

IFORS

NEWS

INTERNATIONAL FEDERATION OF OPERATIONAL RESEARCH SOCIETIES

From the President

Héctor Cancela <cancela@fing.edu.uy>

Welcome to the June 2026 issue of the IFORS Newsletter!

We are proud of the continued publication of our newsletter, which is an important channel for communicating the Operational Research community news and activities. Many colleagues contribute to the preparation of the contents, which as always show the diversity of approaches, areas, activities and people involved in our area, as well as the impact that the application of OR methodologies can make in the daily life of our societies. If you enjoy reading the newsletter, we want to encourage you to share it with other colleagues, as well as with your students.

This time of the year in many academic calendars corresponds to the end of a term; if you are teaching a course related to any of the subjects in OR or other related areas, consider whether there is an opportunity for including the newsletter within the materials shared with your students, so that they can get some glimpses, not just of our methodologies and tools, but also of their actual application, as well as of the broader community working in this area worldwide.

We are also very proud of the continued success of our triennial IFORS conference, which is now in its 24th edition. We are looking forward to attending the conference in Vienna next July, and we hope that many of you, the readers, will be able to participate. In addition to the plenary talks, tutorials, and hundreds of sessions of contributed presentations, there will be standout activities open to all participants, such as the IFORS Hall of Fame ceremony, the presentation of the new IFORS Fellows, the IFORS Prize for OR in Development, and the sessions and activities organized



Global Leadership in OR for Women

by the recently created GLOW: Global Leadership in OR for Women initiative. Of course, there is an excellent program of social activities which includes the main reception as well as the excursions, which will help all participants get to know about the beautiful city of Vienna and the Austrian culture and history.

While wars and conflicts continue to rage in different regions of our planet, leading to deaths and suffering of common people, and having a global and very negative impact in the environment as well as in the economy and life quality worldwide, this meeting of our worldwide OR community is an example of the opportunities of dialogue, open exchanges, cooperation, and joint work from people with different backgrounds and visions, which are united in the hope of creating, sharing and applying knowledge to create new opportunities for our societies and contribute to a sustainable future for all mankind. 🌍

*"Solo le pido a Dios
Que la guerra no me sea indiferente
Es un monstruo grande y pisa fuerte
Toda la pobre inocencia de la gente"*

León Gieco, Argentinian songwriter and interpreter

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From the Editor In Chief

Sibel Alumur Alev <sibel.alumur@uwaterloo.ca>

The countdown has begun!

I, of course, mean the triennial IFORS Conference, which is taking place in the beautiful city of Vienna from July 12–17, 2026. So many exciting activities are planned for the conference, and I look forward to each and every one of them. We have prepared a wonderful video to welcome you to [IFORS 2026](#).

In particular, as you will see in the GLOW: Global Leadership in OR for Women article by Yasmin Rios Solis in this issue of the newsletter, we have many amazing activities planned, including the launch reception, panel discussion, and roundtable activities.

As is tradition, in the June issues of the newsletter, we present annual reports from the IFORS President (Héctor Cancela), Vice-President (Rina Schneur), Treasurer (Marco Laumanns), and all the Regional Vice-Presidents (José-Fernando Camacho-Vallejo for ALIO, Yu-Hong Dai for APORS, Greet Vanden Berghe for EURO, and myself for NORAM). These reports summarize the activities over the last year.

I am very happy to let you know that the OR for Development section has a new Editor: Kelly Poldi. I would like to warmly welcome Kelly Poldi to our IFORS newsletter team! This issue's article is on *"Operational Research in Service of Life"*, discussing several initiatives in which OR is applied to human health and environmental sustainability. It is an inspiring piece that highlights the transformative role of OR in improving healthcare, strengthening food security, controlling infectious diseases, and advancing sustainable technologies.

The OR tutorial we publish in this issue is on *"Teaching Operations Research for Public Policy and Social Good"*. It is another excellent piece highlighting how OR education

can prepare future decision-makers to address complex societal challenges through evidence-based and socially responsible approaches.


The OR impact article in this issue touches upon how Flipkart, one of India's leading digital commerce entities, optimized its supply chain to unlock growth. It is an impactful piece showcasing how OR and advanced analytics can transform large-scale supply chain planning and enable sustainable growth in a highly dynamic business environment.

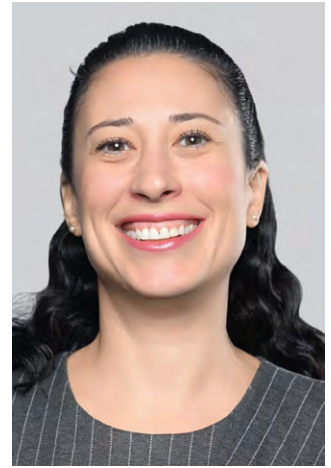
As usual, we have several wonderful conference reports spanning continents and showcasing the reach of OR in various parts of the world.

Last but certainly not least, we have a book review of *"Second-Order Variational Analysis in Optimization, Variational Stability, and Control – Theory, Algorithms, Applications"* by Boris S. Mordukhovich.

Again, I thank all the Section Editors for their wonderful contributions to the newsletter!

The next issue of this newsletter will be published in September 2026, and by that time, we will have completed our triennial conference. I look forward to connecting with you again in the next issue and sharing wonderful memories from IFORS 2026 in Vienna!

Sincerely,
Sibel Alumur Alev
Editor-in-Chief 



IFORS 2026

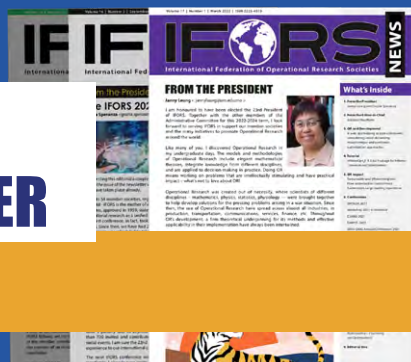
The 24th Conference of the International Federation of Operational Research Societies

WWW.IFORS2026.AT

12-17 JULY
VIENNA, AUSTRIA

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Report from The President

Héctor Cancela <cancela@fing.edu.uy>

Year 2025 was the first year of work of the current IFORS Administrative Committee, which began its mandate in January. The transition with the previous committee was seamless. I want to thank all the members of the 2022-2024 AC (a number of them serving in the new integration), who helped to achieve this, as they were all extremely helpful and willing to pass on their experience, so that we could set to work immediately and with effectiveness.

As a global organization, IFORS AC is an extremely rich space, where we have represented a large diversity of cultures, professional perspectives, and lived experiences. This diversity is a strategic asset, as it helps us better design new initiatives, as well as tackle all the issues that arise when running such a large organization and which require integrating different perspectives. All the members of the AC have been very open and team-oriented, it has been very easy to work collaboratively, even as each member has also their own specific tasks within the whole group.

The work of the AC has been very intense, all our monthly meetings have comprised large agendas, which have been treated with care but also in a very effective way; frank exchanges of different viewpoints have always led to finding consensual decisions, and agenda points have always been solved quickly and put into action immediately. We have also had the help of many colleagues working in different committees and activities, such as the publications committee, selection committees for Hall of Fame, Fellows, IFORS Prize for OR in Development, IFORS Distinguished Lecturers, our journals and newsletter, and many other

initiatives. As this issue also includes detailed reports from other AC members, I will not go into details of all activities here. I just want to highlight that during 2025 we received the application of the SEDEM society from Ecuador to become a full member of IFORS, we are proud of having a new member, and we hope that other new country societies will apply in the future; that we interacted very strongly with the Editors-in-Chief of our journals, ITOR and SAM, and also strengthened and evolved our Newsletter; that all the work involved in our triennial conferences has led to what will be a very successful event in Vienna during 2026, and to defining the 2029 Calgary venue; that we had also a great interaction with the ALIO, APORS, EURO and NORAM regional groupings, as well as with the AFROS group which is working towards becoming an official IFORS regional grouping; and that we are very glad to have supported the creation of the Global Leadership in OR for Women – GLOW initiative.

To close the report, I want to express that I am really proud of the work of the IFORS Administrative Committee, and happy to share with a team of such experienced, dedicated and hard-working colleagues, who are generously giving their time and effort for the good of the global Operational Research community. 🌍



Report from The Vice - President

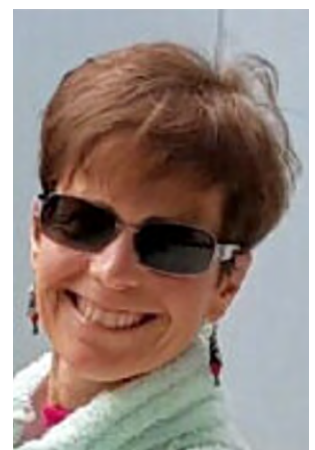
Rina Schneur <rinarsg@gmail.com>

The IFORS Administrative Committee (AC) as stated by IFORS' status is responsible to "manage the Federations affairs". While we virtually meet at least monthly, once a year we meet in person at the IFORS, or one of the regions' conferences. At that meeting we address issues that may need more elaborate discussion and thus benefit from an in person interaction, such as new strategic initiatives. It is also important to get together as the makeup of the committee changes every 3 years. While some members stay for another term, others are replaced by new representatives. Hence, a face-to-face meeting serves a critical role in us getting to know each other, which in turn makes our working together more productive. We all got used to virtual interactions, especially after the COVID pandemic. But, when we do get the chance to come together, we realize how much more fruitful and essential that is, how it contributes to deeper explorations, broadening and fostering new ideas.

In 2025 we met in Leeds at the EURO conference and 50th years celebration. I had the honor to open the IFORS Distinguished Lecture session and give a short presentation about IFORS roles and initiatives. To get a sense of the room and test the mic, I came 30 minutes earlier. There was some commotion in the room. WISDOM (Women in Society: Doing OR and MS) – the EURO women's group,

was getting all the members on stage to take a photo. There were 50-100 women, leaders in the community, all assembling on stage, while awaiting others and getting instructions from the photographer. It was quite impressive and delightful to observe.

A day later at a reception, I saw Grazia Speranza, a prominent leader in WISDOM and IFORS that I had the pleasure to get to know and work with during my first term at the AC as the NORAM representative while Grazia served as the past president of IFORS. I commented to Grazia how impressive that scene on stage looked. She then revealed to me that it had been her dream during her tenure as IFORS president to bring OR women from all over the world together under one international umbrella, beyond having a couple of regional organizations and a few country forums. But, while progress was made in the area by adding relevant guidance and bylaws, getting the world women organized together had not happened (yet).



Well, here we were together in the same room with other organization leaders, so we thought - why not start now? We gathered some of those leaders and entertained the idea. Specifically, we got together with Paula Carroll from WISDOM and Janny Lueng who is the current IFORS past president, and the four of us committed to making it happen.


And so we did. For me, the first thing was finding a name. So I spent some of my jet lagged night thinking about possible acronyms. How fun. We shared some thoughts in the following few days in Leeds and got initial to dos. We later met and communicated virtually. We gathered women leads to represent all world regions, we finalized the name, and we got an enthusiastic blessing of the IFORS AC, including funding commitments. That was how GLOW was born.

Will bringing all women together happen anyway? Possibly someday. But making it happen now was a direct result of the in-person interactions in Leeds, no question.

The official launch of GLOW will be at the IFORS tri-annual conference in Vienna this July. This conference brings together OR academics and practitioners from all over the world and our opportunity to come together to meet each other, share ideas, foster future professional and personal relations, and yes, get some new endeavors. It is important for all of us to make sure we use this opportunity.

At the IFORS AC, each of us hold a role. My role is to oversee conferences. As such, I have been the liaison to the Vienna conference Organizing Committee. So I can attest firsthand that we are all in great hands. They are eagerly preparing an exciting, well-planned conference in the unique and lovely city of Vienna.

Remember, as the tag line goes, GLOW is "Global Leadership in OR for women", but it is not only *by women*. We need all of you to help make it successful and effective. So we hope to see you all in Vienna for an excellent conference.

Rina Schneur
IFORS Vice - President 

Report from The Treasurer

Marco Laumanns <treasurer@ifors.org>


		Approved Budget	Audited Actual
INCOME			
Member Society Dues		20,000	22,127
Royalties ITOR		119,000	126,924
Interest		20,000	25,870
TOTAL INCOME		159,000	174,921
EXPENSES			
Activities	Administrative Committee	12,000	9,551
	Publications Committee		
	ITOR Editor	30,000	29,872
	ITOR Awards	1,000	0
	SAM Waivers	10,000	0
	Scientific Activities & External Affairs		
	IDL, ITL, Fellowships, & Grants	10,000	2,712
	IFORS Website	5,000	7,738
	Summer/Winter Schools	14,000	7,548
	Promotion / Publicity		
	Joint conferences	30,000	20,633
	Promotion and marketing	5,000	3,695
	Meetings Committee		
	Vienna 2026	5,000	11,333
	IFORS Newsletter	2,000	1,600
	Developing Countries Committee	5,000	5,094
General Business Operations			
	Office & Secretary	45,000	47,930
	Auditor	2,500	3,646
	Taxes	12,000	9,944
	Bank Charges	2,500	950
	Contingency	2,500	0
	Domiciliation, tax preparation	5,000	3,545
	Legal and administrative fees	10,000	6,704
	Exchange rate difference	0	138
TOTAL EXPENSES		208,500	172,633
OPERATING RESULT		(49,500)	2,288



The approved 2025 budget projected an operating deficit of \$ 49,500. Compared to this, the 2025 actuals show a slight surplus of \$ 2,288 as the income was higher than projected in all categories while expenses were significantly lower than budgeted.

On the income side, the lower interest rates were anticipated conservatively in the budget. Also, the income from ITOR royalties as well as the member societies' dues were slightly higher than anticipated, which together led to a total income of \$ 174,921, almost \$ 16,000 more than planned.

On the expense side, some of the items budgeted for our scientific activities were not used, such as the SAM waivers, or were lower than the amounts foreseen. Also, the general business operations expenses were overall lower than anticipated, mostly due to lower legal, tax and domiciliation-related costs, lower bank charges, and the unused contingency. Thus, total expenses were \$ 172,633, which is over \$ 35,000 less than planned.

Going forward, we will continue to plan to use the surplus of the previous years to support and strengthen all of our activities, including IDLs, summer and winter schools, joint conferences and workshops, and to further expand our promotion and marketing activities. 

Report of The Vice President Representing ALIO

José-Fernando Camacho-Vallejo <fernando.camacho@tec.mx>

The Association of Latin-Iberoamerican Operational Research Societies (ALIO) continued strengthening its regional integration and promoting new collaborative initiatives across Latin America and the Iberian Peninsula. During the past year, the association focused on consolidating its working groups, supporting scientific events in the region, and fostering stronger interaction with IFORS and other international societies.

The current ALIO Executive Board, elected during CLAIO 2024 and serving until the end of 2026, is composed of Elena Valentina Gutiérrez (President, Colombia), Rosa G. González (Secretary, Chile), Ana Paula Cabral Seixas (Vice President, Brazil), Paula Lorena Zabala (Vice President for Events, Argentina), José-Fernando Camacho-Vallejo (Vice President for IFORS, Mexico), and Antonio Alonso-Ayuso (Former President, Spain). The board has continued working actively to increase the visibility and impact of Operational Research in the region.

One of the major achievements during the year was the incorporation of the Ecuadorian Mathematics Society (SEdeM) into IFORS. This new admission represents an important step toward expanding the participation of the Ecuadorian community within the international Operational Research network and reinforces ALIO's commitment to supporting the development of OR activities throughout the region.

ALIO Working Groups

The ALIO Working Groups (AWGs) continued consolidating themselves as important spaces for collaboration, dissemination, and interaction among researchers and practitioners. The existing AWGs in Healthcare, Maritime & Ports Logistics, Agrioptimization, and RED-M maintained active participation through thematic sessions, collaborative initiatives, and specialized academic activities.

The AWG in Agrioptimization further strengthened its collaboration with international partners, particularly with the EURO Working Group on Operations Research in Agriculture and Forest Management (ORAFM). As part of these joint efforts, the EURO PhD School on "Optimization and Artificial Intelligence in Agriculture" was organized from June 26 to July 4, 2025, in Lleida, Spain. Within this framework, the Latin-Iberoamerican Summer School in Operational Research (ELAVIO) provided an excellent venue for discussing recent advances in agricultural optimization, sustainability, artificial intelligence, and food systems, while fostering interaction among graduate students and researchers from different regions.

The AWG in Healthcare continued promoting activities related to healthcare systems, decision support, and

public health applications. In this context, the Healthcare Operational Research Graduate School, held at Université du Québec à Montréal from August 18 to 22, 2025, represented an important opportunity for graduate students and young researchers to interact with experts from different countries and exchange ideas on emerging challenges in healthcare operations research.

In addition, ALIO is pleased to announce the creation of a new AWG in Bilevel Optimization. This initiative aims to bring together researchers working on hierarchical decision-making problems, mathematical programming, algorithmic development, and applications involving bilevel optimization models. The group is expected to promote collaborative research, specialized scientific activities, and stronger interaction among researchers in an area that has experienced remarkable growth and increasing relevance in recent years.



▲ Chilean OR Conference

National Events in the Region

Several national Operational Research societies organized successful conferences during the year, contributing to the strengthening of the regional scientific community.

In Mexico, the Congreso de la Sociedad Mexicana de Operaciones (CSMIO)

was held in León in October 2025, bringing together researchers, practitioners, and students from different institutions and application areas. The event included plenary talks, technical sessions, and opportunities for interaction among members of the Mexican Operational Research community.

In Brazil, also in October 2025, Sociedade Brasileira de Pesquisa Operacional (SOBRAPO) continued its long tradition of promoting Operational Research through its annual meeting, which gathered participants from academia, industry, and government institutions. The event highlighted the broad spectrum of OR applications developed within the Brazilian community.

In Chile, the Congreso Chileno de Investigación Operativa (ICHIO) was organized in Coquimbo in December 2025, promoting scientific exchange and collaboration among researchers from Chile and neighboring countries. The conference included presentations in optimization, logistics, data analytics, simulation, and decision sciences.

