2025 EDELMAN GALA

Recognizing Distinction in the Practice of Analytics, Operations Research, and Management Science

informs

2025 EDELMAN GALA

FOR DISTINCTION IN PRACTICE



FRANZ EDELMAN AWARD
Achievement in Advanced Analytics, Operations Research & Management Science
Emphasizing Beneficial Impact

INFORMS EARLY CAREER PRACTITIONER AWARD
Engage & Recognize Early Career Professionals
Exemplifying Excellence and Support of the Discipline

UPS GEORGE D. SMITH PRIZE
Strengthening Ties Between Academia & Industry
Emphasizing Effective Academic Preparation

DANIEL H. WAGNER PRIZE
Excellence in Operations Research Practice
Emphasizing Innovative Methods and Clear Exposition

INFORMS PRIZE
Sustained Integration of Operations Research
Emphasizing Long-term, Multiproject Success

Indianapolis, Indiana | April 7, 2025

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THE EDELMAN GALA

CEREMONY PROGRAM

Welcome & Acknowledgments

Radhika Kulkarni, Host of Ceremony

2025 INFORMS Early Career Practitioner Award

Shantih Spanton
2025 INFORMS Early Career
Practitioner Award Chair

2025 Edelman Finalist Project Summaries

Amazon
Flipkart
Lufthansa Group

2025 UPS Smith Prize Presentation

Anne Robinson
2025 UPS George D. Smith Prize Chair

2024 Daniel H. Wagner Prize Presentation

James Cochran
2024 Wagner Prize Chair

2025 INFORMS Prize Presentation

Yulia Vorotyntseva
2025 INFORMS Prize Chair

2025 Edelman Finalist Project Summaries

SF Express
USA Cycling
WM

2025 Franz Edelman Award Winner Announcement

David Hunt, INFORMS President
Irvin Lustig, CAP, 2025 Edelman Award Chair

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Sponsorship list as of March 7, 2025.

HOST OF CEREMONY

Radhika Kulkarni, 2022 INFORMS President



Radhika Kulkarni is an advanced analytics professional, active in the areas of operations research (O.R.), artificial intelligence, and machine learning. She started her career as a visiting professor in the O.R. and statistics departments at UNC Chapel Hill, before moving to a career in industry at SAS Institute. She retired after 35 years of leading various areas of analytics R&D at SAS. For the last 10 years of her career, Kulkarni was the vice president of advanced analytics R&D, overseeing software development in many analytical areas including statistics, O.R., econometrics, forecasting, and data mining. One of the hallmarks of her leadership was fostering interdisciplinary collaboration across the research teams with diverse analytical expertise.

Radhika has remained an active and involved member in INFORMS throughout her career. Since her retirement from SAS Institute, Radhika has served as one of the leaders of the INFORMS AI Initiative, with the goals of advancing and promoting O.R. and analytics within the AI community and advocating for O.R. and analytics among policymakers and other constituencies. She is a recipient of the Women in Operations Research and the Management Sciences (WORMS) Award. She was recognized as an INFORMS Fellow in 2014 and served as the 2022 president of INFORMS.

Radhika serves on the Master of Science in Analytics Advisory Board at Georgia Tech, External Advisory Board at The Institute for Learning-Enabled Optimization at Scale (TILOS), and the Advisory Board for the Business Analytics Program at Sabancı University in Turkey.

Radhika holds a bachelor's in mathematics from Presidency College, Madras, a master's in mathematics from the Indian Institute of Technology, New Delhi, and a master's (1979) and PhD (1981) in O.R. from Cornell University.









ANALYTICS AND OPERATIONS RESEARCH TODAY

SMARTER DECISIONS FOR A BETTER WORLD

By David Hunt, INFORMS President



Welcome to the 2025 INFORMS Edelman Gala! On behalf of INFORMS, its board of directors, leadership, staff, and volunteers, we are thrilled to have you join us in celebrating the remarkable and transformative contributions of analytics professionals from around the world. Tonight, we honor the finalists and announce the winners of some of INFORMS' most prestigious awards: the Franz Edelman Award for Achievement in Advanced Analytics, Operations Research, and Management Science; UPS George D. Smith Prize; Early Career Practitioner Award; Daniel H. Wagner Prize for Excellence in Operations Research Practice; and INFORMS Prize.

This evening is a powerful reminder of the far-reaching impact of operations research (O.R.) and advanced analytics, as well as the brilliant individuals who make up this vibrant community. It is the creativity, hard work, and unwavering dedication of these professionals that drives innovation, fuels discoveries, and leads to the incredible applications we are celebrating tonight.

The finalist teams this year represent a diverse mix of organizations and industries from across the globe. We are honored to welcome teams from three continents (Asia, Europe, and North America), reflecting the international reach of the analytics field.

Tonight's awards celebrate significant achievements at every stage of an analytics professional's career. From university programs that set the foundation for future leaders in analytics, to the groundbreaking work done early in one's professional journey, to the lifetime commitment of advancing analytics' role in solving complex global challenges, these awards showcase the full breadth of the profession's impact.

The accomplishments of tonight's finalists, whether just starting out or with years of experience, the accomplishments of tonight's finalists serve as an inspiration to all. They demonstrate that excellence in analytics is always within reach, no matter where you are on your journey.

I invite you to take time to explore this program, which highlights the achievements of this evening's awardees and finalists. Once again, thank you for joining us at the 2025 Edelman Gala to celebrate excellence in analytics and the visionary individuals who are making *smarter decisions for a better world.*







THINK BIG, START SMALL

All industries can engage in a transformative journey

By Pierre Pinson, Halfspace and Imperial College London
(On behalf of the team at Molslinjen and Halfspace)

"Think big, start small" – this is what most people remember from the Molslinjen case last year.

At the beginning of the reprise for the Franz Edelman Award in April 2024 in Orlando, we asked the audience: "Who heard of Molslinjen and Halfspace before yesterday?" Naturally, before that day, very few knew about this group of Danes working with data and analytics with the ambition to transform the passenger ferry industry. In view of the amazing cases brought forward by the competing teams (ALDI SÜD Germany, American Airlines, McDonald's China, Tata Steel Limited, Transvision), it is also fair to say these Danes did not look like one of the favorite teams to be handed in the Edelman Award that year. Afterward, some people even asked us how we won…

Upon reflection, isn't that what the Edelman Competition is all about? We all have this unwavering ambition to see operations research (O.R.) and analytics making an impact, to change the world for the better. This necessarily translates to always looking for new problems and challenges, new industries that can highly benefit from our expertise, and new ways to improve lives. The passenger ferry industry is very large, and the potential to transform it with O.R. and analytics is massive. This impact is not just about revenues for operators but about better service for customers, a better work environment for people on the docks and onboard, decreased environmental impact, and more. However, it is not an easy task because it is also a conservative industry that on the surface has very little to do with data, optimization, and AI.

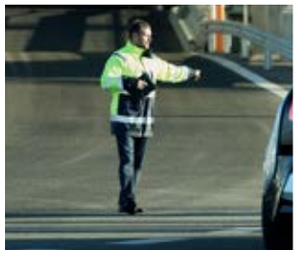
Like in any industry that has not yet experienced the value it can generate from data, you need to start small. Starting small with data can be so rewarding: simple analytics, simple (yet effective) visualizations, and building trust in what the data says and in what one can do with these data-driven insights. You get your stakeholders onboard, from top management to the people channelling the flow of vehicles to board passenger ferries. But then, you realize there is so much more you can do – and you think big. This is what Molslinjen did. In just a few years, it went from scratching the surface with data to developing the most ambitious data and AI-driven strategy within the passenger ferry industry worldwide. And the partnership between Halfspace and Molslinjen paid off. Molslinjen's CEO Kristian Durhuus said, "The Edelman Award is the trophy that rewards all the decisions and hard work that drove Molslinjen's transformation. Within our organization, it reinforced our commitment to data-driven strategies. Beyond our walls, it elevated our reputation – attracting media attention and setting off a chain reaction of recognition, including five Golds at the Danish Digital Awards and the Chamber of Commerce's special AI prize. We're not just evolving as a company; we're redefining the ferry industry."

One can also feel a sense of pride within the Danish data, analytics, and O.R. community. Receiving the Franz Edelman Award tells a story about the expertise developed in Denmark and its innovation ecosystem. It additionally showcases how Danes have managed to do analytics and AI differently, by bringing their design mindset into the picture. Halfspace has an experienced team with talented designers, while having developed a design engineering mindset for how to solve challenging problems with data, analytics, and AI.

In practice, what does that mean for Molslinjen today? We now have cutting-edge tools to predict demand, set prices, and optimize the loading of vehicles in the ferry cargo area. More importantly, this has allowed us to engage in a profound change management process. Thanks to increased trust in data and analytics, processes can evolve, decisions can be made differently, and new ambitions can be set. For both Molslinjen and Halfspace, winning the Franz Edelman Award felt like an acknowledgment of what was achieved, but also as an encouragement to do even more.

We must acknowledge all colleagues at Molslinjen and Halfspace who have contributed over the last five years. We also want to express our gratitude to our coaches, the award judges, and the whole INFORMS community. We hope that our colleagues and peers now see passenger ferries differently and that our work can inspire others to think big!










OPERATIONS RESEARCH: BILLIONS AND BILLIONS OF BENEFITS!

By Jeffrey M. Alden, General Motors, Retired

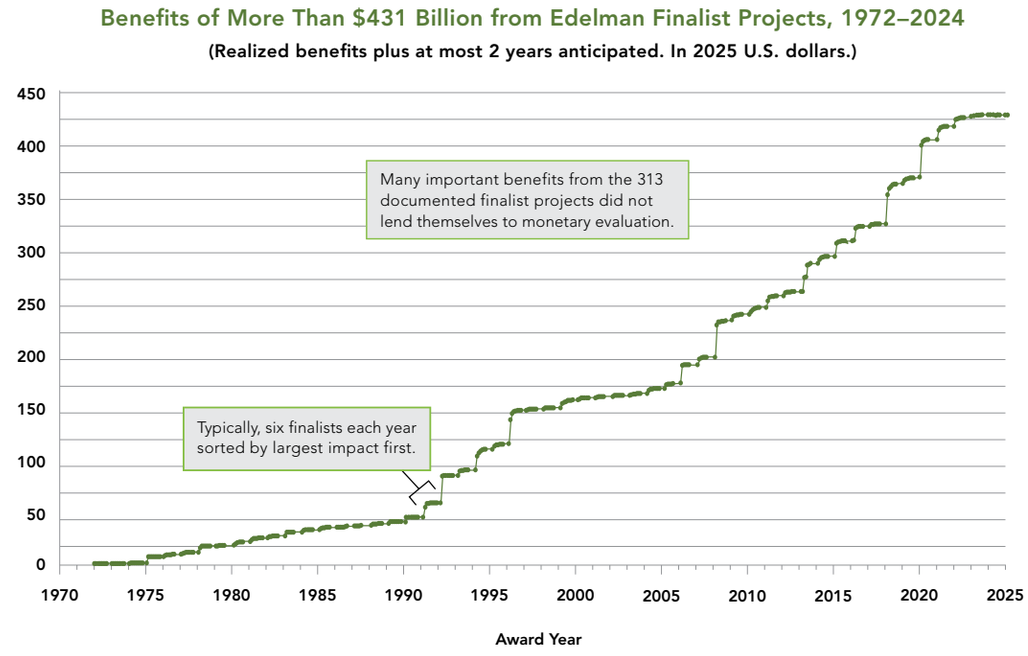
More than 431 billion U.S. dollars of cumulative impact! That's impressive! How were they estimated? How broad is the impact? Is there more?

Since 1974, the Edelman finalists have published their project accomplishments in the *INFORMS Journal on Applied Analytics*. While reviewing the 313 articles, their cumulative monetary impact was estimated under the following guidelines:

- Be objective with conservative assumptions.
- Include reported impact plus at most two more years of anticipated impact.
- Include only one year of enormous impact (tens of billions) to downplay the huge budget of some organizations.
- Ignore relative impact even though saving $10 million for a small company may be more impressive than saving $100 million for a large company.

These conservative guidelines exclude important yet difficult-to-quantify reported benefits such as better legal dispute resolution, cancer treatments, food assistance, airline safety, epidemic disease control, on-time railways, space shuttle heat shielding, and water quality. For example, there are dozens of finalist papers with significant life and health benefits. Most are difficult to quantify; however, a CDC project on mitigating epidemic deaths estimates saving 6,000 lives per year valued at $12B.[1] This saving compares conservatively with NIH's estimate that vaccines prevented 140,000 COVID-19 deaths in just one year.[2] One U.S. Army project estimates 4,500 avoided casualties by reducing requirements for helicopter and ground-convoy movements.[3] Another project estimated 3,000 lives saved during a recent Chile COVID-19 crisis with better use of ICU and screening capacity.[4] Nearly all finalist papers report nonmonetary benefits and often tout them as most important and longer lasting by establishing, for example, ongoing practices and organizational changes that improve health, safety, cooperation, decision-making, timeliness, and job satisfaction. Great! Clearly, reported monetary benefits significantly understate the full impact of the Edelman finalist projects.

