent in to ensure security (e.g., looting, etc.) because thousands of people had guns and were ready to use them. It took an extremely long time to get the relief operation going. Coordination was not strong. And now, years after Katrina, many thousands of people still live in mobile homes thousands of miles from their New Orleans home. So we should not be surprised that Haiti is chaotic. Things are actually going surprisingly well. The Haitians are patient and most things are advancing well considering the circumstances.

5. *What is the role of media in such a disaster?*

The media are needed in such disasters to create the flow of funds (i.e., raising awareness among the masses to donate). But, as we know, media are often interested in sexy material to

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interest their public. Often we see that, after a few days, they need to get news and hence may start criticizing, etc. in order to capture interest from their readers. It would be ideal to channel some of the media's attention and energies to the important role they can play in the time of a disaster. They have resources, so they could help in assessing the situation (by helicopter, for instance). Also, they could focus on the impossible situations in which relief workers operate (e.g., tent camps, no resources, poor communication and safety, 24-hour days, aftershocks, etc.). They often also use (and increase prices of) many valuable resources that could be dedicated elsewhere. Could the press helicopter be directed to humanitarian use since all roads are destroyed? It was reported that during the tsunami about a quarter of helicopters and 4x4 vehicles that were badly needed by the relief workers were occupied by press and VIPs. And many of us have seen footage in Haiti of politicians, celebrities, and journalists as well. In some cases, the media presence slows down the relief efforts (which are often so quickly criticized).

6. *How can we best help as individuals? Are some donations better than others?*

It is best to give cash to an organization that is established and knows its job (e.g. the Red Cross). Cash is always a great and unparalleled contribution. It provides humanitarian agencies with the flexibility to act and decide on the ground as the priorities keep shifting. Unsolicited in-kind donations often interfere with the humanitarian supply chain and tend to be the biggest bottleneck (for example, items are often sent with no information re: contents of the plane, no mechanisms for unloading, unnecessary supplies taking priority from those that are urgently needed like medicine). Unsolicited goods are called "the second disaster" by humanitarians and for good reason. The big risk in Haiti is that organizations and companies will start sending goods which will heavily interfere with the humanitarian supply chain. These gifts need to be integrated. This is the biggest challenge for coordination in Haiti.

7. *How do we make a decision on who to fund?*

Deciding on 'to whom to donate' is as much a personal question as it is an educated and informed decision. People tend to give to organizations they trust and that represent their values, be they social, political, or religious. That is a personal choice. Then there are the further issues of impact and transparency. Here, people should give to those organizations that they feel confident will deliver on the promises made, and that will be able to provide them with a reasonable indication of how the donations were used to improve the situation. As indicated above, it is best to give cash to a trusted organization and let them decide the best way to use the donation.

8. *What are the stages of the relief efforts?*

Priority of funding goes from rescue to relief to recovery. We are now at the end of the rescue phase and the relief phase is getting well underway. The corridors are there to get relief to those affected, and the flows of supplies are arriving as well. The recovery phase is going to take years. Hopefully,

recovery will help improve conditions for the future. For example, how can one help Haiti build more resilient buildings during recovery? And how can one help develop local capabilities (such as more locally trained people to react to disasters)?

9. *What benchmarks are used to analyze whether the relief efforts are successful?*

There are a whole series of benchmarks. Some organizations have a rather sophisticated system (e.g., a balanced scorecard) with key performance indicators (number of families served with basic survival kits in one week, for instance). Another is cost per delivered survival kit. Other organizations have more informal systems. In any case, all humanitarian organizations have huge demands from their donor organizations for accountability. Often, these demands for accountability on how funds are spent can be exaggerated and become a heavy bureaucratic burden for humanitarian organizations requiring scarce resources that could be better used elsewhere. Funding organizations need to keep this in mind to not complicate matters even more. In addition, after every disaster there is a plethora of audits and reports written by consulting organizations as well as internal audits/reports. In most cases, one need not worry, gifts are carefully tracked. This does not mean that all organizations are efficient or effective, however. Some are great and others are less good (not unlike private companies).

10. *Is there a logistics leader for the coordination of such operations?*

Yes, the Humanitarian Logistics Cluster is the main point of contact for information and decisions for international organizations involved in major humanitarian relief efforts. The UN recently reorganized around clusters (formed around areas such as logistics, health, nutrition, etc.). Lead agencies do the coordination to improve coordinated response to disasters. The cluster system has worked quite well in Haiti. Coordination is much better than in previous disasters, but this is such a unique disaster (in that the disaster destroyed so many of the existing resources) that it may not immediately show.

The World Food Program leads the Humanitarian Logistics Cluster. The logistics cluster publishes regular bulletins online and holds meetings to discuss security issues, fuel availability, infrastructure (airport, port, roads, warehouse), government issues (visas, duties, tariffs, and permits), and other updates relevant to the logistics activities. For example, when the American military was entrusted with the air traffic control of the Port-Au-Prince airport, the Cluster website immediately showed a bulletin with the new procedures for flights coming into Haiti. The same report provides updates about the fuel situation for places and vehicles.

11. *Why are the Americans leading so much of the relief efforts? What about military forces from other countries?*

The short answer is that countries are sovereign (as referred to above), and Haiti invited the US to send their military to ensure security. This could lead to some issues where American planes are

then given landing priority, for example (as cited by the French), but US army coordination and prioritization (e.g., at the airport) is better than no coordination at all.

In more detail, it is important to note that; first, the American forces are well equipped and prepared to provide logistical support and assets for the deployment of the operation. Neither the UN nor the Haitian government have the resources to devote full time to the crisis. Keep in mind that the UN is also working at the same time on numerous other crises happening in the world. Second, the US government regularly monitors the region and has a long history of diplomatic relations with Haiti. This military, political, and social intelligence can be put to use in this situation for planning and implementation. Last, there is a significant community of Haitians residing, legally and illegally, in the US who have been lobbying for a long time for a special type of immigration status based on the economic and political conditions of the country prior to the earthquake. Such status has been consistently denied over the past year. Following news of the earthquake, deportations of Haitians from the US were suspended but no decision has been taken on a Temporary Protected Status.

There are also other international forces involved, though they are perhaps less visible on the news. For example, there is a strong presence of Latin-American military forces that have accumulated lots of experience responding to disasters in the region. Military contribution is present from countries all over the world. There are specialized military teams working on telecommunications, setting up hospitals and providing medical aid, working on access to water, and electricity, etc.

Some conflicts can arise because the military tend to focus on full security, not on humanitarian needs; this may delay humanitarian efforts. Also, humanitarians are expected to remain neutral and impartial at all times. Close collaboration between the military and humanitarians should not come at the expense of compromising the humanitarian license to operate (neutrality and impartiality). So there is a delicate balance between security and urgency that is quasi-impossible for a military man to make.

12. *What can my company do? We don't have business there but would like to help.*

Cash is always an important contribution, especially in the first phase. Then, prepare, wait, and go. It is important to have the resources ready to help and to define efficient ways of reaching the beneficiaries. However, this should not be in competition with humanitarian agencies and relief aid trying to get to the ground. In previous disasters, we have seen news agencies and VIPs competing with humanitarians for access to the population which is a shame. The goal should be to assist them -- not compete with them.

Trust a humanitarian partner and coordinate with them to provide and send the goods and the expertise (yes, technical and specialized staff could be needed) upon their request. Let them know you are ready to help; they will know when you can add the most value.

Regardless of the size of your contribution, stay committed and humble. Let the humanitarian organizations take the lead and communicate >>



jointly, if at all, on your contribution. There is a risk for companies to be seduced by the opportunity to showcase their brand to the media while doing good. There are very few cases where this type of behaviour has actually helped the company in the long run.

