Edelman Awards Gala

THE FRANZ EDELMAN AWARD
Achievement in Operations Research

THE INFORMS PRIZE
Sustained Integration of Operations Research

THE DANIEL H. WAGNER PRIZE
Excellence in Operations Research Practice

April 27, 2009

Phoenix, Arizona

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The Edelman
Awards Gala

2009 Franz Edelman Award Ceremony

Welcome
Robert Bixby, Master of Ceremonies

Presentation of the Wagner Prize
Allen Butler, Chair, 2008 Wagner Prize Committee

Presentation of the Informs Prize
Ranganath Nuggehalli, Chair, 2009 INFORMS Prize Committee

Presentation of the Franz Edelman Academy
Robert Bixby, Master of Ceremonies

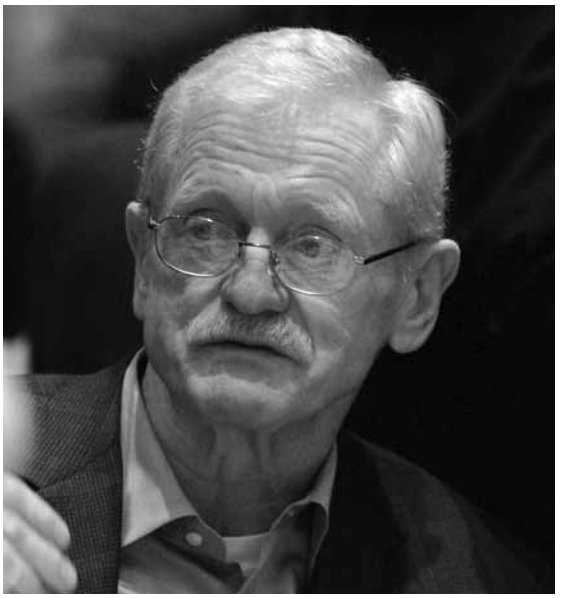
The Franz Edelman Competition
Robert Bixby, Master of Ceremonies

Recognition of the Class of 2009 Franz Edelman Finalists and Laureates
Robert Bixby, Master of Ceremonies

Announcement of the 2009 Franz Edelman Award Winner
Don N. Kleinmuntz, INFORMS President
Srinivas Bollapragada, 2009 Edelman Competition Chair

Master of Ceremonies

Robert Bixby



Robert Bixby is Noah Harding Professor Emeritus of Computational and Applied Mathematics at Rice University, and Research Professor of Management in the Rice University Jones School of Management. He is the cofounder and president of Gurobi Optimization.

Dr. Bixby has published over 50 journal articles and is an acknowledged expert on the computational aspects of linear and integer programming. He has won several awards for his work in optimization, including the Beale-Orchard-Hays Prize of the Mathematical Programming Society, and the INFORMS Impact and Frederick W. Lanchester Prizes. In 1997 he was elected to the National Academy of Engineering for his contributions to the theory and practice of optimization.

Dr. Bixby has over 20 years of experience in the optimization software business. He cofounded CPLEX Optimization, Inc., in 1987. After CPLEX was acquired by ILOG in 1997, he served on the ILOG Board of Directors. He was manager of the ILOG CPLEX Development Team, president of the ILOG Technical Advisory Board, and general manager of ILOG's Semiconductor Business Division.

He has held academic positions at the University of Kentucky, Northwestern University, and Rice University.

Dr. Bixby has a B.S. in Industrial Engineering and Operations Research from the University of California, Berkeley, and a Ph.D. in Operations Research from Cornell University.

CONGRATULATIONS TO THE EDELMAN AWARD WINNERS, BOTH PAST AND PRESENT.

We salute the honorees of the 2009 Edelman Awards. As the academic half of the team that won the 2007 award, Georgia Tech has a long tradition of education and research in the field of operations research. We know and applaud the ingenuity and hard work that is needed to achieve the excellence that is being recognized on this year's teams. Congratulations for a job well done!



Georgia Tech College of Engineering

ISyE

The H. Milton Stewart School
of Industrial and Systems Engineering

The Operations Research Profession

Introduction

by Don N. Kleinmuntz, Strata Decision Technology, President of INFORMS

Celebrating Important Achievements in Turbulent Times

We are in the midst of an economic crisis unlike anything most of us have witnessed in our lifetimes. Many businesses are struggling to stay afloat, and those that are not in imminent danger are keeping a watchful eye on shrinking sales, hoarding dwindling cash reserves, curtailing spending, and cutting jobs. Individuals and families, nervous about job security and facing mounting bills, are cutting back as well. The government sector is also struggling, facing mounting infrastructure and social service needs while tax revenues melt away. In the face of this sobering economic situation, why in the world are we joining together to celebrate business achievement?

The short answer: In these trying times, what could possibly be more important than operations research? No one among us would claim that O.R. is only relevant when economic times are tough—the science of smart decision making is useful whenever we are confronted with difficult choices and complex problems. But now is a time when O.R. gains heightened relevance, because the very essence of our field is to find creative and effective ways to obtain the most benefit from scarce resources. So it is quite proper that we



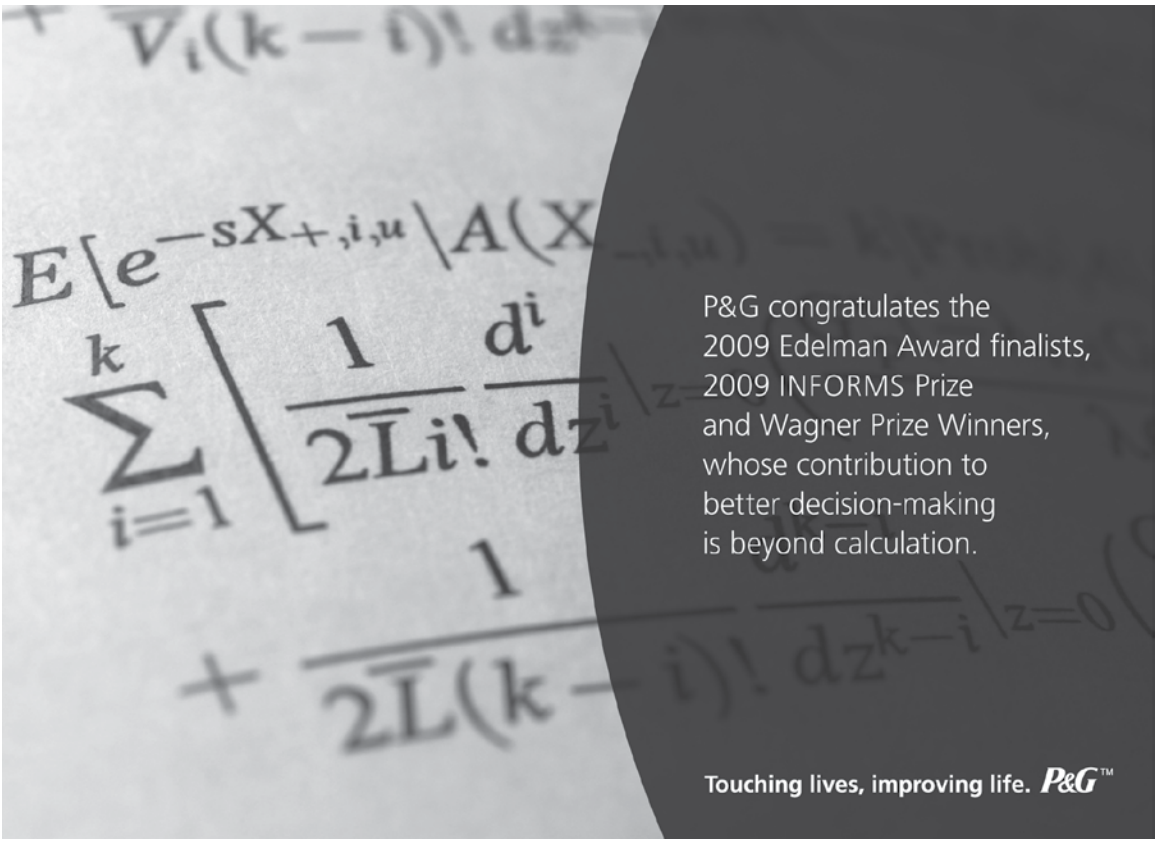
Photo courtesy of Betsy Fruhling

come together to celebrate the very best in O.R. practice.

Tonight we celebrate INFORMS' most important and prestigious practice awards. First, we are here to acknowledge and honor the six teams of finalists in the Franz Edelman Award competition, as well as to announce the winner of the award. These finalists represent a diverse set of businesses, including two of the world's largest technology product and service providers, a major transportation company, a leading hotel/lodging company, a Norwegian paper manufacturer, and a Spanish clothing manufacturer and retailer. These organizations have used operations research to optimize resource allocation, to maximize sales, to cut manufacturing and distribution expenses, and to improve product and service quality. Significantly, these companies also embody the trend toward globalization. While four of the six companies are U.S.-based, all of them engage in cross-border operations—one within North America, and the remainder operating worldwide.

Additionally, tonight we recognize two other important prizes for distinction in applied operations research. The INFORMS Prize is an award given to an organization that has achieved sustained excellence at applying O.R. in varied, novel, and lasting ways. Two of tonight's Edelman finalists are past winners of this prize, demonstrating that they, like other INFORMS Prize winners, have indeed woven O.R. into the fabric of their organization. We also honor the winner of the Daniel H. Wagner Prize for Excellence in Operations Research Practice. This prize recognizes quality of mathematical analysis in conjunction with verifiable practice success—countering the oft-held but erroneous assumption that analytical rigor and real-world impact are somehow incompatible.

As we hear about these impressive contributions and show our appreciation for the individuals and organizations responsible, let us also take inspiration and resolve to build upon their success. We live in challenging times, but we are blessed with knowledge and skills to overcome these challenges. As we head back to our homes and offices, let us focus on using our abilities to the utmost. In the words of President Obama, "It will take time, and it will take effort, but working together, we will turn this crisis into opportunity and emerge from our painful present into a brighter future."



SAS applauds those who apply the power of analytics to guide better decisions.

Congratulations to the 2009 Edelman finalists.

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The Impact of Operations Research on Business and Society

by Bert Meerstadt
President & CEO, Netherlands Railways

Reminiscences and Reflections from the 2008 Edelman Award Winner



First, I would like to congratulate this year's Edelman finalists. I hope that you will enjoy celebrating the O.R. profession as much as I did last year.

Last year, I received a similar booklet at the 2008 Edelman Gala dinner. I was part of the Netherlands Railways (NS) team that, at the end of the evening, won the competition. The other team members were O.R. professionals in our company and O.R. academics of Erasmus University Rotterdam, the Centre for Mathematics and Computer Science (CWI), and the Italian company Double-Click.

I was happy to participate in the competition for several reasons. First, I liked sharing with the judges the enormous impact O.R. had on our company and Dutch society as a whole. Second, I recognized the opportunities that such a prestigious competition had for positive media attention and publicity for NS. And finally, I personally enjoyed being back in the States, where I worked during an early stage of my career. I was impressed with the dedication and professionalism of the INFORMS organization.

Let me illustrate the impact of O.R. on our company, and Dutch society in general. First, some background information: NS operates passenger trains on all main lines in the Netherlands, transporting about 1.1 million passengers per day and employing 26,000 people. The company plays a very important role in the mobility of the Netherlands.

The last major change in our timetable took place in 1970. Since then, the number of passengers using the Dutch railway network has doubled. To accommodate this growth, more and larger trains were scheduled, but the basic

structure of the timetable was not changed. Also, the rail infrastructure remained nearly the same, even though the Dutch rail network was becoming the most heavily used in Europe. Inevitably, the system's reliability came under pressure, resulting in delays for our passengers.

So, we were faced with the following question: How can we transport many more passengers and at the same time offer more reliable service?