Another important indication of the influence of operations research (O.R.) is the impressive breadth of applications. The Edelman finalists represent 80 different application areas, including aviation (safety, traffic, weather), banking, canal operations, communications (broadband, broadcasting, radio spectrum, streaming), consumer products, crowd control, cruise lines, delivery (express, truck, food), defense (Air Force, Army), education, financial (contract bidding, credit card, fraud, investment, pension, settlement), fire protection, forestry, food assistance, healthcare (blood collection, cancer, diagnosis, disease control, elderly, hospital, medical displays, pharmaceutical, surgery), hotel management, energy production and distribution (coal, gas, electric, nuclear, oil, wind), land use, manufacturing (electronics, computers, food, paper, seeds, steel, tires, vehicles), marketing, mining, printing, sanitation, security (airport, police), senior housing, social networks, sports, tax collection, transportation



(airline, highway, railway, ride share, rental, outer space, school bus, taxi), treasure hunting, U.S. census, veterinary, waste management, water (flood, flow, resources, quality), and weapons dismantlement. The list goes on and on! In fact, 808 organizations from business, government, and academia are recognized and honored as supporting or benefiting from finalist projects.[5]

Finally, this is just the "tip of the iceberg" because the Edelman Competition only captures those O.R. professionals choosing to compete! Just think, the 1,682 Edelman finalist authors only represent 14% of the current INFORMS membership.[6,7] Undoubtedly, a vast number of projects with significant impact did not compete due to confidentiality, lack of internal support to compete (e.g., no one thought of it, too busy, no management support, inadequate documentation), or the team was simply unaware of the competition.

The impact is immense! O.R. professionals should be proud of their profession – you can say "hundreds of billions of dollars and tens of thousands of saved lives" when asked about the value of O.R.!

1 For CDC: 6,000 lives/year ≈ 314M U.S. population * 5% epidemic penetration * 10% die under current practices * (100% - 80% fatality reduction under improved practices) * 1 epidemic per 200 years. Value of quality year of life in the U.S. is at least $2M / average life ≈ $50K/year (a standard value) * 78 years life expectancy * 50% average life lived due to epidemic. Total expected annual impact is $12B = 6,000 * $2M. See "Advancing Public Health and Medical Preparedness with Operations Research," *Interfaces*, Vol. 43, No. 1 (note Figure 6). Numbers are values considered reasonable by the author.

2 See https://www.nih.gov/news-events/nih-research-matters/vaccines-prevented-140000-covid-19-deaths-us. Accessed March 10, 2025.

3 "Bayesian Networks for Combat Equipment Diagnostics," *Interfaces*, Vol. 47, No. 1.

4 "Analytics Saves Lives During the COVID-19 Crisis in Chile," *INFORMS Journal on Applied Analytics*, Vol. 53, No. 1.

5 Some organizations and contestants have competed multiple times and are counted more than once.

6 Interesting how the average number of authors per paper has grown from 1.8 over the first 10 award years (1973-1982) to 9.7 over the last 10 award years (2015-2024).

7 "Edelman Finalists Quantified Benefits 2025," spreadsheet analysis of Edelman projects is available from the author or INFORMS.

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FRANZ EDELMAN AWARD

RECOGNIZING AND REWARDING REAL ACHIEVEMENT IN O.R. AND ANALYTICS

The Franz Edelman Award Competition is administered by the Practice Section of INFORMS.

For more than 50 years, the Franz Edelman Award Competition has recognized outstanding achievements in advanced analytics, operations research (O.R.), and management science. Each year, finalist teams from leading organizations worldwide showcase projects with transformative impacts resulting from years of research and collaboration.

The award is named in honor of Franz Edelman – an early practitioner of O.R. – who is recognized for establishing one of the first O.R. business groups in North America while employed with the RCA Corporation as an engineer in the 1950s. Now, more than 70 years later, we celebrate and promote the impact and importance of O.R. and analytics in nearly every aspect of the world around us.

The award selection process, beginning with a call for entries, involves rigorous review by the Franz Edelman Award Committee composed of O.R. practitioners and academics. Ultimately, six finalists are chosen after careful verification of the quality and impact of the team's work.

Finalists then prepare journal-quality papers and presentations for the INFORMS Analytics+ Conference, guided by experienced coaches. During the conference, judges evaluate presentations based on criteria such as application importance, technical solution novelty, and project impact. Feedback from judges helps teams refine their presentations for the final day of competition, which also includes a Q&A session with judges.

Judges assess presentations based on strict guidelines and select a winner that best exemplifies the award's standards. Finalists' achievements are highlighted in the *INFORMS Journal on Applied Analytics* and shared at the INFORMS Annual Meeting, reaching thousands of professionals, academics, and students worldwide.















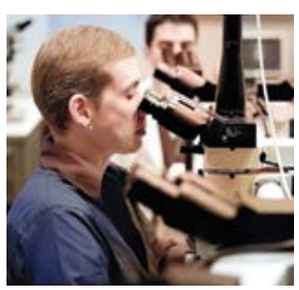


















EDELMAN AWARD PAST WINNERS

2024 **Molslinjen**

2023 **Walmart Global Tech**

2022 **Gobierno de Chile**

2021 **U.N. World Food Programme**

2020 **Intel Corporation**

2019 **Louisville Metropolitan Sewer District**

2018 **Federal Communications Commission**

2017 **Holiday Retirement**

2016 **UPS**

2015 **Syngenta**

2014 **U.S. Centers for Disease Control and Prevention**

2013 **Delta Programme Commissioner**

2012 **TNT Express**

2011 **MISO**

2010 **Indeval**

2009 **Hewlett-Packard**

2008 **Netherlands Railways**

2007 **Memorial Sloan Kettering Cancer Center**

2006 **Warner Robins Air Logistics Center**

2005 **General Motors**

2004 **Motorola, Inc.**

2003 **Canadian Pacific Railway**

2002 **Continental Airlines**

2001 **Merrill Lynch, Inc.**

2000 **Jeppesen Sanderson, Inc.**

1999 **IBM**

1998 **Bosques Arauco, S.A.**

1997 **Societé Nationale des Chemins de Fer Français and Sabre Decision Technologies**

1996 **South African National Defense Force**

1995 **Harris Corporation (Semiconductor Sector)**

1994 **Tata Iron & Steel Company, Ltd.**

1993 **AT&T**

1992 **New Haven Health Department**

1991 **American Airlines**

1990 **Health Care Financing Administration**

1989 **ABB Electric, Inc.**

1988 **City of San Francisco Police Department**

1987 **Syntex Laboratories, Inc.**

1986 **Southland Corporation (CITGO Petroleum Corporation Subsidiary)**

1985 **Weyerhaeuser Company**

1984 **Blue Bell, Inc. (dual)**

1984 **The Netherlands Rijkswaterstaat & the RAND Corporation (dual)**

1983 **Air Products and Chemicals, Inc.**

1982 **Arizona Department of Transportation**

1981 **ANR Freight System**

1980 **Kelly-Springfield Tire Company**

1979 **The Greater New York Blood Program**

1978 **Cahill May Roberts, Ltd.**

1977 **Syncrude Canada, Ltd.**

1976 **American Telephone & Telegraph**

1975 **Xerox Corporation**

1974 **Canadian National Energy Board**

1973 **The Babcock & Wilcox Company**

1972 **The Pillsbury Corporation**

THE 2025 SELECTION COMMITTEE MEMBERS, VERIFIERS, COACHES, AND JUDGES

We wish to thank the following individuals for their dedication and service as Selection Committee members and verifiers, coaches, and judges for this year's Edelman Award.

The verifiers work closely with the committee members to validate the claims made by each semifinalist entry. Once named a finalist, each team is assigned multiple coaches to help prepare for the competition. Finally, the Edelman judges are tasked with understanding each finalist presentation and project impact, to include asking pertinent questions during the competition, in order to select this year's winning team.

Selection Committee & Verifiers

- Irvin Lustig, CAP, *Chair, Edelman Award; Princeton Consultants*
- Layek Abdel-Malek, *New Jersey Institute of Technology, v*
- Shrish Ankur, *Meta Platforms, v*
- Joachim Arts, *MIT SIG*
- Maya Bam, *General Motors, v*
- Manish Bansal, *Virginia Tech*
- Ann Bixby, *Aspen Tech*
- Mark Brennan, *Rutgers University, v*
- Luciana Buriol, *Amazon, v*
- Ulas Cakmak, *Infor*
- Manoj Chari, *UNC-Chapel Hill, v*
- Canan Gunes Corlu, *Boston University*
- Goutam Dutta, *Indian Institute of Management Ahmedabad, Retired, v*
- Zeynep Ertem, *Binghamton University, SUNY*
- Javier Faulin, *Public University of Navarre*
- Kenneth Fordyce, *Arkieva, v*
- Suzan Iloglu, *Amazon*
- Shailendra Jain, *Hewlett Packard Enterprise, Retired, v*
- Hansheng Jiang, *University of Toronto, v*
- Angie King, *Wayfair, v*
- Don Kleinmuntz, *Kleinmuntz Associates, v*
- Kyle Kliewer, *Lockheed Martin*
- Sumit Makashir, *Amazon.com*
- Shannon McKeen, *Wake Forest University*
- Aly Megahed, *Meta Platforms*
- Marc Meketon, *Oliver Wyman*
- Polly Mitchell-Guthrie, *Kinaxis, v*
- David Muñoz, CAP, *Instituto Tecnológico Autónomo de México, v*
- Chanel Murray, *PNC*
- Alper Nakkas, *University of Texas at Arlington, v*
- Patricia Neri, *Intelligent Analytics Solutions, v*
- Naser Nikandish, *Johns Hopkins University*
- Dessislava Pachamanova, *Babson College, v*
- Ioannis (Yannis) Papadakis, *Zoetis Inc.*
- Pelin Pekgun, *Wake Forest University*
- Sanjay Prasad, *IBM, v*
- Sreekanth Rajagopalan, *Dow Chemical*
- Nithhyaa Ramamoorthy, *Mayo Clinic, v*
- Mikael Rönnqvist, *Université Laval*
- Kathryn Schumacher, *General Motors*
- Inderjeet Singh, *Infor*
- Swapnil Srivastava, *Evalueserve, v*
- Zohar Strinka, CAP, *Analytics Strategies LLC, v*
- Natalia Summerville, *Memorial Sloan Kettering Cancer Center*
- Kermit Threatte, *Innovative Optimization, v*
- Ozgu Turgut
- Leon Valdes, *University of Pittsburgh*
- Joyce Weiner, *Intel Corporation, v*
- Erick Wikum, *Wikalytics, LLC*
- Frederick Zahrn, *The Walt Disney Company*
- Xinhui Zhang, *Coupang Corp, v*

"v" Indicates verifiers

Franz Edelman Coaches

- Layek Abdel-Malek, *New Jersey Institute of Technology*
- Maya Bam, *General Motors*
- Manish Bansal, *Virginia Tech*
- Ulas Cakmak, *Infor*
- Canan Gunes Corlu, *Boston University*
- Kenneth Fordyce, *Arkieva*
- Shailendra Jain, *Hewlett Packard Enterprise*
- Kyle Kliewer, *Lockheed Martin*
- David Muñoz, CAP, *Instituto Tecnológico Autónomo de México*
- Alper Nakkas, *University of Texas at Arlington*
- Naser Nikandish, *Johns Hopkins University*
- Sreekanth Rajaoplan, *Dow Chemical*
- Mikael Rönnqvist, *Université Laval*
- Inderjeet Singh, *Infor*
- Zohar Strinka, CAP, *Analytics Strategies LLC*
- Kermit Threatte, *Innovative Optimization*
- Frederick Zahrn, *The Walt Disney Company*
- Xinhui Zhang, *Coupang Corp*

Franz Edelman Judges

- Irvin Lustig, CAP, *Chair, Edelman Award; Princeton Consultants*
- Ann Bixby, *Aspen Technology*
- Manoj Chari, *UNC Chapel Hill*
- Goutam Dutta, *Indian Institute of Management Ahmedabad, Retired*
- Marc Meketon, *Oliver Wyman*
- Chanel Murray, *PNC*
- Patricia Neri, *Intelligent Analytics Solutions*
- Joyce Weiner, *Intel Corporation*
- Erick Wikum, *Wikalytics*



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THE EDELMAN LAUREATES

The individuals who author Edelman finalist papers are deemed Franz Edelman Laureates.

Authors of finalist papers to be published in the *INFORMS Journal on Applied Analytics*, are recognized as Laureates and formally presented with the Franz Edelman Medal prior to the Edelman Gala.

Laureates are recognized for their significant contributions to work that was selected to represent the best applications in the world of analytical support for decision-making. Laureates are expected to serve as role models and exemplify that challenges can be met and innovative applications of analytics can help every organization.

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

THE EDELMAN ACADEMY

Each year, participating organizations are inducted as members of the Franz Edelman Academy.