As indicated above, this is a chance for companies to really help develop local economies (for example, the textile and agriculture industries). The proximity of Haiti to markets, such as the US, gives a great opportunity for local capacity building. Some companies can help with resources (e.g., planes, experts, communication equipment, vehicles and other items that can be very scarce in the ramp-up phase after a disaster); especially if companies have local operations making these resources readily available. After the ramp-up phase, humanitarians will have brought in sufficient resources themselves. We have heard a lot over the past few years about companies investing in markets at the “Base of the Pyramid” and developing new business models to reach the Millennium Development Goals. Haiti is now in a position where businesses have a prime opportunity to re-build responsibly with such models in mind. Granted, it will be a very challenging place to do business (even more than in the past), but here is where the dialogue with politicians, and international figures should help.

13. *Can my company work with a non-profit on the ground to help?*

It is crucial that private efforts are integrated with humanitarian efforts and systems. That is the challenge. The UN has learned lessons from the past about dealing with the private sector and has put in place a website for companies to contact them and establish a joint collaboration (www.business.un.org). Still this is far from perfect, and we need to keep in mind the magnitude of the task. In general, most humanitarian organizations have recognized the need to work closer with the private sector over the past few years. Many organizations have even established departments to focus on private sector relations. Given that, we hope that in this case the corporate-private collaboration will be easier to set and manage than in previous disasters.

14. *Can corporate aid arrive too soon, in a situation where everything is urgent?*

Yes, in fact, companies have learned in previous responses, that waiting a few days could help to add more value and cause less confusion. This time is used for preparation during which operational NGOs can assess and communicate exactly what is needed, when and where. As we already noticed with the situation in Haiti, the first few days can be extremely chaotic where even the most practical and small details can be difficult to manage (e.g., where to sleep, how to move around, etc.).

Companies with local staff, offices or capacity are best placed to get involved in the earlier stages. For example, a company with local operations can provide office space and staff to help at the airport, as TNT did during the Indian Ocean tsunami. During the Israeli-Lebanese crisis of 2006, Lebanese staff working abroad helped Agility (a Kuwait-based multinational logistics leader) in the initial phase to partner with the

humanitarian agencies at the Syrian border to prepare for the distribution of aid.

15. *Can we help Haiti beyond the emergency phase? We keep hearing comments about ‘developmental aid’. What is the difference between emergency and development aid?*

Priority is given to first-aid and immediate needs, but there is also an urgent need to marry humanitarian assistance and developmental aid as soon as possible to reach some level of stability. Continued support will be required to go into a nation-building stage. Donations risk fading away as media coverage simmers and people become fatigued, so it is essential to keep up momentum and awareness of the situation as events unfold over time.

Haiti will require significant and long-term support before some sense of stability is reached. Currently, the priority is to focus on the relief efforts (i.e., on meeting the urgent needs of the population). Soon, the efforts will need to focus on nation re-building that will target the economy, the political system, and the social issues of health and education, among many others. The

latter efforts are what fall under the umbrella of developmental aid. There are decisions and investments that will affect the structure of the system upon which the government and society functions. In comparison, humanitarian aid is expected to be neutral and impartial when responding to human suffering. As such, it should not lead to any structural changes in the national system that could affect the way the country functions.

Every disaster is a great opportunity to build capacity. Many local people can be trained during this time, and these skills can be very useful next time disaster strikes. In fact, more emphasis should be placed on this window of opportunity. Haiti is close to markets, has a good and well educated population, which makes it easier to succeed in helping it advance to the level of some of its neighbours (e.g., the Dominican Republic is in a relatively strong position). If governments, international aid organizations and private business work together, Haiti has a bright future.

N. Luk Van Wassenhove and Rolando Tomasini

Acknowledgements: The authors gratefully acknowledge the members of the INSEAD Humanitarian Research Group and Christine Driscoll for their comments on earlier versions of this paper. ■

About the INSEAD Humanitarian Research Group (HRG)

Founded in 2000, the mission of INSEAD HRG is to develop a science of humanitarian logistics which facilitates cross-learning between private companies and humanitarian organisations.

The Group has produced over 30 case studies and research articles which are developed and disseminated in specialised education programmes, working groups, books, and professional and academic conferences. Since beginning its work in the humanitarian sector, HRG has seen and actively contributed to significant improvements in the logistics of humanitarian organisations.

For example, the Group has assisted in the development of partnerships between private and humanitarian organisations, such as TNT and WFP, to improve the delivery of aid to people in need.

For more information on the work of INSEAD HRG, please go to: www.insead.edu/facultyresearch/centres/insic/humanitarian/.

About the INSEAD Social Innovation Centre

The INSEAD Social Innovation Centre, an inclusive platform for cross-disciplinary research and engagement in the area of social innovation, was founded in 2007.

The Centre s aims to:

- 1) conduct research that advances the theory and practice of social innovation;
- 2) inspire people by providing the tools needed to make a positive impact on society through business;
- and 3) facilitate collaboration and dialogue among faculty, students, alumni, executives, companies, NGOs and other academic institutions.

The Centre covers research and events in the following sub-groups: Humanitarian Research, Healthcare Management Initiative, Sustainability, Africa Initiative, Social Entrepreneurship, and Corporate Social Responsibility & Ethics.

For more information on the INSEAD Social Innovation Centre, please go to: www.insead.edu/insic.



IFORS OR Practice Survey: Response to Initial Questionnaire

Background

IFORS have commissioned a survey of OR practice in member countries, updating an earlier one carried out in 1996. The aim is to enable a better understanding of the usage of quantitative tools, techniques and approaches and their impact on decision-making in organisations, as well as the background of the OR analysts involved. It is expected that the results will enable IFORS to improve their support to and promotion of OR in member countries. The main instrument is a detailed questionnaire, to be completed by OR analysts/consultants in each country, who would be identified by the IFORS country representatives.

As a first step, a short on-line questionnaire was sent to all country Representatives of IFORS in November 2009. The aim was to collect some basic information about OR practice in each country and to assess the likely response to the main questionnaire. This report summarises the responses as of 14th February 2010.

34 countries (of 49 emailed) completed the on-line questionnaire, as follows:

- EURO – 21
- APORS – 8
- ALIO – 5
- NORAM - 0

Summary of Responses

The responses to each question are summarised in graphical form and the main outcomes are then highlighted.

Question 1: *General state of OR consultancy in your country (How many organisations use OR consultancy? How big is the activity?)*

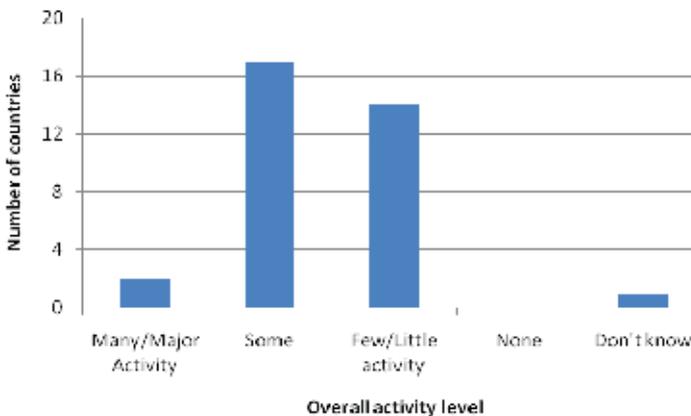


Figure 1: Number of countries out of the 34 respondents that experience a specific organisational activity level in the country.

It can be seen that nineteen countries have awareness of some or much OR practice activity.

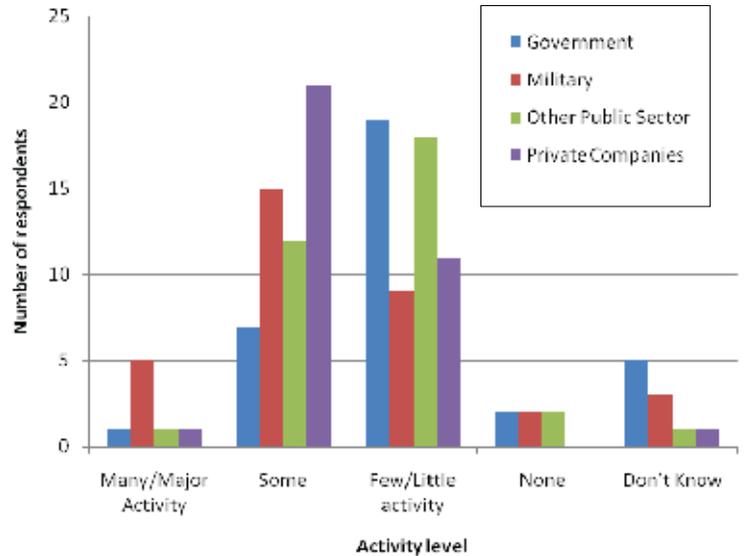


Figure 2: Number of organisations that use OR consultancy and the activity level per organisation type.