One obvious answer would be to significantly expand the railway infrastructure. Unfortunately, such expansion projects are extremely expensive and time consuming. Moreover, the government, being responsible for infrastructure, was unwilling to pour many additional billions of dollars into new rail infrastructure. In 2002, all parties involved in the Dutch railway sector concluded that we had to come up with a different solution—that is, to develop a better timetable. Back in the 1990s, we had already invested in O.R. tools to construct a timetable automatically. These were later followed by tools to generate schedules for rolling stock and crew. Combining the need for a better timetable and the availability of advanced O.R. tools, we launched the project to construct a new timetable from scratch.

With the help of the O.R. tools, we were able to construct 10 different timetables at the same time. In addition, we calculated several key indicators for all of these timetables. Relating these indicators, we, in our executive board, could evaluate all options and choose a timetable that provided a better service for our passengers and increased the profitability of the company at the same time. Therefore, I strongly believe that O.R. helps executives achieve better decision making in a more and more complex world!

The impact of the new timetable for NS can of course be measured in financial terms, but much more important is the impact for our customers and Dutch society as a whole. Punctuality—the percentage of trains arriving on time—increased to an all-time high record. As a result, surveys show that there are now more satisfied passengers than ever before. Actually, from the second quarter of 2008 onward (after winning the Edelman Award and receiving considerable positive media attention), more than 75% of our passengers were satisfied with our service. This is an exceptionally high number.

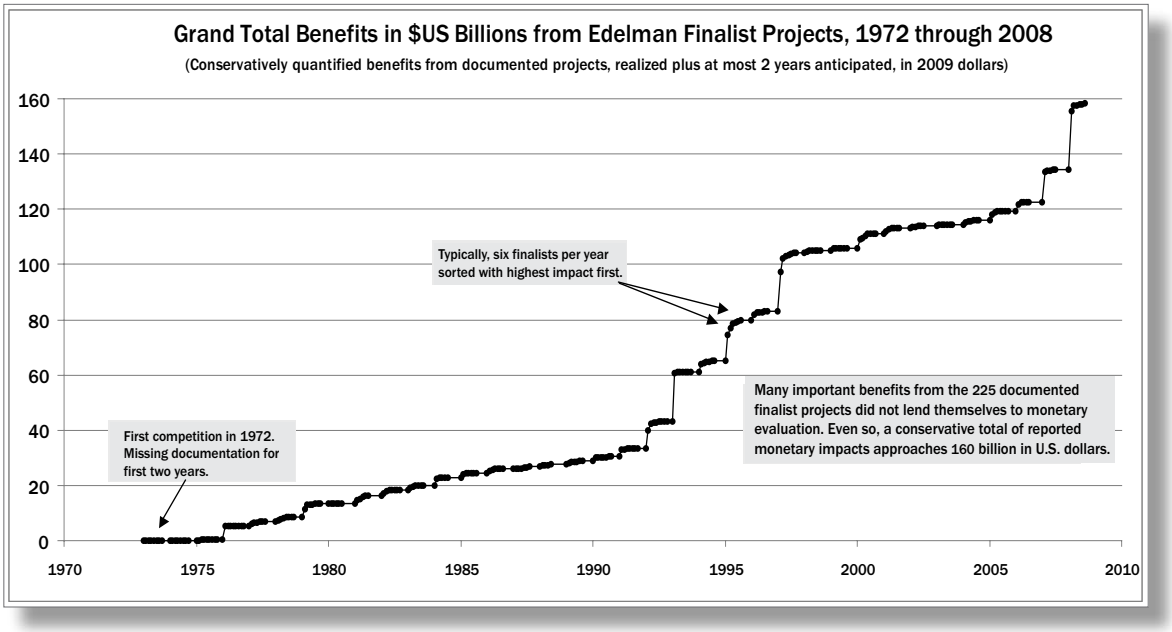
Rail will continue to play a significant role in the mobility of the Netherlands. With the new timetable, we can transport more passengers on the existing network. In this way, we as a company are helping to strengthen the Dutch economy and are doing our part to improve the global environment.

Finally, I am encouraged to start more O.R. projects to further improve service to our passengers and reach our ambition to become one of the major players in a liberalized European public transport market.

For now, I wish you a splendid 2009 Edelman Gala dinner to celebrate the power of O.R.!

Operations Research, the Multi-Billion Dollar Profit Center

by Jeffrey M. Alden
Group Manager, GM Operations Research



Almost $160 billion U.S. dollars of impact! That's very impressive! Is it believable? What's behind these numbers? How were they were estimated? Could there be more?

Beginning in 1974, the Edelman finalists were asked to publish their project accomplishments in the INFORMS journal *Interfaces*. By reading all of the articles (over 200), the monetary impact was estimated under the following guidelines:

- Be objective and conservative, yet make a serious attempt to somehow estimate cost savings and increased revenues.
- Use all past reported savings and, to be conservative, include at most two more years of anticipated impact.
- Ignore minor costs, like development and implementation costs, unless they are significant.
- Include only one year of impact to downplay the huge leverage of organizational size and budget, if the impact is enormous (billions, for example, in some military, utility, energy, and governmental projects).
- Ignore relative impact analysis even though, for example, doubling company revenues to $10 million in one company may be far more impressive than saving $100 million for another company.

These guidelines are definitely conservative and do not include many important yet difficult-to-quantify benefits. Examples of the latter include improving legal dispute resolution, cancer treatments, airline security, hazardous material deposition, budget allocation, inclusion of risk in decision making, organizational structure, on-time railway performance, and space shuttle heat shielding. How do you assess a dollar value to such improvements? It's not impossible, but definitely challenging! Furthermore, almost all finalist papers report such nonmonetary benefits and frequently tout them as most important and long lasting by establishing, for example, ongoing practices and organizational changes that improve health, safety, cooperation, decision making, and job satisfaction. Great! Clearly, the reported monetary benefits understate the full impact of the Edelman finalist projects.

Another important indication of O.R.'s influence is the impressive breadth of applications. The Edelman finalists represent about 100 different application areas, including air traffic, banking, broadcasting, canal operations, consumer products, defense (air force, army), education, finance (pension, investment, credit card), fire protection, forestry, health care (hospital, pharmaceutical, diagnosis, elderly), hotel management, energy production and distribution (gas, hydroelectric, oil, nuclear), land use, manufacturing (electronics, food, paper, seeds, tires, vehicles, wood), marketing, printing, sanitation, security (airport, police), transportation (airline, highway, railway, space), treasure hunting, waste management, water (resources, quality), and weapons dismantlement. There are many more—the list goes on and on!

Finally, the O.R. impact reported here is surely the "tip of the iceberg," because the Edelman competition captures only those O.R. professionals choosing to compete! Just think, the entire set of Edelman finalist authors (almost 800) represent less than 10% of the current INFORMS membership. Undoubtedly, there are a vast number of O.R. projects with significant impact that did not compete due to confidentiality, lack of an internal advocate to compete (e.g., no one thought of it, too much effort, lack of management support, or no project documentation), or the team was simply unaware of the competition.

The impact is immense. The O.R. professional has unquestionable reason to be proud of their profession—don't you like saying "billions and billions" when asked about the value of O.R.?

The Franz Edelman Award

Edelman First-Place Award Recipients

2008 Netherlands Railways

"The New Dutch Timetable: The O.R. Revolution"

By 2006, the volume of traffic on the Dutch passenger railway network had increased significantly; more and larger trains had been scheduled without changing the structure of the timetable, thus overloading the system and causing consumer nightmares. Operations researchers working with Netherlands Railways constructed an improved timetable. As a result, the percentage of trains arriving within three minutes of the scheduled time increased, commuter satisfaction improved, and the number of passengers grew. In 2007, this resulted in an additional annual profit of €40 million (approximately $60 million).

2007 Memorial Sloan-Kettering Cancer Center

"Operations Research Advances Cancer Therapeutics"

A key researcher from the Georgia Institute of Technology worked with Memorial Sloan-Kettering Cancer Center to reduce substantially the effects of treating prostate and breast cancer with radiation. The system saved an estimated $459 million per year on prostate cancer alone. Quality of life was improved by delivering less radiation to healthy organs.

2006 Warner Robins Air Logistics Center

"Warner Robins Air Logistics Center Streamlines Aircraft Repair and Overhaul"

At a time of war, the U.S. Air Force maintenance hub reduced its repair time for C-5 Galaxy transports from 360 to 250 days using lean initiatives, then further improved its turnaround time to just 160 days with Critical Chain Project Management, an O.R. technique. The work saves American taxpayers $50 million a year and decreases the demand to truck materiel through the Iraqi combat zone, saving lives as well.

2005 General Motors

"Increasing Production Throughput at General Motors"

Using operations research to achieve one of its signature benefits—greater efficiency—GM has saved over $2 billion through improved productivity at 30 assembly plants in 10 countries.

2004 Motorola, Inc.

"Reinventing the Supplier Negotiation Process at Motorola"

Combining O.R.-aided methods such as innovative bidding, online negotiations, and scenario-based optimization analysis, Motorola launched a comprehensive system to support the company's sourcing process.

2003 Canadian Pacific Railway

"Perfecting the Scheduled Railroad: Model-Driven Operating Plan Development"

Adoption of a newly optimized fixed-schedule railroad approach, including associated benefits from infrastructure and locomotive fleet investment and business process improvements, trimmed costs by CAD $300 million.

2002 Continental Airlines

"A New Era for Crew Recovery at Continental Airlines"

A globally optimized crew recovery solution deals successfully with several high-profile events such as the December 2000 and March 2001 Nor'easter snowstorms, the June 2001 Houston flood, and the September 11th terrorist attack. Throughout, Continental recovered from each event in record time and generated overall benefits worth tens of millions of dollars.

2001 Merrill Lynch, Inc.

"Pricing Analysis for Merrill Lynch Integrated Choice"

In early 1999 two models showed that revenue at risk for Merrill Lynch, due to the advent of electronic trading and the commoditization of trading, ranged from $200 million to $1 billion. As of September 2000, the Integrated Choice strategy helped client assets reach $93 billion in the new offer. During the first nine months of 2000, net new assets totaled $11 billion and the number of accounts increased 72%.

2000 Jeppesen Sanderson, Inc.

"Flexible Planning and Technology Management at Jeppesen Sanderson, Inc."

Jeppesen Sanderson's customer service level began to deteriorate when a growing product line of more than 100,000 charts overwhelmed its production system. The company developed a suite of optimization-based decision support tools that improved planning in each production area and revealed the value of OR/MS to Jeppesen managers. Jeppesen is now fully committed to O.R., with O.R.-based decision support systems spreading to all areas of the company, and realized cost reductions of $3 million.

1999 IBM

"Extended Enterprise Supply Chain Management at IBM Personal Systems Group and Other Divisions"

AMT consists of an optimization engine, a simulator, and a series of data extraction modules. It is used to study a wide range of issues, including inventory budgets, turnover objectives, customer service-level targets, effects of new product introduction, and supply chain scenario analyses.

1998 Bosques Arauco, S.A.

One of the largest Chilean forest firms, Bosques Arauco employs optimization systems designed by a team from the University of Chile. The impact of these systems has been organizational and financial, with Bosques Arauco reporting a total saving of $5 million over a total annual timber production of $140 million.

1997 Societé Nationale des Chemins de Fer Français (SNCF) and Sabre Decision Technologies

The national railroad of France, Societé Nationale des Chemins de Fer Français (SNCF), and Sabre Decision Technologies teamed up to address the problem of train capacity allocation. The implementation of Rail Plus, composed of a Workset manager and modules on profitability, feasibility, capacity allocation, and routing, is credited with an overall profit increase of 3% to 5%, reductions in manpower and schedule development time, and improvements in planning and scenario evaluation.

1996 South African National Defense Force (SANDF)

A joint Deloitte & Touche and SANDF team created models to determine the size and shape of SANDF. The project resulted in force design savings of more than 22%.

1995 Harris Corporation/Semiconductor Sector

IMPReSS, a linear-programming-based production-planning system, produces plans for six major product lines encompassing over 18,000 individual products, enabling Harris to achieve 95% on-time delivery on commitments made since 1992.

1994 Tata Iron & Steel Company, Ltd.

An optimization-based model was designed in 1985–1986 for guiding marketing strategies in Tata's product mix area; the model is now used throughout the company. Since 1986, the model has contributed a cumulative benefit of $73 million in increased profits.