The primary client organization, or beneficiary of the finalist work, is inducted into the Edelman Academy at the Edelman Gala during the INFORMS Analytics+ Conference. Academy members serve as role models for other organizations.

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

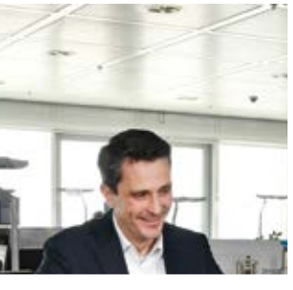
The membership of the Franz Edelman Academy represents more than 50 years of extraordinary contributions to society through the innovative application of O.R. and advanced analytics.



























THE 2025 FRANZ EDELMAN AWARD FINALISTS

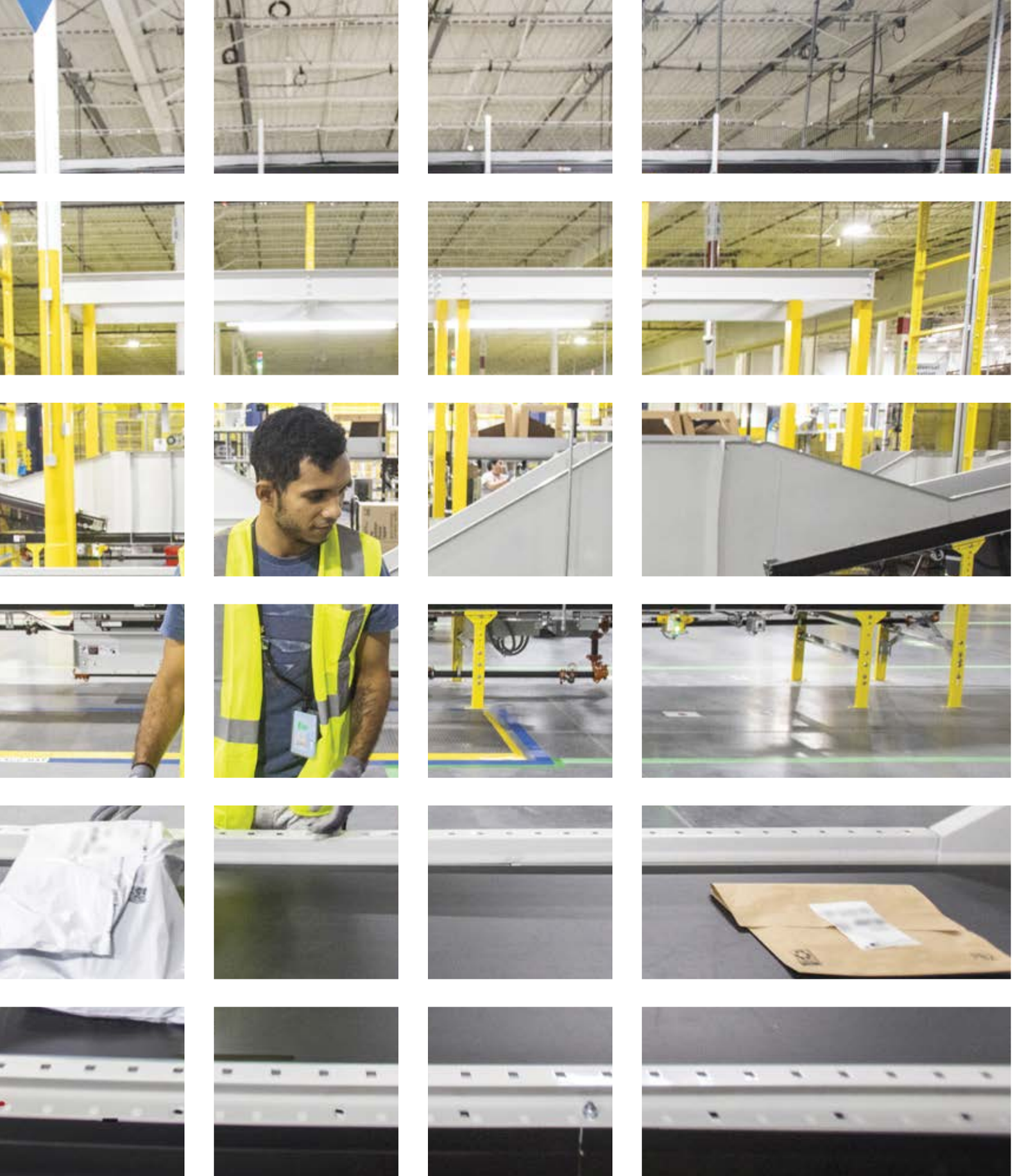
Introducing the six finalists for the 2025 Franz Edelman Award.

Over the past several months, these Edelman finalist teams,with guidance from their team coaches, have demonstrated to the Edelman Selection Committee that their work is among the finest examples of operations research and analytics practice in the world. One of these organizations will be recognized as the best in class, the first-place recipient of the 2025 Franz Edelman Award for their work to help save lives, save money, and solve problems.

A shortened summary of each of the 2025 finalist team's work is described in the following pages. Papers including the full project description will be published in the January/February 2026 issue of the *INFORMS Journal on Applied Analytics*. The journal, published by INFORMS, is dedicated to improving the practical application of operations research and advanced analytics in today's organizations and industries.

The 2025 Edelman Award finalists are:

- Amazon
- Flipkart
- Lufthana Group
- SF Express
- USA Cycling
- WM



AMAZON

Regionalize and Scale: Network Design for Faster and Cheaper Delivery

By the end of 2021, Amazon was selling over a billion items per year in the U.S. through a network of hundreds of fulfillment centers, each carrying millions of unique items, spread throughout the continental U.S. These items were delivered through a single national transportation network consisting of internal resources and external delivery partners, leveraging a variety of facilities (fulfillment centers, sortation centers, and delivery stations) that were. Multimodal and densely interconnected, the nationally connected. The nationally connected transportation network offers flexibility in choosing where to fulfill each order, which can be advantageous because it reduces the risk of backlogs and disruptions at a single site and increases the ability to handle variations in demand.

However, Amazon's mission to quickly serve their vast selection, with low cost to serve, faced challenges because of unprecedented network growth in the past few years. The scale of growth led to a nonlinear growth in the complexity of their transportation systems. The need for speed requires systems that make real-time decisions about order fulfillment centers (FCs) based on the state of the network and inventory availability, which in turn resulted in high variability in the set of FCs serving any destination area (e.g., city). That high variability translated to increased costs and reduced speeds.

In 2021, Amazon senior leadership identified this problem and assembled a team – the majority of whom were operations research (O.R.) professionals – to develop a solution. The solution is regionalization, in which they partitioned

the U.S. into eight interconnected but largely self-sufficient regions. The development and launch of regionalization were the result of 1.5 years of sustained O.R. studies examining each aspect of regionalization, leveraging a multitude of O.R. methodologies such as mixed-integer programming, queueing theory, discrete-event simulation, inventory theory, machine learning, and statistical analysis.

The core idea behind regionalization is to reduce the flexibility of order assignment by carefully matching fulfillment capacity with demand in a way that ensures sufficient capacity to serve each demand point and by restricting order assignment systems to fulfilling largely from the matched capacity. There are many ways to approach this kind of matching. Amazon implemented this through a geographical partition of customer locations into eight regions combined with allocation of fulfillment capacity to each region.

Although the idea is conceptually simple, Amazon needed to carefully define several components of the network structure and then evaluated these through a suite of custom-built O.R. tools, creating models of several different scenarios. The modeling tools included mixed-integer programs for network optimization, statistical models for estimating key inputs, and clustering algorithms for creating regions. Their network modeling revealed not only the potential cost savings and speed improvements from regionalization but also the impact of critical inputs, which allowed them to prioritize efforts in steering those inputs (such as inventory levels) to deliver the right outcomes.

The network modeling stage was followed by testing through simulation in higher-fidelity systems. Amazon obtained leadership approval to proceed with a pilot, which was accompanied by a careful implementation schedule and risk mitigation actions. They had to make several changes in both software and operations. Changes were made to how the software systems manage inventory, generate customer promises, and assign orders to fulfillment centers. In addition, Amazon had to change the configuration of their fulfillment centers, network connectivity, and schedules for transportation and delivery resources. Implementation took two months with dozens of teams working in close coordination.

Amazon launched their pilot in January 2023 in two of the eight regions. Core metrics such as cost and speed started showing immediate improvements. There were a few hiccups, but close partnership across stakeholder teams resulted in quick resolutions. The original plan was to observe the pilot for a few months and then make a decision on large-scale launch, but the first few weeks were sufficiently positive that leadership decided to accelerate the nationwide launch to the soonest possible date. By March 2023, regionalization was launched in the entire U.S. fulfillment network. Since then, it has been Amazon's core operating structure in the U.S. Additional refinements and optimizations have continued since the launch, and in parallel, Amazon also deployed ideas from regionalization to other marketplaces worldwide.

Regionalization significantly simplified the network structure. Post-regionalization, the number of lanes reduced markedly, making it much easier to decide when and how much to ship between regions. Due in part to regionalization, the distance between Amazon's sites and customers decreased by 15%, with 12% fewer touchpoints within our middle-mile network. The percentage of customer orders being fulfilled entirely from FCs within each region increased from 62% to 76%. In 2023, for the first time since 2018, regionalization helped Amazon reduce cost to serve per unit basis globally with a reduction of more than $0.45 per unit year-on-year. Regionalization also helped improve delivery speed, with more than 5 billion items arriving the same or next day globally between January and July 2024.

Regionalization also resulted in a simpler, more auditable operating structure, which enabled Amazon to discover additional opportunities for optimization. Many of their operating systems were built for a very different operating environment. For instance, in 2005, they had only six fulfillment centers in the U.S. and relied exclusively on third parties for fulfillment, whereas today, they have hundreds of fulfillment centers, and the majority of deliveries are through Amazon's own delivery network. As their network continues to evolve, they are building upon regionalization with greater emphasis on coordinating their inbound and outbound supply chain networks in a way that best leverages available capacity.

ORGANIZATION

Amazon

Amazon is guided by four principles: customer obsession rather than competitor focus, passion for invention, commitment to operational excellence, and long-term thinking. Their goal is to be Earth's most customer-centric company, Earth's best employer, and Earth's safest place to work.

Although Amazon's business has evolved over the years, one constant is customers' desire for lower prices, better selection, and convenient services. Today, Amazon shoppers can find what they're looking for online and in person. From delivering fresh produce to their doorstep to creating and distributing movies, music, and more, Amazon is always finding new ways to delight their customers.





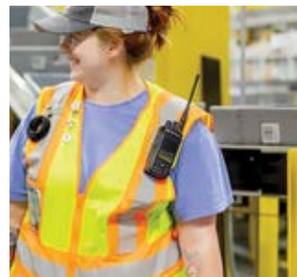














FLIPKART

Delighting a Billion Indian Customers Through Supply Chain Optimization for E-commerce

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The Flipkart Group is one of India's leading digital commerce entities and includes group companies Flipkart, Myntra, Flipkart Wholesale, Cleartrip, and super.money. With 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.

Flipkart employs a combination of its own logistics and third-party logistics to deliver products ranging from mobile phones, electronics, lifestyle products, books, home and general merchandise, groceries, perishable products, and large-sized household appliances such as refrigerators, washing machines, and TVs. On a typical day, Flipkart delivers more than 4 million shipments to customers across roughly 19,000 ZIP 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.

As of 2020, supply chain planning at Flipkart was a quasi-manual, loosely coupled process. Given the rapid growth and evolution in the Indian e-commerce market, Flipkart initiated an overhaul of its supply chain planning technology in 2020 by creating a supply chain planning platform that could enable it to succeed in a highly dynamic business landscape, a diverse customer base, and a complex vendor and third-party logistics ecosystem. This platform combines machine learning and operations research (O.R.) methodologies across two fundamental layers: forecasting and optimization.

The forecasting layer generates multigranular demand forecasts to support strategic, tactical, and operational decisions. It employs a suite of advanced statistical and machine learning models, including hierarchical forecasting, probabilistic time series models, and deep learning architectures (e.g., transformer-based sequence models). Additionally, it provides forecast reconciliation techniques, such as bottom-up aggregation, top-down disaggregation, and constrained forecasting, ensuring alignment across business functions while maintaining coherence across spatiotemporal dimensions.

The optimization layer leverages forecasts as input and enables 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. 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.

- Network planning: Optimally configuring the supply chain network to deliver projected demand at maximum speed and reliability while minimizing costs. Key decisions include network design and routing, sortation planning, and middle-mile scheduling.

The optimization layer is built on a suite of optimization technologies including integer linear programming, stochastic programming, network flow models, very large neighborhood search methods, and heuristics, among others.

Over the last three years, Flipkart has built a fully connected and automated system that includes forecasting models to cover demand across the full spectrum of the products delivered and models to optimize inventory planning, capacity planning, and network planning decisions. These capabilities are utilized by analysts across their supply chain planning organization, operations, and business teams.