Additionally, a specialized course on bilevel optimization was organized by Rosa G. González-Ramírez in Santiago in December 2026 at Universidad de los Andes and was delivered by José-Fernando Camacho-Vallejo. The summer school introduced participants to the theoretical foundations, modeling approaches, and practical applications of bilevel optimization, with particular emphasis on logistics and hierarchical decision-making problems. The activity brought together graduate students, academics, and practitioners from different countries, further contributing to the dissemination and consolidation of bilevel optimization research within the region.

ALIO would also like to express its sincere gratitude to Hexaly for sponsoring all these academic activities throughout the region. Their support has contributed significantly to the organization of conferences, schools, and specialized events, helping strengthen collaboration, education, and research dissemination within the Operational Research community.



▲ Welcome Reception CSMIO

Upcoming Events

ALIO is also preparing for the next major regional meetings. The XXIII Latin-Iberoamerican Conference on Operations Research (CLAIO 2026) will take place in Bogotá from November 23 to 26, 2026. The conference is expected to



▲ Participants at the SOBRAPO 2025.

continue the tradition of fostering scientific exchange and strengthening collaboration among researchers, practitioners, and students from the region and beyond. In addition, the awards ceremony for the ALIO Medals recognizing distinguished members of the community, the ALIO Prize for Excellence in the Practice of Operational Research, and the newly established award for the best doctoral dissertation will take place during the conference.

Furthermore, the next edition of the Latin American School in Operational Research (ELAVIO 2027) is planned to be held in Montevideo in February 2027. The school will continue serving as a key venue for graduate training and regional integration, particularly for young researchers and doctoral students.

Finally, ALIO would like to acknowledge the increasing financial challenges associated with organizing summer and winter schools in the region. Limited funding opportunities and rising operational costs continue to represent important obstacles for sustaining these initiatives. Nevertheless, through effective collaboration with IFORS and the commitment of the regional societies, ALIO continues working to overcome these difficulties and to maintain high-quality educational and scientific activities for the Operational Research community across the region. 🌐

Report of The Vice President Representing APORS

Yu-Hong Dai <dyh@sec.cc.ac.cn>

In 2025, I began my term as IFORS Vice President representing APORS, as part of the IFORS Administrative Committee for 2025–2027. Throughout the year, the Asia-Pacific OR community continued to strengthen its regional and international connections through conferences, workshops, youth activities, and collaborative initiatives. My work focused on promoting operations research for development, supporting young researchers, and enhancing academic exchange between APORS and other IFORS regional groupings.

OR Challenges for Developing Countries at EURO 2025.

During the 34th European Conference on Operational Research, held in Leeds, UK, I co-organized the forum “Challenges of Operations Research in Developing Countries” together with Prof. Janny Leung, Past President of IFORS. The session brought together eight speakers from China, India, Australia, Poland, the United States, Uruguay, and other countries, and provided a platform for in-depth discussion on the role of OR in supporting social and economic development in developing countries. In my presentation, I reviewed the development of integer

programming in China, including solver development and applications in telecommunications, logistics, and energy. I also discussed the opportunities and challenges brought by artificial intelligence and highlighted the potential of integer programming for developing countries, calling for stronger international cooperation in OR research and applications.



16th ORSN International Conference in Nepal.

The 16th ORSN International Conference on Operations Research: Environment, Social, and Governance was held at Gupteshwor Mahadev Multiple Campus in Pokhara, Nepal, on February 1–2, 2025. The conference was organized by the Operational Research Society of Nepal in collaboration with Gupteshwor Mahadev Multiple Campus, Aadikabi Bhanubhakta Campus, and Kanya Campus Pokhara, under the theme “Optimizing Solutions for Future Research.” >>

>> The conference featured keynote and plenary sessions, technical presentations, and discussions on topics such as OR for sustainability, business management, AI in finance, sustainable tourism, corporate social responsibility, and green financing. IFORS supported the conference, and former IFORS Vice President Francis Miranda attended the event on behalf of IFORS.

ICOVAO-2025 in Hanoi, Vietnam.

In March 2025, I participated in the Spring School and International Workshop "Variational Analysis and Optimization 2025" in Hanoi, Vietnam. The event was held from March 10 to 15 at the Vietnam Institute for Advanced Study in Mathematics and was jointly organized and co-sponsored by several Vietnamese and international institutions. It created a broad international forum for presenting fundamental principles and new results in variational analysis and optimization. The event attracted 199 registered delegates, including 108 in-person participants, and featured invited speakers from 17 countries. I was one of the plenary speakers.

APORS Youth Forum 2025 in Hong Kong.

The APORS Youth Forum 2025 was successfully held on November 29, 2025, at The Hong Kong Polytechnic University. Jointly organized by APORS, the Operational Research Society of Hong Kong, and PolyU's Department of Applied Mathematics and Department of Logistics and Maritime Studies, the forum gathered more than 120 young scholars, professors, and students from 10 APORS member societies. I participated in the panel discussion "From PhD to Professional: Career Development in Operations Research," together with Prof. Yinyu Ye, APORS President Honglei Xu, Prof. Janny Leung, and Prof. Yukun Cheng. The panel exchanged views on research development, cross-

institutional collaboration, and diversified career paths in academia, industry, and government. The forum also included 12 thematic sessions and the APORS Best Paper Award competition, which selected six papers from 13 high-quality submissions. IFORS Travel Fellowships supported nine students and early-career researchers from different countries and regions to attend the event.

UK-China Joint Workshop on Operational Research.

In June 2025, immediately before EURO 2025, I participated in the UK-China Joint Workshop on Operational Research in London. The workshop was jointly organized by Queen Mary University of London and the Operations Research Society of China. More than 30 scholars from the UK, Australia, Hong Kong SAR, and mainland China attended the workshop to exchange research results and discuss future collaboration between the Operational Research Society and ORSC. The presentations covered mathematical optimization, algorithmic games, logistics, machine learning, and related areas. This workshop further strengthened academic links between China and the UK and contributed to broader international cooperation within the OR community.

Overall, the activities in 2025 reflected the continuing vitality of the Asia-Pacific OR community and its increasing engagement with IFORS' global mission. Through development-oriented sessions, regional academic workshops, youth forums, travel fellowships, and cross-regional exchange, APORS continued to promote OR as a highly valued discipline and a practical tool for addressing real-world challenges. I look forward to working with APORS member societies and IFORS colleagues to further strengthen collaboration, support young researchers, and expand the impact of OR across the Asia-Pacific region and beyond. 🌐

Report of The Vice President Representing EURO

Greet Vanden Berghe <greet.vandenbergh@cs.kuleuven.be>

EURO 50 years old, congratulations!

EURO (the association of EUROpean Operational research societies) celebrated its 50th anniversary on 27th January 2025. *Would you all mark this date as the Day of Operational Research Awareness in your calendars!*

During this half century, EURO matured from a group of ten founding member states to an association with 31 member societies, featuring over 30 thematic EURO working groups (EWGs) that cover both traditional and contemporary OR themes. Two of these EWGs: 'OR Applied to Health Services' (ORAHs) and 'Multicriteria Decision Aiding' (MCDA) are equally old as EURO itself. Happy anniversary to ORAHs and MCDA too!

EURO's golden jubilee celebration in Leeds

The 34th European Conference on Operational Research (EURO-34) was a perfect occasion for organizing four days of anniversary festivities, which took place at the University of Leeds from 22 till 25 June.

EURO added an impressive group of celebrities to its invitation list. All EURO's past presidents and all former chairs of EURO-k conferences' programme and organizing committees received a free ticket for the party edition and gala dinner. These special guests were all invited on

stage during a festive opening session dedicated to EURO's golden jubilee.

In addition to the celebrities, who devoted many years of their careers to guide EURO to its current healthy condition, EURO-34 hosted OR researchers and practitioners from all over the world. Roughly 2100 delegates, among which 700 students, joined to share their insights and/or learn about what OR research within EURO and beyond delivers these days. The conference welcomed practitioners from over 200 companies and organisations, including 70 from civil service and government, and featured 20 exhibitors, fostering rich exchanges between academia, industry and policy.

Anniversary Organization

Julia Bennell was the master of ceremonies. She could count on the support of a dedicated event team, with a special mention of Sajid Siraj, Rachel Meadley and Corin Nanton (PCO) who managed the entire event. EURO-34's organization also benefited from the national OR Society's helping hand.



Rita D'Ecclesia chaired the ambitious program committee, which revamped EURO's traditional areas and streams, resulting in a thorough rejuvenation of the program's structure. The program committee welcomed three plenary speakers. IFORS' distinguished lecture *'Reinventing Operations Management's Research and Practice with Data Science'*, delivered by David Simchi-Levi from Massachusetts Institute of Technology, US. Ulrike Leopold-Wildburger, University of Graz, Austria, focussed on *'Optimization and Behavioural Science'* and Kalyan Talluri from Imperial College London, UK, presented *'OR problems in Automated Pricing'*. EURO also invited 12 keynote speakers to cover the state of the art in complementary areas of OR.

Additionally, at its golden jubilee, EURO introduced a new stream with dedicated tutorial sessions, provided by renowned OR scientists.

Honors and distinctions

During the conference's opening session in Leeds, a considerable number of people were awarded for their outstanding scientific contributions, and/or extraordinary service to the OR community: Laureano F. Escudero received the 27th EURO Gold Medal; and Gerhard-Wilhelm Weber was honoured with the Distinguished Service Award.

Further prizes were issued during the closing session: Yasmine Beck obtained the EURO Doctoral Dissertation Award; Katrin Heßler, Timo Hintsch and Lukas Wienkamp won the Euro Excellence in Practice Award; and Sophie Parragh, Elisabeth Gaar, Xenia Haslinger received the EURO Prize for OR for the Common Good. Finally, Nikita Kozodoi, Johannes Jacob and Stefan Lessmann won the EURO Award for the best EJOR paper.

A glimpse of Yorkshire culture

EURO-34 was a great party rich in Yorkshire culture from the very beginning. The Lord Mayor of the city of Leeds welcomed all participants and officially opened the conference in a hilarious way. Immediately afterwards, a lively welcome reception featured brass bands and entertainers. Delegates could further enjoy a relaxed Meet & Mingle networking evening, British tea with scones and a Gala Dinner at the spectacular Royal Armouries. The Farewell Reception offered a joyful close to an inspiring conference, with live music, Morris dancing, lovely food and drinks.

EURO at the age of WISDOM

On the occasion of its 50th anniversary, EURO issued a glossy magazine full of vintage photos, great quotes and historical information. All delegates of EURO-34 received a copy of this magazine as a party present to take back home.

Whereas it is hard to find any women in the early-days pictures of EURO's activities, EURO is reaching the age of WISDOM (Women in Society: Doing Operational Research and Management Science). Indeed, EURO's anniversary conference hosted a WISDOM workshop dedicated to gender equality in OR research, aiming to define relevant questions, gather data, and identify publication opportunities.

Starting from its conference in 1985, EURO has been awarding scientists or teams with the 'EURO Gold Medal' as a recognition of their outstanding contribution to OR research. After 22 male EURO Gold Medal laureates and teams, Martine Labbé was the first woman to receive the highest distinction in 2019. Since

this important landmark, both Ailsa Land (2021) and M. Grazia Speranza (2024) joined this illustrious group of female EURO Gold Medal laureates.

Pre- and afterparties

Several satellite events took place within the UK. DELORES 25, hosted at the University of Leeds, provided early-career researchers with hands-on training in scientific writing for OR, combining presentations, mentored sessions and networking.

EWG Ethics and OR Satellite Event, also in Leeds, fostered interdisciplinary dialogue on ethical dimensions of OR, including decision support and sustainable development.

EUROPT 2025 was held nearby, at the University of Southampton. The conference focused on advances in continuous optimization and was preceded by a summer school for young researchers. HiGHS Workshop 2025 in Edinburgh brought together developers and users of the HiGHS optimization software, promoting collaboration and technical exchange. OR Education Workshop, organized by the EURO Forum on Education in Leeds, explored innovative teaching practices through interactive sessions and collaborative resource development.

These events extended EURO's impact beyond the main conference and fostered community-building across key areas of OR.

The EURO Mini Conference on Maritime OR/Optimisation was a joint initiative of ICCL (International Conference on Computational Logistics) and EUROMar 2025 (Maritime Optimisation and Logistics), located at both Delft University of Technology and Erasmus University Rotterdam in September 2025.

EURO's publications

EURO issued a 50-year history of OR achievements within scientific review articles published in EURO's academic journals: European Journal of Operational Research (EJOR), EURO Journal on Computational Optimization (EJCO), EURO Journal on Decision Processes (EJDP), and EURO Journal on Transportation and Logistics (EJTL). EURO also features the EURO Advanced Tutorials on Operational Research series.

Prepare yourself for more

If you missed EURO's celebration in Leeds or if you simply want more... save the dates for EURO-35 at the University of West Attica, Athens from 11 till 14 July 2027.

Details about EURO, its former and future activities, member states, Euro working groups, awards and executive committee members are available at <https://www.euro-online.org>

EURO's Executive Committee (EURO EC) is chaired by Frits Spieksma. At present, the EURO EC further consists of President-elect Dolores Romero Morales and the following four vice presidents: VP1 Séan McGarraghy, VP2 Ana Paula Barbosa Póvoa, VP3 Margaretha Gansterer (replacing Juan José Salazar González), and IFORS VP Greet Vanden Berghe. Secretary Jesper Larsen and Treasurer Marino Widmer complete the EURO EC. EURO is also supported by four officers: Manager Sarah Fores, Information Technologies Manager Bernard Fortz, EURO-k Conferences Advisor Gerhard-Wilhelm Weber, and Administrative Assistant Magdalena Scroczan. 🌐

Report of The Vice President Representing NORAM

Sibel Alumur Alev <sibel.alumur@uwaterloo.ca>

The North American Operations Research Societies (NORAM) consist of two organizations: the Canadian Operational Research Society (CORS) and the Institute for Operations Research and the Management Sciences (INFORMS). Both societies continue to maintain strong and consistent levels of activity, engaging and supporting their members. The activities of the two societies for 2025, as well as planned events for 2026, are reported below.

Canadian Operational Research Society (CORS)

CORS Activities and Leadership

The Canadian Operational Research Society (CORS) or Société Canadienne de Recherche Opérationnelle is the leading Canadian professional society for operational researchers. Established in 1958, CORS brings together OR professionals with annual conferences held across Canada, special interest groups, traveling speakers' programs, and student support. CORS sponsors the INFOR journal and publishes the Bulletin, a newsletter of the Society and related activities.

Currently, CORS is administered by a Council of twelve members: President Marco Bijvank (University of Calgary), Vice President Houra Mahmoudzadeh (University of Waterloo), Secretary Majid Taghavi (Saint Mary's University), Treasurer Kent Kostuk (Engcomp), Immediate Past President Anjali Awasthi (Concordia University), Education Chair Nadia Lahrichi (Polytechnique Montréal), Publications Chair Joe Naoum-Sawaya (Ivey Business School), Councillors: Eman Almehdawe (University of Regina), Salimur Choudhury (Queen's University), Amir Ardestani-Jaafari (University of British Columbia), and Carlos Zetina (FICO) and Student Representative Hamid Arzani (University of Toronto).

CORS has a comprehensive structure of standing committees, including Awards, Education and Student Affairs, Equity, Diversity, and Inclusivity (EDI), Membership, Program, Public Relations, and Publications. Alongside these, Special Interest Groups and a range of ad-hoc committees contribute dynamically to CORS.

CORS Meetings

In 2025, the CORS annual conference was held in Edmonton, Alberta. The conference was chaired by Saied Samiedaluie and Armann Ingolfsson (University of Alberta). The plenary speakers included David Simchi-Levi (Massachusetts Institute of Technology), who delivered the Harold Larnder Memorial Lecture, Chung Piau Teo (National University of Singapore Business School), and Serdar Kadioğlu (Fidelity Investments and Brown University).

The CORS 2026 annual conference will be held at Queen's University in Kingston, Ontario, Canada, from June 8 to 10, 2026. The conference co-chairs are Vedat Verter and Salimur Choudhury (Queen's University).

CORS Awards (presented in 2025):

• The annual Harold Larnder Prize, awarded to an individual who has achieved international distinction in operational

research, was presented to David Simchi-Levi (Massachusetts Institute of Technology).

• The Omond Solandt Award, given to an organization that has made an outstanding contribution to operational research in Canada, was awarded to Darkhorse Analytics.

• The CORS Award of Merit winner was Vedat Verter (Queen's University). The award is given for significant contributions of a current or past member of CORS to the profession of operational research.

• The Eldon Gunn Service Award, presented to members of the Society who have made outstanding contributions of time and service to the Society, was given to Peter Vanberkel (Dalhousie University), Jules Comeau (Université de Moncton), and Gregory Paradis (University of British Columbia).

• The Equity, Diversity, and Inclusion (EDI) Excellence Award winner was Taraneh Sowlati (University of British Columbia).

• The EDI Event Fund was awarded to Taraneh Sowlati (University of British Columbia).

• The Student Member Leadership Award was given to Danielle Ripsman (University of Toronto).

• The CORS Practice Prize was awarded to Bo Lin, Madeleine Bonsma-Fisher, Shoshanna Saxe, and Timothy C.Y. Chan (University of Toronto) for their work entitled "Analytics for Better Urban Cycling: A Multi-year Collaboration with the City of Toronto".

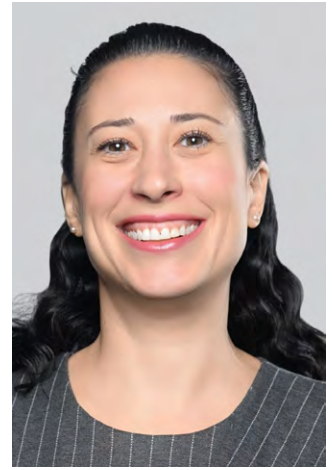
• The CORS Student Paper Competition Undergraduate Category winners were Ananga Bajgai, Saffron Kozakova, Allan Che, and Hannah Nadnaden (Simon Fraser University) for their paper on "Optimizing the Distribution of Mental Health and Substance Use Supported Housing Models in Vancouver".

• The CORS Student Paper Competition Open Category winners were Craig Fernandes, Ningyuan Chen, and Timothy Chan (University of Toronto) for their work on "Income Pools for Superstar Markets".