1993 AT&T

Over 400 Call Processing Simulator (CAPS) studies increased 800-number revenues by more than $1 billion in a $5 billion market. One reorganization yielded an 8% increase in calls completed, at annual savings of over $24 million in customer operating costs, with an increase of $2 million in AT&T revenue in 1992, $3 million in 1993, and a projected $7 million per year for each following year.

1992 New Haven Health Department

To combat the spread of HIV/AIDS via needle sharing among New Haven's drug injectors, a legal needle exchange program was implemented. A new data collection and analysis was developed that provided the needed parameters for mathematical models. Results suggest that the program has reduced HIV/AIDS incidence by 33%.

1991 American Airlines

American Airlines pioneered revenue management as an effective way to manage its seat inventory. The airline used sophisticated O.R. models to determine the overbooking levels of each flight and to allocate each flight's seat inventory to a variety of market/fare classes. By optimally overbooking flights and dynamically pricing the seats based on forecast demand, American Airlines generated an estimated $1.4 billion in incremental revenue over a three-year period.

1990 Health Care Financing Administration

Diagnosis Related Groups (DRGs), developed to measure hospital output in quantitative terms, required a search for structure through millions of patients' records plus the merging of clinical and statistical decision methods. Medicare, 20 states, and 18 other countries are currently using DRGs; Medicare payments to hospitals alone produced a projected reduction of $18 billion in 1990.

1989 ABB Electric, Inc.

O.R. models built sales strategies and accurate prediction of sales through extensive segmentation and attribute choice modeling. Predictions, integrated into production models, guided long-term supply and customer preference and helped make ABB an industry leader in 1988.

1988 City of San Francisco Police Department

An optimization-based decision support system for patrol officer deployment allows for "fine-tuning" of optimal scheduling, producing a 25% increase in patrol units available when needed; in addition, response times declined 29% and traffic citations increased 62%. Total benefit? Over $14 million annually.

1987 Syntex Laboratories, Inc.

A decision calculus model for salesforce size and deployment was devised by Syntex managers, with a time horizon of three years. Model predictions proved to be more accurate than standard forecasts and in financial terms resulted in increases of $25 million.

1986 Southland Corporation (CITGO Petroleum Corporation Subsidiary)

Optimization-based decision support and process control systems aided managers at CITGO in such crucial areas as crude oil acquisition, spot-market buying and selling, logistical operations, and price volume strategies. Forecasting models addressed corporate price and volume. Together, they contributed approximately $70 million in profit improvement per year.

1985 Weyerhaeuser Company

The VISION decision simulator was developed to implement dynamic-programming-based improvements in raw materials returns at Weyerhaeuser. Operational benefits to date exceed $100 million in increased profits, and management philosophy has been changed.

1984 (dual) Blue Bell, Inc.

Models for inventory targets, manufacturing requirements, and production scheduling were used with a seasonal demand-forecasting technique and diagnostic computer simulation to reduce inventories. Inventory reduction over 18 months was more than $100 million.

1984 (dual) The Netherlands Rijkswaterstaat and the RAND Corporation

An integrated system of models was developed to

evaluate mixes of new facilities, changes in operating rules, and adjustments to prices and regulations. The system has resulted in a national water management policy, with savings in the hundreds of millions of dollars in investment expenditures and over $10 million in estimated annual savings.

1983 Air Products and Chemicals, Inc.
A large mathematical model was developed to control deliveries of liquid oxygen and nitrogen to customers at minimum cost with improved reliability. Savings are over $2 million annually.

1982 Arizona Department of Transportation

1981 ANR Freight System

1980 Kelly-Springfield Tire Company

1979 The Greater New York Blood Program

1978 Cahill May Roberts, Ltd.

1977 Syncrude Canada, Ltd.

1976 American Telephone & Telegraph

1975 Xerox Corporation

1974 Canadian National Energy Board

1973 The Babcock & Wilcox Company

1972 The Pillsbury Corporation



An Array of 2009 Competitors

by Barry List, INFORMS

The Edelman Competition in a Year of Global Economic Turmoil

This year, more than any other in recent memory, the economies of the United States, Western Europe, Asia, and indeed the entire world are troubled by an economic downturn that has cost hundreds of billions of dollars and millions of jobs, and imparted a sense that the best planners in the world are needed to end this emergency.

Operations researchers are among the best planners. This year's Franz Edelman Award competition finalists show how operations researchers respond to organizational needs to improve systems, reduce costs, and keep revenue flowing even as indices and economic indicators show the world economy in crisis.

Norske Skog, the Norwegian newsprint maker with plants in Western Europe, Australia, New Zealand, and many other locations, began dealing with an industry downturn that preceded the general crisis. With the advent of the Internet Age, the newspaper business has been seeing reduced circulation over many years. With shrinking circulation comes a diminishing demand for newsprint. Management at Norske Skog has responded by adopting O.R. tools that help the company carefully evaluate the tough choices that



come as product demand declines. These tools have shined a light on the costs of manufacturing, shipping, and even energy. With O.R.-generated analysis on hand, management feels confident that the tough choices are the right ones.

Zara, the Spanish clothing manufacturer and retailer that has virtually coined the term "fast fashion," uses O.R. to contain costs and remain true to its brand identity, rapidly generating and bringing to market new fashions. Zara has used O.R. to maintain the health of its logistical network—what it calls its corporate bloodstream. With two main warehouses in the heart of Spain, the company rapidly replenishes its 1,500 stores by using O.R. applications to make decisions involving thousands of optimization problems within hours every day.

Merchandise was also on the minds of Hewlett-Packard (HP) executives when they reviewed the number of HP's products, many highly similar, that compose the HP portfolio. A large product portfolio can be a money maker, but it can also hide many unnecessary costs, mixing profitable items with losers. How to manage the number and ratio of its electronic products was the challenge to HP's O.R. team, and its development of new O.R. tools led to a more reasonably sized product mix and the reduction of costs associated with manufacturing products with unsatisfactory sales levels.

Troubled times require the maximum use of scarce resources, and this has been a hallmark of this year's CSX Railway entry.

The Problem of the Empty Car—it sounds like the title of a Sherlock Holmes mystery, but it is a problem that is often costly to railroads: with a volume of information about individual customers, how can a railroad efficiently allocate thousands of empty railroad cars to customers and keep costs down in the process? Building upon earlier optimization work, CSX has reduced fuel, crew, and car depreciation costs, keeping the fleet size small while keeping customer satisfaction high

During tough times, sales crews are more challenged than ever.

At IBM, O.R. helps salespeople working directly with clients and managers who are planning corporate sales strategy. IBM's legendary O.R. team created a set of analytical tools that help target existing as well as new customers. The team created a second level of O.R. tools that optimally allocates sales resources.

The hotel industry has followed the airlines industry in working with revenue-management tools. Now the O.R. team at Marriott International is expanding revenue management to improve sales, this time among groups. The hotel chain's group price optimization helps its sales force determine customer targets for "good" and "bad" clients, and helps sales people determine a range within which to negotiate deals. The result was that even though overall demand fell last year as the economic crisis deepened, Marriott was able to maintain pricing effectiveness at nearly its precrisis level.

Operations research has long been a bag of tools for growth times and moments of economic challenge. This year's Franz Edelman competition finalists prove that O.R. teams can do strong work in both the best of times and the worst of times.

An Englishman Experiences the Edelmans

by Graham Rand, Lancaster University

For many years I have valued the Edelman competition. When attending INFORMS meetings, I always made it a priority to attend reprises, and I frequently recommend the *Interfaces* articles to students. It was therefore a great delight to be asked to be involved. I started by participating in the first stage of the process, when a decision is made as to whether a submission should be verified.

Then I was asked to verify, a process that involves talking to the submitting team and also to senior people in the organization. Are the results valid, particularly the financial benefits that have been quoted? Will senior managers—perhaps even the CEO—make public statements, either in person or on video, that the O.R. work is highly valued by the senior management team? This year this involved a four-way conference call between Europe and New Zealand, which included a short discussion on the relative merits of the English and New Zealand rugby and cricket teams, much to the bemusement of the Norwegian participant. The verifier then writes a report and the Edelman committee comes together, mostly by conference call, to evaluate the reports and decide the six finalists.

This is a fascinating and detailed process: as a result of some excellent submissions, the



call this year lasted three hours. Of the 21 initial applicants, 18 had been verified, and I suspect that several other submissions would not have been out of place in the finals.

During the last three years, I have investigated some exceptional submissions, and all have been selected as finalists. However, much to my embarrassment, and I am relieved it wasn't held against me, the first organization I verified, together with my colleague John Ranyard, pulled out a few weeks after selection as a finalist. Why was this? They were not prepared to back up in public the financial benefit they had submitted.

This taught me an important lesson: be very wary when it is impossible to talk to a specific senior manager during the verification process.

But I was forgiven, and the same year another project I had verified made an excellent presentation, and the team came close to being worthy winners. I know because I was on the jury.



This was an enormous privilege: I was the first non-North American to be in this position. Of course, with privilege comes responsibility, and my fellow jurors and I debated long and hard the merits of the finalists. I have enormous respect for my colleagues, although that did not prevent me expressing different views, and the experience was certainly one of the highlights of my professional career.

Last year I was asked to coach the team I had verified. This was a great pleasure, working with experienced O.R. professionals; giving advice on writing their paper, which first goes to the jury and then *Interfaces*; and sharing in the development of their presentation. From my experience of the Edelman competition, I was able to suggest a particular slant to the story they wished to tell. This stood them in good stead, and I was able to share (although at 4,000 miles' distance) their delight in winning the competition. Unfortunately I wasn't there, and the final contribution, coaching on the practice day, was the responsibility of my good friend and colleague Tom Spencer.

This year I am a coaching and sharing the responsibility with Tom again, but at the time of this writing I intend to be in Phoenix. Will I be basking in the reflected glory of the winning team?

If you are reading this at the start of the dinner, you and I will know in a few minutes. Whatever the outcome, for the team from Norske Skog and for me, the Edelman experience will have been exhilarating.

Your latest member benefit...

THE FRANZ EDELMAN AWARD
Achievement in Operations Research



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The Franz Edelman Award Process

The Finest Step Forward: The Franz Edelman Award Competition Process

by Srinivas Bollapragada, General Electric,
2009 Franz Edelman Committee Chair

Are You Ready for the Contest of Your Life?

Every year the Franz Edelman Award process begins with a call for entries in early September. Organizations are asked to provide a two-page summary of a completed practical operations research (O.R.) application and describe results that had significant, verifiable, and, preferably, quantifiable impact on the performance of the client organization.

Typically, over two dozen entries are received and reviewed by the Franz Edelman Award Committee. The committee consists of about three dozen experienced O.R. practitioners and academics from organizations such as AT&T, Cisco, General Electric, IBM, Lancaster University, MIT, North Carolina State University, SAS, Southwest Airlines, and the University of Western Ontario. Semifinalists are selected in early November, and the further selection of finalists is completed by mid-December.

The committee names as semifinalists a dozen or more entries that have a reasonable chance of becoming finalists if the verification process supports the entries' claims. To this end, each of the semifinalists is assigned a verifier who works behind the scenes to validate the claims made by their assigned entry.

The verifier's primary role is to completely comprehend the O.R. work presented in the assigned entry summary, as well as its potential impact, and to convey this information to the rest of the selection committee. The verifier will communicate directly with the entrant's O.R. team, the users of the work, and client management. Verification is a crucial element of the competition, as it ensures that only the highest-quality O.R. work makes it to the Edelman Award finals. All verifiers are provided with written guidelines and sample verification reports, and novice verifiers are paired with more experienced verifiers.



From this group of semifinalists, the Edelman Award Committee then selects the six best entries to advance to the Franz Edelman Award finals. Each finalist must begin the preparation of a journal-quality paper and a 40-minute presentation. Each of the finalist teams is assigned an experienced coach to advise them throughout the process. A coach's major obligation is to ensure that the team's paper and presentation convey the work clearly to a general operations research audience. Often a coach is paired with one or more assistant coaches who lend another perspective to the process.

