THE OPERATIONS RESEARCH SOCIETY OF THE PHILIPPINES

In the 21st century, the country's most successful executives will be producing outstanding results by optimizing the resources at hand and making decisions with better outcomes. How? Through Operations Research methods and techniques.

"Operations Research: more management science and less management art"

"I'm not sure if I need one mega-plant, a handful of mid-sized, or several mini-production plants. Should I put up new plants or is it better to expand the old ones? Should they all be the same size?"

These are typical worrisome questions asked by a Filipino CEO faced with increased demand and facilities expansion decisions. An agribusiness concern evaluated three location alternatives for its second chicken processing plant using OR. OR helped a metal cap-making company understand how large an existing plant could be expanded before it became more feasible to put up a second one. Through OR methods, a beverage bottling plant understood how much penalty it was incurring by putting up a new plant compared to expanding the existing facilities. A top 10 corporation realized how much more expensive their five-year expansion plan was compared to an optimal plan designed through OR.

We need to close down 25% of our warehouses – but which ones? With the increased demand in North Mindanao, we need to open depots there - but where, and what capacity? Do we really need all those salesmen and vans for Southern Tagalog and Bicol?"

Logistics planners and distribution executives are often confronted with the above warehouse planning questions. A major oil company used OR to identify, and "manage" its depot network's poorest performers. One of the country's largest wholesale distribution concerns hired OR consultants to redesign its warehouse network and redeploy-rightsize its sales force that saved hundreds of millions of pesos with no negative impact on service delivery or customer effectiveness. PC-based OR systems allow a major electronics distribution company to optimally schedule its technicians, vans, and diagnostic equipment such that using the same resources, clients are visited 60% more frequently. A major consumer goods firm regularly consults OR to determine the least-cost warehousing plans for its various businesses and then compares these with its seat-of-the-pants hunches, typically noting tens of millions in theoretical savings. A phone company routinely uses information systems with "OR inside" to improve workforce scheduling for its hundred-plus field engineers.

"We tie up an enormous amount of company resources on inventory. Can't we bring this down? Should we continue to own all our vehicles or should we start to rent some? When should we ideally replace?"

It's a rock-and-hard-place question: do you put enough inventory and tie up working capital to ensure high customer satisfaction or do you cut stocks drastically so you free up funds but risk service levels? An OR system helps a leading bank determine the optimal money bills inventory at each ATM in its thousand-ATM network, striking the delicate balance between service levels and working capital. A telecom player uses similar techniques to determine the number of handsets it should stock up on at every distribution center. A leading food services

the commissary. Fleet managers of a nationwide consumer product enterprise proposed a new fleet policy but an OR evaluation showed the existing fleet policy to be several million pesos cheaper. A subsidiary of the above consumer product company was able to determine the optimal replacement cycle for their tractors and trailers using an OR model.

"Are we taking too many risks with our investments? Is our portfolio balanced sufficiently? Have we allocated sufficient reserves?"

As the risk appetite of top management changes over time, OR can help identify transactions that significantly distort the desired risk profile. A major bank is using an OR approach to regularly "rate" the risk-to-yield quotient of its portfolios in its consumer banking, commercial banking, corporate banking businesses. A very large local company with several thousands of employees used its internal OR capability to compare self-insurance against competing HMO proposals. It also used OR techniques to evaluate the company's pension and retirement benefit schemes and arrive at a least-cost option. A local company that spends significantly on TV advertising developed a model to maximize "gross rating points" for the least advertising cost and saves tens of thousand pesos weekly by choosing an optimal mix of TV program placements. A credit card company saw too many delinquent accounts, suspected its application approval process was at fault and developed a predictive model that much more accurately scored an applicant's risk profile.

"I'm not sure that we've assigned the right plants to the right sales offices. How do I minimize bottlenecks on the shop floor? We incur too much raw material wastage."