• The CORS Energy, Environment, and Sustainability SIG: Student Paper Competition winner was Mostafa Mostafavi Sani (Dalhousie University) for their work on "The Role of Long-Term Hydrogen Storage in Decarbonizing Remote Communities in Canada: An Optimization Framework with Economic, Environmental, and Social Objectives".

• The CORS Forestry SIG David Martell Prize was given to Elaheh Ghasemi (University of British Columbia) for her work on "A multi-level production-inventory-distribution system under mixed make-to-stock, make-to-order, and vendor-managed inventory strategies: An application in the pulp and paper industry", and to Abdelhakim Abdellaoui (Polytechnique Montréal) for "A Decomposition-Based Framework for Large-Scale Multi-Period Log-Truck Routing and Scheduling: A Case Study in Canadian Forestry".

• The CORS Health Care Operational Research SIG Prize winner was Shahryar Moradi (University of Ottawa) for "Advanced Multi-Priority, Multi-Appointment Patient Scheduling with Dependent Demand and Lead Times".



- The CORS Transportation and Logistics SIG Gilbert Laporte Student Paper Award went to Amin Ahmadi Digehsara (University of British Columbia) for his work on “The Value of Flexibility in Robust Supply Chain Network Design”.
- The CORS Queueing and Applied Probability SIG Prize winner was Zhenghang Xu (University of Toronto) for the paper entitled “Queueing Causal Models: Comparative Analytics in Queueing Systems”.

CORS Publications

CORS publishes the journal *INFOR*, a quarterly journal on Information Systems and Operational Research (Joe Naoum-Sawaya, Ivey Business School, Canada, Editor in Chief) with a goal to publish research at the intersection of data analytics, Operations Research, computational intelligence, and optimization. It also publishes the CORS Bulletin (Niloofer Akbarian, Editor).

CORS Contacts

<https://www.cors.ca/>

Institute for Operations Research and the Management Sciences (INFORMS)

INFORMS activities:

INFORMS (www.INFORMS.org) promotes best practices and advances in operations research, management science, and analytics through an array of highly cited publications, conferences, competitions, networking communities, and professional development services.

INFORMS continue to pay close attention to changes in the U.S. federal policy and landscape so they can identify where INFORMS has a role to play to support its members and the wider community. “INFORMS continues to be committed to advancing and expanding opportunities and a culture of respect, for all, in all we do”.

2026 INFORMS Board of Directors:

Officers – Mark E. Lewis, President; Wedad Elmaghraby, President-Elect; David Hunt, Past President; Susan Martonosi, Treasurer; and Pelin Pekkün, Secretary.

Vice Presidents – Tinglong Dai, Vice President, Marketing, Communications and Outreach; Pooja Dewan, Vice Practice; Gina Galindo, Vice President, International Activities; Warren Hearnese, Vice President, Technology Strategy; Illya Hicks, Vice President, Education; Anahita Khojandi, Vice President, Membership and Professional Recognition; Theresa Roeder, Vice President, Sections and Societies; Les Servi, Vice President, Chapters and Forums; Ariela Sofer, Vice President, Meetings; and Chris Tang, Vice President, Publications.

Ex officio, non-voting, Board member – Elena Gerstmann, INFORMS Executive Director.

INFORMS currently have five Board-level ad hoc committees.

- Ad Hoc Committee on Artificial Intelligence (Chair: Warren Hearnese)
- Ad Hoc Committee on Energy and Sustainability (Chair: Michael Ferris)
- Ad Hoc Committee on Humanitarian Operations and Logistics (Chair: Pelin Pekkün)
- Ad Hoc Committee on INFORMS Analytics Framework (IAF) – (Chair: Julie Swann)
- Ad Hoc Committee on Quantum Computing (Co-Chairs: Tamás Terlaky and David Bernal Neira)

Meetings: In 2026, INFORMS will host three flagship meetings. The INFORMS Analytics+ Conference was held in

April in National Harbor, Maryland. The INFORMS Healthcare Conference will take place July 27–30 in Raleigh, North Carolina, and the INFORMS Annual Meeting will be held November 1–4 in San Francisco, California.

Publications: INFORMS offers a wide array of content and information about Operations Research and Analytics to meet the needs and interests of researchers, practitioners, students, business leaders, policymakers, and the public.

INFORMS publishes 17 journals: *Decision Analysis*, *Information Systems Research*, *INFORMS Journal on Applied Analytics*, *INFORMS Journal on Computing*, *INFORMS Journal on Data Science*, *INFORMS Journal on Optimization*, *INFORMS Transactions on Education*, *Management Science*, *Manufacturing & Service Operations Management*, *Marketing Science*, *Mathematics of Operations Research*, *Organization Science*, *Operations Research*, *Service Science*, *Stochastic Systems*, *Strategy Science* and *Transportation Science*. It also publishes three magazines (*OR/MS Today*, *Analytics*, and student-run *OR/MS Tomorrow*) as well as two serial publications (*INFORMS Analytics Collections* and *Tutorials in Operations Research*). View them all at <https://pubsonline.informs.org>.

INFORMS Communities: Communities are at the heart of the INFORMS experience. Our members include researchers, practitioners, industry leaders, and students across sectors, disciplines, and career stages. They connect through focused groups built around shared interests, geography, and career paths.

INFORMS currently supports 13 Societies, 22 Sections, 7 Forums, 21 geographic chapters, and 65 student chapters. These communities provide meaningful ways to build connections, share knowledge, and grow impact. We are seeing increased interest in forming new communities, particularly around universities, regions, and areas of professional practice. While not every idea becomes a formal group, we support new communities when there is clear engagement and momentum. This growth aligns closely with our international strategy. Through intentional onboarding and reduced dues pathways for members in developing countries, we are lowering barriers to participation and connecting members into communities and leadership pipelines earlier. Expanding our community network remains a key lever for global engagement, retention, and long-term growth.

INFORMS Awards:

The following prize winners for fall 2025/spring 2026 include:

Spring 2026 Awards

- The Franz Edelman Award was presented to Microsoft.
- The UPS George D. Smith Prize was awarded to Georgia Institute of Technology, Master of Science in Analytics (MSA) Degree
- The INFORMS Early Career Practitioner Award was presented to Athanasios Lolos, Navy Federal Credit Union.
- The INFORMS Prize was awarded to Microsoft.

Fall 2025 Awards

- The Daniel H. Wagner Prize for Excellence in Operations Research Practice was awarded to Long He, Zhengling Qi, and Ziyuan Zhou (George Washington University) and Guangrui Ma, Yuanbo Peng, Yushu Yao, Zhongyi Zha, Mingyong Zhao, and Zhenyu Zhuo (Meituan Group).

- The Doing Good with Good OR - Student Paper Competition was awarded to Qiuxia (Katalia) Chen, The University of Texas at Dallas.
- The Donald P. Gaver Junior Early Career Award was presented to Alexandre Jacquillat, Massachusetts Institute of Technology.
- The Frederick W. Lanchester Prize was awarded to Boris Mordukhovich, Wayne State University, for his work, Variational Stability, and Control: Theory, Algorithms, Applications.
- The George B. Dantzig Dissertation Prize was given to Bo Lin, University of Toronto.
- The George E. Kimball Medal was given to Les Servi, and Brian Denton, University of Michigan.
- The George Nicholson Student Paper Prize was awarded to Hao Hao, Carnegie Mellon University.
- The INFORMS Case Competition was awarded to José Antonio Carbajal, Turner Broadcasting System, Inc., and Natalia Summerville, Memorial Sloan Kettering Center for Routing for Social Good: Optimizing Human Milk Bank Logistics.
- The INFORMS President's Award was given to Anna Nagurney, University of Massachusetts – Amherst.
- The John von Neumann Theory Prize was awarded to Renato D.C. Monteiro, Georgia Institute of Technology.
- The Judith Liebman Prize was awarded to Lingchao Mao, Georgia Institute of Technology, and Nicolás Bustos Villella, University of South Florida.
- The Philip McCord Morse Lectureship Award was presented

- to Benjamin Van Roy, Stanford University.
- The Prize for Teaching of the OR/MS Practice was awarded to Nelson A. Uhan, United States Naval Academy.
- The Saul Gass Expository Writing Prize was awarded to Margaret L. Brandeau, Stanford University.
- The Volunteer Service Award was awarded to:
 - Suzan Iloglu, Amazon Robotics
 - Adam Mersereau, University of North Carolina
 - Segev Wasserkrug, IBM Research, Haifa, Israel
 - Neil Desnoyers, Saint Joseph's University
 - Ken Murphy, University of California Irvine
 - Fenglian Pan, University of North Carolina
 - Yifeng Wang, Georgia Institute of Technology
 - Zihan Zhang, Georgia Institute of Technology
- In addition, the following people were inducted as INFORMS Fellows in 2025:
 - Laura Albert, University of Wisconsin-Madison
 - Chun-Hung Chen, George Mason University
 - John W. Chinneck, Carleton University
 - Gerard Cornuejols, Carnegie Mellon University
 - Pooja Dewan, Rentokil-Terminix
 - Yu Ding, Texas A&M University
 - Vivek Farias, Massachusetts Institute of Technology
 - Stefan Karisch, Amazon
 - Erica Klampfl, Ford Motor Company
 - Panos Kouvelis, Washington University, St Louis
 - Subramanian Raghavan, University of Maryland
 - Daniele Vigo, University of Bologna 🌐

GLOW: Global Leadership in OR for Women

Launching at IFORS 2026, Vienna, Austria: 12–17 July 2026

by **Yasmín Águeda Ríos Solís** <yasmin.riossolis@tec.mx>, GLOW Communications Committee Chair

The International Federation of Operational Research Societies (IFORS) is proud to announce the official launch of GLOW. The aim is to reach gender equity within the global Operational Research community.

GLOW was brought to life by four pioneering OR women who have dedicated their careers to advancing the field and championing inclusivity: Paula Carroll (University College Dublin), Janny Leung (University of Macau), Rina Schneur (IFORS VP, NORAM), and Grazia Speranza (University of Brescia). Together, they have built a foundation that has the potential to reshape the landscape of OR worldwide.

GLOW's mission is clear and ambitious: to connect, empower, and promote women in OR from around the globe by addressing common challenges, facilitating collaboration, and increasing visibility, recognition, and leadership opportunities for women in the profession. GLOW brings together OR professionals from across continents — Asia, Europe, Africa, Latin America, and North America — ensuring that the unique challenges faced by women in OR worldwide are heard and addressed.

Launch of GLOW at IFORS 2026: Three Events, One Vision
The 24th Conference of the International Federation



Global Leadership in OR for Women

of Operational Research Societies takes place in Vienna, Austria, from 12 to 17 July 2026. Hosted at the University of Vienna under the theme "Decision Support for a Sustainable World," IFORS 2026 brings together researchers, practitioners, and students from around the globe. This landmark conference will serve as the official public launch of

GLOW, and three dedicated events have been designed to celebrate the initiative, foster connection, and elevate the contributions of women in OR.

Event 1: Circles of Connection

Monday, 13 July 2026 | 4:15 – 5:45 PM Lecture Hall 1

Circles of Connection brings together GLOW members, past IFORS Presidents Elise del Rosario, Grazia Speranza, and Janny Leung, and allies in a rich mentoring and networking experience. Organized around themed discussion circles, participants rotate through small-group conversations facilitated by distinguished mentors and women leaders in OR. Designed around the pillars of Mentoring, Networking, and Action, the session offers a dynamic space to explore key topics for women across countries, sectors, and career stages, and to leave with concrete insights and action ideas.

Event 2: Leadership Pathways in Operations Research

Tuesday, 14 July 2026 | 10:30 AM – 12:00 PM Plenary Session

This scientific panel session, organized by Rosa González (Universidad de los Andes, ALIO), subtitled “Academic, Industrial, and Regional Perspectives,” features a distinguished lineup of speakers representing the breadth of the OR profession. Panelists include Janny Leung (University of Macau, APORS), Héctor Cancela (Universidad de la República, ALIO), Anita Schöbel (TU Kaiserslautern / Fraunhofer ITWM, EURO), Jules Degila (University of Abomey-Calavi, ORSWA), and Rina Schneur (IFORS VP, NORAM), with Paula Carroll (University College Dublin, EURO) as moderator. Together, they will decipher the diverse pathways to leadership in OR across geographies, institutions, and sectors, offering inspiration and practical wisdom to

IFORS
International Federation of Operational Research Societies

GLOW
Global Leadership in OR for Women

IFORS 2026
The 24th Conference of the International Federation of Operational Research Societies
12-17 JULY
VIENNA, AUSTRIA

GLOW invites you to
CIRCLES OF CONNECTION

Monday, 13 July 2026 • 4:15–5:45 PM • Lecture Hall 1

Mentoring • Networking • Action

Join past IFORS Presidents Elise del Rosario, Grazia Speranza, and Janny Leung, together with GLOW members, as mentors and facilitators in themed discussion circles. Connect across countries, sectors, and career stages while exploring key topics for women in OR.

HIGHLIGHTS

- ✓ Mentor-led themed tables
- ✓ Rotating small-group conversations
- ✓ Shared insights and action ideas

to transform the landscape of Operational Research by ensuring that women have equal access to opportunities, recognition, and leadership. Whether you are an early-career researcher, an established professional, or an ally committed to gender equity, GLOW is for you.



Leadership Pathways in Operations Research: Academic, Industrial, and Regional Perspective

Tuesday, July 14th, 2026, 10:30 AM - 12:00 PM



Janny Leung
University of Macau
APORS

Héctor Cancela
Universidad de la República
ALIO

Anita Schöbel
TU Kaiserslautern
Fraunhofer ITWM
EURO

Jules Degila
University of Abomey-Calavi
ORSWA

Rina Schneur
IFORS VP
NORAM

Paula Carroll
University College Dublin
Moderator

researchers and practitioners at all career stages.

Event 3: Evening GLOW Reception

Tuesday, 14 July 2026 | 6:00 – 7:00 PM Courtyard

Close the day with a relaxed and celebratory reception designed to connect participants across countries, sectors, and career stages. The Evening GLOW Reception is an invitation to celebrate women in OR, build your network, and shape what's next for the field. The spirit of the evening is captured in the GLOW Challenge: before the evening ends, make one meaningful introduction — introduce one woman in OR to someone she should know, whether a mentor, collaborator, sponsor, or ally. This simple act of connection embodies the GLOW spirit: illuminating the path forward, together.

Join the Movement

GLOW represents an opportunity

Chipo Zidana, Jana Ries.

New Directions: Xiaochen Feng, Yukun Cheng, Bolajoko N Dixon-Ogbechi, Chipo Zidana. 🌐

For more information about GLOW and how to get involved, visit <https://www.ifors.org/glow-global-leadership-in-or-for-women/> or follow our LinkedIn <https://www.linkedin.com/company/112251949/>.

Communications: Sibel Alumur, Xiaochen Feng, Yukun Cheng, Yasmin Rios

IFORS 2026 - Social Event: Elise del Rosario

IFORS 2026 - Scientific Event: Di Nguyen, Rosa

Guadalupe González Ramírez, Xujun Chen,

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GLOW
Global Leadership in OR for Women

IFORS 2026
The 24th Conference of the International Federation of Operational Research Societies
12-17 JULY
VIENNA, AUSTRIA

INVITES YOU TO AN
EVENING GLOW Reception

July 14, Tuesday | 6:00 – 7:00pm | COURTYARD

Connect • Celebrate • Shape What's Next

Join us for a relaxed reception to meet colleagues across countries, sectors, and career stages. Enjoy conversation, build your network, and take part in the GLOW challenge: **make one meaningful introduction before the evening ends!**

Connect with colleagues

Celebrate women in OR

Build your network

Shape what's next

GLOW CHALLENGE
Introduce one woman in OR to someone she should know – a mentor, collaborator, sponsor, or ally.

We look forward to seeing you there! 🍷

Section Editor: **Kelly Poldi** <kelly@ime.unicamp.br>

I am the new Section Editor for the *Operations Research for Development* section of the IFORS Newsletter. I am an Associate Professor in the Department of Applied Mathematics at the Institute of Mathematics, Statistics and Scientific Computing (IMECC), University of Campinas (UNICAMP), Brazil. If you are interested in contributing an article to this section, please feel free to reach out to me. I hope you enjoy reading this section. 🌐



Operational Research in Service of Life

Helenice de Oliveira Florentino <helenice.silva@unesp.br>

Institute of Biosciences of São Paulo State University (UNESP), Botucatu, SP, Brazil

Biosystems Optimization and Sustainable Technology Laboratory

(LOBTS - Laboratório de Otimização de Biosistemas e Tecnologia Sustentável)

The LOBTS, Biosystems Optimization and Sustainable Technology Laboratory at the Institute of Biosciences of São Paulo State University (UNESP), Botucatu, SP, Brazil, led by Professors Helenice de Oliveira Florentino and Daniela Renata Cantane, has been developing research focused on Operational Research (OR) applied to human health and environmental sustainability.

These studies are carried out in collaboration with national and international researchers, and also contribute to the education and training of undergraduate students, graduate students, and postdoctoral researchers.

OR in Biosystems Optimization and Sustainable Technology

Biosystems optimization and sustainable technology play a central role in building a future in which human life and the environment can coexist in a balanced and harmonious way. The research developed at LOBTS integrates knowledge from fields such as medicine, biology, engineering, mathematics, and environmental sciences to better understand complex biosystems and to propose solutions that support their management and decision-making processes, while respecting natural constraints.

This integration of mathematical, computational, and interdisciplinary methods enables the development of models capable of guiding more efficient, robust, and well-informed decisions. Examples of these research efforts include optimal planning of oncological therapies, optimization of food security systems, control of endemic and epidemic diseases, optimal use of residual biomass, and vaccine distribution.



OR in Therapeutic Planning in Oncology

OR applied to biosystems has emerged as an essential scientific tool for addressing complex challenges related to human health. In therapeutic planning in oncology, particularly in radiotherapy and chemotherapy, OR enables the design of strategies that maximize treatment effectiveness while minimizing damage to healthy tissues. These advances significantly contribute to improved clinical outcomes and enhanced quality of life for patients.