Two months prior to the spring INFORMS Practice Conference, finalist papers are distributed to the judges. The judges study each of the papers and, shortly thereafter, discuss them amongst themselves. Each finalist is assigned a focal point judge who conveys feedback from the judging committee to the finalist's coach. The judge's feedback helps to identify areas where further information and development is required in the finalist presentation in order for the judges to make a proper decision.

On the day of the competition, each team gives a 40-minute presentation, followed by a 10- to 15-minute period of questioning by the judges. After the presentations are complete, the judges sequester themselves until they reach a decision on which of the finalists best exemplifies the ideals and standards of the Franz Edelman Award for Achievement in Operations Research. Relevant factors considered include the difficulty of the obstacles surmounted, the technical solution, implementation, and the total impact and value of the project.

Following the competition, the finalists will work with the special editor of the January/February issue of *Interfaces* to make any final adjustments to their papers. All finalists are invited to reprise their work at a session of the annual INFORMS meeting in the fall, with the first-place team giving a keynote address. All of the finalists' presentations are available from INFORMS on DVD in the fall.

The Verification Process & The 2009 Verifiers

The Edelman Award Committee wishes to thank the following individuals for their dedication and service as verifiers for this year's Edelman Award.

Each of the semifinalists is assigned a verifier who works behind the scenes, often with an assistant verifier, to validate the claims made by their entry. A verifier's primary role is to understand an applicant's O.R. work and its impact in detail, and to then convey this to the rest of the committee, both orally and in a written report. Verification is a crucial element of the competition since it ensures that only the highest-quality O.R. work with verified impact makes it to the Edelman Award finals.

Verifiers and Assistant Verifiers

- Layek Abdel-Malek, New Jersey Institute of Technology
- Sudhansu Baksi, AT&T Laboratories
- Peter Bell, University of Western Ontario
- Tony Brigandi, AT&T Laboratories
- Bruce Bukiet, New Jersey Institute of Technology
- Alfred Degbotse, IBM
- Joseph Discenza, Smart Crane
- Howard Finkelberg, BBDO Incorporated
- Ron Fricker, Naval Postgraduate School
- Yoshi Ikura, Saitech
- Ananth Iyer, Purdue University
- R. John Milne, IBM
- Patricia Neri, Southwest Airlines
- Yanni Papadakis, Merrill Lynch Wealth Management
- Graham Rand, Lancaster University
- John Ranyard, Lancaster University
- Samik Raychaudhuri, Crystal Ball, Oracle
- Anne Robinson, CISCO
- Amir Sadrian, Management Analytics, LLC
- Douglas A. Samuelson, Serco and InfoLogix
- Rina Schneur, Verizon Laboratories
- Leon Schwartz, Yeshiva University
- Donald R. (Bob) Smith, Monmouth University
- Stuart Smith, Navitaire
- ManMohan Sodhi, Cass Business School, City University London
- Mark S. Squillante, IBM Thomas J. Watson Research Center
- Jack Theurer, G. Theurer Associates Inc.
- Rajesh Tyagi, GE Global Research

The Coaching and Judging Process & The 2009 Coaches and Judges

The Edelman Award Committee wishes to thank the following individuals for their dedication and service as coaches and judges for this year's Edelman Award.

The major role of the coach is to ensure each team's paper and presentation convey the work in a manner that may be well understood by a general operations research audience. Often a coach is paired with an assistant coach who lends another perspective to the process.

The judges must work together, evaluating the evidence to determine which finalist is most deserving of the Franz Edelman Award for Achievement in Operations Research. The award is for implemented work that has had significant, verified, and preferably quantified impact.

Coaches and Assistant Coaches

- Layek Abdel-Malek, New Jersey Institute of Technology
- Sudhansu Baksi, AT&T Labs
- Tony Brigandi, AT&T Labs
- Jeffrey D. Camm, University of Cincinnati
- Alfred Degbotse, IBM
- Howard Finkelberg, BBDO Incorporated
- Yoshi Ikura, Saitech
- Anath Iyer, Purdue University
- R. John Milne, IBM
- Yanni Papdakis, Merrill Lynch
- Graham Rand, Lancaster University
- Randall S. Robinson
- Amir Sadrian, Management Analytics, LLC
- Tom Spencer, Walden University
- Mark S. Squillante, IBM
- Rajesh Tyagi, GE Global Research

Judges

- Srinivas Bollapragada, General Electric
- Peter Bell, University of Western Ontario
- Terry P. Harrison, Penn State University
- Russ Labe, Merrill Lynch
- Patricia Neri, Southwest Airlines
- Leon Schwartz, Yeshiva University
- Donald R. (Bob) Smith, Monmouth University
- ManMohan Sodhi, Cass Business School, City University London
- Michael A. Trick, Carnegie Mellon University

Recognizing and Rewarding Real Achievement

The Franz Edelman Award Competition is jointly sponsored by INFORMS and CPMS, the Practice Section of INFORMS.



The purpose of the Franz Edelman competition is to call out, recognize, and reward outstanding examples of operations research practice in the world.

The annual Edelman Award competition brings together top examples of innovation from large and small, profit and nonprofit, corporate and governmental organizations from around the world. The common theme characterizing all the final competing teams is the use of sophisticated analytical tools employed in operations research to make a major impact on an organization and the people it serves.

Abstracts from past Edelman Award winners are available through *Interfaces* online, and full-text versions of some of the *Interfaces* papers are available in an online archive. DVDs of past competitions, suitable for teaching, marketing, or publicizing O.R. practice successes, are available for purchase from INFORMS.

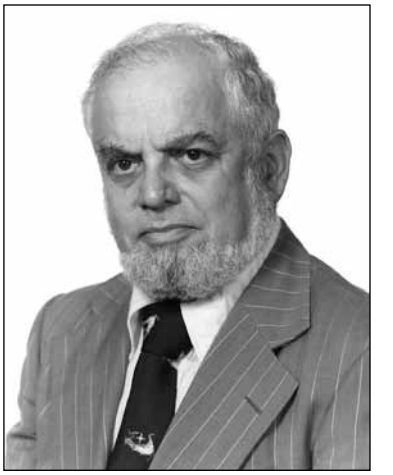
The Institute of Management Sciences (TIMS), together with its College on the Practice of Management Science (CPMS), created the award competition in 1972.

In 1986, the CPMS/TIMS award was renamed in memory of Franz Edelman, one of the forefathers of O.R. in North America.

After fleeing his native Germany in the late 1930s to escape Hitler and his Nazi regime, Franz found himself in England, where he was interned as an alien and sent to Canada for an interlude of lumberjacking. He received his undergraduate education at McGill University and later obtained a Ph.D. in applied mathematics from Brown University.

Franz joined the RCA Corporation as an engineer and became involved in computational problems. Initially a physical science problem solver, Franz rapidly came to envision the great value of computer systems in business. His imagination and dedication made him a quintessential practitioner of operations research.

Franz established RCA's Operations Research Group, one of the first such groups in North America. Having become vice president of Business Systems and Analysis, he retired from RCA after 30 years of service to form Edelman Associates, an O.R. consulting firm. The Franz Edelman Award Fund was named in his memory to advance the profession to which he contributed so much.



Franz Edelman

The Edelman Laureates

The men and women who author Edelman finalist papers are deemed Franz Edelman Laureates.

Authors of finalist papers are recognized with this distinction, and each is formally presented with The Franz Edelman Medal.

Laureates are recognized for their significant contribution to work that each year is selected as representative of the best applications in the world of analytical support for decision making.

The Laureate recognition is distinct and separate from membership in the Franz Edelman Academy.



The Edelman Academy

Each year, a limited number of organizations may be inducted as members of the Franz Edelman Academy.

The primary client organization, or beneficiary of the finalist work, is inducted into the Academy at the annual Edelman Award Ceremony.

In addition, organizations that played a major role in the work, and therefore deserve academy membership, may also be inducted. The most common example would be an organization that provided the professionals who did the majority of the analytical work.

The membership of the Franz Edelman Academy represents 38 years of extraordinary contributions to society through the innovative application of operations research.

Nothing But the Best:

The 2009 Franz Edelman Finalists

Introduced in the pages that follow are the six finalists for the 2009 Franz Edelman Award.

Over the past several months these teams have demonstrated to the judges that their work is among the finest examples of operations research practice in the world. One of these organizations will be recognized as the best in class, the first-place recipient of the 2009 Franz Edelman Award.

Each finalist's work is described here in a shortened summary. Full papers will be published in the January/February 2010 issue of Interfaces*, the INFORMS journal dedicated to improving the practical application of operations research and the management sciences in today's organizations and industries.*

The Finalists for the 2009 Franz Edelman Award Are

CSX Railway

Hewlett-Packard

IBM Corporation

Marriott International

Norske Skog

Zara


948
948
CSX
STOP
AAR ACT MR

CSX Railways

CSX Railway Uses O.R. to Cash in on Optimized Equipment Distribution

Project Summary

How could an empty railway car be so costly?

It goes like this: CSX Railway allocates thousands of empty railway cars to customers each day. The challenge of car allocation is quite difficult because of the volume of information involved and the number of car allocations to be made. In the past, CSX used a sequential, heuristic "single-car" expert system that helped to automate decisions, but led to car assignments with high empty miles and low service. Weekly optimization helped provide a "network view," but static solutions quickly became outdated as situations changed and decisions surrounding previously allocated cars could not be revisited. As a result, opportunities for improved car distribution were lost.

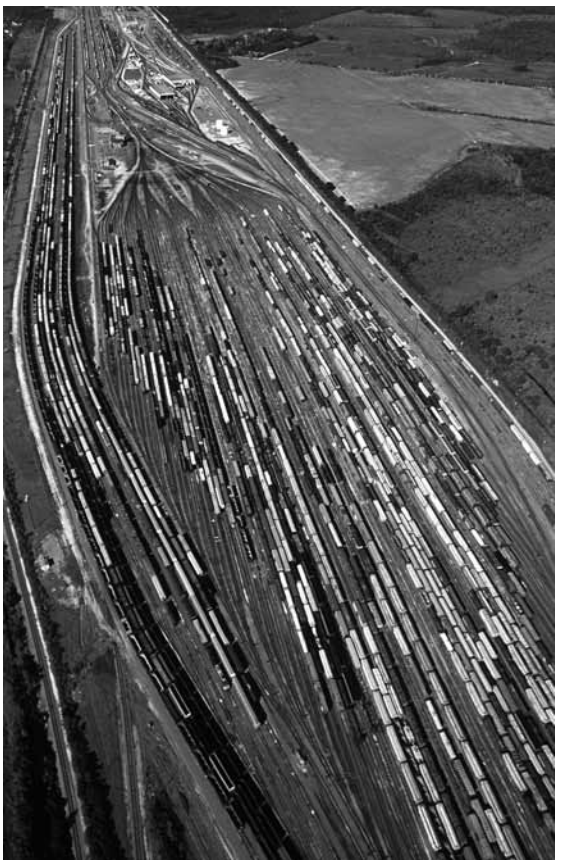
In 1997, CSX Railroad implemented the U.S. rail industry's first real-time, deeply integrated dynamic car planner (DCP) equipment distribution system. The DCP is continuously updated with new customer orders and available cars, allowing automated revisions of previous decisions as the new information becomes available. Real-time information is necessary because the conditions on CSX are constantly changing. Deep systems integration is essential to automating the communication of updated decisions to the field. Real-time information and deep integration allow the global perspective of O.R. modeling to be seamlessly integrated into the decision-making sequence and field communication process for the disposition of each individual car and customer order.



CSX has benefited in many ways. First and foremost, customer satisfaction survey responses for the car order process have steadily increased and are now at all-time highs. Furthermore, CSX estimates that it saves over $50 million per year from the DCP system from reduced fuel, crew, and car depreciation costs as a result of lower empty repositioning miles. CSX has also reduced the manpower required to manage railway car distribution, saving an additional $1 million per year. Over the last 11 years, CSX has saved over $561 million and anticipates saving more in the future. Additionally, the car fleet required to support CSX's business is smaller because it is allocated more efficiently, allowing CSX to avoid $1.4 billion in capital expenditure on additional railway cars over that time. The smaller asset base allows for improved return on assets and reduced congestion on the CSX rail network.