The adoption and success of this platform has been enabled by a couple of key technology development strategies. First, in addition to state-of-the-art models, Flipkart has built a platform that delivers an end-to-end solution for supply chain planning. The platform includes systems of record, deep workflow automations, machine learning/optimization models, and experimentation platforms. These capabilities enable usability, visibility, and trust for supply chain analysts, and they provide the ability to make finegrained changes to machine-generated plans. With continued usage, confidence in this platform has grown, and the need for human override has steadily decreased. Second, Flipkart has implemented processes to maintain trust in the platform. Their forecasting models were preceded by ad hoc forecasts built and maintained by business analysts. Early on, a significant effort was dedicated to building trust and driving adoption of these system forecasts by demonstrating the higher degree of accuracy and corresponding benefits of these forecasts. Now, governance processes and systems enable technology and business teams to track the quality of model output. These processes and systems enable sustained trust and adoption of these forecast models and drive further investments to improve model and decision quality where required.

Overall, this planning platform has transformed planning and decision making at Flipkart. From using makeshift decision support tools to an integrated intelligent organization, the platform evolves daily, leading to significant improvements in delivery speed and costs. These sustained investments in more accurate demand forecasting 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, has helped to significantly reduce manpower costs and improve capacity utilization while maintaining speed commitments and improving reliability. Better forecasting combined with optimization models for inventory management and network and capacity planning have led to a 50% increase in one-day deliveries and a 43% increase in two-day deliveries. These improvements in delivery speed led to higher sales conversions and higher revenue, as well as lower supply chain costs and losses associated with returns.

In addition to the positive impact to business metrics, this platform has enabled Flipkart's supply chain planning organization to be more efficient and agile. Specifically, creating a platform for and optimization of supply chain planning has enabled planning teams to support rapid business growth at manageable organizational size. The systemization and automation enabled by this platform has also led to a significant reduction in run-times of planning cycles. For instance, the manpower planning cycle has reduced a 10-day effort to a two-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 supply chain planning platform has enabled Flipkart to rapidly grow in a sustainable manner by reducing the supply chain costs per shipment, enabled delightful experiences for customers through faster delivery speed, and served as the tech foundation that has enabled Flipkart to quickly scale new business. This platform is a critical component of Flipkart's sustained success.

ORGANIZATION

Flipkart

The Flipkart Group is one of India's leading digital commerce entities and includes group companies Flipkart, Myntra, Flipkart Wholesale, Cleartrip, and super.money. Established in 2007, Flipkart has enabled millions of sellers, merchants, and small businesses to participate in India's digital commerce revolution. With a registered user base of more than 500 million, Flipkart's marketplace offers more than 150 million products across 80+ categories. Today, there are over 1.4 million sellers on the platform, including Shopsy sellers. With a focus on empowering and delighting every Indian by delivering value through technology and innovation, Flipkart has created thousands of jobs in the ecosystem while empowering generations of entrepreneurs and MSMEs. Flipkart has pioneered services such as Cash on Delivery, No Cost EMI, Easy Returns, and UPI. These customer-centric innovations focus on enhancing digital payment offerings for all customers while making online shopping more accessible and affordable for millions of Indians. For more information, email media@flipkart.com.

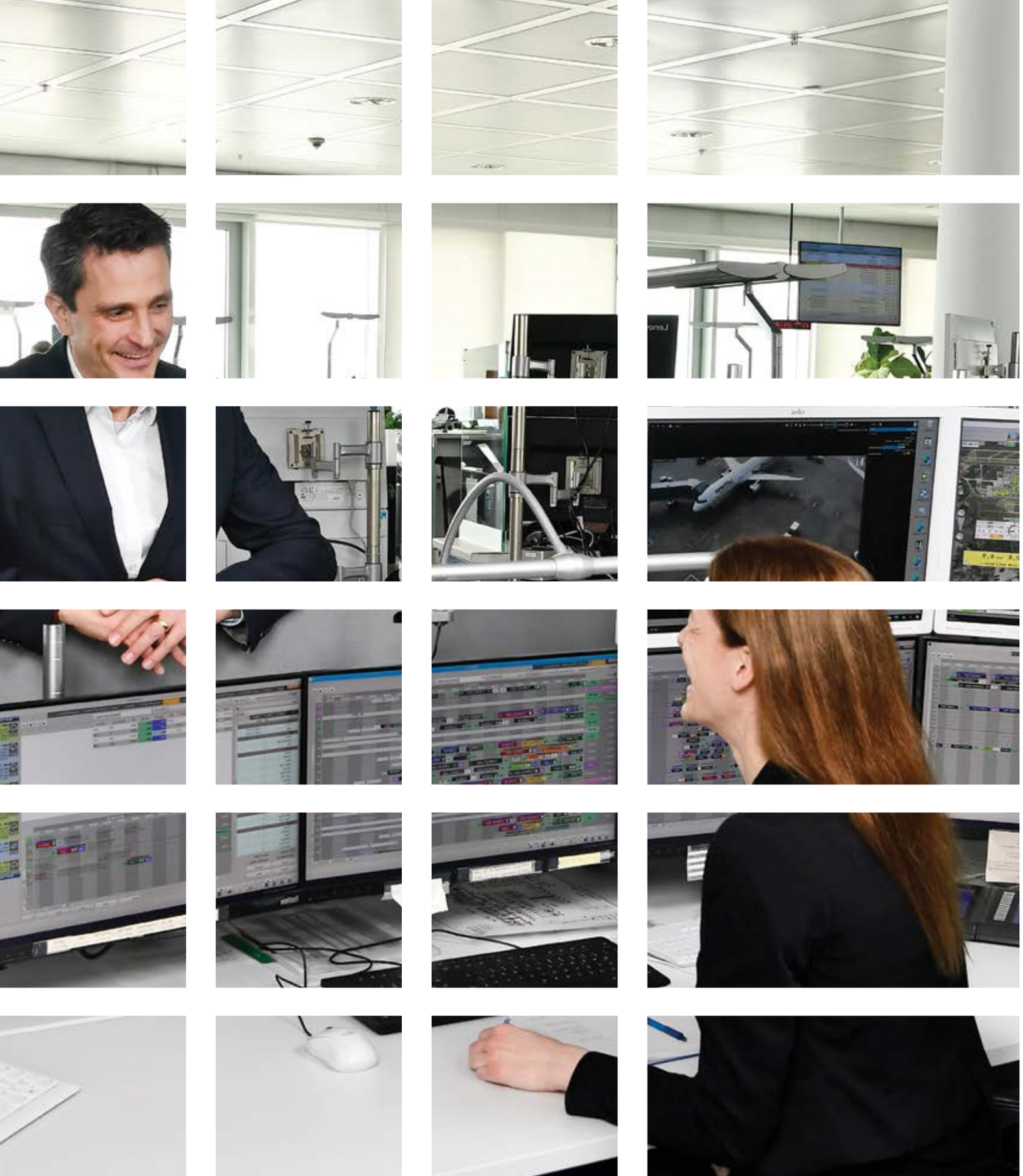










LUFTHANSA GROUP

Decision Support for Airline Schedule Recovery

In 2019, Lufthansa and Google began a five-year collaboration to apply operations research (O.R.) techniques to day-of-operations airline schedule recovery to jointly optimize their aircraft, passengers, and crew to ensure that disruptions such as flight delays are mitigated smoothly. Several novel decomposition techniques were developed as a result.

Sometimes, mitigating daily disruptions is simple: If a passenger misses their connection, book them on a later flight. Other times, it's more complex. If a large flight to an airline's hub is delayed, the airline might choose to delay some subsequent flights, creating a potential cascade. The resulting rebookings could require larger aircraft, with different crews certified to fly them. Airline crews have complicated flight duty restrictions that vary by role and country, imposing additional constraints.

To make these decisions, airlines juggle multiple objectives: minimizing operating cost while providing exemplary customer service, adhering to safety guidelines, and maximizing crew satisfaction. Multiple discrete optimization problems are involved, and historically, the industry has solved them in isolation. For instance, one software system might assign aircraft to flight legs while another assigns crew. This decoupling always requires manual work to check and repair, and therefore significant staff capacity is needed to handle these situations, often with suboptimal solutions because of time pressure and the limited abilities of staff to evaluate scenarios. For example, a longer-than-expected flight might trigger a compulsory break for the crew, rendering them unavailable for a planned subsequent flight.

The first decomposition was obvious: mimic the business. The SWISS Operations Control Center has physical departments: one for crew, one for passengers (pax), and one for rotations (the sequence of legs flown by an aircraft). Similarly, we have one subsolver for each, with an API-based service called the IrrOptimizer coordinating them all. (The name is derived from "Irregular Operations," an aviation phrase for short-term schedule mitigations.)

Dividing the problem in this way allowed development to occur in parallel, with a Google engineer learning about one of the domains in contact with counterparts at SWISS and Lufthansa. This ensured that no one involved needed to be an expert on everything.

The IrrOptimizer sends a set of candidate flights, each with some associated cost, to each subsolver, along with a maximum acceptable cost. Each subsolver then independently chooses a candidate for each flight, accounting for the IrrOptimizer's cost of the candidate, plus their own feasibility rules and costs. The IrrOptimizer's job is to adjust the sets of candidates and costs to guide the subproblems to a compatible joint solution.

This simple interface allows the IrrOptimizer to implement multiple decompositions and metaheuristics without any changes to the subsolvers. Each subsolver can be implemented flexibly, as a portfolio solver that combines fast heuristics (important for finding an initial joint solution quickly) and a slower but closer-to-optimal mixed-integer programming-based model to polish the solution over time.

The key techniques used in the IrrOptimizer are:

- Large neighborhood search (LNS), in which most candidates are omitted except for a small number close to the initial schedule or incumbent.
- A sequential heuristic, in which the rotation solver is run first, with costs reflecting a rough approximation of passenger disruptions. Then the pax and crew solvers are called, with only the single candidate per flight chosen by the rotation solver.
- Stabilized column generation, in which the cost of each candidate is derived from the duals of constraints enforcing choosing at most one candidate per flight, and the maximum cost derived from the duals of a constraint enforcing no more than one solution per subproblem.

These approaches are sometimes combined. For example, the sequential heuristic can be initialized with costs from column generation, with a subset of candidates chosen by LNS, or both.

The rotation subsolver chooses low-cost candidates by solving a straightforward network flow problem. It also provides tail assignments, assigning individual aircraft (uniquely identified by the code displayed on the tail, hence the name) to flight legs. Costs are chosen to incentivize small deviations from the original plan and minimize operating costs where deviation is necessary.

The pax subsolver chooses candidates that minimize overall disruption cost for passengers. It uses a matheuristic that first chooses a candidate for each flight to minimize a weighted sum of passengers disrupted, then generates itineraries for each disrupted passenger given these candidates and solves MIPs to try to reroute those disrupted passengers in batches.

The crew subsolver returns flights with crew assignments that satisfy hard legal and operational constraints, including constraints such as vacations and training, and softer constraints such as "should fly together" (if a crew arrives late after a flight and splits to operate subsequent flights, the potential for future disruptions increases, so keep them together when possible). This subsolver uses a heuristic that divides the problem into subproblems that can be solved with an MIP solver.

The service is in daily use by Lufthansa subsidiary SWISS International Airlines, with 12 million euros and 14 kilotons of CO2 already saved. It is currently being deployed to the rest of the airlines in the Lufthansa Group and is on track to save more than $31,000 and 50 kilotons of CO2 annually.

ORGANIZATIONS

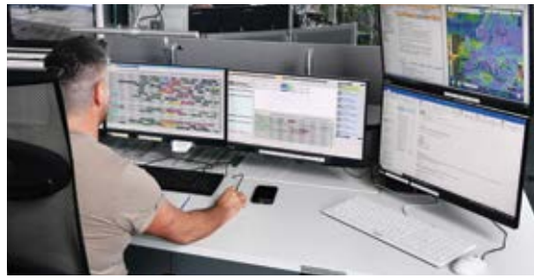
Lufthansa Group

Lufthansa Group is a world-renowned aviation company, composed of premium airlines such as Lufthansa, SWISS, Austrian Airlines, Brussels Airlines, and Eurowings. With a strong commitment to quality, innovation, and sustainability, the Group operates one of the most modern fleets in the industry, connecting passengers to destinations worldwide. Headquartered in Germany, Lufthansa Group is also a key player in aviation services, including maintenance, catering, and logistics.

Google

Google is a global leader in cutting-edge technology and artificial intelligence, driving innovation across a wide range of fields, including machine learning, natural language processing, computer vision, and quantum computing. With a mission to solve complex challenges and improve everyday life, Google collaborates with academic institutions, industry partners, and open-source communities to push the boundaries of scientific discovery.