Currently, cancer ranks among the leading causes of mortality worldwide, accounting for approximately one in six deaths. About one-third of cases are associated with factors such as high body mass index, low intake of fruits and vegetables, physical inactivity, and the consumption of alcohol and tobacco. Around 70% of cancer-related deaths occur in low- and middle-income countries, often linked to dietary and behavioral factors, delayed access to healthcare, limited diagnostic capacity, and restricted access to appropriate treatments. In this context, studies aimed at improving treatment efficacy and reducing treatment duration are of paramount importance. Evidence indicates that therapeutic effectiveness depends on the type and stage of the neoplasm. Non-metastatic tumors may often be treated through surgical intervention, whereas chemotherapy and radiotherapy constitute key therapeutic alternatives in other cases.



Radiotherapy involves the use of ionizing radiation beams directed at the tumor volume over a defined period, with the objective of reducing or eliminating malignant cells by delivering the highest possible dose to the target region. However, since neoplastic cells are often interspersed with healthy tissues, administering high radiation doses to the tumor region may cause necrosis or irreversible damage to adjacent healthy tissue. Conversely, insufficient dose delivery may allow malignant cells to survive. These challenges highlight the importance of optimal radiotherapy planning, whose goal is to determine a spatial dose distribution capable of eradicating (or controlling, depending on the therapeutic objective) the tumor while preserving healthy tissues within their tolerance limits.

The planning process is inherently complex due to the large number of variables involved, including anatomical geometries, radiobiological properties, clinical parameters, and technological configurations of treatment equipment. This complexity requires the use of advanced mathematical and computational methods.

The planning process is inherently complex due to the large number of variables involved, including anatomical geometries, radiobiological properties, clinical parameters, and technological configurations of treatment equipment. This complexity requires the use of advanced mathematical and computational methods.

The incorporation of advanced optimization models represents a significant opportunity to improve the quality and safety of oncological treatments, enabling greater personalization, efficiency, and dosimetric control. Furthermore, these methods can be integrated into clinical equipment and software as decision-support modules, contributing to more efficient, consistent, and less error-prone planning processes.

OR in Food Security

In the context of food security, OR applied to production and logistics systems enables improved resource allocation, reduction of losses along the production and distribution chain, and expanded access to high-quality food. Such approaches are essential for reducing hunger and food insecurity, particularly among vulnerable populations. In this regard, OR plays an increasingly important role in addressing food insecurity by providing mathematical and computational tools that support decision-making in complex systems of food production, distribution, and access. Food insecurity is not solely related to food scarcity, but also to poor distribution, waste, logistical limitations, and socioeconomic inequalities. These challenges can be systematically addressed with the support of OR, which enables the identification of more efficient and equitable solutions. One of the main application areas is the optimization of food supply chains, where optimization models can be used to determine distribution routes that minimize costs and losses while ensuring the supply of vulnerable regions. This is particularly relevant for supporting government food assistance programs, where resources are limited and demand is high.

Additionally, OR can be applied to improve the allocation of resources in public policies, such as determining optimal quantities of food to be distributed across regions, taking into account nutritional, demographic, and economic criteria. Multi-objective models allow for balancing different goals, including cost, nutritional value, and population coverage.

Another important aspect is the reduction of losses and waste throughout the production chain. Optimization and simulation techniques can identify bottlenecks in

storage, transportation, and commercialization processes, contributing to more efficient use of produced food.

OR can also be integrated with data analysis and machine learning methods, enabling the prediction of demand patterns, identification of areas at higher risk of food insecurity, and support for more proactive decision-making. These approaches can incorporate equity criteria, ensuring that the most vulnerable populations are prioritized.

Overall, OR enhances the efficiency of food systems and directly contributes to promoting food and nutritional security in a sustainable and socially equitable manner.

OR in the Control of Endemic and Epidemic Diseases

In recent decades, the global epidemiological landscape has been marked by the simultaneous circulation of several high-impact infectious diseases, such as COVID-19, caused by the SARS-CoV-2 coronavirus, and arboviral diseases transmitted by the *Aedes aegypti* mosquito, including dengue, yellow fever, Zika, and chikungunya.

These diseases have shown rapid expansion, resulting in a significant increase in cases and deaths over relatively short periods. An additional challenge is that many of these diseases share similar clinical manifestations, which complicates differential diagnosis and requires multiple complementary tests, increasing costs and delaying interventions.

In this context, the development of effective control strategies becomes essential, reinforcing the importance of a deep understanding of transmission dynamics through mathematical models applied to health systems. The optimal control of endemic and epidemic diseases can be significantly enhanced by integrating these dynamic models with OR techniques. Such tools enable the evaluation of different scenarios, guide intervention strategies, and optimize the allocation of resources in prevention and control efforts.

In the case of arboviral diseases, physical, chemical, and biological vector control strategies have been extensively studied. Physical measures include the elimination of breeding sites and educational campaigns, while chemical approaches involve the widespread use of insecticides and larvicides. However, insecticide resistance is a predictable phenomenon: susceptible individuals are eliminated, while resistant ones survive and transmit this trait to subsequent generations. Additionally, behavioral adaptations may favor mosquitoes capable of avoiding contact with lethal substances.



Biological control strategies, in turn, include the use of larvivoracious fish and techniques such as the Sterile Insect Technique (SIT) and the release of mosquitoes infected with *Wolbachia*. These approaches have gained increasing attention due to their potential effectiveness. The *Wolbachia*-based strategy consists of the planned release of mosquitoes infected with this bacterium, which significantly reduces the vector's ability to transmit arboviruses. The success of this method depends on well-designed release strategies, either punctual or periodic, in areas where wild mosquito populations are present. In this scenario, optimization methods become valuable tools for determining appropriate release quantities and defining optimal release



intervals, aiming to promote the sustainable replacement of wild populations by *Wolbachia*-infected mosquitoes.

OR can provide critical support for decision-makers and public health professionals by

improving control strategies for diseases such as dengue, COVID-19, and other epidemiologically relevant infections. By employing models capable of identifying optimal intervention strategies, OR offers quantitative and reliable guidance for practical actions. These approaches contribute not only to the development of social technologies but also to the strengthening of prevention and control policies, generating positive impacts across social, economic, and environmental dimensions.

OR in Residual Biomass Utilization



The utilization of residual biomass has emerged as a key strategy within the framework of sustainability and the circular economy. Materials that were once considered waste or by-products are now increasingly recognized as valuable resources, with significant potential for energy generation, biofuel production, and the development of

biofertilizers. This shift in perspective not only reduces the environmental impacts associated with improper waste disposal but also adds value to production chains, contributing to economic development and the conservation of natural resources.

Residual biomass utilization also directly benefits from optimization models and OR techniques, which enable more efficient processes for conversion into energy and biofertilizers. These



approaches support better decision-making in the design and management of production systems, improving resource allocation and process performance.

In this context, OR contributes to the identification of optimal strategies for collection, transportation, processing, and conversion of biomass, considering economic, environmental, and operational constraints. As a result, it promotes waste valorization, reduces environmental impacts, and fosters the development of more sustainable and efficient production systems.

OR in Vaccine Distribution

Vaccination is an essential strategy for the control and eradication of infectious diseases and remains necessary even after the local elimination of certain pathogens, due to continuous migratory flows and the risk of disease reintroduction. In Brazil, the National Immunization Program (PNI) distributes approximately 300 million doses annually, yet faces major logistical challenges related to transportation, storage, cold chain maintenance, and service delivery across a vast and densely populated territory.



Issues such as cold chain failures, regional infrastructure limitations, scarcity of refrigerated transport, heterogeneity in storage capacity, and limited availability of real-time monitoring systems can compromise vaccine potency and lead to significant losses throughout the supply chain. Furthermore, operational decentralization and the difficulty of reaching remote areas increase the complexity of distribution, particularly in large countries.

The COVID-19 pandemic further highlighted the need for efficient logistical planning capable of ensuring rapid, safe, and cost-effective vaccine distribution. In this context, LOBTS, in collaboration with national and international researchers, has been investigating optimized distribution strategies by developing optimization models that integrate routing decisions, vehicle allocation, and load distribution. These models aim to minimize delivery times, operational costs, and resource consumption, while ensuring demand fulfillment, respecting vehicle capacities, and maintaining route consistency, avoiding redundancies and ensuring coherent logistical flows.

Overall, these applications of OR provide valuable support for decision-makers across various immunization logistics contexts. Currently, Operational Research techniques, combined with multidisciplinary approaches, have become essential strategic tools for decision-making in complex contexts, contributing significantly to the promotion, protection, and preservation of life. 🌍



Welcome to this *IFORS Newsletter Tutorial*! In this issue we feature a tutorial by Yaren Bilge Kaya of Columbia University's Department of Industrial Engineering and Operations Research on Teaching Operations Research for Public Policy and Social Good. I hope you enjoy reading this interesting tutorial and put its lessons to good use.

I am *always* actively looking for potential topics and authors for the Tutorials Section. Please send me your suggestions for topics and let me know if you are interested in contributing a tutorial to this series - I will be happy to discuss your ideas with you. The target length is about 800-1200 words with figures, tables, and diagrams, and we can work with each author or team of authors (coauthored tutorials are welcome) to establish a publishing schedule that will fit their schedules.

Teaching Operations Research for Public Policy and Social Good

Yaren Bilge Kaya

Columbia University, Department of Industrial Engineering and Operations Research

Today's complex world confronts humanity with a series of interlocking societal challenges, from energy poverty and human exploitation to inequities in healthcare access and persistent food-insecurity (Caulkins et al., 2019; Samandari et al., 2021; Hunter-Hill et al., 2025). These issues are not abstract concerns; they represent realities that affect millions of lives and strain public systems around the world. The urgency of finding actionable, equitable, and evidence-based solutions has never been greater, and this is where Operations Research (OR) can play a transformative role (Kaplan, 2008; Berenguer and Shen, 2020)

In this tutorial, I focus on how OR can be taught in public policy and social good contexts to prepare students as the next generation of decision-makers. Teaching OR for social impact equips future problemsolvers with not only technical tools, but also the judgment and systems-level thinking needed to improve public outcomes and advance social good.

WHAT MAKES THIS A UNIQUE SUBJECT?

Teaching OR for public policy and social good differs fundamentally from traditional OR education that often prioritizes technical rigor. Instead, this course places real-world decision-making challenges at the center of the learning experience, where analytical models must operate within complex social, institutional, and ethical contexts. These challenges include (1) decision-making environments with multiple stakeholders who hold conflicting objectives and values (Celik et al., 2014; Montibeller, 2018); (2) explicit trade-offs between equity and efficiency (Su and Zenios, 2006; Cardoso-Grilo et al., 2016); (3) the cultural appropriateness of interventions (Johnson and Smilowitz, 2012).

Equally important is an awareness of unintended consequences. Policies and interventions designed based on expected or average outcomes may produce harmful side effects when implemented in complex social systems. Teaching OR in this space therefore requires students to consider uncertainty, behavioral responses, and feedback effects. This perspective naturally leads to an interdisciplinary approach that integrates insights from economics, political science, philosophy, and behavioral sciences alongside analytical modeling (Johnson et al., 2015; Martin et al., 2022).

Finally, teaching OR for social good foregrounds the human dimension of decision making. Centering the voices of those most affected, such as survivors of human trafficking,

or patients navigating healthcare systems, helps students understand that effective models are not only mathematically sound, but also grounded in lived experience (Azizi et al., 2018; Ford et al., 2020; Konrad et al., 2023). By engaging communities as partners rather than passive recipients, students learn to develop decision-support structures that are socially responsive and practically implementable.

CURRICULUM DESIGN AND PEDAGOGICAL METHODS

Public policy encompasses a wide range of domains including education, immigration, voting, healthcare, policing, environmental conservation, and urban management. Each domain is characterized by distinct institutional structures, data limitations, and political constraints. Thereby, it is neither feasible nor desirable to cover all of these systems in depth within a single semester. Instead, the central pedagogical goal of teaching OR for public policy and social good is to equip students with a transferable way of thinking: understanding the relationship between inputs, decisions (or interventions), and outputs in public systems that are fundamentally designed for people. Emphasizing this structure allows students to apply OR tools across policy contexts while remaining attentive to domain-specific realities.

Course objectives should include critical reflection on how data are generated and used, how inherited biases shape models, and how policy decisions may affect different populations unevenly. Assessment approaches should also reflect these broader objectives. In addition to evaluating technical correctness, grading can emphasize impact reasoning, clarity of communication, and the ability to articulate modeling assumptions and limitations. Peer feedback, both from classmates and, when possible, from external stakeholders, can further reinforce the importance of explaining analytical insights to technical and non-technical audiences.

Incorporating Case Studies and Simulated Policy Labs

The complexity of public policy problems makes them particularly well suited for case-based learning. Examples span a wide range of application areas, including inventory management for disaster response (Ergun et al., 2010, 2012), resource allocation models for equitable disease prevention (Griffin et al., 2013; Schmidt et al., 2021), zoning models aimed at improving educational outcomes (Allman et al., 2022; Ozel et al., 2025), matching algorithms for equitable organ allocation (Pivo et al., 2025), and fund allocation to non-profit organizations (Ebrahim and Ross, 2012).

Delivering these cases through simulated policy labs or “situation room” exercises can further immerse students in real-world decision environments. For example, hurricane preparedness simulations require teams to process incomplete information, communicate under time pressure, and make practical decisions when delays can have serious consequences. Such exercises help students internalize the importance of coordination, communication, and adaptability alongside analytical rigor.

Opportunities for Project-Based Learning

Project-based learning plays a central role in teaching OR for social good. Allowing students to work on topics they care about or are curious about, such as recent policy changes or social issues of personal significance, can increase engagement and motivation. Through these projects, students can experience the full lifecycle of an OR application: defining a meaningful problem, collecting or generating data, formulating mathematical models, producing actionable and interpretable results, and reflecting on modeling assumptions, unintended consequences, and the sustainability of proposed interventions. When possible, partnering with communities, community organizations, non-profits, or government agencies enables students to receive feedback from stakeholders who are directly affected by the decisions being modeled, reinforcing the importance of relevance and accountability.

Significance of In-Class Discussions, Debates, and Guest Speakers

Structured in-class discussions and debates throughout the semester provide an additional mechanism to develop and assess students’ ability to communicate complex ideas, defend modeling choices, and engage constructively with opposing viewpoints. These activities encourage students to grapple with uncertainty, value judgments, and competing objectives, which are hallmarks of public policy decision making.

Guest lectures featuring policymakers or practitioners can further bridge theory and practice by exposing students to the realities of implementing analytical recommendations within complex institutional settings. Such interactions help students better understand the constraints, incentives, and political considerations that shape real-world policy decisions, complementing the analytical tools introduced throughout the course.

CONCLUSIONS

Like any course that engages deeply with real-world systems, teaching OR for Public Policy and Social Good comes with its own set of challenges. These include limited access to high-quality data, the difficulty of identifying and maintaining meaningful project partnerships, and students’ initial hesitation toward working on open-ended problems that are not fully specified for them. Fortunately, many of these challenges can be addressed through thoughtful course design. Open data platforms can serve as valuable starting points when proprietary or sensitive data are unavailable. Structured collaborations with government organizations, such as the U.S. Census Bureau (e.g., The Opportunity Project sprint), can provide clearly defined milestones, real policy relevance, and dedicated points of contact for students. Partnerships with local non-governmental organizations (NGOs) present another viable pathway; often under-resourced, NGOs frequently have pressing analytical needs and offer students opportunities to work on problems with immediate community impact.

Although courses focused on OR for Public Policy and Social

Good are not yet frequently offered in many OR programs, their value extends well beyond technical skill development. Such courses help students become more informed and engaged citizens by enabling them to critically evaluate policy decisions, understand their societal consequences, and recognize the trade-offs inherent in public-sector decision making. By embedding social good challenges into OR curricula, we multiply the impact of our methods far beyond research alone, and we can equip the next generation of analysts and decision-makers with the tools to make evidence-based, equitable and socially responsible decisions in the communities they live in.

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OR Impact

Section Editors: [John Ranyard](mailto:johnranyard@cix.co.uk) <jranyard@cix.co.uk>, [John Medhurst](mailto:john@larrainzar.co.uk) <john@larrainzar.co.uk>

Faster, Smarter, Leaner: How Flipkart Optimized Its Supply Chain to Unlock Growth

Anjani Kumar Kudupudi <sai.anjanikumar@flipkart.com>, **Prateek Agarwal, Gowtham Bellala, Vikas Goel**



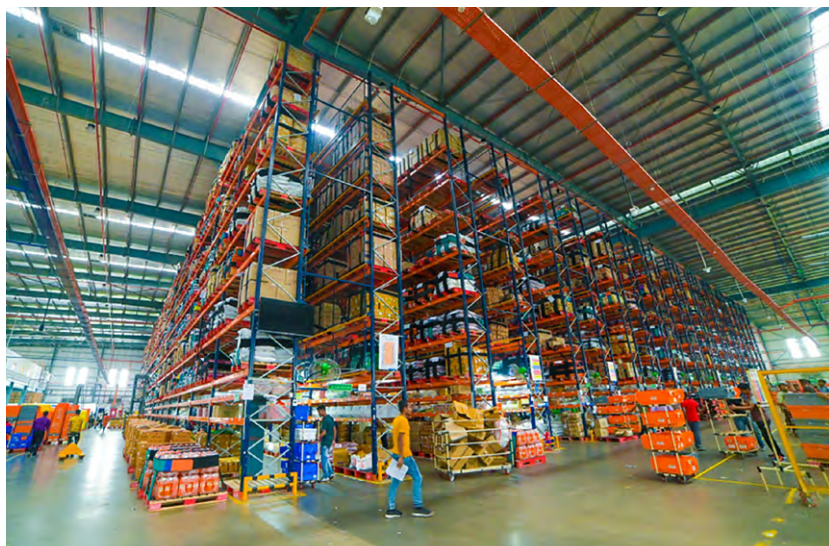
Introduction

The Flipkart Group is one of India's leading digital commerce entities and has a registered user base of more than 500 million. Flipkart's marketplace offers over 150 million products across 80+ categories. Today, there are more than 1.4 million sellers on the platform.