Considering both expense reduction and capital avoidance, CSX has saved approximately $2 billion with the DCP. The entire North American rail industry has benefited from CSX's DCP. Canadian Pacific Railway purchased the DCP in 2002, and other railroads have built similar systems, benchmarking CSX's success.

Beyond corporate benefits, there are social benefits as well from rail growth and efficiency. The DCP allows for increased rail service, reducing the number of trucks on the road. Fewer trucks mean safer, less-congested highways and lower tax-



supported highway investment. Rail is a greener mode of transportation than truck, requiring less fuel and producing less pollutants and greenhouse gases. The DCP keeps approximately 380,000 truckload shipments off the roads each year. The resulting benefit to the U.S. public is approximately $600 million since the DCP was implemented.

In total, the $5 million investment has produced over $2.6 billion in public and private benefits, and will continue to generate similar benefits over the foreseeable future.





Organizational Overview

CSX Transportation provides a crucial link to the transportation supply chain through its approximately 21,000-route-mile rail network, which serves every major population center in 23 states east of the Mississippi River, the District of Columbia, and the Canadian provinces Ontario and Quebec. It serves 70 ocean, river, and lake ports along the Atlantic and Gulf Coasts, the Mississippi River, the Great Lakes, and the St. Lawrence Seaway. CSX also serves thousands of production and distribution facilities through track connections to more than 230 short-line and regional railroads.

Hewlett-Packard

HP Transforms Product Portfolio Management with Operations Research

Project Summary

As the world's largest technology company, HP offers a wide spectrum of innovative products to meet diverse customer needs. A broad product portfolio gives customers choices and increases market reach. However, product variety also comes with significant operational costs and challenges. By offering several similar products instead of a single product, a manufacturer increases its overall demand volatility, reduces forecast accuracy, and generates a host of complexity-driven revenue and cost impacts across the whole product life cycle. These impacts include increased inventory costs; poor order responsiveness; high operational, research and development, marketing, and administrative costs; and increased liabilities to channel partners, among others. Furthermore, complexity in a product line can confuse customers and sales representatives, in some cases driving business to competitors.

These issues were prevalent in virtually every HP business, from desktop PCs to high-end servers, to printers, to spare parts. Moreover, the issues manifested themselves differently in each case. Some of HP's businesses, such as business critical servers and high-end imaging and printing products, have high variety-driven costs associated with creating, developing, testing, and launching new stock-keeping units (SKUs). Other businesses, such as HP's Personal Systems Group (PSG), which sells configurable PC products, face comparatively low per-SKU costs but high costs for managing inventory and availability on a large number of parts simultaneously. Because of its vast product portfolio, PSG's order fulfillment performance was much worse than that of its competition. This difference adversely affected HP's customer satisfaction and market share. By January 2004, product variety problems in HP were so severe that, at the Senior Leaders Communication Meeting, former HP CEO Carly Fiorina said, "The complexity of our products is a huge problem for us and for our customers. …Reducing the number of products we have in the portfolio is a big deal." HP needed an approach to managing its portfolio that was robust enough to handle the different cost profiles and challenges of HP's businesses.



HP developed two powerful operations research-based tools for product variety management that, together, address the diverse needs of its businesses throughout their products' life cycles.

The first is a framework for evaluating the projected complexity-adjusted return on investment (ROI) for each proposed new product, prior to its creation, using a Complexity ROI Calculator that is customized for each business. The ROI Calculator is a spreadsheet tool that is





developed through a one-time analysis of the up-front and ongoing costs and revenue impacts of introducing and managing products. The one-time analysis uses stochastic inventory modeling and a range of statistical techniques to identify the right costs to focus on and the right strategies and guidelines for managing them. The calculator is then used on an ongoing basis to evaluate new products. Products that do not meet a threshold ROI level are targeted for exclusion from the proposed lineup.

Once products have been launched and a sales history is available, HP applies a second O.R. tool called Revenue

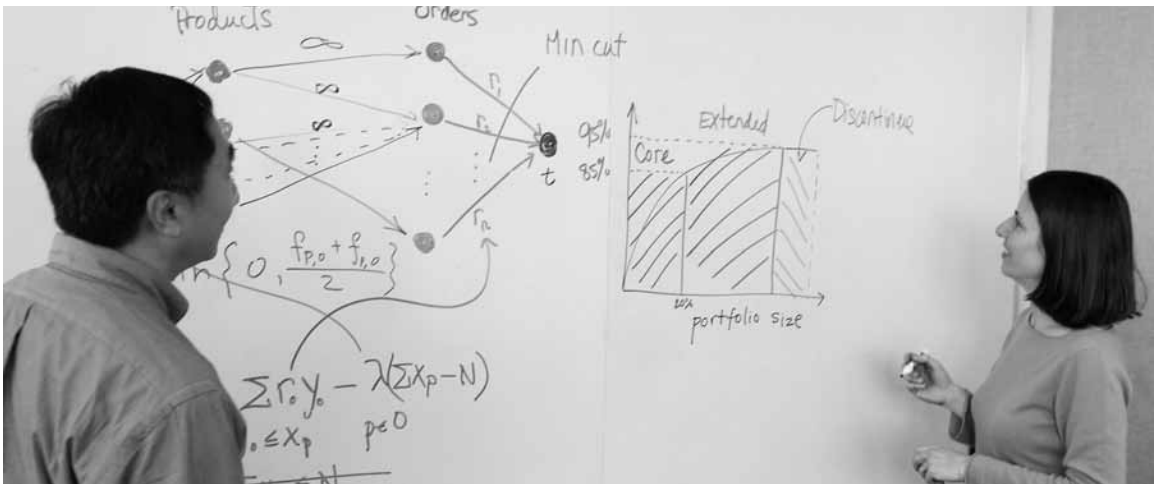
Coverage Optimization, or RCO. This tool embodies a state-of-the-art breakthrough optimization algorithm to identify a core portfolio of products offering maximum order coverage, defined as the portion of the number, revenue, or margin of orders that can be completely fulfilled with products in the portfolio. The results enable HP businesses to prioritize among products for promotions, improved turnaround time commitments, or rationalization.

Together, RCO and the Complexity ROI Calculators provide HP with systematic processes for evaluating new products, honing existing product portfolios, and ultimately improving operational focus. These tools have led to hundreds of millions of dollars in bottom-line savings for HP, as well as a more streamlined product offering, improved execution, faster delivery performance, lower overhead, and increased customer satisfaction and market share.

Organizational Overview

HP is a technology company that operates in more than 170 countries around the world. The company explores how technology and services can help people and companies address their problems and challenges, and realize their possibilities, aspirations, and dreams. HP applies new thinking and ideas to create more simple, valuable, and trusted experiences with technology, continuously improving the way customers live and work.

HP provides infrastructure and business offerings that span from handheld devices to some of the world's most powerful supercomputer installations. The company offers consumers a wide range of products and services from digital photography to digital entertainment, and from computing to home printing. This comprehensive portfolio helps match the right products, services, and solutions to customers' specific needs.




IBM
Blue Gene/P

IBM Corporation

Analytics-Driven Solutions for Increased Sales Force Productivity at IBM

Project Summary

Improving sales force productivity can be an effective operational strategy for companies seeking to drive top-line revenue growth and manage bottom-line expenses in today's challenging economic climate. At one level, driving top-line "organic" growth requires that frontline sales professionals be provided with leading-edge tools to identify better leads and hence close more deals. At a higher level, given that highly productive sales people are a constrained resource, sales executives need to optimally deploy the available sales force against the best revenue-generating accounts. Both objectives offer rich opportunities to apply leading-edge operations research to enhance decision-making capabilities at key points of the sales organization.

In 2004, IBM initiated a broad, analytics-based initiative to improve sales productivity at both levels. The first solution, known as OnTARGET, provides a set of analytical models designed to target new sales opportunities at existing IBM accounts as well as noncustomer ("whitespace") companies. The objective of the second stage of the initiative, the Market Alignment Program (MAP), is to optimally allocate sales resources based on field-validated analytical estimates of future revenue opportunity in each operational market segment. The analytical models and initial internal websites for both stages were developed by IBM Research. OnTARGET was implemented by the IBM Software Group (SWG), which creates, markets, and sells IBM software. MAP was deployed by the IBM Sales and Distribution organization, which markets and sells IBM software, servers, and services.

The analytical models in OnTARGET and MAP are built using a large volume of historical IBM customer transactions, joined with "firmographic" information (e.g., industry, annual revenue) for each customer account. We developed a data model that reflects the correct alignment between the IBM-internal representation of an account and the view provided by an external provider (e.g., Dun & Bradstreet) of firmographic data. From a business

perspective, the greatest modeling challenge has been to map the respective underlying business objectives to solvable machine-learning problems. For OnTARGET, this led to a classification method to estimate probability of new purchase, whereas for MAP, it led to a novel regression-based method to estimate the unobservable "wallet" of any potential customer in a specific product group.

As noted above, the initial websites used to host the OnTARGET and MAP models were developed within IBM Research. IBM Research continues to provide all model updates for both solutions, but the ongoing application development and website hosting has been transferred to IBM Information Technology support organizations. As of December 2008, OnTARGET has been made available to over 13,000 IBM sales professionals in 25 different countries. Based on user logging capabilities built into the OnTARGET website, IBM has been able to generate evidence that sales leads identified though the use of OnTARGET close at a higher rate than average. A conservative estimate of the IBM revenue impact of this higher close rate is $100 million in 2008. The MAP wallet models are displayed in a separate Web-based tool that is used to





conduct extensive workshops with sales leadership teams to elicit objective views of forward-looking revenue opportunity at each IBM account. Based on these interviews, a subset of sales resources have been redeployed to accounts with higher expected future revenue. The MAP process has been integrated since 2006 within the annual IBM planning cycle. IBM estimates the 2008 revenue impact of the MAP initiative to be approximately $500 million.

Organizational Overview

In IBM's view, today's networked economy has created a global business landscape and a mandate for business change. Integrated global economies have opened markets of new opportunity and new sources of skills. The Internet has enabled communication and collaboration across the world and brought with it a new computing model premised on continuous global connection. In that landscape, companies can distribute work and technology anywhere in the world.

Given these opportunities, IBM is working with its clients to develop new business designs and technical architectures that allow their businesses the flexibility required to compete in this new landscape. The business is also adjusting its footprint toward emerging geographies, tapping their double-digit growth, providing the technology infrastructure they need, and taking advantage of the talent pools they provide to better service the company's clients.

Marriott International

Group Pricing Optimizer

Project Summary

Group Pricing Optimizer, otherwise known as GPO, is a great example of how we empower sales managers. Group Pricing Optimizer represents a major step forward for this discipline and for this company; it absolutely provides a competitive advantage…it allows sales managers to quote with confidence.

- David Roberts, Senior Vice President, Global Revenue Management

Marriott has a 20-year history applying revenue management to individual bookings. GPO represents a significant extension, allowing it to maximize revenue and profit from all of the hotel's customers. GPO uses price elasticity models for each statistically derived market segment to recommend room rates for group inquiries. GPO has replaced the static target rates of the past with rates based on advanced operations research techniques that have resulted in revenue gains for Marriott.

GPO is now used by over 1,500 sales managers to sell nearly 200 hotels across North America. Sales teams are complying well with the rate recommendations, and customers are buying at the recommended rates, as demonstrated by the fact that contracted business that has been priced using GPO since its implementation is over $1 billion. Business booked through GPO has ramped up quickly, to the point that GPO-booked revenue in 2008 was 21.5% of group revenue for all managed full-service hotels in North America. Finally, the GPO rates are appropriately sensitive to changes in the hotel's forecast. This is a critical factor when economic conditions change, as they did in 2008.