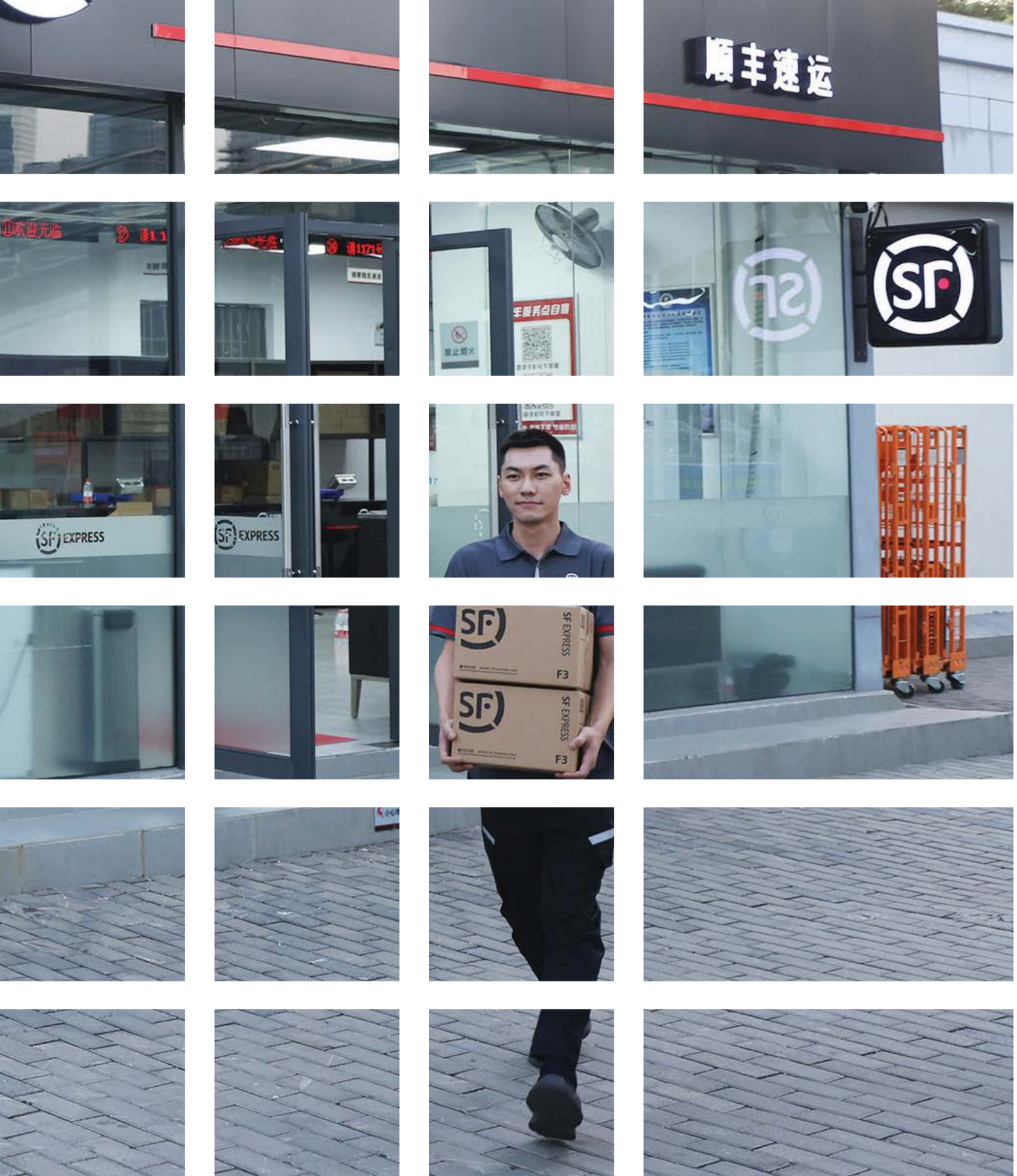












SF EXPRESS

SF Express Revolutionizes its Operations Planning Strategy Using Operations Research

Established in 1993, SF Express is now China's largest integrated logistics provider and ranks fourth globally (based on total revenue for 2023, as reported by Frost & Sullivan). Over the past 30 years, the company has evolved from a regional delivery service into a nationwide logistics powerhouse driven by its commitment to speed and reliability. With the rise of e-commerce, SF Express has preserved its leadership in China's express delivery market.

The Chinese express delivery industry has seen unprecedented growth over the past decade, fueled by the rapid expansion of e-commerce. By 2025, China's express delivery sector handled more than 150 billion parcels annually, accounting for nearly 70% of the global total. However, this remarkable growth has brought about fierce competition among major players, with express delivery prices dropping significantly – from $3.89 per parcel in 2007 to $1.25 in 2023 (according to data from the State Post Bureau of P.R. China). The demand for time-sensitive deliveries, such as perishable items and high-value goods, has made logistics speed a key differentiator. SF has continued to innovate to succeed in this competitive landscape.

Recognizing the growing complexity of its operations, SF Express began a transformative journey in 2018 to optimize its logistics network. The company's rapid expansion, including constructing Asia's first cargo-focused air hub, Ezhou Huahu International Airport (or Ezhou hub), necessitated a new approach to network planning. Once sufficient for a smaller scale,

manual planning methods became unsustainable as parcel volumes surged and transportation demands diversified. SF Express set up an operations research (O.R.) team to address these challenges and develop advanced methodologies for optimizing its intercity air, intercity ground, and intracity networks.

The key to the success of this project was understanding the complexity of the SF Express logistics network. The company's network follows a two-echelon system with local hubs (LHs) and gateway hubs (GHs). An LH serves customers within its designated area, providing door-to-door pickup and delivery services. At the same time, a GH covers the LHs within its region, acting as a central node for local operations. With more than 390 GHs and 36,000 LHs, the logistical complexity is immense. Each hub sorts parcels with different service-level agreements (SLAs) and priorities.

SF Express relies on a combination of self-owned freighters and commercial aircrafts' belly capacity for intercity air transportation. The challenge is designing efficient air routes that balance cost and speed while adhering to constraints such as airport capacities and flight schedules. Similarly, while meeting SLA requirements, the intercity ground network must be optimized to ensure cost-effectiveness, particularly for long-distance deliveries.

The intracity network, essential for last-mile delivery, presents several challenges. Urban congestion, light-duty delivery vehicles, and time-sensitive delivery windows introduce additional layers of complexity. Efficient routing under these conditions guarantees that parcels reach their destinations in a timely manner.

To tackle these challenges, SF Express adopted state-of-the-art O.R. techniques. The intercity air network design focused on optimizing the schedules of freighters and parcel routes, addressing more than 115 million potential flights and 10.1 billion candidate routes. Tailored algorithms reduced problem size, and iterative matheuristics refined solutions. Similarly, the intercity ground network design integrated graph theory and multistart local search methods to manage the vast network of over 300 gateway hubs and hundreds of thousands of parcels. For the intracity network, hybrid matheuristics and integer programming streamlined the design of vehicle routes and same-day delivery networks, overcoming urban traffic and hub capacity constraints. These methodologies were gradually integrated into the SF Express systems by 2021.

The impact of these innovations has been transformative. Financially, the project has saved SF Express over $1 billion since inception. From January 2023 to September 2024 alone, cost optimizations in the ground and air networks generated $172 million in savings. These savings were primarily driven by improved resource utilization, optimized routing, and reduced reliance on external transportation. Environmentally, the intelligent network planning system helped SF Express reduce 1.018 million tons of carbon dioxide equivalent in 2023 by optimizing transportation routes and enhancing vehicle efficiency.

The transition to the Ezhou hub, which stands at the heart of this project, marked a milestone in the SF Express operations. The two-month transition was carried out seamlessly, enabling the hub to handle increased volumes with improved efficiency. This hub now serves as the backbone of the SF Express air network, offering enhanced multimodal transportation options and faster delivery times. Additionally, introducing new services, such as half-day intracity delivery, has boosted customer satisfaction and contributed to revenue growth.

Beyond operational improvements, this project has had a broader strategic and academic impact. These new methodologies for SF Express have set new standards in the logistics industry, demonstrating how advanced analytics can address complex challenges. Collaborations with academic institutions have led to publications in top journals, advancing knowledge in logistics optimization. Adopting advanced operations research has enabled SF Express to enhance its network efficiency and cultivate a culture of innovation, which will allow the company to tackle future challenges with agility.

ORGANIZATION

SF Express

As China's largest integrated logistics provider and the fourth-largest express delivery enterprise globally, SF Express provides comprehensive domestic and international supply chain solutions. Handling tens of millions of parcels daily, the company is renowned for its efficiency and customer satisfaction. According to a 2022 Frost & Sullivan report, SF dominates China's time-sensitive express delivery market, holding a 63.5% revenue share and solidifying its industry-leading position.



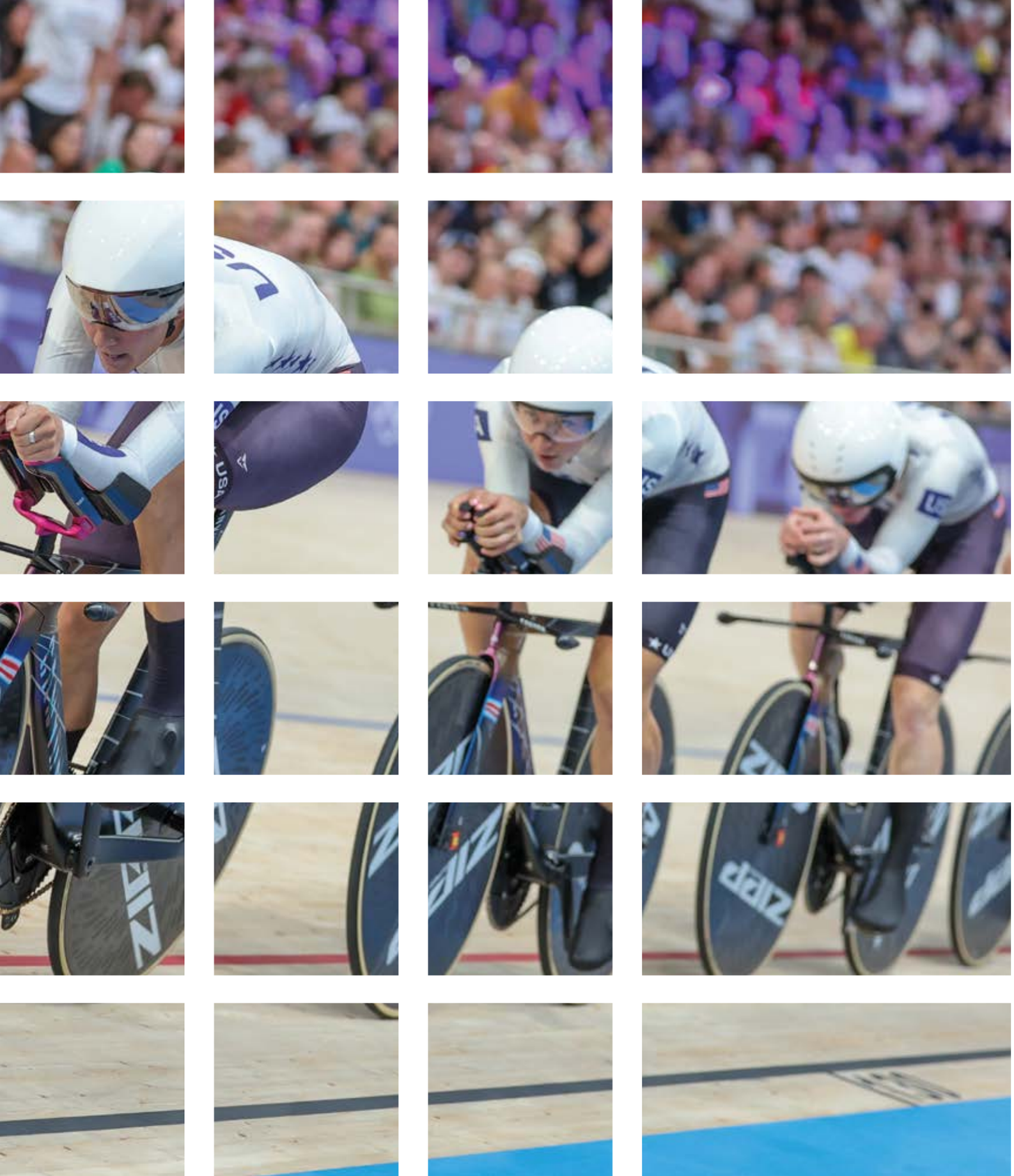












USA CYCLING

PROJECT 4:05 – Optimizing USA Cycling's Women's Team Pursuit Gold

In Olympic cycling, the difference between winning the gold and missing the podium is measured in fractions of a second. For the USA Cycling Women's Team Pursuit squad, the 2023 World Championships in Glasgow highlighted a stark reality: Finishing in sixth place with a time of 4:12.684 and missing the qualification round for the bronze medal final by 0.159 seconds. With the Paris 2024 Olympics approaching, the challenge was clear: reduce nearly seven seconds off their performance in just one year, an improvement considered nearly impossible in elite sports. With limited funding compared to powerhouse nations like Great Britain and Germany, USA Cycling relied on operations research (O.R.), machine learning (ML), data analytics, race simulation, and targeted athlete development to bridge the gap. Armed with cutting-edge analytics and modeling, real-time performance tracking, and aerodynamic innovations, this initiative aimed at optimizing every aspect of the team's race strategy. Athlete injuries early in 2024 cemented the need for a comprehensive solution as key athletes came into the games below their 2023 performance peaks, dropping the team to an eighth-place world ranking. Through the power of data-driven decision-making, USA Cycling achieved what few thought was possible: a stunning eight-second reduction in time to capture Olympic gold, with a time of 4:04.32.