OR practice seems relatively strong in the military area.

Question 2: *How is OR consultancy provided in your Country (How many organisations use OR in the following ways?)*

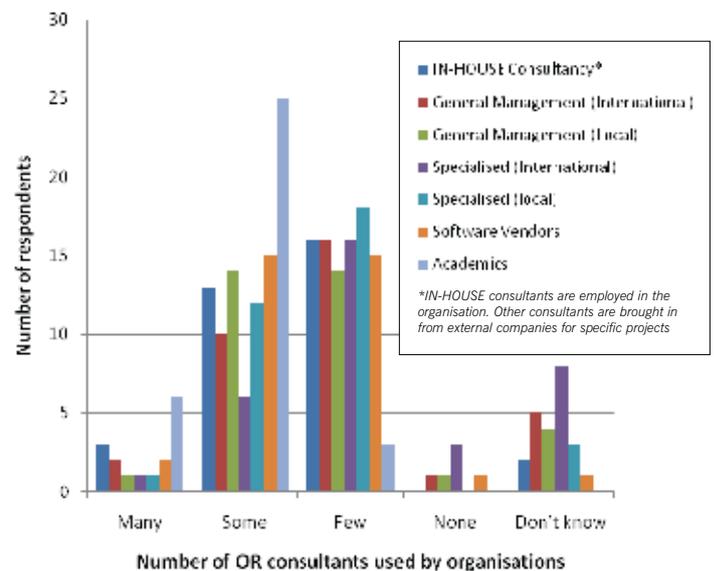


Figure 3: Approximate number and type of OR consultants used in organisations.

These responses indicate that only a few organisations are known to use OR consultancy in most countries.

Question 3: *What is the extent of your knowledge of OR consultancy in your country?*

Good information is expected from 21 countries:

UK, Turkey, Sweden, Ireland, Germany, Italy, Belgium, South Africa, Iceland, Netherlands, Spain, France, Denmark (EURO = 13); Philippines, New Zealand, China, Hong Kong, Singapore (APORS = 5); Colombia, Argentina, Uruguay (ALIO = 3); USA, via the INFORMS Roundtable (NORAM) = 1.



IFORS Distinguished Lecture at the APORS conference in Jaipur, India

December 2009

Limited information is expected from 8 countries: Austria, Belarus, Brazil, Czech Republic, India, Hungary, Israel and Korea. No information is expected from 5 countries: Malaysia, Serbia, Greece, Croatia, and Mexico.

Four countries (China, Germany, New Zealand, Uruguay) said that much OR practice was provided via academic consultancy, whilst four countries (Germany, New Zealand, Germany, Uruguay) said much was via external consultancies, rather than in-house consultancy. Six countries (Sweden, Ireland, Hong Kong, Korea, Austria, Uruguay) reported that OR methods were being used without the practitioners using (or being aware of) the OR label.

Question 4: How many OR consultants could you contact for this survey?

Number of respondents who could contact a certain number of consultants

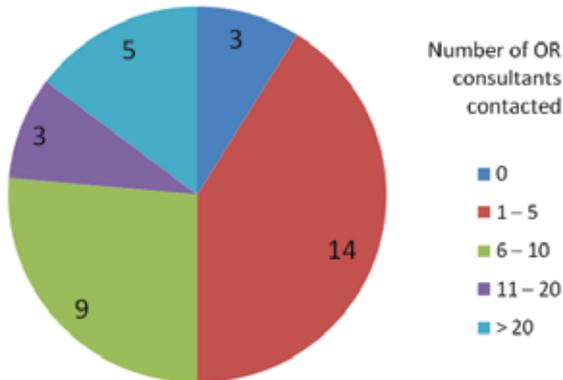


Figure 4: Number of respondents who could contact a given number of consultants

Half of the countries expect to be able to contact more than 5 OR consultants for completing the main questionnaire.

Question 5: Is there any additional information you would like to see collected?

Several countries made suggestions which we have taken into account in designing the main questionnaire.

Comments

Overall there seems to be limited awareness by Representatives (and in some cases by Presidents & Secretaries) of OR practice in many countries. EURO (13 countries) and APORS (5 countries) may be able to provide realistic regional information. A few countries have commented that much OR practice is carried by academic and/or external consultancies. Several countries have commented that they are aware of OR methods being used without those involved labelling themselves as OR practitioners

Fifteen countries have not responded to this initial Questionnaire, including some with mature OR communities (including INFORMS, Canada, Japan and Australia). INFORMS have offered to participate in the second stage via their Roundtable, as has the UK via their Heads of OR Forum. Further attempts will be made to obtain responses from the remaining countries.

It is planned to send out the main questionnaire during March/April 2010 and it is expected that responses will be received during April – July.

John Ranyard

Survey Leader, 14th March 2010

jranyard@cix.co.uk ■



▲ Jonathan P. Caulkins receiving a token of appreciation from IFORS President Elise del Rosario

Title of Prof Caulkins Presentation:

Providing a Scientific Basis for Managing the Illegal Drug Problem

Abstract:

Illegal drugs pose serious problems that vex policy makers throughout the world. Globalization and increasing affluence in rapidly developing countries have triggered substantial increase in rates of addiction in places where use was once rare. For Afghanistan and its neighbor there are particularly vexing connections between the profits from drug trafficking and the funding of insurgencies.

The tools of operations research, industrial organizations, and economics can be harnessed to provide an empirical, scientific basis for drug policy making. Data are drawn from epidemiological studies, forensic laboratory, analysis, undercover buys, and extensive interviews with incarcerated drug smugglers and dealers. This talk focuses on drug initiation (product diffusion), price responsiveness (elasticity of demand), and operation of the illegal supply chain, both during normal times and when distribution network is disrupted. Resulting understanding provides the foundation for estimating the cost-effectiveness of different broad strategies for controlling drug use and associated social harms.

The success of Operations Research in the nontraditional domain can be viewed as an encouraging case study for those interested in tackling kindred issues such as terrorism, human trafficking, and financial crime and also social issues more generally, ranging from economic development to environmental management.

Biography

Jonathan P. Caulkins is Professor of Operations Research and Public Policy at Carnegie Mellon University's Qatar Campus and Heinz College. Caulkins specializes in mathematical modeling and systems analysis of social policy problems, particularly issues pertaining to drugs, crime, violence, and prevention. He is a past co-director of RAND's Drug Policy Research Center (1994-1996) and founding Director of RAND's Pittsburgh office (1999-2001). Dr. Caulkins also publishes on software quality and optimal dynamic control applications in housing, counter-terror, and fashion.

Prof Jonathan P. Caulkins

Dr. Caulkins received a B.S., and M.S. in Systems Science from Washington University, an S.M. in Electrical Engineering and Computer Sciences and Ph.D., in Operations Research both from M.I.T. ■





AIRPORT OR - Optimized planning and real time control in a complex environment

Airports are increasingly seen as future bottlenecks of the air transport system. Airport and Aircraft Operators, Ground Handling companies and Air Traffic Service Providers are under pressure to improve operational efficiency, predictability and on-time performance. This leads to a number of challenging optimization problems. This article takes a look at aircraft turnaround management, the process of serving an aircraft while on the ground, and describes a software system for optimized turnaround management.

Introduction

In the past decades, the volume of worldwide civil air transport has been growing at a considerable rate. According to the International Civil Air Transport Organization, passenger traffic has more than doubled since 1990. At most airports, passenger transportation clearly dominates cargo handling, generating approximately 87% of total worldwide revenues in commercial aviation.