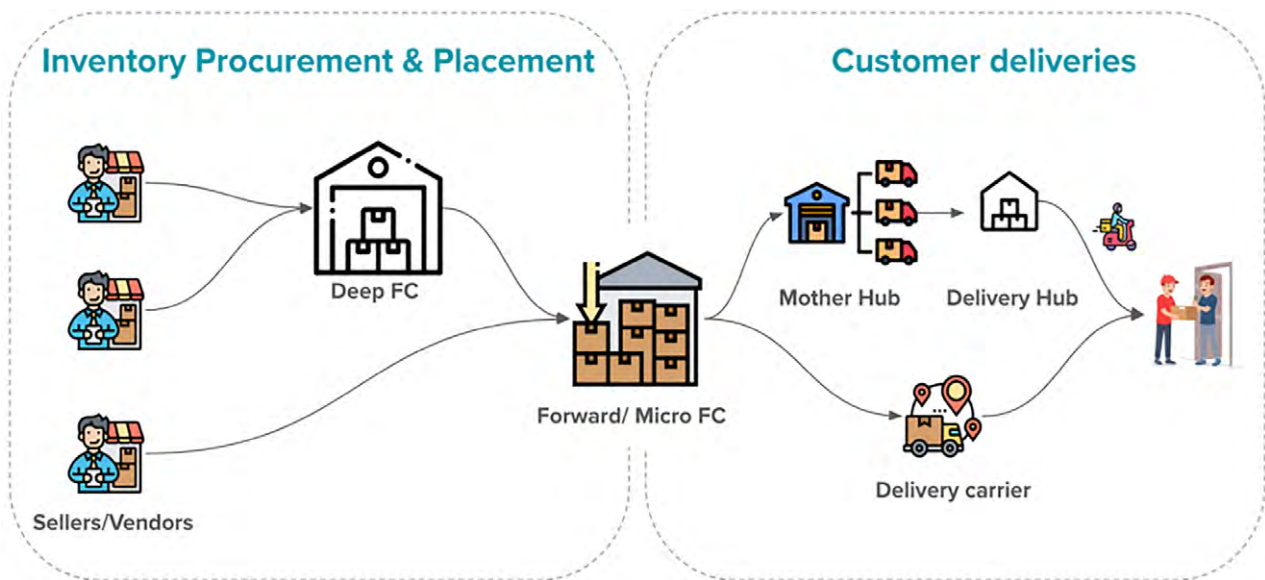
▲ Authors: Anjani Kumar Kudupudi, Prateek Agarwal, Gowtham Bellala, Vikas Goel

Flipkart employs a combination of in-house and third-party logistics to deliver a wide range of products, ranging from mobile phones, electronics and books, to large household appliances such as refrigerators, washing machines and TVs. On a typical day, Flipkart delivers millions of shipments to customers across all serviceable pin codes covering the vast geography of India - ranging from densely populated cities to far-flung rural areas with very limited accessibility. On peak days, the number of deliveries exceeds 10 million.



▲ Flipkart Fulfillment Centre (Warehouse)

As a marketplace, Flipkart sources products from sellers. Sellers store products in their own warehouses. The mix of warehouses ranges from huge central Fulfillment Centers (FCs) spanning millions of square feet to local 'mini' FCs with footprints as small as 100 square feet. Ideally, the objective is to store products as close to the customer as possible to satisfy demand as quickly as possible. Due to a variety of reasons, including limited storage availability at FCs, dynamically changing demand, and supply chain constraints, inventory needs to be rebalanced across warehouses on a regular basis.



▲ Figure 1 Overview of the Supply Chain Processes at Flipkart

The New Supply Chain Planning Platform

In 2020, Flipkart initiated an overhaul of its supply chain planning technology. This has been achieved by creating a platform to enable it to optimise efficiency and grow in a highly dynamic business landscape with a diverse customer base, and complex vendor and third-party logistics ecosystems. This platform combines machine learning and operational research (O.R.) methodologies across two fundamental layers: **demand forecasting** and **optimization**.

The outcome is a fully connected and automated platform, used by analysts across the supply chain organisation, that includes:

- i) forecasting models (a combination of statistical models such as ARIMA, plus machine learning and deep learning models to cover demand across the full spectrum of the products delivered)
- ii) Replenishment order cycle (ROC) based models to optimize inventory planning and control
- iii) capacity planning models, (to ensure that the required resources, including manpower are available as required)
- and iv) network planning models (to optimise delivery to the customer).

In addition, the platform permits experimentation, i.e. the testing of potentially improved approaches and solutions, plus the ability to make fine-grained changes to machine-generated plans (manual intervention). With continued usage, confidence in this platform has grown.

Overall, this planning platform has transformed planning and decision making at Flipkart, leading to significant improvements in delivery speed and costs.

Demand Forecasting: product demand forecasts to support strategic, tactical, and operational decisions (a critical feature of supply chain planning), have been improved using better models and more advanced techniques, including hierarchical forecasting, probabilistic time series models and deep learning approaches.

Additionally, the platform uses forecast reconciliation techniques, including bottom-up aggregation, top-down disaggregation and constrained forecasting. [ref 1]

Optimization: This uses the forecasts as input and enables the optimization of key decisions across different elements of supply chain planning to maximize delivery speed and reliability while minimizing costs.

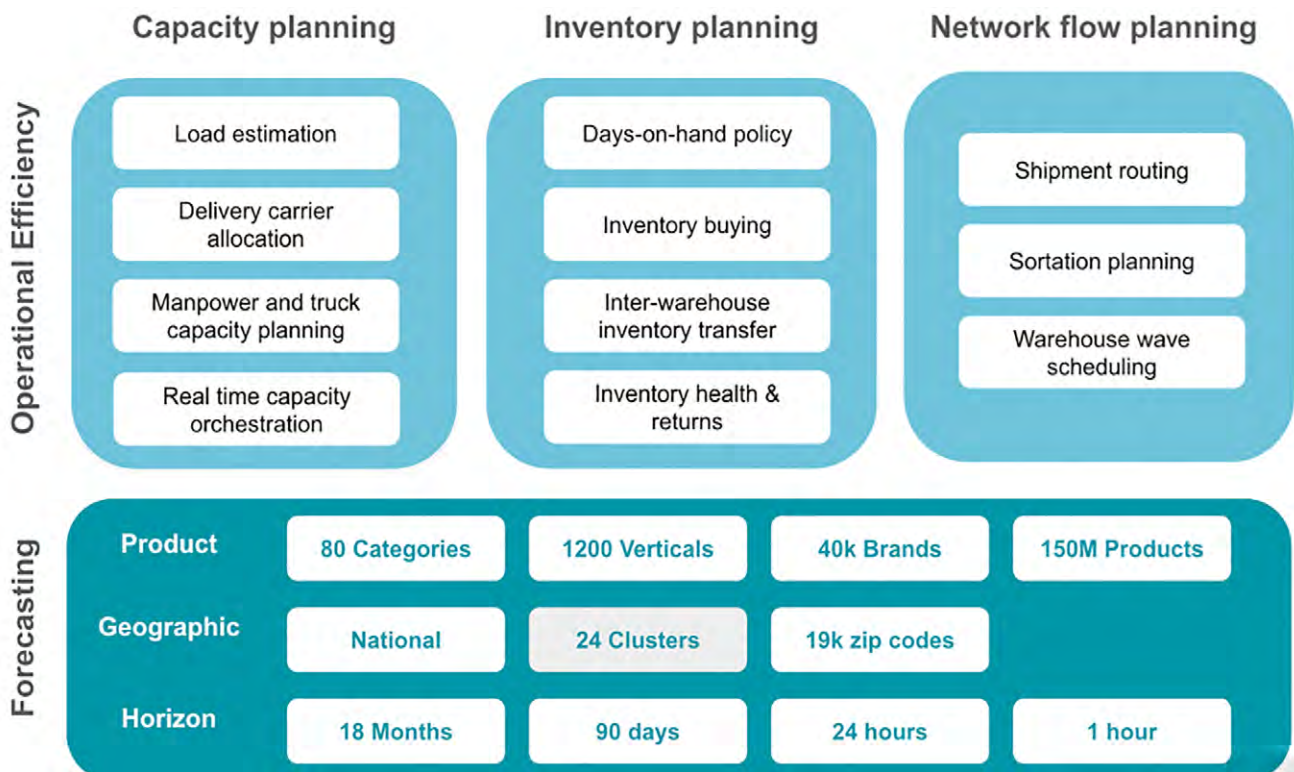
Specifically, this layer enables optimization of the following business processes:

- Inventory management: Optimizing inventory quantity, placement, replenishment, and liquidation to achieve high inventory availability, working capital efficiency, and high speed of delivery.
- Capacity planning: Planning and allocating manpower capacities at each node in the supply chain network, including delivery to the customer. These decisions range from month-ahead planning to achieve desired delivery speeds at lowest cost, to near real-time allocation of resources to achieve desired differentiated service levels across customer cohorts given planning errors. [ref 1]
- Network planning: Optimizing the network flow to improve delivery speed and reduce the cost per shipment that the network can deliver, including routing, sortation planning, and Fulfilment Centre wave scheduling.

Implementation

At the very beginning of the project, the various business stakeholders were identified and involved to ensure that the new system was understood and supported. The platform spans the full spectrum of supply chain domains, from forecasting and inventory planning to manpower and operations.

The technical experts who designed the new system provided regular updates and accepted feedback aimed at ensuring that the new system would operate smoothly on a defined schedule, be it monthly, weekly or hourly. The planners were involved, from defining requirements to aligning on inputs and platform executions, which streamlined training for users of the new system. The benefits from improved forecasts were demonstrated which helped to foster acceptance of the new system.



▲ Figure 2 Flipkart's Central Planning Platform

Notes:

- i. Capacity planning allocates resources to ensure that they have the right supply chain capacity.
- ii. Inventory planning ensures that the right products are in stock at FCs closest to the customers.
- iii. Network flow planning involves the routing and scheduling of shipments to customers

One critical feature was to enable manual intervention, to reflect the dynamic nature of e-commerce. For example, demand forecasts could be manually tweaked to allow for the impact of a promotion campaign.

Impact

Forecasting improvements have led to a significant reduction in inventory-related working capital. Further, higher accuracy in the prediction of processing volumes at the supply-chain node level, together with bespoke optimization models, have helped to significantly reduce manpower costs and improve capacity utilization while maintaining speed commitments and improving reliability. These improvements have led to a notable increase in one-day deliveries and a significant increase in two-day deliveries, leading to higher sales conversions and higher revenue, as well as lower supply chain costs and losses associated with returns.

This new platform has enabled Flipkart's supply chain planning organization to be more efficient and agile, enabling planning teams to support rapid business growth at a manageable organizational size. It has also led to a significant reduction in the run-times of planning cycles. For instance, the manpower planning cycle has reduced from a 10-day effort to a 1-day effort. This cycle-time reduction has allowed teams to run these cycles more frequently than previously, further adding to the accuracy of the resultant plans.

Overall, this new supply chain planning platform has enabled Flipkart to grow rapidly in a sustainable manner by reducing the supply chain costs per shipment; enabled improved experiences for customers through faster delivery speed; and also enabled Flipkart to quickly scale new business. This platform is a critical component of Flipkart's sustained success.

Client Endorsements

Vikash Sinha, VP of Demand, Supply & Inventory planning at Flipkart

Flipkart operates in an e-commerce market that is extremely dynamic and competitive and the company needs to move quickly to compete in these markets. The central planning platform has enabled us to scale our impact efficiently with the rapid growth in Flipkart's business. Now, despite scaling some parts of our operations 5x in the last 6 months, we are able to operate with a similar sized team as well as reducing run-times of planning cycles. For instance, our capacity planning cycle has been reduced to a 1-day effort. This cycle-time reduction has allowed teams to run these cycles a lot more frequently making the plans more accurate and enables Flipkart to be more agile in responding to the changes in the market.

Hemant Badri, Senior Vice President, Supply Chain and Customer Experience

As someone who has run operations for more than 25 years and led global planning for global FMCG companies, I can confidently say that the work done on the Central Planning platform at Flipkart has been world-class and transformational. The scale of the solution and the speed at which it was built has enabled Flipkart to grow rapidly in a sustainable manner by reducing our supply chain costs per shipment and enabled delightful experiences for customers through faster and more reliable delivery speeds.

This project was a runner up in the INFORMS Edelman competition in 2025.

Reference

1. <https://pubsonline.informs.org/doi/10.1287/inte.2025.0282> 



Section Editors:

Gerhard-Wilhelm Weber <gerhard.weber@put.poznan.pl>, **Jinal Parikh** <jinal.parikh@ahduni.edu.in>

Learning, Growing and Connecting at the 2026 INFORMS Analytics+ Conference in National Harbor, Maryland, USA

<https://pubsonline.informs.org/doi/10.1287/orms.2026.01.08/full/>

Zohar Strinka, CAP-X <zstrinka@gmail.com>

* This article was previously printed in *OR/MS Today*.

The [2026 INFORMS Analytics+ Conference](#) was held April 12-14 in *National Harbor, Maryland*, and helped attendees learn and grow, regardless of where they are in their analytics journey.

Inspiring Keynotes

This year, *INFORMS* had two fantastic *keynote speakers* lined up to both inspire and help attendees level up in analytics.

On Monday, April 13, *Scott Taylor*, a passionate data evangelist colloquially known as “*The Data Whisperer*” helped attendees understand why telling a great data story about their work will help get buy-in from leaders and managers. It was exciting to bring this kind of message to the conference because effective communication is so vital - not only to attendees’ own careers, but also to help everyone get more value from analytics.

On Tuesday, April 14, *Cynthia Rudin* inspired attendees



▲ *Cynthia Rudin* wrapped up three days of learning and networking with the closing keynote session.



▲ *Scott Taylor* officially kicked off the conference by delivering the opening keynote session.

to think beyond maximizing one fixed goal and instead consider how optimizing for interpretability also helps adoption. She has led the field in thinking about how to minimize the trade-off between transparency and accuracy, while showing just how easy it is to improve on the default approach. This message was crucial not only for analytics professionals, but also for anyone trying to judge the true value of using analytics.

Training & Networking for Every Level

Early in the planning for the *2026 Analytics+ Conference*,

INFORMS settled on a philosophy of “[training for every level](#)” because no matter where people are in their careers, they can benefit from continued learning.

With that in mind, Tuesday’s agenda was reshaped to end with a training workshop block. Here, attendees had the opportunity for hands-on learning, deeper discussion, and even more networking with peers. Each session had a take-home tool or resource for participants to bring back to their organizations and start using immediately!

There were panels for early career, mid-career and senior leaders at the Sunday evening parallel workshops, which included valuable networking opportunities. For first-time attendees trying to learn how to make the most of the conference, these sessions were especially useful.

INFORMS consistently heard that the best part of *Analytics+* are the opportunities to connect with others. Talking with peers can be the best way to learn about what’s happening at other organizations. Many attendees brought with them decades of experience in analytics and viewed attending the conference and sharing guidance as a crucial way to give back. Regardless of the experience level of attendees, analytics is so varied and broad that everyone returned home with new insights and tools.

The Decision-First Mindset

INFORMS has always brought a decision- and impact-first perspective to what it means to work in analytics. Whereas other conferences focus on methods or technologies, INFORMS looks to real-world actions and decisions. Ways that attendees saw this in action at the 2026 Analytics+ Conference included:

- The *Edelman Competition*, in which Chewy, the Department of Food and Public Distribution (DFPD) of India, ECCO, Google, Microsoft and NVIDIA shared the real value they delivered for their organizations using analytics. Then, at the Edelman Gala Monday evening, the winner of the “Nobel Prize of O.R.” was announced ... *Microsoft!*

- The *INFORMS Analytics Framework™* provided a structured way to navigate the conference and taught attendees the right skills to accelerate their careers.

- Networking opportunities with Certified Analytics Professionals (CAPs) who have earned one of the three certification levels - Essentials, Pro or Expert - helped attendees learn more about advancing their careers. CAP certifications validate the professional knowledge of what it takes to get stakeholder buy-in or sustain a model for the long haul.



▲ Congratulations to Microsoft, winners of the 2026 INFORMS Franz Edelman Award..

On behalf of INFORMS and the 2026 INFORMS Analytics+ Conference organizing committee, we look forward to welcoming you back to next year's conference as we continue to explore how analytics drives smarter decisions for a better world.

Cordially thanks to dear **Ashley Klimp**, for communication and editing assistance that make this reprint possible. 🌍

DSAI 2026 in Beautiful Colorado, USA Advancing Data Science and AI for Real-World Impact, Supported by OR-MS

Farnoush Banaei-Kashani <farnoush.banaei-kashani@ucdenver.edu>, **Julien Langou** <julien.langou@ucdenver.edu>, **Meysam Rabiee** <meysam.rabiee@ucdenver.edu>, **Tulay Flamand** <tulay.flamand@ucdenver.edu>, **José (Pepe) Sánchez** <j.sanchez@ucdenver.edu>, **Alejandra Medina** <alejandra.medina@ucdenver.edu>, **Carlos Martinez Mori** <carlos.martinezmori@ucdenver.edu>, **Elyas Larfi** <elyas.larfi@ucdenver.edu>, **Geeta Verma** <geeta.verma@ucdenver.edu>, **Priyanka Desouza** <priyanka.desouza@ucdenver.edu>, **Qijian Ma** <qijian.ma@ucdenver.edu>

Overview

The Data Science and Artificial Intelligence Symposium (DSAI 2026) was held on April 10, 2026, at the *University of Colorado Denver*. The full-day event brought together 169 researchers, students, and practitioners to explore cutting-edge developments in data science and artificial intelligence, with a strong emphasis on real-world applications and interdisciplinary collaboration.

Program Highlights

- The program began with *opening* remarks by CU Denver Provost and Executive Vice Chancellor for Academic Affairs, *Professor Karen Marrongelle*.

- *Suma Nallapati*, Chief AI and Information Officer of the City and County of Denver, had a *keynote presentation* on “How AI is Reshaping How We Learn, Work, and Lead”.

- A *tutorial* session was delivered by *Professor Christopher Amato* from Northeastern University, providing an overview of “Introduction to Cooperative Multi-Agent Reinforcement Learning”.

- *DSAI 2026* also featured a *panel discussion* on “Harnessing AI to Create Public Good”, emphasizing how advanced *analytics* and *AI* technologies, together with *OR-MS*, can address pressing challenges in areas such as healthcare, sustainability, and policy-making.