The rollout of GPO was accompanied by a critique tool that measures the actual results for a hotel against the optimal that could have been achieved with perfect hindsight. This critique tool gives Marriott a barometer with which to measure the success of GPO. Comparing 2006 (before GPO) and 2007, two years with similar levels of demand, the team measured an


Marriott
NO TURNS
12th ST

increase in pricing effectiveness across the hotels adopting this functionality that amounted to an incremental $46 million in profit. Although overall demand fell considerably in 2008, preliminary analysis of year-end data shows pricing effectiveness remained at nearly the same level. Revenue per available room and average group rates are also higher in hotels using the new system when compared to non-GPO hotels.

For customers, GPO enables Marriott to sell the way they want to buy. Customers experience faster response times when they call sales offices because sales managers are able to provide quick, finely tuned rates for multiple dates and hotels. For customers who want to book small groups on the Internet, the hotel chain has enabled Quick GroupSM on Marriott.com, which requests group rate recommendations from GPO through a real-time link.





In use for two years, GPO provides more than a room rate. GPO facilitates better communication of the sales strategy between revenue managers and sales managers. Beyond the recommended rate, GPO provides the answers to the next few questions a sales manager might have. It provides a range within which the sales manager is permitted to negotiate and additional information such as the probability of winning the business at the recommended rate, the comparative rate



for an individual booking, and comments about local market conditions. For example, GPO can communicate that a citywide convention is driving rates over a specific period, or a holiday has created a need time. If the rate is too high for the customer, or if rooms are not available, it simplifies the identification of alternative dates or hotels.

Organizational Overview

Marriott International is a leading lodging company with more than 3,100 lodging properties in 67 countries and territories. The company is headquartered in Bethesda, MD, and had approximately 151,000 employees at the 2007 year-end. It is ranked as the lodging industry's most admired company and one of the best companies to work for by FORTUNE®, and has been recognized by the U.S. Environmental Protection Agency with the 2007 Sustained Excellence Award and Partner of the Year since 2004. In fiscal year 2007, Marriott International reported sales from continuing operations of $13 billion.





Norske Skog

Norske Skog Improves Global Profitability Using O.R.

Project Summary

Many businesses are currently entering uncharted (and unwanted) territory, uncertain how the economic recession will affect demand for their services and products. For paper maker Norske Skog, however, this is a familiar situation, because the company has experienced declining demand for its products over the last decade due to electronic media replacing newsprint publications.

Norske Skog has had some very difficult decisions to make as it has struggled to survive, including closing paper production lines and entire mills. Operations research tools have become a vital part of the decision-making process at Norske Skog, helping the company to reduce costs significantly and enabling senior managers to make tough calls with the confidence that there is no better solution.

The development and use of operations research within Norske Skog started with a pioneer project in New Zealand that used a mixed-integer programming model called PIVOT to optimize manufacturing, distribution, and sourcing of raw materials in Australia and New Zealand. Later, after the New Zealand operation became a part of Norske Skog—a global, Norwegian-based publication paper producer with operations in 12 countries on four continents—the methodology was further developed to be used in their global operations.

The core of the PIVOT model is a mixed-integer program (MIP). The data inputs to the model have been developed over time to reflect distribution cost, the true marginal effects of fiber and energy sourcing, as well as a complex



representation of costs and savings accruing from temporary and permanent capacity curtailment. To obtain reliable results, much effort was needed to analyze and understand cost data in a form that was not easily extracted from company accounts, but required a thorough understanding of manufacturing processes.

The most recent application of PIVOT was to determine how to downsize the company, because global overcapacity became a crucial issue. Decisions on the closure of production lines and mills affect the lives of many hundreds of people and cannot be taken lightly. Legislated employee involvement in the management of Norske Skog makes the decision process highly political. The MIP model was used to study a large number of different market, cost, and currency development scenarios, making it possible to focus on the most critical assumptions and give confidence that the decision was optimal and impartial. The estimated savings from implementing the solutions determined by the model are as follows:

- Australasia—freight cost reduction (from better product allocation), improved back-hauling of raw materials, and utilization of lowest manufacturing cost: US$ 8 million/year.
- Europe—similar cost-type savings, with extended cost modelling: US$ 10 million/year.
- Downsizing—removal of fixed costs, utilizing most efficient equipment, removal of business with negative margins: US$ 100 million/year.

Added together, the potential savings from this use of O.R. is about US$ 120 million/ year, equivalent to 3% of Norske Skog's annual turnover.





Organizational Overview

Norske Skog is a world-leading producer of newsprint and magazine paper, with 16 paper mills around the world. Its business units and sales network confer a unique position. Local presence and knowledge combined with Norske Skog's global strength distinguish it from other paper companies. The world market for newsprint and magazine paper is about 60 million tons, and the group has about 10% and 5% of these segments, respectively. The group's operating revenue in 2007 was approximately NOK 27 billion.

Zara

Zara Uses Operations Research to Reengineeer Its Global Distribution Process

Project Summary

"Fast fashion" is a term often associated with this Spanish clothing manufacturer and retailer, which has rapidly sped up the process of designing and delivering fashionable clothes throughout the world.

Zara's supply chain includes two primary warehouses located in Spain that periodically receive shipments of finished clothes from suppliers and ship replenishment inventory directly to every Zara store in the world twice a week. A key associated challenge is to determine the exact number of units of each size (up to eight) of each article (up to 3,000 at any time) that should be in each shipment to each store (more than 1,500).

This problem is critical because its solution determines the "bloodstream" of Zara's merchandise to its stores, and it is challenging because

(i) the number of associated shipment decisions reaches several millions,
(ii) the amount of relevant data (warehouse inventory, store inventory, and store sales history for each article) is also enormous,
(iii) the available warehouse inventory is often limited,
(iv) most stores will only sell merchandise when the set of available sizes is complete enough (introducing complex dependencies across sizes), and
(v) these decisions must be made in just a few hours.

In 2005, the process used by Zara for determining those shipments involved the examination by a large team of warehouse employees of shipment requests sent by every store, which presented an opportunity to improve both scalability and revenues.

The Zara team started to develop an alternative decision process relying on proven operations research methods, including forecasting algorithms, stochastic analysis, and a large-scale mixed-integer programming model. Its implementation presented many technical difficulties, including the need to capture forecast uncertainty and store-level inventory policies, the live integration of a complex mathematical model with many large





databases, and the development of the software and hardware infrastructure necessary to solve thousands of optimization problems in just a couple of hours every day. It also presented human challenges, because Zara's culture greatly values human judgment and intuition for decision making.

In June 2007, however, Zara completed the deployment of this new process supported by operations research to all its stores and items sold worldwide, and has since been using it continuously. Before full-scale deployment, Zara conducted, in late 2006, a controlled pilot field experiment involving a limited number of articles and half of its stores worldwide to test this new O.R.-based process. That experiment showed, with a high level of rigor, that the new process increased in-season sales by a conservative estimate of 3%-4%, reduced transshipments between stores, and increased the time many articles spent in store displays.

From the sales impact alone, the realized financial benefits can thus be estimated, as of late December 2008, at about $233 million (2007) and $353 million (2008) in additional revenue or $28 million (2007) and $42.4 million (2008) in additional net income, with both measures of impact predicted to grow at a rate of 13% per annum in subsequent years. On the cost side, Zara was able to maintain its warehouse inventory allocation team at its early 2007 staffing level of 60 individuals worldwide, even though it was initially planning on expanding that team proportionally to sales growth. The optimization model has also had a significant impact on the daily



lives of these employees: they have all become enthusiastic users of the new tool, gratefully seeing their responsibility shift from repetitive manual data entry to exception handling, scenario analysis, and process improvement.





Organizational Overview

With more than 1,500 stores in 68 countries and €6.26B in annual sales (2007), Zara is the flagship brand of the Inditex Group and the world's leading fast-fashion retailer. Zara's unique offer to customers involves a continuously changing assortment of fashionable garments produced in small series and sold at affordable prices.



Call for 2010

Franz Edelman Award Applications

Call for 2010 Applications

THE FRANZ EDELMAN AWARD

39th Annual International Competition for Achievement in Operations Research

A $15,000 Competition with a $10,000 First Prize
Call for Success Stories

INFORMS and CPMS, the Practice Section of INFORMS, are pleased to announce the 39th International Competition for the Franz Edelman Award for Achievement in Operations Research. The competition will take place at the 2010 INFORMS Conference on O.R. Practice in Orlando, Florida.

Any work done in recent years is eligible, unless it has already been described by a Franz Edelman Award finalist. Previous publication of the work does not disqualify it. Anyone is eligible for the competition except a member of the 2010 judging panel.

The purpose of the competition is to recognize and reward outstanding examples of O.R. in practice. The prize is awarded for implemented work, not for a submitted paper or for the presentation describing the work. The client organization that used the winning work receives a prize citation; the authors receive a cash award. In addition, finalist organizations become members of the Franz Edelman Academy; authors receive the Franz Edelman Medal and are officially recognized as Laureates.

To submit, provide a 2-page summary of your achievement and a 60-word abstract, plus the name, address, phone number, and affiliation of each author by Wednesday, October 21, 2009.

Complete instructions will be announced online at
http://www.scienceofbetter.org/Edelman.

Each finalist group will give an oral presentation of its work at the 2010 INFORMS Conference on O.R. Practice in Orlando, Florida, April 18–20, 2010.

See you at the 2010 Franz Edelman Award competition!
http://www.scienceofbetter.org/Edelman

The INFORMS Prize:

Sustained Integration of Operations Research

2009 Winner

Intel
Decision Technologies Group

The 2009 INFORMS Prize is awarded to the Intel Decision Technologies Group for putting O.R. inside every facet of Intel's business. By employing an extensive array of operations research disciplines and an innovative process to diffuse them, the Decision Technologies Group has impacted a vast and diverse set of Intel's functions such as product design, demand forecasting, factory development, pricing structures, equipment and material acquisition, and production-inventory-logistics planning. From tactical manufacturing operations to strategic roadmap development, the myriad of operations research applications have contributed more than $2 billion in improved decision making. Intel has demonstrated the effectiveness of OR/MS techniques by continuing to produce better products at lower prices year after year.

By awarding the 2009 INFORMS Prize to Intel, the O.R. community recognizes the world-class capabilities and contributions of the Intel Decision Technologies Group.

The INFORMS Prize

A History

This is the second year that INFORMS is presenting its most prestigious practice prizes at the Edelman Awards Gala. The Franz Edelman Award and the Wagner Prize recognize operations research practice projects that are among the very best in the world during a given year. In that same year, the INFORMS Prize recognizes long-term, multiproject achievement by honoring sustained, successful work in operations research practice.

The INFORMS Prize is awarded annually to recognize effective integration of operations research into organizational decision making. The award is given to an organization that has repeatedly applied the principles of O.R. in pioneering, varied, novel, and lasting ways.

INFORMS Prize Winners

2009 Intel *Decision Technologies Group*
2008 GE Global Research *Risk & Value Management Laboratory*
2006 Schneider National, Inc.
2005 Air Products & Chemicals, Inc.
2004 Procter & Gamble
2003 UPS
2002 Hewlett-Packard
1999 IBM
1998 Lucent Technologies
1997 Merrill Lynch Private Client Group
1996 Pfizer Inc
1995 Bellcore
1994 AT&T and US West Technologies
1993 New York City *Office of Management and Budget* and United Airlines
1992 San Miguel Corporation
1991 American Airlines and Federal Express

2009 INFORMS Prize Committee

Ranganath Nuggehalli, Chair
Glenn Wegryn, Procter & Gamble, Past Chair
Jeffrey D. Camm, University of Cincinnati
Mark Ferguson, Georgia Institute of Technology
Ted Gifford, Schneider National, Inc.
Erica Klampfl, Ford Motor Company
Thomas Olavson, Hewlett-Packard
Karen Smilowitz, Northwestern University

Notes:
Prior to 1995, the award was called the ORSA Prize.
No prize recipients were chosen in 2000 and 2001.

To adjust to the new INFORMS Prize presentation schedule, no award was given in 2007.



The INFORMS Prize

Criteria

Variety of Applications of O.R. The demonstrated use of a wide set of disciplines and application areas led to a richer set of offerings, leading to greater opportunities for impacting the winning organization.