The growth in traffic has been accompanied by a wave of deregulation and liberalization in the airline industry in Europe, in the United States, and in many other parts of the world. Airlines left free to provide service with few regulations have significantly changed their services and schedules, for example by introducing airline hubs. At the same time, privatization and commercialization have changed the mode of operation of many airports. Additionally, low-cost carriers have begun to impose strong cost pressure.

Airports and ground service providers must utilize the available resources in the best possible way in order to cope with these trends. This is the case for the staff and equipment concerned with ground handling on the ramp and in the terminal, as well as for infrastructure and building resources — such as runways, taxiways, apron and terminal resources such as stands, gates or check-in counters — which typically can only be extended in the long run and with large financial effort. Also, wastage of scarce Air Traffic Flow Management slots must be minimized.

Challenging optimization problems arise at the tactical planning and at the online control level, where the task is additionally complicated by frequent changes of the flight schedule, such as delays, re-routings, or aircraft changes. Since the complex planning and control process can not be adequately addressed with traditional, manual planning methods, many airports have started to introduce OR based airport management systems to optimize the aircraft turnaround process.

The Aircraft Turnaround Process

In airport ground handling a large number of activities required for serving an aircraft while on the ground have to be scheduled. These activities include, for example, (1) technical services, such as fueling, wheel and tire checks, ground power

supply, de-icing, cooling and heating, routine maintenance, or cleaning of cockpit windows, (2) loading and unloading of cargo and baggage, (3) passenger and flight crew disembarkment and embarkment, and (4) catering and cleaning services. The activities must be processed within given time windows that depend on the aircraft arrival and departure times and have to respect certain precedence constraints. The turnaround or transit processing of an individual aircraft can be seen as a resource-constrained project scheduling problem, and the overall scheduling problem for the complete airport or its terminal areas is a corresponding multi-project scheduling problem.

Airlines try to reduce aircraft ground times at airports for two reasons: firstly, to keep up the flight schedule in case of operational irregularities, and secondly to increase the fleet utilization. Short turn-round or transit times are also desirable for the airport or ground service provider, as the use of heavy investment, such as terminal gates or costly

ramp equipment, is maximized if ground times are kept as short as possible.

Scheduled arrival and departure times are therefore derived from a set of minimum transit or turn-round times which reflect the technical possibilities with standard equipment and normally productive manpower. The times are obtained by analysis, including the timing of individual activities and critical path calculations, and through actual demonstrations. The minimum times define the performance that may be needed in case of delay on arrival.

Figure 1, taken from an airport handling manual, shows an example of how the minimum transit time of a B747 aircraft is determined. The Gantt-chart-style figure shows a subset of the required activities with their start and completion times when started as early as possible (left-shifted). There are obvious precedence relations between certain activities.

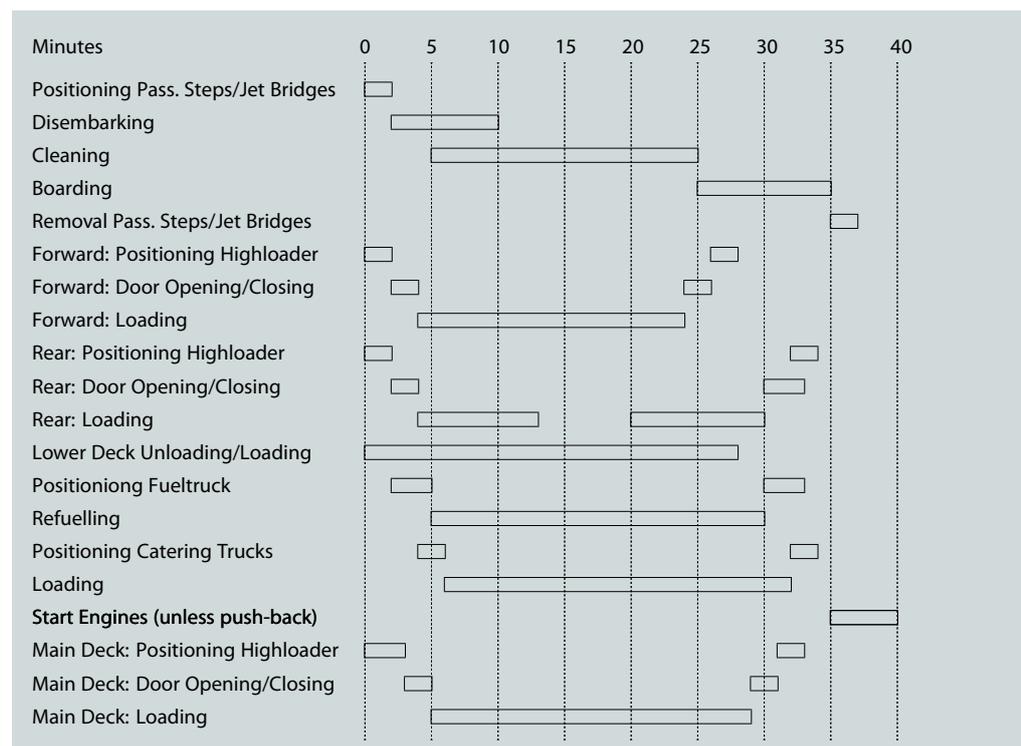


Figure 1: Minimum transit time of a B747 aircraft

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For modern containerized aircraft, the critical path of a transit or turn-round processing usually consists of passenger disembarkment, cabin cleaning, and embarkment. In few cases, before very long flights, fueling operations may determine the critical path.

The scheduled ground times are usually approximately ten to fifteen minutes higher than the minimum times in order to allow for delayed arrivals while still achieving on-time departure. This, the fact that not all activities are critical even when the ground times are minimal, and the fact that the actual required processing times for some activities depend on the actual (vs. expected) load data and may thus vary from the processing times used for deriving the minimum ground time, leads to degrees of freedom that may be exploited when scheduling the ground handling activities. Additionally, there are usually a number of aircraft which, for various reasons, stay at the airport for considerably longer than the minimum necessary ground time.

The GroundStar Airport Optimization System

The German software company INFORM that specializes in OR based decision support systems has been active in the application OR to airport management since 1990, offering the GroundStar suite of applications. With installations at over 150 airports worldwide, GroundStar is a success story in applying OR to airport and ground handling operations.

The GroundStar suite comprises systems for planning, rostering and real-time control of ground handling staff and equipment. Furthermore, gates and terminal resources like check-in counters and

baggage belts can be planned and dispatched. Mobile communication systems (e.g. WLAN or cell phone technology) are integrated for staff dispatching, and interfaces to flight information and display systems ensure seamless integration with other airport and airline systems. Additional components include, e.g., airport operational databases, billing and contract management as well as data analysis tools.

When airports are involved in ground handling activities, staff costs are an essential cost factor, representing 50% and more of total costs. Optimizing staff scheduling — making available sufficient staff with sufficient qualifications at the right times and locations — is therefore of utmost importance. This is true for passenger-related services in the terminal such as check-in, security or boarding, as well as ramp handling services on the apron, e.g. baggage transportation and loading. In the following, we will give an overview of staff planning and rostering.