The Women's Team Pursuit event is a highly strategic 4-kilometer (2.5-mile) race where success depends on precise pacing, strategic rotation of riders at the front, and the well-timed drop of a fatigued cyclist. It is a well-coordinated race in which four riders must race on an indoor

velodrome, with the team's time recorded when the third rider crosses the finish line. Facing resource constraints, Team USA entered the new Olympic cycle, lagging top teams such as Great Britain, New Zealand, and Italy by nearly seven seconds, a margin traditionally considered insurmountable within a single season. Unlike wealthier federations with year-round velodrome access and unlimited wind-tunnel testing, USA Cycling had to ensure data backed every training session, aerodynamic refinement, and strategic decision to yield the highest return on investment.

The primary catalyst of Project 4:05 is a time determination model, developed using historical Olympic and World Championship results while accounting for environmental factors such as air density and altitude. The model identified 4:07 as the likely threshold for a podium finish and 4:05 as the gold-contending mark, setting a clear and data-driven performance target. The team implemented a mixed-integer programming (MIP) optimization model to determine the most efficient race execution. The model factored in each athlete's Critical Power (CP20), Functional Reserve Capacity (FRC), and aerodynamic drag coefficients to calculate the optimal order and duration of rider pulls at the front. It also identified the best moment to drop a cyclist without disrupting draft efficiency. The MIP was validated by reconstructing past races, consistently predicting finish times within a 1% margin of actual results. This gave the coaches confidence to adopt the strategy in real-world competitions.

Because aerodynamic drag becomes the dominant force, slowing cyclists at speeds above 60 km/h (40 mph), the team partnered with Vorteq Sports to develop aerodynamic simulations that guided incremental but critical performance improvements. Each athlete underwent high-precision body scans to design customized skinsuits tailored to her posture and riding style. Limited wind-tunnel time required a highly targeted approach, so the MIP's analysis guided decisions on which gear or rider positional tweaks would produce the most significant impact. Real-world validation came through on-track testing using aerodynamic sensors, ensuring theoretical gains translated into improved times. These refinements drove the reduction of each rider's drag coefficient and boosted overall efficiency.

Real-time Z-score performance benchmarking further enhanced training efficiency. By continuously comparing each rider's power output, endurance capacities, and aerodynamics against "gold-capable" thresholds, coaches could make targeted and dynamic adjustments through daily feedback loops. Whether focusing on anaerobic power intervals, refining pacing strategy, or tweaking riding positions, every decision was grounded in the continuous flow of performance data.

The impact of Project 4:05 became undeniable in Paris. The team shattered previous U.S. records with 4:05.20 time in the qualifying round, validating the optimization strategy by nearly hitting the projected gold-medal threshold. Before the semifinal against Great Britain, a last-minute adjustment based on the real-time air density readings led to a 4:04.629 finish to secure a spot in the final. In the final against New Zealand, the highest-ranked team from internal projects for gold, the riders executed their MIP-optimized race plan to perfection by meticulously following the optimal rotation schedule and drop strategy. Crossing the finish line in 4:04.32, Team USA not only captured an Olympic gold but also proved that data-driven decision-making can fundamentally alter the competitive landscape in elite sports. The team cut eight seconds from their 2023 World Championship time, an unheard-of transformation in professional track cycling, while operating on less than 50% of the funding available to other top-tier competitors.

The impact of Project 4:05 reverberated well beyond a single event. Project 4:05 is now being studied as a template for other Olympic disciplines with the U.S. Olympic & Paralympic Committee to replicate the methodology, embracing a long-term vision for integrating analytics and operations research across the board. Project 4:05 is an enduring blueprint for how evidence-based decision-making can spark dramatic gains in elite sports.

ORGANIZATIONS

USA Cycling

As the national governing body for competitive cycling in the United States, including track, road, mountain bike, BMX, and cyclocross disciplines, USA Cycling plays a vital role in identifying, developing, and supporting cyclists at every level of the sport. Operating as a nonprofit organization, it receives funding primarily through private donations, membership fees, and corporate sponsorships. The organization partners with coaches, sports scientists, and performance analysts to create evidence-based training programs and optimize race strategies. By blending traditional coaching wisdom with cutting-edge data analytics, USA Cycling focuses on building athletes' strength, resilience, and technical skills. In addition to managing team selections and logistics for major international competitions, it collaborates with industry experts to integrate the latest aerodynamic, physiological, and nutritional research. This holistic approach has helped establish a sustainable framework for nurturing talent and achieving medal-winning success.

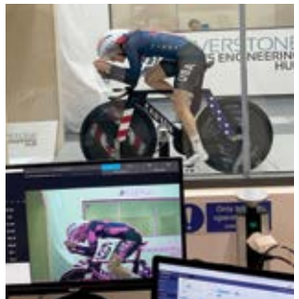
U.S. Olympic & Paralympic Committee (USOPC)

The USOPC serves as the steward of the Olympic and Paralympic movements in the United States, providing crucial funding, research support, and strategic oversight to national governing bodies like USA Cycling. As a nonprofit, its funding comes mainly from private donations, corporate sponsorships, and revenue from broadcast rights rather than government support. The USOPC's high-performance initiatives connect athletes and coaches to advanced training facilities, sports medicine professionals, and cutting-edge technology. By driving collaboration among biomechanics, nutrition, and data science experts, the committee fosters an environment where innovative training methods and rigorous analytics can flourish. The USOPC also sets and enforces standards for athlete safety, ensuring that all competitors have the support needed to reach their peak potential. Through these concerted efforts, the committee amplifies the capabilities of American athletes, enabling them to excel on the world stage.

Vorteq Sports

A leader in aerodynamic innovation, Vorteq Sports partnered with USA Cycling to develop customized skinsuits and conduct wind-tunnel testing, ensuring optimal aerodynamic efficiency for Olympic competition. By using high-precision body scans and performance data, Vorteq Sports tailors each piece of equipment to the rider's unique physiology and racing style. This attention to detail has proven instrumental in helping athletes gain critical fractions of a second that can make the difference between a podium finish and a missed opportunity.











WM

Dynamic Route Optimization and Automation of Industrial Routes at WM

As the leading provider of complete environmental solutions in North America, WM provides collection, recycling, and disposal services to millions of residential, commercial, industrial (also known as roll-off), and municipal customers throughout the U.S. and Canada. Residential collection is geared toward private homes, whereas commercial collection operation targets businesses such as restaurants and shopping centers. In both lines of business, trucks typically collect material from multiple customer containers into the truck for disposal or processing. Industrial collection caters to waste producers such as construction sites, large commercial and mixed-use complexes typically servicing one container at a time. Volumes in this line of business are driven by the macro-industrial environment, seasonality, and weather events.

WM is at the forefront of driving operational efficiencies and margin expansion through continuous improvements and increasing adoption of data-driven decisions, operations research, advanced analytics, and technology-led automation. In 2020, during the COVID-19 pandemic, as an essential service provider, WM had to make sure their communities were served while keeping their drivers and frontline employees safe. Consumer behaviors shifted, increasing the residential volumes they collect, and their commercial and industrial volumes considerably declined. During this time, WM decided to embark on a path to optimize and automate routes through the dynamic route optimization program, starting with their industrial line of business.

Operations at WM are managed across 16 different market areas with more than 3,800 industrial routes operating from roughly 460 hauling sites servicing more than 22,000 customer service tickets daily. The nature of the routes, including the number of customers and type of service, varies substantially each day. Historically, industrial routes were planned for and built manually every day at a site level by more than 150 routers across their market areas for thousands of routes. The process typically took several hours every day at each site. Experience, judgment, and data available to human routers informed the quality of the routes produced, making it impossible to consistently and optimally plan thousands of routes every day.

Logistics operations in the roll-off routing involve the coordination of vehicles to efficiently transport containers between customer locations, landfills, container yards, and depots while meeting customer service expectations. These requirements entail the delivery of empty containers, exchange of full containers with new ones, transportation of full containers to disposal sites, and collection of empty containers from former customers, among other tasks. Route optimization should consider locations of customers, disposal facilities, 20+ potential service types per customer, 70+ waste types, 100+ container sizes and types, vehicle status and locations, and driver- and vehicle-specific attributes among other factors. Constraints such as route time, time windows with the customers and operating hours at facilities, and disposal requirements for a particular material tied to a specific facility must also be considered and honored. In addition, there are several practical operational considerations to be accommodated.

A two-step approach beginning with capacity planning using forecasting models as a first step, followed by route optimization, was used for optimizing roll-off routes. The two-step approach provides the advantage of allowing local operations to meet demand expectations and customer commitments, and to account for anticipated anomalies, such as special event work, drivers calling in sick, or local weather. The second step involves optimizing the schedules or the stop assignments to routes and sequences of stops. Given the scale of our problem – serving up to 1,000+ customer tickets per site – along with complex service constraints and practical consideration, metaheuristics-based algorithms were developed for the route optimization step. The objective was to minimize the total route time for efficiencies or total route operating costs and material disposal costs while serving the maximum number of customers meeting all business requirements and customer service requests. WM-owned facilities are cheaper compared with facilities owned by third parties for material disposal. In certain areas with multiple disposal facility choices, total cost-based optimization can result in better overall benefits by trading off additional travel costs with cheaper material disposal costs at WM facilities. The routing algorithms also consider various special types of business situations that arise from very practical operational needs, including using roads and speeds suitable for their heavy-duty trucks with bridge height and weight restrictions, enabling safety for their drivers. Automation was accomplished through the design and development of scalable and performant analytical software engines scheduled to automate the end-to-end process of route creation and delivery in time for execution.

The program took more than three years, beginning in June 2021 with near-complete enterprise rollout in Q3 2024, going through multiple phases of data gathering, design, development, pilots, frontline business process improvements, and change management steps. Using this first-of-its-kind technology suite, WM's industrial business realized benefits of about $10–$11 million in 2024 through route time efficiencies and reduced router roles. Operating margins improved by 157 BPS – driven by both pricing and the operational expense improvements – which is unprecedented for the company. During the same period, improvements were seen in customer experience, churn, and driver safety metrics through reduction in overhead strike incidents. Building on this initial success, expansion of the program benefits realization in the coming years is expected through additional rollout of capabilities such as pooling individual sites for cross-site optimization to improve efficiencies and asset utilization in big metropolitan areas, as well as optimizing routes for costs in lieu of time-based efficiencies. Improvements from cost-based optimization deployments over the next few years are expected to contribute $25–$42 million in cost benefits. In addition, through sustained 2% improvements in industrial efficiency, WM envisions a reduction in new truck capital requirements to the tune of $26–$30 million over the next several years, based on the replacement life cycle of their trucks. The continued adoption of analytics and technology-led automation initiatives by WM's team members while providing safe and reliable service to their customers is reflected in the growth and performance of their operations, as evidenced by the success of this program.

ORGANIZATION

WM

WM is North America's leading provider of comprehensive environmental solutions. Previously known as Waste Management and based in Houston, TX, WM is driven by the commitment to put people first and achieve success with integrity. The company, through its subsidiaries, provides collection, recycling, and disposal services to millions of residential, commercial, industrial, medical, and municipal customers throughout the U.S. and Canada. With innovative infrastructure and capabilities in recycling, organics, and renewable energy, WM provides environmental solutions to and collaborates with its customers in helping them pursue their sustainability goals. WM has the largest disposal network and collection fleet in North America, is the largest recycler of post-consumer materials, and is a leader in beneficial use of landfill gas, with a growing network of renewable natural gas plants and the most landfill gas-to-electricity plants in North America. WM's fleet includes more than 12,000 natural gas trucks – the largest heavy-duty natural gas truck fleet in the industry in North America. WM Healthcare Solutions provides collection and disposal services of regulated medical waste, as well as secure information destruction services, in the U.S.











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INFORMS EARLY CAREER PRACTITIONER AWARD

EARLY CAREER PRACTITIONER AWARD

The INFORMS Early Career Practitioner Award was created to engage and recognize early career professionals in the fields of operations research, management science, and advanced analytics for their exceptional contributions to business/industry, government, and consulting, and service to the profession.

INFORMS acknowledges the distinct needs of practitioners and has strategically prioritized addressing their professional growth throughout their careers. The award seeks to acknowledge individuals who have made significant contributions within the initial five years of their post-graduation employment and currently working outside of academia.