OR has been heavily involved in developing systems for scheduling jobs and work centers given day-to-day objectives and resource constraints. A carton-making company used a sophisticated OR model to maximize the yield from its cutting operations based on the customer orders for the week. A glass company used a similar approach to minimize cutting wastage of the sheet glass coming from the furnace. A soft drinks company uses an OR model to optimally determine which warehouses and demand centers must be served by which plants in Central Luzon, NCR and Southern Tagalog. A production manager evaluating from among alternative multi-million peso material handling equipment used OR to simulate the new automated warehouse operations and selected the alternative that yielded the highest throughput per day.

"I'm not sure we're charging the right price for our products."

A major insurance industry player has employed OR methodologies to more accurately assess the optimal pricing for its diverse insurance and investment products. A local airline is building a system with OR-type algorithms to price its seats for different routes at different times of the year.

What Exactly is Operations Research?

In a sentence, operations research is the discipline of applying advance analytical methods to help make better decisions, at both strategic as well as day-to-day operational levels.

By using techniques such as mathematical modeling to analyze complex situations with so many different variables and significant risks to consider, operations research gives executives the power to make better decisions based on: extensive historical data, a complete consideration of all available options, rigor in examining the business assumptions, careful predictions of outcomes and estimates of risk, and the latest decision tools and mathematical techniques.

A competent OR professional will have a wide variety of advanced tools, technologies, models, and algorithms that he can bring to bear to your specific business challenge to arrive at the most beneficial options, something that no ERP software or spreadsheet can deliver out of the box.

To achieve outstanding results, OR professionals draw upon the latest analytical technologies, including:

Simulation. Giving you the ability to try out alternative approaches by modeling real-life demand (or customers, planes, visitors, etc.) and supply (or service attendants, airport slots, attractions, etc.) situations and assessing overall throughput of each alternative.

Optimization. Narrowing your choices to the very best when there are virtually innumerable feasible options and comparing them is difficult.

Probability and Statistics. Helping you measure risk, mine data to find valuable connections and insights, test conclusions, and make more reliable forecasts.

Correlation and Multivariate Analysis. Allowing you to find interdependencies among a large number of variables, assisted by massive amounts of data generated by new enterprise applications and software.

OR can help both large and small organizations with service capacity planning, distribution network planning, inventory management, fleet planning, revenue management, production planning and scheduling, risk management, forecasting, advertising mix planning, vehicle routing and dispatching, portfolio management, resource outsourcing, credit approval, program effectiveness analysis, product pricing, throughput measurement, service scheduling, maintenance policy formulation, to name a few.

When done right, OR should yield greater efficiencies, improved customer service levels, higher quality, lower cost, or increased revenues. Clearly, it's a practical alternative to seat-of-the-pants decision-making.

Introducing the Operations Research Society of the Philippines

ORSP brings together the country's operations research and management science practitioners, academicians, enthusiasts and functional managers. Shortly after its founding in 1987, ORSP was accepted into the 48 national-member group of the International Federation of Operational Research Societies (IFORS). IFORS, which counts the Operations Research Society of America, the Operational Research Society of the United Kingdom, and the Societe Francaise de Recherche Operationnelle as its original national member societies, was founded in 1959. The Association of Asia-Pacific Operations Research Societies (APORS) is the regional IFORS grouping to which ORSP belongs.

Aside from the annual General Membership Meetings, held every June or July, that serve as a forum to discuss pertinent issues and new directions, the Society hosts quarterly technical forums, e.g., OR in the Energy Industry; Effective Paper Writing for OR Journals; OR in the Food and Traffic Sectors. ORSP also publishes an annual journal, the Philippine Journal of Operations Research (PJOR), which features papers by local and foreign authors. It also publishes a quarterly ORSP Newsletter for members.

International Conferences Hosted

The Society has hosted four international events to-date. In December 1990, it held the first International Conference on Operations Research and Management Science (ICORMS). In 1997, it hosted the second ICORMS, conducted jointly with the IFORS' annual International Conference on OR in Development (ICORD). The IFORS Workshop for Teachers in Developing Countries was successfully organized in July 2004. And in January 2006, ORSP successfully hosted the Seventh Regional Conference of the Asia-Pacific Operational Research Societies (APORS 2006).