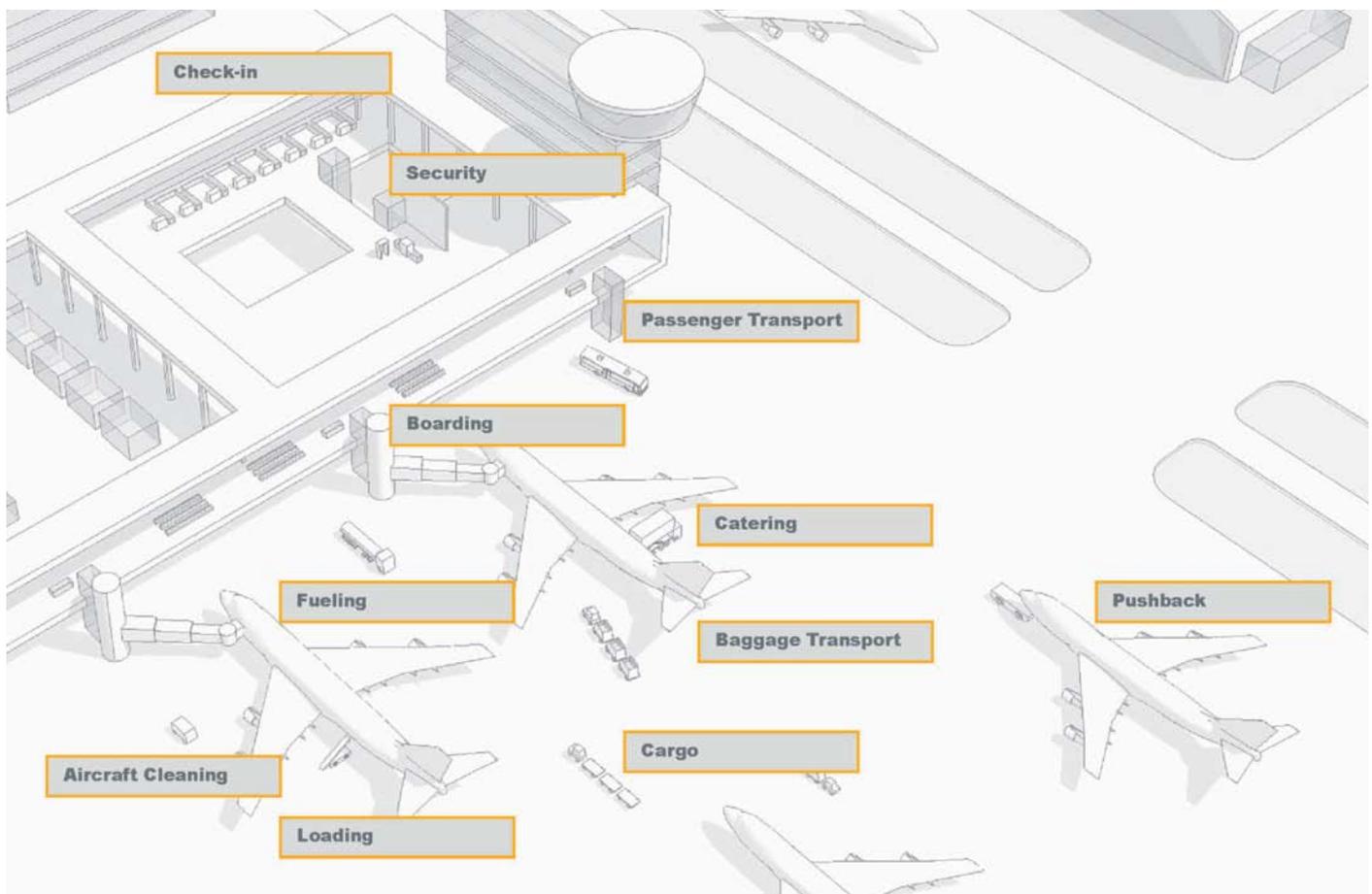
Staff scheduling typically proceeds in three phases. In demand planning, staffing requirements are calculated for a given staff group (e.g. loading/unloading department). To this end, the schedule of all relevant flight events is determined for the given planning period. In short-term operative planning (e.g. one month in advance), scheduled arrival and departure times are available for scheduled as well as charter flights. Typical passenger and baggage figures can be forecasted to a reasonable accuracy from historical data. Engagement standards then define how many people are required when for a given flight. As an example, the unloading of a medium-size aircraft may require one supervisor and three loaders for a time of 30 minutes after arrival. Using a

rule-based system, the engagement standards can be matched to the flight schedule.

Demand planning yields a set of work tasks to be carried out by the staff. Most tasks will have to take place at fixed points in time while for other tasks, the ground time for an aircraft will induce a time window. As an example, cabin cleaning and fueling can typically be carried out within some well-defined part of the ground time. Further task properties include the duration, a location (e.g. the gate), and qualification requirements (e.g. language skills for check-in staff). Depending on the size of operations and the organization structure (e.g. decentralized planning of staff groups by terminal), we will typically have to cover several hundreds to several thousand tasks per day.

Shift scheduling then aims at covering the workload most efficiently by shift duties. Depending on the staff mix as well as legal, union and corporate regulations, shifts will have durations that are fixed or flexible within given limits. Furthermore, there may be limits on admissible starting times. Within given time intervals within the shifts, employees have to be granted lunch and relief breaks of specified durations. Shifts entailing special allowances (e.g. night shifts) are usually penalized. When task assignment is integrated in shift scheduling, employees will be assigned tours of tasks at different locations, introducing vehicle routing aspects into the shift scheduling model.

In the **rostering** phase, shifts are assigned to the employees, respecting legal, union and corporate regulations, e.g. minimum rest times between consecutive shifts. Especially for full-time staff, rosters often incorporate repeating structures that either make reference to families of shift



▲ Different application areas of staff planning and dispatching including passenger and ramp handling services



duties, e.g. general morning shifts, or specify the concrete shift duties in each position. In this case, shift scheduling and rostering will be strongly interdependent, and both tasks should be integrated into a single solution approach. While the solution of such integrated formulations is challenging, it is often the only way to make the overall staff scheduling process amenable to a fully automated solution approach. Resulting schedules are typically efficient and at the same time more ergonomic than schedules obtained by a sequential approach and manual interactions. The use of automated scheduling techniques typically saves planners up to 30% of their time to create rosters. Additionally, advanced OR techniques can lead to staff schedules that require 2–5% less working time compared to manually generated solutions.

Obviously, the scale of airport operations make scheduling systems essential tools in the day to day work at airports. In comparison to paper and pencil approaches, the mere transparency introduced by scheduling systems can lead to work time savings of 8% and more. On a tactical and strategic level, the impact can even be higher. Flexible OR solution techniques enable for evaluating alternative staff planning practices, e.g. by revising patterned rosters and shift duties or by cross utilizing staff groups. GroundStar has also been very successfully employed for evaluating alternative regulations and concessions in corporate bargain negotiations and for optimizing the staff mix. Such procedural changes can lead to savings of up to 12% in staff costs.

Making operational data available for management purposes is a further important benefit of advanced scheduling solutions. Planning and rostering data as well as time and attendance information are an important building block of management information systems. Integrated business intelligence solutions help in providing managers with essential information for steering purposes.

On a real time level, hub control systems integrate information from the different handling services. This allows for tracking and monitoring of the different handling processes, displaying interdependencies and analyzing critical chains. Additionally, interdependencies between the flights (e.g. transfer passengers) can be displayed. Providing an aggregate view on handling activities, hub control provides decision support that is essential in avoiding flight delays and increasing service quality.

Outlook

Airport OR has initially been concerned with the optimization of individual, local services. Airports and airlines have recently begun to set up Airport (Hub) Operations Control Centers to obtain an overall view of their operations, especially of the aircraft turn-around processes. In a study from 2006, INFORM estimated that the annual cost of tactical delays to five major European airlines at their hub airports was between 87 and 238 million Euro/year. By monitoring the turnaround process and through corrective online optimization, ground handling related delays and delay costs can be significantly reduced.

A focus of current developments is on collaborative decision making. Airport Collaborative Decision Making (A-CDM) takes the concept of a Hub Control Center one step further by providing an integrated view of all airport processes from arrival



▲ *Increasing traffic volumes and additional cost pressure imposed by low-cost carriers stress the importance of efficient resource utilization.*



▲ *Optimising staff scheduling for passenger related services in the terminal like check-in is of utmost importance.*

and departure sequencing (runway scheduling), surface movement to turn-around management. The Total Airport Management (TAM) concept extends A-CDM by including passenger processes on the land side.