INFORMS Early Career Practitioner Award Criteria

"Early career practitioner" refers to an INFORMS member who is no more than five years post-graduation of their highest degree, has at least two years of industry experience, and is currently working outside of academia. Full-time practitioners with adjunct academic appointments are also eligible for this award. Prize criteria include:

- Evidence of professional accomplishments, leadership, and service to the profession, or
- Quantifiable or demonstrable impact of work to influence practice, policies, and body of knowledge within the organization or industry;
- Creativity – level of originality, novelty, or practicality of contributions;
- Demonstrable contributions to disseminating OR/MS and advanced analytics knowledge within the organization or industry; and
- Evidence of successful collaboration within multidisciplinary teams.

2025 INFORMS Early Career Practitioner Award Committee

- Shantih Spanton, *Chair, INFORMS Early Career Practitioner Award; Manhattan Associates*
- Mike Cavaretta, *Ford*
- Carol DeZwarte, CAP, *Chewy*
- Bill Klimack, CAP, *BP*
- Morvarid Rahmani, *Georgia Tech*
- Ziteng Wang, *Northern Illinois University*

2025 EARLY CAREER PRACTITIONER AWARD WINNER



Growing up in the Yimeng Mountain area of China, Lili Zhang and her family firmly believed that "knowledge is power." She inherited her passion for learning from her parents. Beginning at the age of six, she read books every night before bed, especially about math, often falling asleep with a book open. Early in her academic studies, her path in engineering was inspired by her uncle, an engineer and director of a local water conservancy bureau, as well as her cousin, an engineer, professor, and entrepreneur.

Lili earned her bachelor's degree in electronic information science and technology from Central South University in China, master's degree in industrial engineering from the University of Tennessee, Knoxville, and PhD in analytics and data science from Kennesaw State University. Her interdisciplinary studies and research experience have provided her with a robust foundation in developing intelligent and scalable data-driven analytical solutions for a wide range of challenges across various domains.

Lili joined Hewlett Packard Enterprise (HPE) in 2020 after completing her PhD. In the same year, HPE significantly expanded the HPE GreenLake Cloud Platform to include a broad array of new cloud services, addressing the growing market demand for hybrid cloud, delivering edge-to-cloud services, and accelerating customers' digital transformations with innovative solutions in hybrid cloud, AI, storage, computing, and networking. To better understand customers' evolving needs, increase the awareness and adoption of HPE products and services, and enhance customer experiences, Lili led the design, development, and implementation of numerous AI/ML and data science initiatives. She leverages her expertise in imbalanced learning, knowledge graphs, optimization, large language models, Markov chains, and propensity scoring.

Lili's work has significantly contributed to the success of various business areas within HPE, including Digital Marketing, Customer Innovation Center, Third-Party Maintenance Win-Back, and solution teams such as HPE GreenLake and HPE Aruba Networking. Notable examples of her contributions include enabling digital marketing teams in executing successful persona-based audience targeting campaigns, informing executives on optimizing media budget allocation to enhance awareness and conversions, aiding the service team in winning back customers, improving customer event strategies, and engaging customers with customized content to increase the adoption of HPE solutions.

Lili is not only a leader in her field but also a compassionate and dedicated mentor to help others grow. She has been recognized with the 2023 KSU Alumni Service Award.

Currently serving as a senior AI and machine learning engineer at HPE, Lili is consistently driving the adoption of cutting-edge technologies to foster innovation, enhance business value, and ensure customer success.



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UPS GEORGE D. SMITH PRIZE

UPS GEORGE D. SMITH PRIZE HISTORY

The UPS George D. Smith Prize is awarded to an academic department or program for effective and innovative preparation of students to be outstanding practitioners of operations research, management science, or analytics. It is accompanied by a $10,000 award. The prize committee is pleased to announce the 2025 finalists:

- Master of Science in Analytics
  Georgia Institute of Technology
- Master of Science in Business Analytics
  National University of Singapore
- Department of Management Science and Engineering
  University of Waterloo

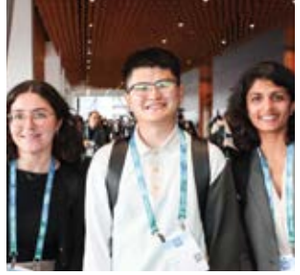
The UPS George D. Smith Prize is an exciting award created in the spirit of strengthening ties between industry and the schools of higher education that graduate young practitioners of operations research (O.R.) and analytics. This prize has been named in honor of the late UPS chief executive officer who was a patron of operations researchers at the leading Fortune 500 corporation. George D. Smith was the second CEO of UPS, holding the position from 1962 to 1972. He joined UPS as an accountant in 1925 and at some point in his long and illustrious career held almost every functional title within the company.

While his background was steeped in finance, George Smith had a keen engineering mind. In the late 1940s, after learning about O.R., Smith realized that intuition alone would not be enough to help UPS master the many issues it faced as it grew in size from a regional to nationwide carrier. Smith recognized O.R. as an engineering approach to making decisions and started advocating the use of O.R. concepts at UPS. Quantitative analysis became the bedrock on which the UPS engineering function was built. Because of Smith's vision, UPS now employs thousands of engineers whose focus is efficiency, sustainability, and service.

He was a strong believer in investing in our younger generation. For him, nurturing them was the key to sustained prosperity. This prize embodies Smith's beliefs: to recognize the importance of O.R. in practice and ensure that members of our younger generation get proper exposure to its value and, in turn, benefit society.

2025 UPS Smith Prize Committee

- Anne Robinson, *Chair, Smith Prize*
- Fidel Rodriguez, *Vice-chair; LinkedIn*
- Dayana Cope, *Delta*
- Michelle Li, *MIT*
- Steve Sashihara, *Princeton Consultants*
- Samaneh Shiri, *UPS*
- Jay Swaminathan, *University of North Carolina*
- Morgan Swink, *Texas Christian University*



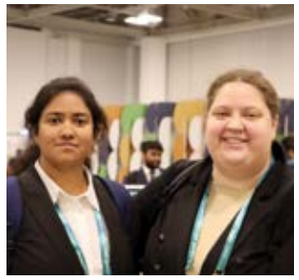





















2025 SMITH PRIZE COMPETITION

Since the earliest days of operations research (O.R.) and analytics, to support the developing technology and research, it became increasingly important to prepare young O.R. and analytics professionals to further the growing impact of these fields. The UPS George D. Smith Prize recognizes the importance of a strong partnership between industry and academia in preparing students to be effective practitioners. The diversity, quality, and innovation of this year's finalists presented the committee with an encouraging and exciting glimpse of the future of the profession.

"As we grow in size, our problems increase geometrically. Without operational research, we would be analyzing our problems intuitively only, and we would miss many opportunities to get maximum efficiency out of our operation." – George D. Smith

SMITH PRIZE PAST WINNERS

2024 Management Science Department
University of South Carolina

2023 Mitchell E. Daniels, Jr. School of Business
Purdue University

2022 Master of Industrial & Applied Mathematics
Eindhoven University of Technology

2021 Tippie College of Business
University of Iowa

2020 Smith School of Business
Queen's University

2019 Department of Operations, Business Analytics & Information Systems
University of Cincinnati

2018 Haslam College of Business MSBA
University of Tennessee

2017 Operations Research Program
United States Air Force Academy

2016 H. John Heinz III College of Information Systems & Public Policy
Carnegie Mellon University

2015 Sauder School of Business
University of British Columbia, Centre for Operations Excellence

2014 Leaders for Global Operations
Massachusetts Institute of Technology

2013 Department of Operations Research
Naval Postgraduate School

2012 Tauber Institute for Global Operations
University of Michigan

Georgia Institute of Technology

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Introduction to NUS MSBA

The NUS Master of Science in Business Analytics (MSBA) programme is offered by the NUS Business Analytics Centre, and jointly supported in equal partnership by NUS Business School and NUS Computing.

Taught by award-winning academics from both Schools, the NUS MSBA programme is designed to facilitate experiential learning through a balance of intellectual academic rigour and hands-on applications. A standout feature of the NUS MSBA programme is that it provides students with hands-on experience in tackling real-world business analytics issues, especially through the Capstone Course: a culmination of capstone lectures, industrial analytics seminars, company visits, analytics innovation challenge and capstone project.

The NUS MSBA boasts a strong network of industry partners that our students can interact with and learn from, to enhance their career prospects and competencies in the field. Upon completion, NUS MSBA graduates emerge well-equipped with cutting-edge skills such as artificial intelligence and machine learning, proficient in leveraging data-driven techniques and tools to address complex business challenges.

Our alumni are creating impact in top industries like finance, technology, e-commerce, logistics, healthcare, and more—driving transformation at leading companies worldwide

Programme Highlights

Interdisciplinary Curriculum

Access to an interdisciplinary curriculum designed by NUS Business School and NUS Computing

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Diverse Community

Connect with a global network of over 900 students and alumni across 32 countries and regions

Be a Catalyst of Digital Transformation

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- To be the leading authority on empirical research in the success or failure of analytics and its impact on organizations and society.
- To be the premier provider for continuing education in the areas that can mitigate the difficulties posed by issues that inhibit the success of analytics.
- To host world-class seminars and conferences that will disseminate thought leadership around analytics impact.

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THE WAGNER PRIZE

DANIEL H. WAGNER PRIZE HISTORY

For Excellence in the Practice of Advanced Analytics & Operations Research

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

Dr. Wagner earned his PhD in mathematics from Brown University in Providence, Rhode Island, in 1951. His dissertation, "On Free Products of Groups," was published in 1957 in the journal *Transactions of the American Mathematical Society*. Dr. Wagner joined the Navy's Operations Evaluation Group at the Pentagon, working on operations research for naval warfare. He worked there until 1956, with a one-year leave of absence for postdoctoral research on free algebras at Massachusetts Institute of Technology.

Dr. Wagner then joined the Burroughs Research Center, where he directed a group of mathematicians performing analysis for the development of digital computers.

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

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

Dr. Daniel H. Wagner was a member of INFORMS (and its predecessor ORSA) for more than 40 years. He passed away in March 1997.

2024 Wagner Prize Committee

- James Cochran, *Chair, Wagner Prize; University of Alabama*
- Konstantina Mellou, *Vice-chair; Microsoft*
- William J. Browning, *Applied Mathematics, Inc.*
- C. Allen Butler, *Daniel H. Wagner Associates*
- Kimia Ghobadi, *Johns Hopkins University*
- Greg Godfrey, *Metron Inc.*
- Andrea Llorenty, *BNSF Railroad*
- Vera Tilson, *University of Rochester*
- Willem van Hoeve, *Carnegie Mellon University*
- Aysu Ozel, *Northwestern University (Student member)*

2024 WAGNER PRIZE FINALISTS

The 2024 Wagner Prize competition took place during the 2024 INFORMS Annual Meeting. Four teams gave presentations to the INFORMS Practice Section judging committee seeking to demonstrate that the quality of their analysis in a real-world application qualifies them to win this award for outstanding practice of operations research and advanced analytics. The judging committee announced the winner during the Annual Meeting, and the winning team of the Daniel H. Wagner Prize will reprise their presentation during the 2025 INFORMS Analytics+ Conference.

Dr. Wagner strove for strong mathematics applied to practical problems, supported by clear and intelligible writing. This prize recognizes those principles by emphasizing good quality writing, strong analytical content, and verifiable practice successes within analytics and operations research.

A special issue of *INFORMS Journal on Applied Analytics* will publish the winning paper along with those of the other three finalists listed below:

Optimizing Music Station Playlists on Broadcast Radio

- J. Antonio Carbajal, CAP, Juan Ma; Nannan Chen; and Mario Aboytes-Ojeda, *iHeartRadio*

Redesigning Zoning Systems for Equitable and Efficient Last-Mile Delivery at Ninja Van

- Stanley Lim, *Michigan State University*
- Witsanu Arntong and Ee Hsin Tan, *Ninja Logistics Pte. Ltd.*
- John Gunnar Carlsson and Han Yu, *University of Southern California*
- Sheng Liu, *University of Toronto*

Transportation Marketplace Rate Forecast Using Signature Transform

- Timothy L. Jacobs and Philip Kaminsky, *Amazon.com Inc.*
- Xin Guo, *Amazon.com Inc. & University of California, Berkeley*
- Haotian Gu and Xinyu Li, *University of California, Berkeley*













2024 WAGNER PRIZE WINNER

JD.com Improves Fulfillment Efficiency with Data-driven Integrated Assortment Planning and Inventory Allocation

In recent years, the rapid expansion of e-commerce has compelled companies to radically rethink traditional supply chain practices. JD.com, one of the world's largest online retailers, has embraced this challenge by developing an integrated framework that combines advanced analytics for both assortment planning and inventory allocation. Rather than maintaining a static, centralized inventory, JD.com now employs dynamic, data-driven algorithms to select an optimal subset of products for local fulfillment and to manage real-time inventory transfers – thereby driving significant improvements in service levels and operational cost efficiency.

Addressing Demand Uncertainty and SKU Diversity

In today's marketplace, customer demand is inherently unpredictable, and product assortments can include millions of SKUs. Even minor mismatches between inventory and actual orders can lead to significant inefficiencies. JD.com's integrated framework combines machine learning and heuristic optimization algorithms to selectively identify the most impactful products for local fulfillment, thereby reducing the risk of stockouts and ensuring a higher percentage of orders are satisfied directly from local fulfillment centers.