- *Presentation sessions* included research presentations covering a wide range of topics on the foundations of AI, AI in education, and AI applications, along with several *poster presentations* across these areas.



▲ Participants of DSAI 2026 at the University of Colorado Denver.

- *DSAI 2026* also featured presentations by the winners of the *Lynx Hack 2026 Student Competition*, which highlighted the impressive talent of student participants, offering a glimpse into the bright future of AI through their creativity and technical achievements.

Impact and Outlook

By bringing together diverse perspectives and fostering interdisciplinary collaboration, the symposium contributed to strengthening the regional and global data science community and to positioning *CU Denver* as an emerging hub for AI education and research. The organizers extend their gratitude to all speakers, participants, and contributors who made the event a success and look forward to future editions of the symposium. 🌍

The Korean Operations Research and Management Science Society (KORMS)

Celebrated KORMS 2025 in Jeju David C. W. Lee <mycwlee@gmail.com>



▲ Group photos of an opening ceremony talk of KORMS Meeting 2025 (left);
A special session talk (middle). A poster session (top right), an oral session (bottom right).

The 2025 Joint Conference was successfully held from June 18 to 21 at the Jeju Haevichi Hotel & Resort, jointly organized by the Korean Society of Management Science and the Institute of Industrial Engineers, and co-hosted by the Institute of Industrial Engineers, the Korean Society of Management Science, and the Korean Society for Simulation.

This conference featured approximately 80 general and special sessions and tutorials, with over 600 papers presented and around 1,300 attendees participating.

At the opening ceremony,

- Ahn Dae-woong, SK Hynix Vice President, delivered a speech on the topic of "AI Application in Semiconductor Manufacturing," sharing his field experiences and insights regarding data-driven decision-making and AI optimization in the rapidly changing semiconductor industry with the conference participants.

The special sessions were included by industry and related organizations such as SK Hynix, LG CNS, LG Electronics

Production Technology Institute, VMS Solutions, Korea Electric Power Corporation (KEPCO), KEPCO KDN, Hana Financial Group Convergence Technology Institute, Korea Productivity Center, SCSC Research Center, Groovy, FICO, Korea Credit Information Service, and ETRI.

- These sessions created a venue that combined practical industry experience with theoretical academic research experience, while LG CNS, LG Electronics Production Technology Institute, Nurimedia, FICO, and Optima Solution set up exhibition and recruitment booths.

- Through this, researchers gained an understanding of corporate technological trends, and graduate students and academics obtained diverse corporate information, serving as a practical platform for industry-academia exchange.

The Korean Academic Community welcomes international scholars who wish to participate in the joint academic conference to be held in Jeju from August 18 (Tue) to August 20 (Thu), 2026. Please direct inquiries to David Lee (mycwlee@gmail.com). 🌐

SEPROSUL 2025 within AUGM in San Miguel de Tucumán, Argentina – OR: Real-world impacts and regional integration examined

Daniel Rossit <Daniel.rossit@uns.edu.ar>

SEPROSUL 2025 took place in the city of San Miguel de Tucumán, Argentina, at the Universidad Nacional de Tucumán (UNT), on November 6 and 7, 2025. This meeting was organized within the framework of the Asociación de Universidades Grupo Montevideo (AUGM), a regional network of public universities committed to academic integration, scientific cooperation, and the strengthening of higher education across Latin America. As part of this structure, SEPROSUL is closely linked to the "AUGM Núcleo Disciplinar de Ingeniería Mecánica y de la Producción" (Disciplinary Nucleus of Mechanical and Production Engineering), which promotes collaborative research, mobility, and joint academic activities among member institutions.

The event brought together researchers from various South American countries, creating an enriching environment for academic exchange and regional collaboration. The diversity of participating institutions and research groups contributed to a vibrant atmosphere in which different perspectives, methodologies, and experiences could be shared. The works presented during the congress addressed a wide range of production-related problems. Although Operational Research was not the sole focus of the event, many contributions incorporated OR-based approaches or benefited from its analytical tools. >>

>> The variety of topics demonstrated the interdisciplinary nature of production research today, highlighting challenges in manufacturing systems, logistics, industrial processes, and decision-making under uncertainty. All presentations were of high quality and contributed to the harmonious development of the scientific program.

A particularly noteworthy aspect was the active participation of young researchers. For many of them, *SEPROSUL 2025* was their first presentation at an international conference. Their enthusiasm, fresh ideas, and willingness to engage in discussion enriched the event and underscored the importance of fostering early-career involvement in regional academic networks - one of *AUGM*'s core missions.

Looking ahead, the impact of the *AUGM Disciplinary Nucleus of Mechanical and Production Engineering* is expected to continue providing a solid path for academic training and the expansion of professional horizons for its members. Moreover, the interaction between *Operations Research* and other engineering disciplines offers significant potential. Encouraging dialogue across fields will not only broaden the scope and case studies available to *OR* but will also provide other disciplines with methodological tools capable of formalizing and improving decision-making processes. 🌐



▲ Some members of the *OR* team at *SEPROSUL 2025*.

Bridging Operations Research and Forestry: Reflections from JOTEFA 2026 in breathtaking Misiones, Argentina

Daniel Rossit <Daniel.rossit@uns.edu.ar>

"The Technical Forestry and Environmental Conferences" (*JOTEFA*), organized by the *National University of Misiones* in the city of *Eldorado* and held for more than forty years, have become one of the most significant academic, technical, and professional meeting spaces for the forestry sector in Argentina and the region. *Misiones* is the province where, among other things, the *Iguazú National Park*, the ruins of *San Ignacio Mini* and much more are located. Throughout their history, these conferences have served as a platform for researchers, companies, public institutions, and students interested in the evolving challenges of forestry and environmental management.

Although *JOTEFA* has not traditionally centered on *Operations Research*, the strong connection between decision-making, planning, and operations management has always been inherent to forestry activities. Consequently, many recent presentations explored innovative approaches to harvest planning, logistics optimization, and the economic evaluation of production systems.

Among the most notable contributions was the keynote lecture by *Dr. Julio Arce* (Federal University of Paraná, Brazil), who examined how spatial constraints and carbon balance requirements influence forest planning. His analysis

highlighted the ways in which these factors shape harvesting logistics and ultimately affect the return on investment in forestry projects - an especially relevant perspective in a context where sustainability and operational efficiency must coexist. Similarly, *Dr. Danilo Simões* (São Paulo State University - UNESP, Brazil) presented advances in harvesting technologies and the full-tree methodology, emphasizing their potential to optimize operational times and enhance the capacity of logistics systems. His presentation illustrated how technological innovation continues to transform forestry operations and create opportunities for continuous improvement.

Overall, *JOTEFA* reaffirms its importance as a space for reflection and technical exchange, fostering dialogue among science,

technology, and management to support the sustainable development of the forestry sector. By deepening and updating scientific and technological exchanges, the event enriches the knowledge base of participants and strengthens the interdisciplinary links between *Operations Research* and *Forestry*. As these fields increasingly converge, *JOTEFA* serves as a catalyst for integrating quantitative approaches with practical forestry challenges, promoting more efficient and informed decision-making across the sector. 🌐



▲ *JOTEFA 2026*: the ever-popular group photo.

XV Brazilian Workshop on Continuous Optimization Held in a beautiful place in the South of Brazil

Boris Mordukhovich <aa1086@wayne.edu>



The XV Brazilian Workshop on Continuous Optimization (BRAZOPT 2026) was held at the Federal University of Santa Catarina in Blumenau, from February 23 to 27, 2026 (<https://brazopt2026.blumenau.ufsc.br/>). Blumenau is a nice Brazilian town with a strong German flavor. This town strongly preserves the German culture and traditions, many inhabitants speak the Pomeranian dialect of German.

(Germany), Ellen Fukuda (Japan), George Lan (USA), Boris Mordukhovich (USA), Claudia Sagastizábal (Brazil), Katya Scheinberg (USA) and Mikhail Solodov (Brazil).

A special issue of *Computational Optimization and Applications* (COAP) will be dedicated to BRAZOPT 2026: <https://brazopt2026.blumenau.ufsc.br/coap/>.

A variety of plenary and contributed talks as well as poster presentations given in BRAZOPT 2026 clearly demonstrated a high level of the workshop; in particular, an impressive and rapidly increasing level of Brazilian researchers in the area of Continuous Optimization.

The excellent workshop organization and the warm, friendly atmosphere were repeatedly highlighted by participants. The next BRAZOPT will be held in 2026 at Teresina, Piauí. 🌍

▲ Conference banner of BRAZOPT 2026.

BRAZOPT is a traditional event that brings together researchers, professionals, and students working in *Continuous Optimization* from Brazil and abroad. Since its first edition in 1997, BRAZOPT has served as an important forum for scientific exchange, collaboration, and dissemination of research in the field.

The International Scientific Committee was chaired by Paulo J. S. Silva. The Organizing Committee was led by Roger Behling and Luiz-Rafael Santos.

There were more than 100 participants in the meeting from many countries in the world. Plenary talks were delivered by Samir Adly (France), Maicon Marques Alves (Brazil), Ernesto Birgin (Brazil), Orizon Ferreira (Brazil), Andreas Fischer



▲ Community in beautiful Blumenau at the celebrated BRAZOPT 2026.

Winning with Analytics: Regional School of Operational Research (ERPO) in Rio de Janeiro Highlights the Role of OR in Sports

Pedro Henrique González <pegonzalez@cos.ufrj.br>

The *Regional School of Operational Research (ERPO) 2026*, organized by the *Optimization Laboratory (LabOtim)* of the *Federal University of Rio de Janeiro (UFRJ)*, was held on April 27 and 28, 2026, in Rio de Janeiro. The event focused on optimization, mathematical modeling, and data analysis within the sports industry, aiming to introduce students to a field often underrepresented in traditional OR programs. The program was designed to provide a distinct pedagogical perspective on how quantitative methods can be applied to the complex decision-making environments of high-performance sports.

The event brought together 64 participants, predominantly undergraduate and graduate students, alongside academic researchers and professionals. This level of attendance reflects a growing interest among students in exploring specialized and underexplored applications of mathematical modeling. The school provided an entry point for many attendees to the challenges of sports analytics and logistics planning.



▲ Mini-course on Team Composition.

The scientific program featured 2 *technical sessions* specifically dedicated to the presentation of 6 *student-led research projects*. These works, developed by both undergraduate and graduate researchers, showcased the application of academic rigor to the identification of tactical patterns in football through pass network analysis, spatial decision-making modeling applied to match data, and predictive goal value metric validation. In addition to the technical sessions, the school offered specialized mini-courses conducted by graduate students from LabOtim. *Matheus Degliomi* and *Rafael Schneider* led a session on tournament scheduling, bridging theory and practice, while *Gabriel Dutra* and *Gabriel Madruga* presented a quantitative approach to football team composition, offering participants hands-on exposure to the modeling techniques used in the sports sector.

The educational experience was complemented by expert-led discussions, beginning with an opening keynote by *André Diniz* (IME/Uerj) on “*Monte Carlo simulations for forecasting football championships*”. A first roundtable, titled “*Sustainability in Major Sporting Events*”, included *Pedro Henrique*

González (UFRJ), *Simone de Lima Martins* (UFF), and *Vanessa Guimarães* (UFRJ), who discussed “*operational logistics and the long-term impact of sports infrastructure*”. A second roundtable on “*High-Performance Sports Decision-Making*” provided students with direct exposure to real-world industry perspectives through representatives from Clube de Regatas do Flamengo, SporTV, and Globo. The event ended with a closing lecture by *Celso Ribeiro* (Brazilian Academy of Sciences) on the “*mathematical complexities of tournament scheduling optimization*”.



▲ Closing Session of ERPO 2026.

ERPO 2026 successfully achieved its objective of exposing students to new academic and professional horizons within *Operational Research*. By integrating student research with expert perspectives, the school provided a comprehensive overview of the field and established a foundation for future research, collaboration, and academic engagement in sports-related optimization. 🌍

Cordially thanks to dear *Prof. Simone de Lima Martins*, for the communication that made this reprint possible.

The XV Chilean Conference on Operations Research: OPTIMA 2025, Celebrated in the port city of Coquimbo, Chile

Carlos Monardes <cmonardes@ucn.cl>, **Rosa G. González-Ramírez** <rgonzalez@uandes.cl>

OPTIMA 2025 was held from November 30 to December 3, 2025, at Universidad Católica del Norte, Campus Guayacán, in Coquimbo, under the auspices of the *Chilean Institute of Operations Research (ICHIO)*. Since the first OPTIMA conference in 1995, our community has grown remarkably, reflecting the increasing importance of optimization, analytics, and decision-making methods across science, industry, and public policy.

Operations Research continues to evolve, driven by challenges that demand innovative models, robust algorithms, and impactful applications. OPTIMA 2025 featured 145 talks organized into 37 sessions covering stochastic and robust optimization, vehicle routing, network design, analytics and AI, healthcare and energy applications, maritime logistics, multi-objective optimization, and more. Moreover, during the conference, the nine finalists for the best doctoral, master and bachelor thesis awards presented their work.



▲ Rosa González (President of the Program Committee), Héctor Cáncela (IFORS President) and Jorge Vera (ICHIO President); Marcel Favereu (Best Doctoral Thesis Award Winner); Carlos Monardes (Conference Chair at the Closing Ceremony); and the 4 Keynote Speakers: Héctor Cáncela, Marcela González Araya, Sarfaraz Hashemkhani Zolfani and José-Fernando Camacho-Vallejo (row by row from left to right).



▲ Group photo of OPTIMA 2025, and the participants enjoying a tour in the Bay of Coquimbo, Chile.

The program also included four plenary lectures presenting diverse state-of-the-art research and remarks, delivered by *Héctor Cancela Bosi*, *Sarfraz Hashemkhani Zolfani*, *José-Fernando Camacho-Vallejo*, and *Marcela González Araya*. We held a welcoming ceremony in which *IFORS President Héctor Cancela* shared remarks and presented the federation's main objectives and resources to the audience. At the end of the conference, some of the participants enjoyed a wonderful tour of the *Elqui Valley*, its wineries and observatories.

We extend our deepest gratitude to the organizing committee, volunteers, reviewers, sponsors, and supporting institutions, especially *Universidad Católica del Norte* for hosting the event at the beautiful *Campus Guayacán* in *Coquimbo*. Their dedication and commitment were essential in bringing this inspiring program to life (for more information, please refer to <https://optima2025.ichio.cl/es/>). 🌐

Bilevel Optimization Summer School in the vibrant city of Santiago, hosted by the Universidad de los Andes, Chile

José-Fernando Camacho-Vallejo <fernando.camacho@tec.mx>, **Rosa G. González-Ramírez** <rgonzalez@uandes.cl>

As an extension of *OPTIMA 2025*, a *Bilevel Optimization Summer School* organized by *Rosa G. González Ramírez*, was held on December 5-6, 2025, at *Universidad de los Andes* in *Santiago*, under the auspices of the *Chilean Institute of Operations Research (ICHIO)*. In total, 28 participants from Chile, Argentina, Colombia, and Mexico attended the school, fostering a vibrant environment for learning and collaboration.

The school was designed for graduate students and researchers interested in the theoretical foundations of bilevel optimization and its application to practical problems. The program combined theoretical principles with practical examples, with a particular emphasis on logistics applications. The lectures were delivered by *José-Fernando Camacho-Vallejo*, an expert in the field, who introduced the core concepts while also highlighting open challenges, emerging trends, and research opportunities in bilevel optimization. The event also featured contributions from *OPTIMA* sponsors, who



▲ Group photo of the Bilevel Summer School Chile 2025 (top left). Rosa González and José-Fernando Camacho-Vallejo (top right, left and right). The participants at lectures and the working group activities.

offered hands-on sessions: *Fred Gardi* from *Hexaly* and *Eduardo Salazar* from *AMPL*. 🌐

ICoSMODA 2026 Celebrated in beautiful Kolkata, India - Supply Chain Modelling, Optimization, Digitalization & Analytics

Prasun Das <prasun@isical.ac.in>, Kaustav Kundu <kaustav.kundu@isical.ac.in>

International Conference on Supply Chain Modelling, Optimization, Digitalization & Analytics (ICoSMODA 2026) was held from 10th to 12th February 2026 at ISI Kolkata, bringing together global experts researchers, industry leaders, and policymakers to explore how digital technologies can catalyze both sustainable development and national transformation. The primary objective of this conference is to help students, researchers, and practitioners understand the concepts of both traditional and digital supply chains, develop suitable models, optimize them, and effectively utilize the benefits of supply chain analytics. Supply chain management has become an integral part of modern industries, and terms such as data analytics, optimization, and digitalization have now become common across almost every sector. In the context of supply chains, the usage of these techniques has increased significantly; however, there still exists considerable ambiguity regarding their effective and practical implementation.



▲ Impression from ICoSMODA 2026, Kolkata, India.

The main conference began with an inauguration session where the Chief Guest was Prof. S. G. Deshmukh, an ex-faculty from IIT Delhi, and the Guest of Honour was Mr. Debdatta Chowdhury from Deepak Fertilisers and Petrochemicals Corporation Limited. Then there are Keynotes by Prof. Manoj K Tiwari, Prof. Subodha Kumar, Prof. Arnab Kumar Laha, and Prof. Sayan Putatunda, explore how modern supply chains and business systems are being reshaped by uncertainty, data, and advanced AI technologies. It highlights the need to manage risks ranging from predictable disruptions (grey rhinos) to rare, high-impact events (black swans), while leveraging innovations like generative and agentic AI to enable smarter, more autonomous decision-making. It also emphasizes the growing importance of multimodal data integration for improving logistics and location intelligence. Overall, the focus is on building resilient, intelligent, and adaptive systems across supply chains, operations, information systems, and marketing through business analytics and disruptive technologies.