Ulrich Dorndorf
Chief Technical Officer of INFORM
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Jörg Herbers
Consultant for airports, airlines, and ground handling companies in the airport division of INFORM . ■



Iranian Operations Research Society (IORS)

IORS was established in 2005 by approval of its constitution by the Ministry of Science, Research, and Technology in Tehran, Iran. Shortly afterwards, in July 2005 a meeting of interested scholars was held and the first Executive Council of the Society was formed by election. The Society officially was approved to join IFORS as the **50th national member** on December 16, 2009. Currently, the Society is managed by its second Executive Council to be replaced by the third Executive Council in May 2010 (the term for the council is three years).

IORS currently has 134 members, mostly composed of college scholars and industry professionals. The scholars are mostly drawn from Mathematics, Industrial Engineering, and Management Sciences departments.

The activities of the Society are summarized below:

1. Enhancing scientific and cultural research at national and international levels among the researchers and experts who deal with Operations Research.
2. Cooperating with administrative, scientific, and research agencies in evaluating and reviewing plans and programs related to education and research issues concerning the society's interests.
3. Promoting researchers and distinguishing successful researchers by honoring them.
4. Rendering educational and research activities.
5. Publishing books and international journals.
6. Organizing scientific gatherings at national, regional, and international levels by holding regular internal seminars and international conferences.

IORS publishes the international scientific journal, Iranian Journal of Operations Research (IJOR). The publication is semiannual and was first published in 2009.

سومین کنفرانس بین المللی انجمن ایرانی تحقیق در عملیات
 ۱۵ و ۱۶ اردیبهشت ۱۳۸۹
3rd International Conference of Iranian Operations Research Society
 May 5-6, 2010

موضوعات اصلی کنفرانس:

- مدل سازی ریاضی در تحقیق در عملیات
- بهینه سازی خطی
- بهینه سازی غیرخطی
- بهینه سازی ترکیبیاتی
- برنامه ریزی عدد صحیح
- بهینه سازی شبکه
- مسیر یابی چند مرحله
- شبیه سازی و نظریه صف
- تحلیل پوششی داده ها
- نرم افزارهای تحقیق در عملیات
- الگوریتم های ابتکاری
- بهینه سازی تصادفی
- بهینه سازی فازی
- بهینه سازی استوار
- نظریه بازی ها

Optimization

- Global Optimization
- Nonlinear Optimization
- Nonlinear Least Squares
- Nonlinear Equations
- Unconstrained
- Linear Programming
- Constrained
- Network Programming
- Stochastic Programming
- Integer Programming
- Discrete
- Continuous

نشانی: تهران، خیابان حافظ، دانشگاه صنعتی امیرکبیر
 دانشکده ریاضی و علوم کامپیوتر
 دبیر خانه سومین کنفرانس بین المللی تحقیق در عملیات
 http://ior2010.iors.ac.ir
 or2010@iort.ac.ir
 شماره تلفن: ۰۲۱ - ۲۲۵۲۵۲۱

IORS also organizes the annual International Conference of Iranian Operations Research Society. The first of these conferences was held in 2008. Below is a list of scientific gatherings from the first three years of this conference:

The first International Conference of Iranian Operations Research Society, Jan. 28-30, 2008, Kish University branch of Sharif University of Technology, Kish Inland, Iran. The second International Conference of the Iranian Operations Research Society, May 20 - 22, 2009, Mazandaran University, Babolsar, Iran. The third International Conference of Iranian Operations Research Society, May 5 - 6, 2010, Amirkabir University of Technology, Tehran, Iran. It is important to note that approximately 900

papers were submitted to the scientific committee of the third conference, and approximately 200 were selected for oral presentations and 100 were selected as posters.

For more information, the reader may visit the website of IORS at <http://www.iors.ir>.

Prof Nezam Mahdavi-Amiri
 Faculty of Mathematical Sciences
 Sharif University of Technology, Tehran.
 nezamm@sharif.edu
 Website of IORS: <http://www.iors.ir> ■



AGIFORS is Celebrating its 50 Year Anniversary

AGIFORS (Airline Group of the International Federation of the Operational Research Societies) is the professional organization for operations researchers who work in the airline industry. The genesis of the organization was at an International Federation of Operational Research Societies meeting. The group was founded in 1960 in Aix-en-Provence, France by four visionaries who recognized the need for an "Airline Group" within the broader IFORS community.

Since its inception, AGIFORS has been the home of several critical innovations in the airline industry. Even a cursory look through the proceedings of the annual symposium, or one of the five study groups that have been formed to address specific topics, will reveal that most any operations researcher who has had a significant impact on the industry has participated in AGIFORS.

Overview of Anniversary Activities

In recognition of this anniversary and the achievements of our members over the last 50 years, AGIFORS is planning an extraordinary Annual Symposium in Nice, France commencing on the evening of Monday 20 September 2010 and continuing through the end of the day on Friday 24 September 2010.

The AGIFORS council will also this year for the first time ever publish "The AGIFORS Journal," a peer reviewed journal that will feature the very best in airline operations research. Our intent is to complement the excellent programs of the Annual Symposium and the five Study Group Meetings with an archival journal that the leaders in the airline industry can turn to for authoritative insights.

The 50th Annual AGIFORS Symposium

The theme of this year's Annual Symposium is "Coming Full Circle!" This theme was selected for several reasons. The first reason is that we are returning to the place of our birth. A second reason is that such monumental anniversaries offer us an opportunity to reflect on the achievements and contributions of our discipline. A third reason is that in these times of turmoil when the airline industry is in dire need of innovation, we are eager to rekindle the spirit of our founding fathers. Lastly, we plan to reengage the IFORS members to encourage participation from the broader operations research community with the intent of sparking creative thinking.

The Symposium will feature presentations by the very best researchers and practitioners, including the finalists in the Anna Valicek Student Paper Competition, as well as a not to be missed panel discussion with the AGIFORS Fellows, those members of the organization who have had major impact on the profession.

The symposium hotel, **Le Garden Beach Hotel**, is ideally located between Nice and Cannes, and offers one of the most beautiful sandy beaches on the French Riviera, in the heart of Juan-les-Pins. Restaurants, bars, fitness centre with indoor pool, terrace and meeting rooms overlook the sea. With easy access to a range of water sports and a casino, the hotel is a unique site on the French Riviera. Le Garden Beach Hotel, Juan Les Pins, was also the first hotel on the French Riviera to be fully equipped for Wireless Broadband Internet, which will be complementary with your symposium registration.

We invite all IFORS members, whether you work in the airline or other industry, to join us on this most important occasion. For more information and registration, please go to www.agifors.aero.

Stefan E. Karisch

Director, Operations Research and Optimization

Jeppesen, A Boeing Company, stefan.karisch@jeppesen.com ■



▲ Images from "Le Garden Beach Hotel" where the AGIFORS symposium will be held.





Anna Valicek Award 2010

Call for Submissions

Deadline: May 15, 2010



Airline Group of the International Federation
of Operational Research Societies

The **winner** receives the
Silver Anna Valicek Medal
and a **US \$2,500 scholarship**

The **runner up** receives the
Bronze Anna Valicek Medal
and a **US \$500 scholarship**

The AGIFORS Anna Valicek Award recognizes original and innovative student research in the application of operations research to airline and/or airline related business problems. Applicants must be registered graduate students pursuing a masters or doctoral degree.

Two finalists are invited to present their work at the 50th Annual AGIFORS Symposium, to be held September 20-24 in Nice, France (air transportation, accommodation and symposium fees are sponsored).

For more information and submission guidelines, we refer to
<http://www.agifors.org/award>

Invitation and Call for Papers

IFORS Prize for OR in Development

IFORS is pleased to announce that the Prize will be awarded during the 19th Triennial conference on "Global Economy and Sustainable Environment" to be held in Melbourne, Australia from 10-15 July 2011.

- Awarded at the close of the IFORS Triennial Conference and carries with it a grand prize of US\$ 4,000.00 and a runner-up prize of US\$ 2,000.00
- The prized papers are automatically considered for publication in the IFORS Publication, International Transactions on Operational Research (ITOR). Publication is contingent upon the usual refereeing process. Authors of these papers agree that the first right to publish their papers lies with ITOR; as such, they will not publish the same until and unless they receive permission to do so by the ITOR editor.