Enhancing Operational Efficiency Through Dynamic Inventory Allocation

Effective inventory management in a dynamic environment requires a system that can rapidly adjust to changing demand. JD.com uses an innovative end-to-end inventory allocation algorithm to dynamically allocate inventory across its network, minimizing costly transfers and reducing lost sales. By balancing the inventory between central and local facilities, the system improves overall responsiveness and cuts unnecessary expenses.

The impact of this integrated framework has been substantial. Deployed across eight regional distribution centers (RDCs) and their associated front distribution centers (FDCs) throughout China, the system has delivered impressive results. Annually, JD.com has reduced FDC inventory holding and capital utilization costs by approximately 44.51 million RMB (renminbi, or yuan, the basic monetary unit of the People's Republic of China), while cutting inventory transfer costs by around 162 million RMB. Moreover, stock availability has improved by 0.85% for nearly 1 million SKUs, the local order fulfillment rate has increased by 2.19%, and the proportion of orders served under the speedy "211 program" has risen by 1.44% – collectively enhancing the customer experience for roughly 18.61 million orders each year.

Scan QR Code for more information on 2024 winners.

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FICO congratulates the finalists at this year's Edelman Gala. Your innovation and dedication to excellence continue to inspire us all.

We celebrate this remarkable achievement with you.

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INFORMS PRIZE

INFORMS PRIZE HISTORY

The INFORMS Prize has been honored during the Edelman Gala for 18 years. While the Edelman Award and Wagner Prize recognize single projects that demonstrate outstanding accomplishments in O.R. practice, the INFORMS Prize complements them by recognizing long-term, multiproject achievements. The INFORMS Prize is awarded annually to recognize effective integration of O.R. into organizational decision-making. It is awarded to an organization that has repeatedly applied the principles of advanced analytics in beneficial and long-lasting ways.

2025 INFORMS Prize Committee

- Yulia Vorotyntseva, *Chair, INFORMS Prize; University of St. Thomas*
- Duygu Dagli, *CVS Health*
- Karan Girotra, *Cornell Tech*
- Mehmet Gumus, *McGill University*
- Maga Khachatryan, *Federal Reserve Bank of St. Louis*
- Ahmet Kuyumcu, *Prorize*

INFORMS PRIZE PAST WINNERS

2024 Jingdong (JD.com)
2023 Walmart
2022 Wayfair
2021 Amazon
2020 UPS
2019 Booz Allen Hamilton
2018 BNSF Railway
2017 The Walt Disney Company & U.S. Air Force
2016 General Motors
2015 Chevron
2014 Mayo Clinic
2013 Ford Motor Company
2012 Memorial Sloan Kettering Cancer Center
2011 Sasol
2010 Jeppesen
2009 Intel Decision Technologies Group
2008 GE Global Research Risk & Value Management Laboratory
2006 Schneider National, Inc.
2005 Air Products & Chemicals, Inc.
2004 Procter & Gamble
2003 UPS
2002 Hewlett-Packard
1999 IBM
1998 Lucent Technologies
1997 Merrill Lynch Private Client Group
1996 Pfizer Inc
1995 Bellcore
1994 AT&T and U.S. West Technologies
1993 New York City Office of Management and Budget & United Airlines
1992 San Miguel Corporation
1991 American Airlines & Federal Express

Notes: Prior to 1995, the award was called the ORSA Prize. No prize recipients were chosen in 2000, 2001, and 2007.

INFORMS PRIZE CRITERIA

The INFORMS Prize selection committee is made up of seven members as well as the past committee chair, consisting of practitioners and academics, providing a broad representation of the operations research community.

Variety of Advanced Analytics and O.R. Applications.

Implementations in diverse applications, using a wide set of methods, led to greater opportunities to improve organizational performance.

Strategic Advantage for the Organization.

Analytics and O.R. permeate the parent organization's operations and are considered integral and a source of strategic advantage.

Substantial Impact.

Over the years, the total amount of beneficial impact on the organization has been substantial. This impact was delivered through some one-time and some recurring projects; its amount could be described sometimes by numerical measures and sometimes by statements without numbers.

Model for Success.

The organization provides an excellent example of successful analytics and O.R. practice for others to follow. An important reason for the success of the implementation has been its contribution to a variety of basic functions; for instance, in a business organization, these functions likely will include finance, marketing, production, and planning.

Top-Management Endorsements.

Strong submissions include personally written endorsements from top-level executives.

High-Quality Application.

The best applications are well written. And they are complete, with all supporting references and endorsements included.













2025 INFORMS PRIZE WINNER

Micron Technology: Driving the Future of Data and Computing with Innovative Memory and Storage Solutions

Micron Technology, a global leader in memory and storage solutions, is dedicated to transforming the way the world uses information to enrich life for all. Founded in 1978 in Boise, Idaho, Micron has grown to over 50,000 employees worldwide, generating $25.1 billion in revenue in fiscal year 2025. Micron's industry-leading technologies enable the world around us – from cutting-edge artificial intelligence solutions to automotive, Industrial IoT, mobile, and personal computing.

At Micron, we leverage a variety of operations research (O.R.) and analytics applications to optimize our operations and decision-making processes. Our initiatives have significantly improved planning, procurement, manufacturing, and logistics and fulfillment. For instance, the Micron Master Production Scheduler enhances production schedules for our wafer fabrication using advanced analytics. This tool has achieved a wafer fabrication throughput increase of 0.5%, equivalent to $288 million. Additionally, our Capacity Planning Optimization solution uses a combination of mathematical and simulation techniques to generate optimal capacity plans, helping Micron save more than $100 million every year.

Another example is our hierarchical linear programming solution, which optimizes supply planning by considering complex and uncertain dependencies across various levels of decision-making. This solution has increased solved demand by 3.8%, improved customer delivery performance by 1.9 percentage points, reduced working capital by $50 million, and achieved annual savings of $15 million in manufacturing costs. As a final example, our Real-Time Idle-With-Product Diagnostic solution tracks the idle time of products in fabrication facilities, identifies root causes, and provides suggestions for improvement. This solution has improved output by 0.2%, equivalent to $80 million.

Micron's commitment to O.R. and analytics extends beyond our internal operations. We actively collaborate with several global academic institutions on research, course curriculum, and student projects. Our leadership in O.R. is also recognized through numerous awards and publications.

Micron's innovative use of O.R., data science, machine learning, and analytics has not only enhanced our operational efficiency but also positioned us as a leader in the semiconductor industry. We are proud to share our journey and achievements with the INFORMS community.

micron™

INFORMS

ABOUT INFORMS

The Institute for Operations Research and the Management Sciences
Smarter Decisions for a Better World

From increased efficiency in business processes leading to billions in savings, to lifesaving advancements in medical treatments and support of at-risk populations, to revolutionized transportation and delivery systems, math and science are being leveraged to make smarter decisions that are truly saving lives, saving money, and solving problems. At the heart of these growing fields is INFORMS, the leading professional society for a vibrant community of more than 12,000 operations research (O.R.), analytics, and data science professionals, academics, and students – representing more than 83 countries around the world – whose impact on the economy and society has been, and continues to be, nothing short of remarkable.

INFORMS is dedicated to encouraging, facilitating, and awarding excellence for its membership, at every career stage. Formed in 1995 when the Operations Research Society of America (ORSA) and The Institute of Management Sciences (TIMS) merged, INFORMS strives to provide opportunities of inspiration and collaboration among its members, fostering the life-changing ideas of O.R. and analytics leaders of the future. INFORMS provides its members with a forever professional home.

INFORMS hosts several meetings and events, featuring carefully cultivated content, networking, and career advancement opportunities for students, researchers, practitioners, and industry leaders. These include the Annual Meeting and Analytics+ Conference held annually, and the International Meeting and Healthcare Conference are held every other year at locations across the globe. In addition, INFORMS hosts a number of virtual events, including the "INFORMS Insights" webinar series, tailored specifically for early career professionals.

But INFORMS is so much more than a meeting. The INFORMS advocacy program leverages the expertise of members to provide policymakers in Washington, DC, with valuable insights regarding the importance of data-driven decision-making. INFORMS publishes 17 scholarly, peer-reviewed journals, more than one-third of which are featured on the *Financial Times* list of 50 top academic journals, highlighting the latest O.R. and analytics methods, research, and applications. In addition, continuing education and Certified Analytics Professional (CAP) certification programs provide opportunities for professional advancement at every career stage. With 26% of Fortune 100 companies now employing professionals who have earned the CAP, these certifications enable industry leaders to identify and employ top talent.

INFORMS provides many resources to organizations of all sizes seeking information on the benefits of analytics, connecting them with the latest research and discoveries as well as analytics and operational research professionals who have the expertise they require. In addition, within the INFORMS membership are smaller, specialized subdivisions dedicated to a common theme or technical interest, many of which directly pertain to analytics and O.R. applications for industry. INFORMS members are embracing complex problems and unlocking the valuable data needed to enhance decision-making processes and improve day-to-day operations in almost every industry sector.

ADVANCING THE PRACTICE OF O.R. & ADVANCED ANALYTICS

By Rajesh Tyagi, President of INFORMS Practice Section

For almost 20 years, the Edelman Gala has showcased exceptional achievements in operations research (O.R.) and advanced analytics. Organized by dedicated volunteers of the INFORMS Practice Section, the gala showcases the pinnacle of excellence through competitions like the Edelman Award, Wagner Prize, and UPS George D. Smith Prize. Delve deeper into these competitions and meet this year's outstanding finalists within the pages of our program book.

The Practice Section ardently champions the application of O.R. and advanced analytics by curating competitions that spotlight exemplary practices within our field. We also curate practice-oriented presentations at the INFORMS Annual Meeting each fall, publish quarterly informative newsletters for Section members, and foster engagement through monthly happy hours and engaging and informative webinars. These endeavors underscore our commitment to demonstrating the transformative impact of analytics in tackling real-world challenges.

The Practice Section comprises a global community of volunteers, encompassing a broad spectrum of industries, academia, government, and beyond. Whether you are just beginning your professional journey or seeking to remain abreast of the latest advancements, all are encouraged to contribute to our mission of leveraging O.R. and analytics to enhance lives, optimize costs, and resolve complex issues.

We extend an open invitation to join the INFORMS Section on Practice and lend your unique perspective and expertise. The opportunities for networking and collaborative innovation to propel our profession forward are boundless and immensely gratifying.

Throughout the year, the Practice Section hosts a plethora of enriching (and enjoyable) events for its members, fostering collective learning and development, irrespective of geographical boundaries. Regardless of your location, the Section is dedicated to creating opportunities to foster connectivity and camaraderie all year long.

Furthermore, the Section offers a dynamic webinar series encompassing diverse topics, applications, and invaluable insights into best practices. For further details and to become part of our vibrant community, visit the Practice Section website at connect.informs.org/practice.

If you're eager to contribute as a volunteer or have suggestions for additional activities that could enrich the Section, we welcome your input. We eagerly anticipate your engagement and warmly welcome you to our community. Feel free to reach out to me via email at RajeshTyagi@yahoo.com.













CALL FOR INFORMS AWARD SUBMISSIONS

INFORMS awards and prizes, with submission deadlines

Daniel H. Wagner Prize

Excellence in Operations Research Practice

The Daniel H. Wagner Prize emphasizes the quality and coherence of the analysis used in practice. This prize recognizes those principles by emphasizing good writing, strong analytical content, and verifiable practice successes.

2025 Submission Deadline: Thursday, May 1, 2025

Franz Edelman Award

Achievement in Advanced Analytics, Operations Research, and Management Science

The purpose of the Franz Edelman Competition is to bring forward, recognize, and reward outstanding examples of impactful O.R., management science, and advanced analytics practice in the world.

2026 Submission Deadline: Wednesday, October 1, 2025

UPS George D. Smith Prize

Strengthening Ties Between Academia & Industry

The UPS George D. Smith Prize is awarded to an academic department or program for effective and innovative preparation of students to be outstanding practitioners of operations research, management science, or analytics.

2026 Submission Deadline: Monday, November 24, 2025

INFORMS Early Career Practitioner Award

Engage & Recognize Early Career Professionals

The INFORMS Early Career Practitioner Award was created to engage and recognize early career professionals in the fields of operations research, management science, and advanced analytics for their exceptional contributions to business/industry, government, and consulting, and service to the profession.

2026 Submission Deadline: Monday, December 1, 2025

INFORMS Prize

Sustained Integration of Operations Research

The INFORMS Prize is awarded for effective integration of advanced analytics and OR/MS in an organization. The award is to be given to an organization that has repeatedly applied the principles of advanced analytics and OR/MS in pioneering, varied, novel, and lasting ways.

2026 Submission Deadline: Monday, December 15, 2025

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We all have this unwavering ambition to see operations research (O.R.) and analytics making an impact, to change the world for the better. This necessarily translates to always looking for new problems and challenges, new industries that can highly benefit from our expertise, and new ways to improve lives.

— Molslinjen
2024 Franz Edelman Award Winner

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