A highlight was the global expert series, featuring Prof. Jhareswar Maiti, Prof. Sandeep Mondal, Prof. Raghu Nandan Sengupta, Prof. Sumanta Basu, Mr. Sandip Kumar Pal, Prof. Indrajit Mukherjee, and Prof. Gerhard-Wilhelm Weber, whose talk on "Generation Z and HR strategies using spatial data

and game theory" drew special attention. On 12th February, speakers included Prof. Bibhas Chandra Giri, Prof. Samarjit Kar, Prof. Adrijit Goswami, and others. These sessions included optimizing assembly, inventory, routing, and sourcing decisions to balance cost and resilience, leveraging blockchain for transparency and risk reduction (especially in remanufacturing), and applying reinforcement learning to make dynamic, data-driven decisions under uncertainty.

Parallel technical paper sessions continued throughout the day, covering topics such as operations research, optimization algorithms, and applied machine learning. These papers include transshipment models and improved coordination which can help in enhancing supply chain efficiency, especially in SMEs like garment industries. Digital integration combined with advanced analytics strengthens long-term operational performance. Pricing strategies that incorporate warranty, risk aversion, and remanufacturing flexibility enable firms to remain profitable under demand uncertainty. represented a wide spectrum of research from predictive modelling to digital policy analytics, emphasizing the expanding frontier of interdisciplinary work in computational social sciences and public administration.

The valedictory session featured reflections from key organizers and closing remarks by Chief Guest Prof. K. Krishnamoorthy. Prof. Prasun Das and Prof. S. K. Gauri were instrumental in the conference's academic and operational success. ICoSMODA 2026 proved to be a dynamic platform for shaping future research and innovation toward a digitally empowered, inclusive, and sustainable supply chain. 🌐

SigmaOpt Workshop 2026: Optimisation in the Nation's Capital

Felipe Atenas <felipe.atenas@unimelb.edu.au>, Neil Dizon <n.dizon@unsw.edu.au>, Matthew K. Tam <matthew.tam@unimelb.edu.au>

The 2026 *SigmaOpt Workshop*, organised by the *Special Interest Group on Mathematical Optimisation (SigmaOpt)* within ANZIAM (Australia and New Zealand Industrial and Applied Mathematics), was held on 13 February 2026 at the Australian National University in Canberra (Australia), immediately following the ANZIAM Annual Meeting (8-12 February 2026, Canberra Rex Hotel).

This year's workshop brought together university researchers, industry leaders and students from across Australia and New Zealand to discuss developments in optimisation, operations research, optimal control and decision science, strengthening connections within the regional optimisation community and its broader counterparts in operations research worldwide. It included invited talks from Philipp Braun (ANU), Queenie Huang (UNSW Sydney), James Nichols (Macquarie Bank/ANU), Mahdi Abolghasemi (QUT), and Hoa Bui (Curtin University). Each year, the *SigmaOpt/MoCaO Prize for Best Paper* by a student published in the



▲ The local wildlife on the ANU campus
(Photo credit: Neil Dizon).

last 18 months is also awarded. This year's winner was *Bethany Caldwell* (UNSW Sydney) for her paper: *Burachik, R. S., Caldwell, B. I., Kaya, C. Y., & Moursi, W. M. (2024). "Optimal control duality and the Douglas-Rachford algorithm". SIAM Journal on Control and Optimization, 62(1), 680-698.*

The workshop was organised by *Felipe Atenas* (University of Melbourne) and *Neil Dizon* (UNSW Sydney), with *Matthew K. Tam* (University of Melbourne), Chair of *SigmaOpt*, opening the event. The organisers thank the participants for a productive workshop, ANU for hosting, and *Dr Simon Watt* (UNSW Canberra) for his assistance. Further information about the workshop is available at <https://austms.org.au/events/2026-sigmaopt-workshop>.

The next *SigmaOpt workshop* is planned to be held in Auckland (New Zealand) in early February 2027. If you are interested attending or would just like stay informed of our activities, we welcome you to join the *SigmaOpt* mailing list at <https://groups.google.com/g/sigmaopt>. 🌐

2nd African Conference on Machine Learning, Optimization, and Applications Celebrated in Kigali, beautiful Rwanda

Abebe Geletu W. Sleassie <abebe.geletu@aims.ac.rw>

The 2nd African Conference on Machine Learning, Optimization, and Applications (MLOA 2025) took place from September 22-24, 2025, in Kigali, Rwanda. The conference brought together a diverse community of African academics, international experts, graduate students, policymakers, industry leaders, service providers, and research institutions. Its main objective was to discuss current developments and future directions in the field of machine learning, optimization, and their diverse applications. Simultaneously, it aimed to promote collaboration and knowledge exchange to support scientific progress and socio-economic development in Africa.

The conference was chaired by *Prof. Abebe Geletu W. Selassie*, German Research Chair of Applied Mathematics, Artificial Intelligence and Applications, at the *African Institute of Mathematical Sciences (AIMS) Rwanda*, and *Prof. Pu Li*, Head of the Process Optimization Research Group at TU Ilmenau,



▲ Conference banner of MLOA 2025.

Germany. The conference focused on how machine learning and optimization techniques can be used to address real-world challenges in Africa and beyond.

A comprehensive scientific program included *keynote lectures* and *technical sessions* by internationally renowned scientists. Among the distinguished Keynote Speakers were *Professor Boris Mordukhovich*, (Distinguished Professor of Mathematics at Wayne State University and recipient of the 2025 Lanchester Prize from *INFORMS*), *Professor Lars Grüne*, (Professor and Chair of Applied Mathematics at the University of Bayreuth and a 2025 SIAM Fellow), *Professor Conrad Tucker* (Director of CMU Africa), *Dr. Hans-Georg Zimmermann* (Chief Scientist of Fraunhofer IIT). The conference was officially opened by *Professor Blaise Tchapnda*, Academic Director of AIMS Rwanda.



▲ Group photo of some of the participants.

The event attracted researchers and doctoral students from numerous countries, including Rwanda, Kenya, Burundi, Nigeria, Ethiopia, Cameroon, the Democratic Republic of Congo, Tanzania, Ghana, the USA, France, the UK, and Germany. Participants presented their latest research findings and engaged in stimulating discussions with leading experts. Research topics included intelligent model predictive control systems, reliable deep learning, real-time modeling with physics-based neural networks, and applications in fields such as agriculture and environmental engineering.



▲ Keynote speech of some of Professor Boris Mordukhovich.



▲ Keynote speech of Dr. Hans-Georg Zimmermann.

Around 70 participants, mostly doctoral students, actively contributed to the conference, creating a dynamic environment for academic exchange and networking. A panel discussion entitled “*AI for Africa’s Development: Opportunities, Challenges, and Policy*” addressed the role of artificial intelligence in sustainable development on the continent, focusing particularly on data availability, infrastructure, and ethical considerations.

Furthermore, the poster session provided early-career researchers with an interactive platform to present their work, receive constructive feedback, and establish professional contacts. Overall, *MLOA 2025* was a highly successful event that strengthened international collaboration, promoted cutting-edge research, and highlighted the role of machine learning and optimization in addressing pressing global and regional challenges.

Acknowledgements: On behalf of the conference committee, I would like to express my sincere gratitude to the Alexander von Humboldt Foundation and the German Academic Exchange Service (DAAD) for their strong support of the conference, including their generous financial, material, and organizational contributions. 🌍

Bridging Behavior and Operations Research: A Short Course on Discrete Choice Analysis and Market Demand @ EPFL, Switzerland

Michel Bierlaire <michel.bierlaire@epfl.ch>

The 2026 edition of the short course “*Discrete Choice Analysis: Predicting Individual Behavior and Market Demand*” took place at the *École Polytechnique Fédérale de Lausanne (EPFL)* from January 25 to 29, 2026. The program once again gathered a highly engaged audience, welcoming 23 participants from across Europe representing both academic institutions and industry. The diversity of backgrounds highlighted the sustained international interest in advanced methods for modeling individual decisions and market demand (see <https://transp-or-academia.epfl.ch/dca>).

The course was co-taught by two leading specialists in the field, *Prof. Moshe Ben-Akiva* (MIT) and *Prof. Michel Bierlaire* (EPFL). >>



▲ Moshe Ben-Akiva, Michel Bierlaire and the participants.

>> Through a combination of rigorous presentations and interactive exchanges, they guided participants through the theoretical underpinnings and practical implementation of discrete choice models, emphasizing their relevance for analyzing and forecasting behavior in complex systems.

Across five days - amounting to roughly 30 hours of instruction - the program combined lectures, computer-based exercises, and open discussions. The material spanned both core and advanced topics such as nested and mixture logit models, panel data methods, Bayesian estimation, and simulation techniques. Recent developments were also covered, including the integration of machine learning approaches under theoretical constraints, online personalization, and optimization, thereby connecting established modeling frameworks with emerging data-driven tools.

ORBEL40: 40th Conference of the Belgian OR Society, Successfully held in Leuven, Belgium

Roel Leus <roel.leus@kuleuven.be>, Pieter Vansteenwegen <pieter.vansteenwegen@kuleuven.be>, Wouter Verbeke <Wouter.verbeke@kuleuven.be>

On February 5-6, 2026, the *Belgian Operational Research Society (ORBEL)* held its fortieth annual conference in Leuven. The event was hosted by the *Faculty of Economics and Business at KU Leuven*, and jointly organised by the *Department of Decision Sciences and Information Management* and the division *Mobility and Industrial Management*. The milestone edition attracted over 200 participants from Belgium and neighbouring countries, bringing together researchers, practitioners, and representatives from industry.

The *ORBEL* conference serves as the primary annual meeting point for researchers, users, and prospective users of *Operational Research, Data Science, Analytics* and related disciplines. It offers academics, practitioners and managers a unique forum for exchanging ideas and discussing recent advances in quantitative and data-driven methods for decision making across a wide range of applications.

The programme featured more than 120 talks covering a broad spectrum of methods and applications of *OR, Analytics and Data Science for decision making*. Presentations were organised into thematic sessions grouped by method and application domain, including - among others - combinatorial optimisation, routing and scheduling, machine learning and AI for decision support, healthcare analytics, supply chain management, transportation and logistics, energy systems, financial modelling, and simulation. The full programme is available at <https://feb.kuleuven.be/orbel40/conference-program>.



▲ Announcement of the winners of the *ORBEL Master Thesis Award*.

Participants had multiple opportunities to interact directly with the instructors, notably during a dedicated question-and-answer session that encouraged deeper exploration of methodological issues and practical applications. The variety of perspectives brought by attendees fostered a lively and collaborative atmosphere, enriching the learning experience and promoting high-level exchanges.

Overall, the 2026 course confirmed its standing as a key training event for researchers and practitioners wishing to strengthen their expertise in discrete choice analysis. With its international reach and the involvement of renowned instructors, the program continues to offer a valuable forum for advancing knowledge and practice in the modeling of individual behavior and market demand. 🌐



▲ Opening of *ORBEL 40* by Prof. Pieter Vansteenwegen in the Old Amphitheatre aula.

True to the spirit of the occasion, the session schedule itself was *optimised*: participant preferences for talk attendance were collected in advance and used to construct a timetable that minimised conflicts, resulting in sessions that were coherently grouped both by methodological theme and by application area.

The conference welcomed two *keynote speakers*. Prof. *Gilbert Laporte* (HEC Montréal / University of Bath) gave a historical survey of the Travelling Salesman Problem and its far-reaching influence on combinatorial optimisation. Prof. *Stefan Feuerriegel* (LMU Munich) introduced causal machine learning as a framework for learning optimal decision policies from observational data, with applications ranging from personalised medicine to business and public-sector policy.

The conference concluded with a closing session during which the annual *ORBEL Master Thesis Award* was presented. This prize recognises outstanding master's thesis work in the field of *operational research* and related quantitative disciplines.

The forty-year milestone of *ORBEL* was celebrated in a convivial atmosphere that reflected the vitality and diversity of the Belgian *OR & Analytics* community. The next *ORBEL* conference will be hosted by *Ghent University* in February 2027. 🌐

10th AIROYoung Workshop and Ph.D. School, Celebrated in Padova, Italy - “Optimization Between Determinism and Uncertainty”

Manuel F. Aprile <manuel.aprile@unipd.it>, **Francesco Cavaliere** <francescocava95@gmail.com>, **Martina Galeazzo** <galeazzo@phd.unipd.it>, **Dario Palasgo** <dario.palasgo@phd.unipd.it>, **Anthony Palmieri** <anthony.palmieri@studenti.unipd.it>, **Lorenzo Perinello** <perinell@math.unipd.it>, **Matteo Pernini** <matteo.pernini@essec.edu>, **Alice Raffaele** <alice.raffaele@unipd.it>, **Gabriele Sanguin** <gabriele.sanguin.2@phd.unipd.it> – Organizing committee of 10AYW

Happy birthday, AIROYoung!

The young researchers’ chapter of AIRO has celebrated its **first ten years** with the 10th edition of its annual workshop (10AYW) (<https://ayw2026.github.io/>). The 10AYW was held at the University of Padova, Italy, February 9-13, 2026, jointly organized by researchers from the Department of Information Engineering and the Department of Mathematics



▲ 10AYW group picture and part of the organizing committee.

“Tullio Levi-Civita”, and the AIROYoung board. This year’s theme, “Optimization between determinism and uncertainty”, attracted 122 participants, 78% from Italy and 22% from abroad. There were Ph.D. students, postdoctoral researchers, professors, practitioners, and even one high school student!

The event began with a one-day Ph.D. School: 4 lectures by *Marco Di Summa*, *Matteo Fischetti*, *Francesco Rinaldi*, and *Domenico Salvagnin* on *Branch-and-Bound*, *Cutting Planes*, *Branch-and-Cut*, *Benders decomposition*, *Bilevel Optimization*, the *Frank-Wolfe method*, and how to properly design experiments and do benchmarking.

The four-day workshop featured 58 presentations by young researchers on various OR topics, including transportation and logistics, energy and environmental applications, scheduling and timetabling, network optimization, and machine learning. There were 4 plenary lectures by international invited speakers: *Martine Labbé* (Université Libre de Bruxelles) talked about multi-dimensional disjunctive inequalities for chance-constrained problems; *Stefan Røpke* (DTU) gave an overview of vehicle routing problems by also showing how modern tools, such as large language models, can be used to support the research;

OPTIT once again proposed the initiative first introduced during the 9th AIROYoung Workshop in Pavia: a *Best Presentation Award*. The winner was *Alice Daldossi* (University of Torino), who gave a talk entitled “Building a fair and efficient surgical unit: insights from academic vascular surgery”. Four honorable mentions were given to *Leena Aizdi* (University of Pisa), *Fabio Ciccarelli* (Sapienza University of Rome), *Arianna Freda* (Roma Tre University), and *Serena Fugaro* (CNR-IAC). *Cargoful* and *Springer* will support two Best Paper Awards for the best contributions accepted for publication in the upcoming volume in the *AIRO Springer Series*. As part of this milestone 10th anniversary, we held a special roundtable with AIROYoung founding members and previous boards to offer insights into the origins of AIROYoung, its growth over the years, and the vision for its future. The roundtable concluded with a celebratory [video](#).

Participants had time to connect and enjoy Padova and delicious Italian food. *Hexaly* sponsored a guided tour of *Palazzo Bo* (where *Galileo Galilei*’s desk can be admired) and there was a social dinner at *Osteria Antico Brolo* with drinks offered by *Distilleria Brunello*, the oldest Italian artisan distillery. The 10AYW, free of charge for participants, would not have been possible without the support of national and



▲ AIROYoung Roundtable; guided tour at Palazzo Bo;

Wolfram Wiesemann (Imperial College Business School) discussed how to deal with ambiguity in data-driven robust Markov Decision Processes; and *Hande Yaman Paternotte* (KU Leuven) presented three graph partitioning problems. 5 sponsor talks by *Hexaly*, *Mosek*, *FICO*, and *IAC* and *IASI* of the *National Research Council of Italy (CNR)* broadened the discussion to solvers and real-world applications.



▲ 10AYW sponsors.

international institutions and companies, also allowing us to offer 18 accommodation grants.

Let us say a special “thank you” to all the people who contributed to the AIROYoung community during these years. This young researchers’ chapter allowed us to cultivate, share, and transmit all our enthusiasm for OR; to grow and expand our network; and, last but not least, to meet, get to know, and learn from several people. We hope that many future researchers will benefit from this and do their best to let it continue. One more time, happy birthday, AIROYoung, and many happy returns! 🌍

EWGCFM 73rd Meeting “Innovation in Commodities and Finance” amid Naples’ Timeless Beauty

Zelda Marino <zelda.marino@unina.it>, Stefania Corsaro <stefania.corsaro@unina.it>

The University of Naples Parthenope hosted the 73rd Meeting of the EURO Working Group on Commodities and Financial Modelling (EWGCFM) on April 22-24, bringing together an international community of scholars to share and debate cutting-edge research in commodities, finance, insurance, and decision-making under uncertainty (<https://disaq.uniparthenope.it/73-meeting-ewgcfm/>). Over three intensive days, the program featured thirteen thematic sessions spanning portfolio optimization, financial econometrics, asset pricing, banking, insurance, cryptocurrencies, machine learning, and robust decision-making, with a strong focus on timely issues such as sustainable finance, climate risk, and geopolitical uncertainty.



▲ The first day of EWGCFM 2026 – Naples, Italy.



▲ The Organizers at the Social Dinner with the Chair Rita D'Ecclesia.

The program also featured invited talks by leading scholars, including *Katrien Antonio*, presenting machine learning methods within an expectation-maximisation framework for nowcasting, and *Fred Espen Benth*, discussing recent advances in term-structure modelling and pricing in commodity markets. Their contributions offered participants valuable insights into cutting-edge methodological developments and emerging research directions.

Throughout the meeting, ample space was given to methodological innovation, with contributions employing stochastic modelling, robust and distributionally robust optimization, neural networks, explainable AI, and advanced econometric techniques. The diversity of applications - ranging from banking and insurance to energy markets and alternative finance - highlighted the interdisciplinary nature of the EWGCFM community.

Beyond the scientific sessions, the meeting included a *social program* designed to foster informal interaction and networking among participants. Social events such as a guided tour of the Bourbon Tunnel and a *conference dinner* provided opportunities to strengthen professional relationships and encourage future collaborations in a friendly and stimulating environment.

Overall, the 73rd EWGCFM Meeting successfully reaffirmed its role as a key international venue for presenting high-quality research on commodities and financial modelling, promoting dialogue across disciplines, and supporting the development of innovative approaches to risk analysis in an increasingly complex and uncertain global context.