Important details about the competition follow:

Topic of paper

- The paper describes a practical OR application in a developing country, conducted to assist a specific organization in its decision-making process with regard to education, health, water, technology, resource use (physical or financial), infrastructure, agricultural/industrialization, reduction in carbon emission, depletion of ozone layer etc., with original features in methodology or implementation for development in developing countries. The idea is to optimize the development with the constraints and limited resources.
- The paper includes some description of the application's social context and its impact on the decision making process or on the

organization for which it was conducted. Where appropriate, the relevance of the country's state of development to the study is addressed. A stress on developmental issues will be an important factor in the judging. Papers of a purely technical nature, or those which have no relevance in the developmental context, will not be considered.

Judging Criteria

- Qualifying papers will be evaluated on the following criteria: problem definition, creativity and appropriateness of approach, MS/OR content, stress on developmental issues, innovative methodology, impact of the study, paper organization and structure and quality of written and (if selected as finalist) oral presentation.

Other Information

- Principal authors and presenters of any nationality are welcome. If selected to be among the finalists, the entry should be presented by one of the principal authors during the IFORS Triennial Conference to be held in Melbourne, Australia from 10-15 July 2011.
- Finalists' registration fees will be sponsored by IFORS. For finalists who are nationals of developing countries, a grant for living expenses may be requested but cannot be guaranteed.

- Authors are strongly encouraged to submit their contributions using the submission site <http://mc.manuscriptcentral.com/itor>, indicating in their cover letters that they are intended for this competition.

Other inquiries should be sent directly to:

Dr. Subhash Datta (Prize Chair)

Director, Jaipuria Institute of Management

1, Bambala Institutional Area, Pratap Nagar,
Jaipur – 302033, India

E-mail : subhash.datta@gmail.com or
sdatta@jimj.ac.in

Last date of submission of the full paper:
December 30, 2010.

Date of communication for finalists:
March 31, 2011.

Date of presentations:
July 10, 2011.

Members of the Jury for the Prize:

1. Leroy White (UK)
2. Jan Van Vuuren (South Africa)
3. Celso Carneiro Riberio (Brazil)
4. Arjan Shahani (UK)
5. Elise del Rosario (Philippines)
6. Hugo Scolnick (Argentina)
7. Theo Stewart (South Africa)
8. Subhash Datta (India, Prize Chair) ■



2nd International Conference on Applied Operational Research (ICAOR'10)

25-27 August 2010

IAMSR, Åbo Akademi University - Turku, Finland

Abstract

The conference brings together academics and practitioners from around the world with an opportunity to discuss current issues in operational research and management science (OR/MS). The ICAOR 2010 conference will take place at Åbo Akademi University in the city of Turku, Finland. We invite you to join your colleagues for this international meeting.

Conference Theme

The conference will cover all aspects of operational research with particular emphasis being placed on applications, including, but not limited to:

- Agriculture & Fisheries
- Artificial Intelligence
- Data Mining & Forecasting
- Decision Analysis & Support
- Energy, Natural Resources & Environment
- Financial & Business Applications
- Graphs & Networks
- Health & Social Services
- Location Analysis & Optimization
- Manufacturing, Maintenance & Services
- Mathematical Programming
- Quality, Statistics & Reliability
- Supply Chain Management & Logistics
- Telecommunications & Information Science
- Timetabling, Scheduling & Queuing

Doctoral Consortium

A doctoral consortium will take place in conjunction with the conference on 23-24 August 2010. The main topics of the doctoral consortium are: Risk assessment in financial planning and multiple criteria and fuzzy optimization. Further details on the doctoral consortium are available on the conference web pages.

Paper Submission

Researchers wishing to contribute to the conference are invited to submit manuscripts of not more than 12 pages either as full papers or extended abstracts. The working language of the conference is English. Authors are encouraged to prepare their manuscripts in LNCS style using the MS Word template provided by the Springer, please see Information for LNCS Authors.

Papers should be submitted online through the conference website submission system in MS Word 2003 format (.doc). All submissions will be reviewed by at least two referees, and successful papers will be included in the Conference Proceedings.

Special Issue

The authors of accepted papers will have the opportunity to submit extended versions of their papers for consideration to post-conference special issues of the Journal of Applied Operational Research (JAOR) or Lecture Notes in Management Science (LNMS).

Important Dates

15 Aug 2009	Submission opens
15 Mar 2010	Paper submission deadline
15 May 2010	Notification of decisions
15 Jun 2010	Registration deadline
30 Jun 2010	Camera-ready deadline
25 Aug 2010	Conference starts

Local Organising Committee

- Mikael Collan, Åbo Akademi University, Finland (Chair)
- Kaj-Mikael Björk, Åbo Akademi University, Finland (Co-Chair)
- Tomas Eklund, Åbo Akademi University, Finland (Co-Chair)
- International Scientific Programme Committee
- Ben Atkinson, London Metropolitan University, UK
- Frank Beichelt, University of the Witwatersrand, South Africa
- Kaj-Mikael Björk, Åbo Akademi University, Finland
- Christer Carlsson, Åbo Akademi University, Finland (Chairman)
- Mikael Collan, Åbo Akademi University, Finland (Co-Chair)
- Tomas Eklund, Åbo Akademi University, Finland
- Mario Fedrizzi, University of Trento, Italy
- Robert Fullér, Eötvös Lorand University, Hungary (Co-Chair)
- Nalan Gulpinar, University of Warwick, UK
- Rymallah, Kuwait University, Kuwait
- George Ioannou, Athens University of Economics & Business, Greece
- Sigrid Knust, Clausthal University of Technology, Germany
- Gilbert Laporte, HEC Montréal, Canada
- Jesper Larsen, Technical University of Denmark, Denmark
- Margarida Moz, Technical University of Lisbon, Portugal
- Mauricio Resende, AT&T Labs Research, USA
- Ahti Salo, Helsinki University of Technology, Finland
- Andrea Schaerf, University of Udine, Italy
- Kaveh Sheibani, Iran Telecommunication Research, Iran (Co-Chair)
- Ursula Walther, Frankfurt School of Finance & Management, Germany
- Julian Yeomans, York University, Canada

Registration

The registration fee is €300 per delegate. This includes participation in all conference sessions, the proceedings, coffee breaks, lunches and the conference dinner.

Contact Details

General information on the conference email to: icaor2010@gmail.com

Local Chair

Doc. Dr. Mikael Collan
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20520 Turku - Finland

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Fax +358 (0)2 215 4809
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ICAOR General Chair

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Fax +98 (0)21 2271 6816
tadbir@tadbirstm.org.ir

Please visit ICAOR website at <http://www.tadbirstm.org.ir> or ICAOR 2010 conference website at <http://iamsr.abo.fi/icaor2010>



International Workshop on Scheduling in Healthcare Systems (SCHEALS'10)

25-27 August 2010

IAMSR, Åbo Akademi University, Turku, Finland

Abstract

Many Healthcare providers have suffered a crisis of poor quality and inefficiency with rapidly increasing costs. Healthcare delivery faces complex scheduling needs and stands to gain from advances in scheduling technology and understanding. The SCHEALS 2010 workshop will take place at Åbo Akademi University in the city of Turku, in conjunction with the 2nd International Conference on Applied Operational Research (ICAOR'10). We invite you to join your colleagues for this international forum. Sharing of ideas, knowledge and experience is the primary goal of the workshop. The meeting would be ideal for young researchers to present their work, even at a preliminary stage, for constructive discussion and feedback.

Workshop Theme

The workshop will cover the general area of scheduling with particular emphasis being placed on healthcare applications, including, but not limited to:

- Automation
- Exact Methods
- Expert Systems
- Heuristics
- Machine Scheduling
- Meta-Heuristics
- Optimization
- Patient Scheduling
- Personnel Scheduling
- Queuing
- Rescheduling
- Shift Timetabling
- Simulation
- Uncertainty

Paper Submission

Researchers wishing to contribute to the conference are invited to submit manuscripts of not more than 12 pages either as full papers or extended abstracts. The working language of the conference is English. Authors are encouraged to prepare their manuscripts in LNCS style using the MS Word template provided by the Springer, please see Information for LNCS Authors.