Competitive Advantage to the Organization. O.R. adaptation within an organization is clearly varied among organizations. There are examples where O.R. permeates the parent organization's operations and was considered integral and of strategic competitive advantage for the organization. Companies that soundly demonstrate this type of adaptation were rated higher by the prize committee.

Impact. There are several ways that O.R. professionals can quantify and qualify the impact their work is having on the organization as a whole. The prize committee took one-off project impacts into consideration, as well as those O.R. applications that were used on a sustained, systemic manner and the quantifiable value they delivered. Some applicants demonstrated instances in which O.R. made fundamental changes to the client organization's overall business model and/or organizational structure, and the prize committee considered these examples in which O.R. truly made an impact on the organization's operations.

Model for Success. Applicants' business models vary, based on different industries. Some are represented very well, including marketing, budgeting, cost recovery, research funding approaches, and strategic planning. This provides a sense of sustained, growing capability, and of direction for O.R. in the organization.

Endorsements. Strong submissions include personally written endorsements from top-level organization management.

Overall Quality of the Application. The best applicants clearly put extra effort into creating a singular submission with all supporting references and endorsements. A well-written application, taken together with the overview statement, aids the prize committee and, in turn, the applicant.

Call for 2010

Informs Prize Nominations

Call for 2010 Nominations



Applications for the 2010 INFORMS Prize are now being accepted.

All organizations are eligible, and applications will be accepted from all sources.

The measurement of the contribution is judged relative to the impact OR/MS has had on the overall success of the organization. Thus, a multibillion dollar firm that has a large OR/MS staff but integrates OR/MS techniques only occasionally might be ranked relatively lower than a small firm that uses OR/MS throughout its activities.

Potential applicants can be assured that strict guidelines regarding the confidentiality of their application are enforced.

The Awards Committee may conduct site visits to those organizations selected as finalists. The award is presented to the key executive in charge of OR/MS activities within the organization.

Please include the following with your application:
A summary description (1-3 pages) of the scope, scale, and impact of OR/MS activities in the organization; and more detailed descriptions (1 page each) of two or three major OR/MS projects and their impact. For more information about the application process, please go to http://www.informs.org, choose the Awards menu, and go to INFORMS Prizes and Awards or visit:
http://www.informs.org/informsprize

Deadline is December 1, 2009.

See you at the 2010 INFORMS Practice Conference!
April 18–20, 2010 in Orlando, Florida

The Wagner Prize:

Excellence in Operations Research Practice

2008 Winner
The Daniel H. Wagner Prize
for Excellence in Operations Research Practice

The first place winners are

John J. Neale, Boston University School of Management
Sean P. Willems, Boston University and Optiant

Their paper, "Managing Inventory in Supply Chains with Nonstationary Demand," describes a practical model for managing inventory in a supply chain facing stochastic, nonstationary demand.

Many companies experience nonstationary demand due to product life-cycle effects, seasonality, customer buying patterns, or other factors. The model describes how inventory levels should adapt to changes in demand at a single stage. Then by propagating nonstationary demand through the supply chain, the authors are able to link stages and apply a multiechelon optimization algorithm originally designed for stationary demand. Two successful applications of this model are a strategic project to evaluate the benefits of an inventory pool at Case New Holland (CNH) and a tactical implementation to support monthly safety stock planning at Microsoft.

The Daniel H. Wagner Prize for Excellence in Operations Research Practice

2008 Finalists

This is the inaugural year that INFORMS is conferring the Daniel H. Wagner Prize for Excellence in Operations Research Practice at the Franz Edelman Awards Gala. The award now shares the spotlight with the two other great INFORMS practice awards, the Edelman Award and the INFORMS Prize.

Congratulations to the six finalists:

Matthew P. Manary and Alison F. Shihata, Intel Corporation; and Sean P. Willems, Boston University and Optiant:
"Correcting Heterogeneous and Biased Forecast Error at Intel for Supply Chain Optimization"

Eva Lee, Chien-Hung Chen, and Hannah Smalley, Georgia Institute of Technology:
"Modeling and Optimizing the Public Health Infrastructure for Emergency Response"

Erica Klampfl and Yakov Fradkin, Ford Motor Company; and Chip McDaniel and Michael Wolcott, Automotive Components Holdings:
"Using O.R. to Make Urgent Sourcing Decisions in a Distressed Supplier Environment"

Yael Grushka-Cockayne and Bert De Reyck, London Business School:
"Towards a Single European Sky"

Michael J. Fry, University of Cincinnati; and Jeffrey Ohlmann, University of Iowa:
"Route Designs for Delivery of Optical Scan Voting Machines"

Sila Cetinkaya and Halit Uster, Texas A&M University; Gopalakrishnan Easwaran, St. Mary's University; and Burcu Keskin, University of Alabama:
"An Integrated Outbound Logistics Model for Frito-Lay: Coordinating Aggregate-Level Production and Distribution Decisions"

The Daniel H. Wagner Prize for Excellence in Operations Research Practice

A History

The Wagner Prize is awarded annually in honor of the late Dr. Daniel H. Wagner.

During his years as president and principal owner of Daniel H. Wagner Associates, Dr. Wagner brought many high-quality mathematicians into the operations research community. This led to significant advances in the firm's fields of endeavor and delivery of significant applications to the Navy, Coast Guard, and other clients. Many of these important applications are still being used today.

Dan Wagner earned his Ph.D. in mathematics from Brown University in 1951. His dissertation, "On Free Products of Groups," was published in the *Transactions of the American Mathematical Society* in 1957. Dr. Wagner joined the Navy's Operations Evaluation Group (OEG) at the Pentagon, working on operations research for naval warfare. He worked there until 1956, with a one-year leave of absence for postdoctoral research on free algebras at MIT. Dr. Wagner then joined Burroughs Research Center, where he directed a group of mathematicians performing analysis for the development of digital computers.

In 1957 Dr. Wagner and Dr. John D. Kettelle formed the partnership of Kettelle and Wagner, which dissolved in 1963. In 1963 he formed a new company, Daniel H. Wagner Associates, Inc. This company applied itself to leading-edge work in the mathematics of naval tactics, especially anti-submarine warfare, detection theory, and search planning.

After retirement from the firm he founded, Dr. Wagner held various teaching and research positions with U.S. Naval Postgraduate School and the U.S. Naval Academy.

Dr. Wagner was a member of INFORMS and ORSA for more than 40 years. He died in March 1997.

2008 Wagner Prize Committee

C. Allen Butler,
Daniel H. Wagner, Associates, Inc., Chair
Charles Beall, Verizon Retiree
Peter C. Bell, University of Western Ontario
William J. Browning,
Applied Mathematics, Inc.
Joseph H. Discenza, SmartCrane, LLC
Art Geoffrion, UCLA Anderson School
Terry P. Harrison, Penn State University
Russell P. Labe, Merrill Lynch
Randall S. Robinson
Lawrence D. Stone, Metron, Inc.

Call for 2009

The Wagner Prize Applications

Call for 2009 Abstracts

THE DANIEL H. WAGNER PRIZE

Excellence in Operations Research

Deadline Extended to May 1, 2009

CPMS, the Practice Section of INFORMS, is pleased to announce the extension of the deadline for applications for the Daniel H. Wagner Prize for Excellence in Operations Research. The competition will take place at the 2009 INFORMS Annual Meeting in San Diego, California, October 11–14, 2009.

Do you have a successful and innovative O.R. project? There's a $1,000 first prize if you can write and present a paper suitable for *Interfaces*.

The judging of the final papers and selection of the winning entry will be on the basis of

- Quality and coherence of analysis and originality of mathematical solutions;
- Quality and clarity of writing;
- Utility or success of the work in one or more real-world practice applications.
- Satisfactory oral presentation in public, at the INFORMS Annual Meeting.

To submit, provide a 1- to 2-page abstract in English that provides evidence of a mathematical development, solution, unique new algorithm, or series of coherent advances developed in conjunction with an application. Please submit the abstract to Allen.Butler@va.wagner.com before May 1, 2009.

Complete instructions are detailed online at http://www.informs.org/wagnerprize.

See you at the 2009 Wagner Prize competition!
http://www.informs.org/wagnerprize

The Institute for Operations Research and the Management Sciences

Service to Society by a Profession

by Mark G. Doherty, Executive Director, INFORMS

The Intersection of Intellectual and Social Capital

The hallmark of a professional scientific society is its capacity to generate intellectual capital that not only promotes the growth of a profession, but also creates the basis for reaching solutions that better society as a whole. Another role is to provide the forum for the growth of social capital that allows the like-minded to gather, network, and discuss ideas and theories that further professional development by deliberating hypotheses and advancing concepts that ultimately can resolve societal problems.

The Edelman Competition is a grand example of the intersection of intellectual and social capital. The finalists in the competition are unveiling their achievements (intellectual capital) in operations research and competing at a conference as invited speakers (social capital) in front of their peers from many organizations.

While many of the finalists demonstrate the large cost savings that their projects have accomplished, what often goes unsaid is how they have helped their companies remain competitive and survive in the marketplace, thereby saving jobs, providing products and services at fair prices to consumers, and adding to the economic growth in communities.



However, it's not always about money and business. Edelman finalists have paved the way in understanding and addressing public policy issues that can be viewed as controversial in diverse topics such as needle exchange and nuclear nonproliferation. In other cases, operations research methodologies have provided organizations with the wherewithal to make tremendous paradigm shifts in how they see and approach their businesses, causing others in the marketplace to respond in kind.

For over 35 years, the Edelman Competition has brought forth some of the best demonstrations of what operations research has accomplished. The intellectual capital that these groups





have contributed to the profession is remarkable, and covers many industrial sectors, government, and military. Their willingness to share their deliberations and accomplishments with colleagues is a testament to a strong and vibrant profession, and a commitment to the social capital that binds them together. What they have achieved for their organizations also speaks to the solutions that better society in terms of productivity gains, economic improvements, understanding issues, and making better decisions.

As the professional scientific society that sponsors the Edelman Competition, INFORMS is proud of its affiliation and of its many volunteers that take part in the finalists' selection process and judging. These members give freely of their time, contributing to the social capital fabric of the profession while capturing the significant intellectual capital generated by the contenders. These volunteers and contestants make the Edelman what it truly is—a world-class competition of the best-in-class O.R. applications. OR

A Special Thank you to the 2009 Edelman Awards Gala Sponsors

Executive Level

Georgia Institute of Technology

Champion Level

P&G SAS

INFORMS



About INFORMS, Its Activity and Its History

The Institute for Operations Research and the Management Sciences (INFORMS) is the largest professional society in the world for professionals in the field of operations research (O.R.).



The Institute for Operations Research and the Management Sciences (INFORMS) is the largest professional society in the world for professionals in the field of operations research (O.R.). It was established in 1995 with the merger of the Operations Research Society of America (ORSA) and The Institute of Management Sciences (TIMS). The international scientific society, which contains over 10,000 members, is dedicated to applying scientific methods to help improve decision making, management, and operations. Members of INFORMS work in business, government, and academia. They represent fields as diverse as airlines, health care, law enforcement, the military, the stock market, and telecommunications.

Since the pioneering days of people like Franz Edelman, operations researchers have taken pride in quietly improving the world. Saving billions of dollars annually, model-based support solutions developed by INFORMS members are now relied upon in such diverse areas as airlines, telecommunications, health care, homeland security, the armed forces, and government. Research pioneers in O.R. disciplines represented by INFORMS have contributed importantly to the development of algorithms and methodologies now employed widely in engineering, science, and business. Contributions to applied math, including optimization, stochastic processes, simulation, game theory, statistics, and decision science, are especially well-known.

INFORMS is often a leader in identifying the world's foremost researchers—for example, honoring Nobel Prize winners John F. Nash and Harry Markowitz before they were recognized by the Nobel Academy.

The society serves the scientific and professional needs of O.R. educators, investigators, scientists, students, managers, and consultants, as well as the organizations they serve, by such services as publishing 12 scholarly journals that describe the latest O.R. methods and applications, and a membership magazine with news from across the profession. The society organizes national and international conferences for academics and professionals, as well as for members of the society's special interest groups. The Institute serves as a focal point for O.R. professionals, permitting them to communicate with each other and reach out to other professional societies, as well as to the varied clientele of the profession's research and practice.