Objectives of the Society

ORSP has been, and will continue to be, at the forefront of promoting the advancement and practice of operations research in all sectors of Philippine society.

ORSP promotes and supports the training of potential and existing OR practitioners and taps local and international resources in support of its professional development programs. ORSP provides a venue for purposeful interactions among its members.

Committee on OR for Public Service (CORPS)

ORSP formed CORPS in November 1999 to promote OR in public service and to move closer to the long-term vision of helping in nation-building through the use of management science. It also serves as ORSP's consulting arm.

As of end-2005, five pro bono projects had been completed: Privatization of the Manila North Harbor; Assessment of the Bureau of Customs' (BOC) shift to the Transaction Value System; Assessment and Streamlining of BOC's Data Capture Processes; Selection and Deployment of Quick Count Facilities for NAMFREL; and Optimization of Power Dispatch in the Luzon Grid for the National Power Corporation. ORSP's CORPS had recently been challenged by President Gloria Macapagal-Arroyo during the APORS 2006 conference to help government increase transparency, raise efficiency and improve service delivery to the public. In response, ORSP has pledged to assist government in making its programs work successfully and effectively.

CORPS undertakes private sector consulting projects to finance/subsidize its public service work.

Membership in ORSP

ORSP is open to all enthusiasts, practitioners and teachers of OR, management science, industrial engineering, applied mathematics, statistics, economics and other related fields from the academe, private and government sectors. They must be interested in and willing to contribute to the achievement of the society's objectives.

Member Classification

Regular Members. Those who are involved in the practice and teaching of Operations Research and Management Science

Honorary Members. Those who, by virtue of their contribution to the attainment of the Society's objectives, have been recommended by the Board of Directors and have been accepted for admission by the general membership.

Institutional Members. Companies, associations or institutions that support the goals of the Society may apply for an institutional membership. An institutional member is automatically entitled to two representatives. The institution may change assignees at most twice in a year, upon notification of ORSP.

Annual membership fees depend on whether the member belongs to the Academe-Government, Private Business-Industry, or Institution category. Currently not exceeding P2,000 per member, fees may be adjusted by the Board of Directors when conditions warrant.

"I am very appreciative of management science. And I commend ORSP's significant role both in enterprise and nation-building."

Pres. Gloria Macapagal-Arroyo, speaking at the 7th Triennial Conference of the Asia Pacific Operational Research Societies, Dusit Nikko, Makati, January 16, 2006

ORSP offers its members a wide range of benefits including: free publications such as the quarterly ORSP Newsletter and the annual Philippine Journal of Operations Research; quarterly technical forums and national and international conferences; first-priority and discounted rates to those fora and conferences; and career development opportunities through networking.

Student Chapters and Affiliates

ORSP does not lose sight of the future OR professionals – the students. Student chapters were formed as a result of the Society's renewed effort to encourage membership from the academe in order to promote and support the training of potential OR-MS practitioners.

Currently active chapters include those at the Mapua Institute of Technology, University of the Philippines – Los Baños and University of Santo Tomas. Ateneo de Manila University, De La Salle University – Manila, Colegio de San Juan de Letran – Calamba, and the University of the Philippines – Diliman have ORSP-affiliated organizations. These chapters and affiliates are governed by rules and guidelines issued by the ORSP.

The Inter-University OR Quiz, the Paper Writing Competition, and the OR Students Congress are annual fixtures in the ORSP calendar.

For further information about operations research or if you wish to make ORSP membership inquiries, visit the website www.orsp.org.ph or drop by the Operations Research Society of the Philippines office at Suite 14A, CyberOne, Eastwood Ave., Eastwood Cyberpark, Bagumbayan, Quezon City. You may also call 439-9496 (telefax) or e-mail secretariat @orsp.org.ph. For an in-depth executive guide to operations research or to find international OR success stories, you can also visit www.scienceofbetter.org. Other resources are available at www.ifors.org.