Papers should be submitted online through the conference website submission system in MS Word 2003 format (.doc). All submissions will be reviewed by at least two referees, and successful papers will be included in the Conference Proceedings.

Special Issue

The authors of accepted papers will have the opportunity to submit extended versions of their papers for consideration to post-workshop special issues of the Journal of Applied Operational Research (JAOR) or Lecture Notes in Management Science (LNMS).

Important Dates

15-Aug-2009	Submission opens
15-Mar-2010	Paper submission deadline
15-May-2010	Notification of decisions
15-Jun-2010	Registration deadline
30-Jun-2010	Camera-ready deadline
25-Aug-2010	Workshop starts

International Scientific Programme Committee

- Ben Atkinson, London Metropolitan University, UK
- Sigrid Knust, Clausthal University of Technology, Germany
- Gilbert Laporte, HEC Montréal, Canada
- Jesper Larsen, Technical University of Denmark, Denmark
- Rym Hallah, Kuwait University, Kuwait
- Margarida Moz, Technical University of Lisbon, Portugal
- Andrea Schaerf, University of Udine, Italy
- Kaveh Sheibani, Tadbir Institute, Iran (Chair)

Registration

All workshop participants are expected to register for the ICAOR 2010 conference. The conference registration fee is €300 per delegate. This includes participation in all conference sessions, the proceedings, coffee breaks, lunches and the conference dinner.

Contact Details

General information on the conference email to: icaor2010@gmail.com

Local Chair

Doc. Dr. Mikael Collan
Institute for Advanced Management Systems
Research - Åbo Akademi University
Joukahaisenkatu 3-5 A 4th floor
20520 Turku - Finland

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ICAOR/SCHEALS General Chair

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tadbir@tadbirstm.org.ir

Please visit ICAOR website at <http://www.tadbirstm.org.ir> or ICAOR 2010 conference website at <http://iamsr.abo.fi/icaor2010>

8th International Conference on Data Envelopment Analysis (DEA2010)

Performance Management and Measurement

Lebanon, June 10th -12th, 2010

The extended, and final deadline for the submission of abstracts is March 10th, 2010

This conference invites active researchers and practitioners and especially encourages young scientists interested in using Data Envelopment Analysis. Performance management and measurement is the main theme of the conference. Applications may be in wide variety of contexts such as Agriculture, Banking, Benchmarking, Education, Environment, Economy, Government, Health, Insurance, Information Technology, Marketing, Operations, Public Policy, Human Resources, Manufacturing, Retail, Regulation, Services and Tourism. Theoretical themes may include (but not limited to) computational aspects, properties of new DEA models and hybrids, and methodological developments.

Conference Chair

Professor Ibrahim H. Osman, Lebanon

Invited Speakers

- Rajiv D. Banker, USA
- Ali Emrouznejad, UK
- Finn Førsund, Norway
- Joseph Paradi, Canada
- Subhash Ray, USA
- Emmanuel Thanassoulis, UK

Special inquiries

DEA2010@aub.edu.lb

Submission

<http://www.deazone.com/dea2010/submission.html>

Further details

<http://www.deazone.com/dea2010/>



EUROSIM 2010: 2nd Call for Papers

7th EUROSIM Congress on Modeling and Simulation
September 6-10, 2010, Diplomat Hotel, Prague, Czech Republic
www.eurosim2010.org

EUROSIM Congresses are the most important modelling and simulation events in Europe. For EUROSIM 2010, we are soliciting original submissions describing novel research and developments in the following (and related) areas of interest: continuous, discrete (event) and hybrid modelling, simulation, identification and optimization approaches. Two basic contribution motivations are expected: M&S Methods and Technologies and M&S Applications. Contributions from both technical and non-technical areas are welcome.

Congress Topics

The EUROSIM 2010 Congress will include invited talks, parallel, special and poster sessions.

Congress topics of interest include, but are not limited to:

- Intelligent Systems
- Case Studies
- Workflow Modelling and Simulation
- Web-based Simulation
- Visualization
- Security Modelling and Simulation
- Computer Games and Simulation
- e-Science and e-Systems
- Image, Speech and Signal Processing
- Human Factors and Social Issues
- Virtual Reality, Visualization and Computer Games
- Internet Modelling, Semantic Web and Ontologies

Special Sessions

The following EUROSIM Congress Special Sessions are so far foreseen:

- Simulation of Transportation and Logistic Systems
Chair: Antonin Kavicka, University of Pardubice (CZ)
- Parallel and Distributed Simulation
Chair: Jiri Safarik, University of West Bohemia (CZ)
- Inductive Modelling and Artificial Neural Nets in Simulation
Chair: Pavel Kordik, Czech Technical University (CZ)
- Modelling and Simulation in Medicine and Pharmacy
Chair: Maja Atanasijevic-Kunc, Joze Drinovec, Ales Mrhar, University of Ljubljana (SI)
- Modelling and Simulation for Control, Coordination and Supervision
Chair: Rihard Karba, Borut Zupancic, University of Ljubljana (SI)
- Modelling and Simulation of Biological Water Treatment
Chair: Esko Juuso, University of Oulu (FI)
- Simulation to support sustainable power plant engineering and operation
Chair: Kaj Juslin, VTT Technical Research Centre of Finland (FI)
- Modelling and Simulation in Engineering
- Modelling and Simulation in Economy
- Modelling and Simulation in Aerospace
- Modelling and Simulation in Education
- Modelling and Simulation in Multidisciplinary Areas
- Methodology of Modelling and Simulation
- Agent Based Simulation
- Hybrid and Discrete Simulation
- Decision Support

Congress Submission Guidelines

Authors are invited to submit PDF extended abstract in English by April 1, 2010. Guidelines for authors of extended abstracts are available on congress web site (www.eurosim2010.org/guidelines.php). Submitted extended abstract will be reviewed by two or three reviewers and assessed according to its relevance to topics of congress, quality and originality in the field. Extended abstracts may be accepted as a full paper (maximum length is 10 pages), as a short paper (maximum 4 pages), or as a poster. Extended abstracts submitted into the special session may have its own formatting guidelines and deadlines. Exact information are available on the Congress website.

Only extended abstracts uploaded through the submission portal or other way indicated in the Special session description will be accepted. The submission portal is available on <http://www.eurosim2010.org/submit>

Notification of acceptance will be sent by May 15, 2010. The authors of accepted papers will be required to submit the final camera-ready copy by June 15, 2010. Proceedings will be published in two separate volumes as a Book of Abstract (with ISBN) and as a CD with full version of papers (with ISBN) in cooperation with Czech Technical University Publishing Company.

The Best Paper and the Best Student Paper competitions will be awarded. Selected papers published at EUROSIM 2010 will be invited to submit an extended version to a special issue of Simpra Journal.

Invited Talks

During EUROSIM Congress the following Invited Talks will be presented:

- Agent-Based Simulations of Transportation Nodes - **Antonin Kavicka**, University of Pardubice (CZ) and Norbert Adamko, University of Zilina (SK)
- Human Behaviour Modelling as a Challenge for Future Simulation R&D: Methodologies and Case Studies - **Agostino G. Bruzzone**, University of Genoa (IT)
- Physical Modelling: Some Experiences from Education and Applications - **Borut Zupancic**, University of Ljubljana (SI)
- Modelica - **Peter Fritzson**, University of Linkopings (SE)

Important Dates

Extended Abstract:	April 1, 2010
Acceptance Notification:	May 15, 2010
Early Registration:	June 7, 2010
Camera Ready Papers:	June 15, 2010
Early Bird Hotel Registration:	June 20, 2010
Hotel Reservation:	July 20, 2010
Cancellation of Registration:	August 2, 2010
Late Registration:	August 31, 2010
EUROSIM Congress:	September 6 - 10, 2010

General Congress Chairs

- **Mikulas Alexik**, EUROSIM President
- **Miroslav Snorek**, Czech Technical University in Prague