INFORMS advances operations research by

- Encouraging and rewarding excellence;
- Communicating all aspects of operations research to management, policy makers, and the public;
- Providing education and career development opportunities to operations researchers;
- Attracting young people and all those with talent and skill to the field of operations research.

INFORMS is a member of the International Federation of Operational Research Societies (IFORS).



Bringing You a Crown Jewel of the Operations Research Profession

By Donald R. (Bob) Smith, Chair, CPMS: The Practice Section of INFORMS

Background of the Edelman Award and an Invitation to Participate



As we celebrate the incredible achievements of the Franz Edelman Award finalists, you might be interested in learning more about CPMS, the Practice Section of INFORMS, its role in the Edelman Award and its other activities.

First, let's talk about our name. CPMS is an acronym derived from the College on the Practice of Management Science. Usually, a long-standing acronym becomes the name and we rarely think of its origin. Consider, for example, AT&T, which originally stood for American Telephone and Telegraph and is still the name even after telegraph is no longer part of its business. So it is for CPMS. "College" is terminology relevant to The Institute of Management Sciences (TIMS, which merged with the Operations Research Society of America (ORSA) in 1995 to found INFORMS); more appropriate today is the INFORMS term "section."

So, what is CPMS about? CPMS is concerned with the practice of operations research and the management sciences. Rather than giving attention only to specific technical methods or areas of study, CPMS, like a family physician, focuses on general practice: how OR/MS is carried out successfully in any and all organizations where executives and operating personnel seek assistance from qualified OR/MS practitioners to help improve real organizational performance.

Probably the most significant activity of CPMS is administering the Franz Edelman Award. This stewardship directly evolved from the CPMS role in initiating, nurturing, and growing the competition in stature and visibility. First established by CPMS in 1971 as the TIMS Prize, the award was named after Franz Edelman shortly after his death in 1982. Franz was the founder of one of the first industrial



operations research groups (at RCA). Today, becoming an "Edelman finalist" is widely viewed as rigorous certification that one has completed state-of-the-art, high-organizational-impact operations research. The finalist stories and their presentations, available on DVD and in published papers, are widely employed in education and otherwise to help advance the profession. Past and present finalists are rightfully honored at our Award Gala ceremony every year, during the spring Practice Conference where the competition takes place.

Administration of the competition is a significant, rigorous, highly organized effort. The group of volunteers who operate the competition consists of 35-45 people, most of whom are CPMS members. The chair of the committee, typically serving a two-year term, is assisted by 8-10 judges, 10-15 coaches and assistant coaches, 20-25 verifiers and assistant verifiers, and 35-40 reviewers. Although the superb competition presentations and published papers are based primarily on excellent applied work, they would not be possible without an effective support-and-evaluation infrastructure. If you are





interested in participating in administration of the Edelman Award in the future, a good starting point is to volunteer to become one of the reviewers.

CPMS also conducts a number of other activities of interest to practitioners, including the Wagner Prize (now recognized during the Edelman Awards Gala ceremony), cluster sessions at INFORMS meetings, Isolated Practitioner Workshops, and a newsletter.

We currently are assessing how we can be of even greater value to the widespread community of operations research practitioners. If you have any ideas about ways to do this, please contact us (dsmith@monmouth.edu).

Better yet, if you are not a member of INFORMS or of CPMS within INFORMS, please join us and pitch in as we serve all full-time and part-time practitioners. If you are already a member but not actively involved, contact us to find out how you can further benefit from your membership through participation. As the cliché goes about university lecturing, "Nobody learns as much as the teacher." There is no better way to learn the ropes of successful OR/MS practice!

The Edelman Laureates

2008

Erwin Abbink
Terra Baranowski
Jonathan Berry
Erik Boman
Michael Brennan
Robert Carr
Lorne Cass
Michael Cirillo
Maria Delbom
Charles B. Duke
Helga Einarsdottir
Mats Eklund
Patrik Eveborn
Pieter-Jan Fioole
Matteo Fischetti
Marte Fodstad
Kim Fox
George Gray
William Hart
Lars Hellemo
Jonathan Herrmann
Ken Howard
Dennis Huisman
Robert Janke
Leo Kroon
Miro Lehky
Vaughn Lowe
Gábor Maróti
Kevin Morley
Regan Murray
James Oiesen
Cynthia Phillips
Cyndi Quan-Trotter
Sudhendu Rai
Lee Ann Riesen
Frode Rømo
Mikael Rönnqvist
Thomas Scheermesser
Lex Schrijver
Adri Steenbeek
Ved Sud
Midori Tanino
Thomas Taxon
Asgeir Tomasgard
James Uber
Jean-Paul Watson
James Wetherly
Roelof Ybema

2007

Corne Aantjes
Deirdre Borrego
Dwight Branvold
Vinayak Deshpande
Kent Everingham
Matt Gaskins
Jerry Hwang
Tim Hyatt
Irina Ionova
Ananth Iyer
Michael Jacks
Goos Kant
Alexei Khavaev
Eva K. Lee
Patty Mackenroth
Venu Nagali
Gary Polaski
Mark Pridgen
Frederick C. Riedlin
David Sanghera
Patrick Scholler
William V. Shearin
Michael A. Shirk
Greg Shoemaker
Jorge Silva-Risso
Tim Thurston
Marco Zaider

2006

William Best
Raymond H. Bittel
Richard Carnevale
Sridhar Chandrasekaran
Louis Cox, Jr.
Ross Darrow
Stéphane Dauzère-Pérès
John Elieson
Christoper A. Forgie
Dirk Guenther
Kjetil Haugen
Ulrich Koester
William H. Lee
Per Olav Myrstad
John J. Nestor
Atle Nordli
Asmund Olstad
Robert M. Peterson
Douglas Popken
B.V. Rao
Alf Reistad
Barry C. Smith
Mandyam Srinivasan
Geir Teistklub
Russell Wooten
Faker Zouaoui

2005

Jeffrey Alden
Dennis Begg
D.A. Beis
Ann Bixby
Lawrence Burns
Michael Concordia
Theodore Costy
Brian Downs
Toshiharu Hasegawa
Rick Hughes
Richard Hutton
Craig Jackson
Jim Jacobs
David Kim
Kevin Kohls
David Levine
P. Loucopoulos
Paul Martyn
Jonathan Owen
Y. Pyrgiotis
Tuomas Sandholm
Mihiro Sasaki
Katsushige Sawaki
Mike Self
Atsuo Suzuki
Mark Turnquist
David Vander Veen
K.G. Zografos

2004

Martin Barkman
John C. Butler
Alexander Chebeskov
Herman Chiu
Mathieu Clerkx
Ton de Kok
Jacques Desrosiers
Yvan Dumas
James Dyer
Thomas A. Edmunds
Rob Harlan
Richard Hicks
Fred Janssen
Jianmin Jia
Mike Kanaley
Joshua Kanner
Alev Kaya
Byung-In Kim
Seongbae Kim
Bob Kraas
Benoit Lacroix
Kam-Keung Lai
Edmond Leung
Yong Liu
Jiyin Liu
Richard Madrid
Sean Marshall
Theresa Metty
Chris Milligan
Tom Moore
Thomas Morris
Katta Murty
Alexander Oussanov
Winfried Peeters
Alexander Popov
Kevin Potts
Robert Pruneau
Olga Raskina
Jeffrey Robbins
Surya Sahoo
Quentin Samelson
Avner Schneur
Rina Schneur
James Smith
Ron Sorensen
François Soumis
Sridhar Tayur
Loren Troyer
Mitchell Tseng
Jan van Doremalen
Erik van Wachem
Yat-Wah Wan
Elan Yaniv

2003

Kirk Abbott
Surain Adyanthaya
Vedat Akgun
Andrew P. Armacost
Mordecai Avriel
Cynthia Barnhart
Corey Billington
Chris Born
E. Andrew Boyd
Gianpaolo Callioni
Monica Carbajal
Rod Case
Barrett Crane
John Fallis
Edward Feitzinger
Chyi-Fu Hong
Phil Ireland
Curtis Keller
Jason Kuehn
Jin Liu
Ronit Meiri
Marc Meketon



Wayne New
Avi Peretz
Robert Prior
Hanna Pri-Zan
Julie Unruh Rapp
Tom Rieger
John Ruark
Robert Slavens
Pat Smith
Jerry Trimarco
Carl Van Dyke
Mark Wallace
Keith A. Ware
Trace White
Sean P. Willems
Alysia M. Wilson
Bert Winemiller
Ron Woestemeyer

2002

Chae An
Michael Argüello
Fred Blakeley
Burçin Bozkaya
Buyang Cao
Andrew Davenport
Ralf Elsner
Wolfang Hall
Gail Hohner
Arnd Huchzermeier
Philip Jones
Jayant Kalagnanam
Greg Kegler
Gilles Kern
Jospeh Knolmajer
Manfred Krafft
Ho Soo Lee
Thierry Lemoine
Timothy Lowe
Sandra McCowan
Ed Ng
Alain Patchong
Grant Reid
John Rich
Gao Song
Rodney Traub
Anna White
Gang Yu

2001

Stuart Altschuler
Rick Ayer
Vince Barabba
Donna Batavia
Jeff Bennett
Srinivas Bollagragada
Robert Butchers
José Vicente Caixeta-Filho
Hong Chen
Fred Cooke
Antonio de Pádua Wagemaker
Robert Fancher
Marc Garbiras
Tim Gibbs
Gregory Hoscheit
Chet Huber
Mark Humphresville
Jeenyoung Kang
James Knowles
Russ Labe
Robert Leachman
Bonnie Liao
Vincent Lin
Kevin Lyman
Raj Nigam
Je Oh
Mark Paich
Greg Parlier
Mary Phillips
Nick Pudar
Surya Sahoo
Michael Scholes
Jim Smith
Jan Maarten van Swaay-Neto



2000

Eric Bibelnieks
Mark Bullock
E. Rod Butchers
Deb Campbell
Kan Chang
Kenneth Chelst
Harlan Crowder
Paul R. Day
Randy Erdahl
Andrew P. Goldie
Michael Haydock
Ken Howard
Doug Johnson
Elena Katok
Jeffrey Lockledge
Peter Lyon
Jeff A. Meyer
Demetrios Mihailidis
Stephen Miller
R. John Milne
Rick Oiesen
Robert Orzell
Alex Przebienda
Robert Rice
David Ryan
Amanda Scott
Laura Shisler
John Sidelko
Midori Tanino
William Tarantino
Ralph Tiedeman
Chris Wallace
Michael Wambsganss

1999

Rob Allan
Ken Ambs
James Angelo
Nader Azarmi
Sugato Bagchi
Steve Buckley
Rony Cremmery
Sebastian Cwilich
Nicolas De Schuyter
Mei Deng
Markus Ettl
Gordon Gould
Ron Holcomb
Terry Holeman
Richard Hopson
David Houck
John Hudson
Dean Jones
Kerry Kim
Edwin Kjeldgaard
Lisa Koenig
Marc Lambrecht
David Lesaint
Grace Lin
George List
David Lynch
Clive Morgan
Charles Muir
John Mulvey
Bret Naccarato
George Pfeil
Shahram Taj
Mark Turnquist
Nico Vandaele
Christos Voudouris
Dicky Yan
David Yao

1998

Henry Alden
Dean P. Angelides
Frans Behlau
Dimitris Bertsimas
Buyang Cao
James Causby
Christopher Darnell
Rafael Epstein
Matthew J. Etzenhouser
L. Russell Fletcher
Corrie Heynen
Scott P. Holmen
R. Jaikumar
Ralph Kaiser
Albert Kuttner
Ramiro Morales
Frederic Murphy
Murthy Murrageda
Kumar Rajaram
Jorge Seron
Robert Soucy
Raymond Taylor
Izaak van de Wege
Franz van Esch
Michael Vasu
Don Weigel
Andres Weintraub
Steven Welch

1997

Nejib Ben-Kheder
Paul Brinkley
Mitchell Burman
W. David Carr
John Folger
Stanley Gershwin
Claudia Grief
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