The meeting also featured the awarding of the 4th Spronk's Award, funded by the Spronk family, which was conferred on a very bright young scholar chosen from a shortlist of six outstanding papers, highlighting the strong commitment of the EWGCFM community to supporting early career research excellence.

Cordially thanks to dear *Prof. Rita D'Ecclesia*, for communication and editing assistance that made this report possible. 🌐



▲ The winner of the Spronk's Award with the wife of its founder Jaap.



▲ Participants on the last day of 73rd EWGCFM.

6th Conference of the EURO Practitioners' Forum in Warsaw: Unlocking OR for All: From Models to Business Impact

Susanne Heipcke <SusanneHeipcke@fico.com>

FICO



Unlocking OR for all:
From models to business impact

6th Conference of the
EURO Practitioners' Forum
Warsaw University of Technology
27-28 April 2026



The eight members of the organization committee have put together a successful event. Particular thanks to the local organizers *Izabela Żółtowska* and *Mariusz Kaleta* (Warsaw University of Technology)!

The *EURO Practitioners' Forum* (website: <https://www.euro-online.org/websites/or-in-practice>) was publicly launched at the 2016 *EURO Conference* in Poznan, initially under the name of '*EURO Working Group on the Practice of OR*'. The *Practitioners' Forum* aims to enable O.R. professionals to have more impact on the outside world, by helping them find solutions to typical practical challenges, gain understanding of tools/techniques they have not used before, build their networks, and learn from others in order to inspire and expand their own practice. Among the main activities of the *Practitioners' Forum* figure the organization of the 'Making an Impact' stream at all recent *EURO-k* conferences and the monthly '*First Friday Webinar Series*' that has been running for several years (recordings of past presentations can be found here: <https://www.euro-online.org/websites/or-in-practice/webinars/>).

The first conference of the *Practitioners' Forum* was held in Paris in February 2018 on the theme '*Measuring the impact of OR projects – challenges and experiences*', followed by a meeting in Bologna in March 2019 under the title '*Operations Research meets Machine Learning - How to get the most of both worlds to achieve excellent Decision Support Systems*', and our online conference in 2020 with the theme '*Challenges in the deployment of OR projects*'.

The 6th Conference of the *EURO Practitioners' Forum* was held at *Warsaw University of Technology*, Poland, on 27-28 April, 2026.

The Forum has continued its activities with two online workshops respectively in November 2021 and 2022. The first physical meeting post-Covid took place in April 2023 in Berlin with the theme '*OR as a resilient technology – How OR reacts and adapts to disruptive changes and future challenges*', followed by a conference on '*OR in collaboration*' in Coimbra in October 2024.

For this year's conference we were able to win five keynote speakers covering a wide range of industry sectors: The event opened with a talk by *Sylvester Ciodyk* (ORTEC) on '*Practical optimization: real-world success stories*' from retail logistics, following up with *Geoffrey de Smet* (Timefold) who shared personal insights about creating a start-up company: '*How to build an open source solver and a company around it*'. On the second day, *Michał Kłos* (PSE) discussed the notion of fairness in the operation of electricity networks: '*Framing fairness: A practical approach to beyond-cost optimization for TSOs' mathematical programming problems*', we then heard about '*An engineering perspective on mixed integer programming in computer systems*' by *Paweł Lichocki* (Google), and closing with a talk on '*Quantum computer – from holy grail to your favourite toy*' by *Tomasz Stopa* (IBM), presenting the state-of-the-art of Quantum Computing.

Sander Van Aken (Flix SE) led a panel discussion on '*Overcoming resistance to change - integrating OR models into existing business processes*' with the panelists *Victoria Guerrero* (Ingka Group - IKEA), *Laura Houlley* (Air Liquide) and *Przemysław Latos* (Orange Innovation) who openly shared their experiences with the audience.

In addition, we received a large number of contributed submissions. The final selection made by the program committee included a wide range of applications areas, from planning TV programs in Germany, to tax automation for Polish municipalities via the deployment of LLMs, staff planning for Swiss airport operations and the optimization of Norwegian farms.



▲ Keynote by Tomasz Stopa (IBM).



▲ Panelists Victoria Guerrero (Ingka Group - IKEA), Laura Houlley (Air Liquide), Przemysław Latos (Orange Innovation).



▲ Keynote by Michał Kłos (PSE).



▲ Conference participants in front of the main university building.



▲ Guided tour of Warsaw Old Town.



▲ Discussions during coffee breaks.



▲ Conference dinner.

Following the tradition established by previous *Practitioners' Forum* events, this year's conference also included a round of parallel discussion groups where all participants were invited to share their experiences on these topics: 1) *OR and GenAI* - how they complement each other; 2) *Practical struggles of getting solutions into production*; 3) *Academia vs. Industry: The relevancy gap*. As a new activity, we have introduced a 'Talent Clinic' offering, 1-1 meetings between an experienced OR practitioner and a more recent member of the community, that was fully booked and found quite a positive resonance.

This programme attracted 148 registrants from more than 20 countries, with a majority of attendees working in industry. If you weren't able to attend but would like to know more about some of the topics discussed, the full abstracts are available on the event webpage (<https://www.euro-online.org/websites/or-in-practice/euro-practitioners-forum-6th-annual-conference>) and the speakers will be pleased to hear from you if you would like to follow up.

Ample opportunities for socializing were provided during the lunch and coffee breaks, the conference dinner at the 'Dock19' restaurant near the river Vistula, and a guided walking tour through the Old Town of Warsaw. The whole

event was free to attend thanks to generous contributions from our sponsors (in addition to our regular funding from *EURO*).

The *EURO Practitioners' Forum* committee is looking forward to meet you at future events of the *EURO Practitioners' Forum*. See the [Forum's webpage](#) for webinar recordings, or to sign up to become a member of the *EURO Practitioners' Forum* (free of charge) or follow its LinkedIn group: <https://www.linkedin.com/company/euro-practitioners-forum/> for information on upcoming events. The *Practitioners' Forum* plans to organize its next conference in 2027 in Rome, most likely in conjunction with a conference by the [Decision Science Alliance](#).

Susanne Heipcke leads the team 'Modeling and APIs' of Xpress Optimization development at FICO. Her research interests include all aspects of modelling, most notably the design of the language Mosel, the evolution of modeling tools, combining constraint programming and mixed integer programming approaches, and applying optimization in various industry sectors through consulting projects. She has held teaching engagements at different universities and also organized specialist training events and conference workshops. (Photographs by Susanne Heipcke) 🌐

News from the EURO WISDOM Forum: 2025 YoungWomen4OR Cohort!

Marcella Samà <marcella.sama@uniroma3.it>

YoungWomen4OR is a *WISDOM* (Women in Society: Doing Operational Research and Management Science) initiative created to give visibility to talented young women working in Operational Research, whether in academia or industry. Since 2020, the *WISDOM* Forum has been supporting these

emerging researchers and professionals by sharing their work through *EURO* channels and by creating opportunities for mentoring and meaningful connections within the OR community.

The Selection Jury for this year consisted of the following *WISDOM* members: *Renata Mansini* (Italy), *Sibel Salman* (Turkey), *Ana Barbosa-Povoa* (Portugal) and *Dilek Gunnec* (Turkey).

We are pleased to present the 12 recipients of the 2025 YW4OR Award, selected from wide range of applications from 10 different countries, reflecting the growing reach of the program. They are *Ece Çiğdem Karakoyun* (NL), *Elizabeth Williams* (UK), *Giulia Caselli* (IT), *Lavinia Marina Paola Ghilardi* (UK), *Lissa Melis* (NL), *Marta Leonina Tessitore* (IT), *Maryam Roudneshin* (IE), *Mina Akbarpour* (DK), *Nuria Gómez Vargas* (ES), *Salma Makboul* (FR), *Teresa Corberán Fabra* (ES), *Zongxiao Wu* (UK) (please see the mosaic, from left to right and from top to bottom).



We congratulate all these brilliant young researchers on their achievement and look forward to the work they will accomplish and share with our community over the years!

The contributions of this cohort will be a key feature of our upcoming schedule. We are specifically looking forward to the **Webinar** series they will lead in 2026, which will offer an opportunity for them to share their progress and insights with us all. Join us via [LinkedIn](#) to hear details of the *webinars* in 2026 highlighting each of the

YW4OR 2025 and for more news on *WISDOM*'s activities!

Cordially thanks to dear **Prof. Tatiana Tchemisova**, for the communication assistance that made this report possible. 🌐

Book Review

Section Editors:

Gerhard-Wilhelm Weber <gerhard.weber@put.poznan.pl>

Jinal Parikh <jinal.parikh@ahduni.edu.in>

Second-Order Variational Analysis in Optimization, Variational Stability, and Control – Theory, Algorithms, Applications

by **Boris S. Mordukhovich**

Springer Nature Switzerland AG

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OR-MS – Variational Analysis

Jinal Parikh <jinal.parikh@ahduni.edu.in>

Gerhard-Wilhelm Weber <gerhard.weber@put.poznan.pl>

This book by *Boris S. Mordukhovich* is a scholarly contribution in the area of optimization. It provides a holistic understanding of core - theoretical and methodological - areas of optimization in general and variational analysis in particular. Nevertheless, it also demonstrates skillful application of *OR-MS* on established results while developing new findings and perspectives of them to real-world and future *OR-MS* problems.

Specifically, it provides a comprehensive study of second-order subdifferentials, their calculus and efficient evaluations/calculations for major classes of functions encountered in problems of variational analysis, optimization, etc. in finite-dimensional and infinite-dimensional spaces. These results and advanced variational techniques play an instrumental role in characterizing fundamental notions of variational stability of solutions for diverse classes of problems in optimization and optimal control, the study of variational convexity of extended-real-

valued functions and their specifications, and variational sufficiency in optimization among other topics discussed in the book. This book also includes recent applications of the second-order subdifferentials, integrated with the achieved characterizations of variational stability and related concepts, in the design and justification of second-order numerical algorithms for solving various classes of optimization problems, non-smooth equations, and sub-gradient inclusions. The algorithms developed are numerically implemented and applied to practical models drawn from machine learning, statistics, imaging processes, and other applied areas.

The results presented serve as valuable tools for characterizing key concepts of variational stability in a wide range of optimization and optimal control problems, as well as for analyzing the variational convexity of extended real-valued functions and conditions of variational sufficiency in optimization. >>



>> Specifically, the book covers explicit calculations and significant applications of second-order subdifferentials, linked to these characterizations, in the design and validation of second-order numerical algorithms for solving various optimization problems, non-smooth equations, and sub-gradient systems. In addition, the introduction of generalized Newton-type algorithms effectively demonstrates local and global convergence with linear, super-linear, and quadratic rates by applying these algorithms to address practical problems in areas such as machine learning, statistics, imaging, as well as other applied fields.

The book may be beneficial to a diverse set of readers including graduate students as well as senior and young researchers in the areas of non-linear, variational and convex analysis, optimization and equilibria, systems control, and their numerous applications to engineering, economics, mechanics, machine learning, statistics, real, functional and applied analysis, ordinary and partial differential equations, numerical methods, etc., and other branches of applied sciences and technology.

There are extensive exercises and commentaries at the end of the chapter which enable the reader to develop a strong understanding of second-order variational analysis. There are some other exercises which challenge the readers to delve deeply into the original sources by providing hints and references. The list of statements presented in the book along with the glossary of notation and acronyms, and detailed subject index provides a ready-reckoner for the reader to quickly and easily find the item of interest.

A brief overview of this book which consists of nine interrelated chapters follows:

Chapter 1 – Basic Concepts of Second-Order Analysis introduces key concepts from first-order variational analysis and generalized differentiation, and goes on to develop, with full proofs, the core constructions, properties, and interrelationships of second-order generalized differentiation alongside concepts such as monotonicity, prox-regularity, and Moreau envelopes.

Chapter 2 – Second-Order Subdifferential Calculus is dedicated to comprehensive calculus rules for second-order sub-differentials and their partial counterparts in finite and infinite dimensions.

Chapter 3 – Evaluating Second-Order Subdifferentials comprises explicit evaluations and precise calculations of second-order subdifferentials for some major classes of extended-real-valued functions and constraint systems, *Lipschitzian* full stability and *Hölderian* full stability.

Chapter 4 – Lipschitzian Stability via Second-Order Subdifferentials explains the second-order study of variational stability of local optimal solutions and first-order variational systems governed by sub-gradient inclusions, variational inequalities, and generalized equations. It focuses on robust *Lipschitzian* stability of solution mappings for parametric variational systems and

tilt stability of local minimizers in general optimization frameworks as well as infinite-dimensional and finite-dimensional settings of nonlinear programming. This chapter also includes a detailed study of related notions of metric regularity and sub-regularity for sub-gradient with their strong counterparts.

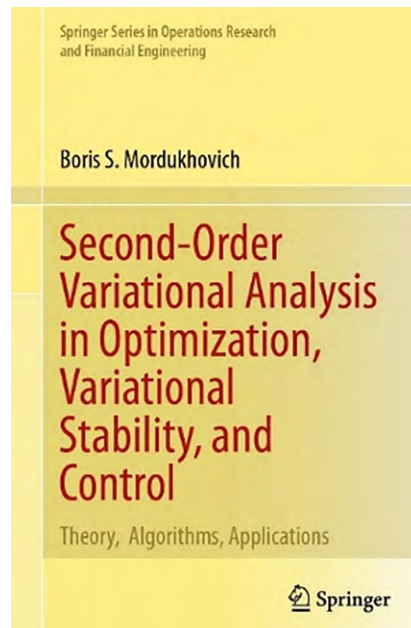
Chapter 5 – Full Stability of Local Minimizers focuses on two different notions of full stability viz. *Lipschitzian* full stability and *Hölderian* full stability, for local optimal solutions to optimization problems in infinite-dimensional and finite-dimensional spaces. Comprehensive characterizations of these notions are developed using second-order growth conditions and second-order subdifferential criteria within general frameworks of extended real-valued and constrained optimization. The results are further specified for particular classes of constrained problems, including both polyhedral and non-polyhedral structures. In addition, strong connections are established between the full stability of local minimizers and the strong stability of the associated *Karush-Kuhn-Tucker* systems under suitable nondegeneracy conditions.

Chapter 6 – Full Stability in Variational Systems is dedicated to establishing variational *Lipschitzian* and *Hölderian* full stability in the context of solution mappings associated with parametric variational systems (PVSs) and their specifications. It demonstrates the crucial role in the study of full stability for PVSs played by local maximal monotonicity and its strong counterpart for set-valued mappings in *Hilbert* spaces. The coderivative characterizations of these notions so developed serve as key tools

for deriving second-order characterizations of full stability for PVSs and their specifications in both finite-dimensional and infinite-dimensional settings.

Chapter 7 – Full Stability in PDE Optimal Control deals with the optimal control of elliptic Partial Differential Equations (PDE) systems, with the primary objective of examining the variational full stability of optimal solutions under various perturbations in problem data. The approaches developed to analyze and characterize both *Lipschitz* and *Hölder* full stability rely on reducing these problems to polyhedral programming frameworks in *Hilbert* spaces, while integrating tools from second-order generalized differentiation with core PDE theory. This analysis shows that the two notions of full stability are, in fact, equivalent and admit explicit second-order characterizations. This chapter briefly outlines the notable applications of second-order variational analysis to the optimal control of emerging classes of dynamical systems governed by sweeping processes along with relevant references.

Chapter 8 – Variational Convexity in Optimization introduces the concepts of variational convexity of extended-real-valued functions and variational sufficiency in optimization. The analysis extends local maximal and strong maximal monotonicity to *Banach* spaces, revealing key differences from their *Hilbert* space counterparts. The key contribution is a resolvent characterization of local maximal monotonicity, offering a local analogue of the *Minty* theorem, novel even in finite dimensions. >>



▲ OR-MS – Variational Analysis.

>> These results establish strong links between variational convexity, the local convexity of Moreau envelopes, and the local maximal monotonicity of sub-gradient mappings. Parallel developments for strong variational convexity connect it to tilt stability under suitable geometric conditions. Together, these findings lead to corresponding results on variational sufficiency and strong variational sufficiency for local optimality in composite optimization, with explicit applications to nonlinear programming.

Chapter 9 – Second-Order Numerical Variational Analysis provides the crux of the book, wherein theoretical developments and calculations given in the previous chapters are applied to second-order numerical variational analysis containing the design, justification, and implementation of numerical algorithms to solve

optimization-related problems by using second-order subdifferentials. It presents several generalized Newtonian algorithms exhibiting local and global convergence with linear, super-linear, and quadratic convergence rates, followed by further applications to solving practical models.

This book, thus, provides an extensive overview of second-order variational analysis in optimization. Researchers and practitioners in the OR and Analytics community can extend this work further into both established and emerging domains - such as data and information sciences, logistics, game-theory, finance, energy, commodity markets, natural resources, environmental protection, healthcare, medicine, neuroscience, behavioral sciences, education, ethics and societal complexity. 🌐



ABOUT THE AUTHOR

Source: <https://clasprofiles.wayne.edu/profile/aa1086> >

Professor Boris S. Mordukhovich is an American mathematician recognized for his research in the areas of nonlinear analysis, optimization, and control theory. He is one of the founders of modern variational analysis and generalized differentiation. Currently he is Distinguished University Professor at Wayne State University. He developed constructions of generalized differentiation (bearing now his name), and their development and applications to classes of problems in variational analysis, optimization, equilibrium, control, economics, engineering, and other fields. His theory and various applications have been summarized in 7 monographs (the most recent ones were published in 2024) and more than 550 journal publications.

He is an *AMS* Fellow of the Inaugural Class, a *SIAM* Fellow, and a recipient of many international awards and honors including Dr. Honoris Causa from 6 universities and academies worldwide. He is a Foreign Member of the National Academy of Sciences of Ukraine. He was the Founding Editor (2008) and Editor-in-Chief of Set-Valued and Variational Analysis and is now an Area Editor of *JOTA*. He is also on the list of Highly Cited Researchers in Mathematics. His most recent award is 2025 *INFORMS* Frederick W. Lanchester Prize, which is one of the most prestigious awards in Applied Mathematics, Operations Research, and Management Science. 🌐

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