OPTIMIZATION MODELING FOR SUPPLY CHAIN APPLICATIONS

Haitao Li

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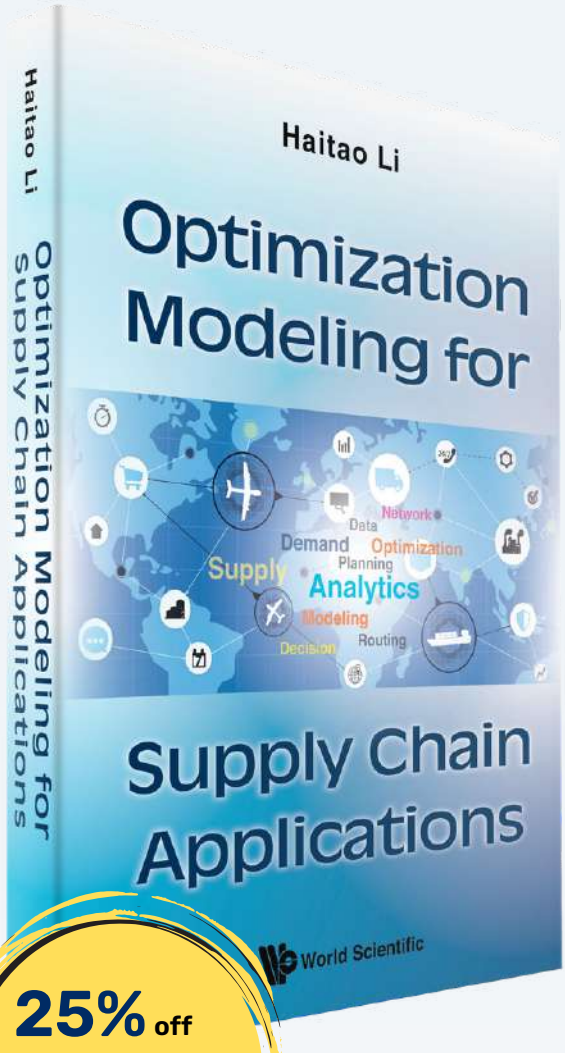

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How to design an efficient and cost-effective logistics network? How to plan procurement, production, and transportation to meet customer demand with minimum operating costs? How to sequence jobs through machines for on-time order completion? And how to dispatch vehicles and schedule their routes to serve customers efficiently?

Answers to these questions are key to effective and efficient supply chain operations. This book provides a systematic and comprehensive coverage of data-driven optimization modeling techniques and their applications in supply chain management. From the methodological perspective, it introduces various model building techniques including mathematical programming (linear and integer programming), network optimization, and constraint programming. From the application perspective, it covers the topics of supply chain network design, production planning, supply chain configuration, machine scheduling, and vehicle routing, among others. It also introduces the state-of-the-art optimization modeling software, the CPLEX OPL Studio, as a powerful and accessible tool for implementing the modeling techniques and solution methods in this book. Sample codes will be available upon purchase of the book.

This book is essential reading material for researchers and students in business, data analytics, industrial engineering, computer science and applied math who would like to learn optimization modeling in the context of supply chains. It is also suitable for practitioners and consultants in industry who would like to understand the behind-the-scene techniques in off-the-shelf commercial optimization software. As a textbook, it can be used for an advanced undergraduate or graduate course in supply chain management, operations management, data analytics, economics, and industrial engineering.

Readership

For advanced undergraduate and graduate students, researchers and practitioners in operations research, supply chain management, operations management and industrial engineering.

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About the Author

Haitao Li is Professor and Chair of the Supply Chain & Analytics Department, College of Business Administration, and founding Director of Laboratory of Advanced Supply Chain Analytics (LASCA), at the University of Missouri—St. Louis. He holds his Ph.D. degree in Operations Management (2005) and Master of Arts in Economics (2002) from the University of Mississippi and Bachelor of Engineering in Foreign Trade in Industry with a minor in Aeronautical Engineering from Beijing University of Aeronautics and Astronautics, P.R. China (2000). Dr. Li's research focuses on optimization modeling and algorithm design in the application areas of supply chain optimization, project scheduling, and resource allocation, among others. He worked as a Statistical Analyst at the Naval Personnel Research, Study and Technology (NPRST) in Millington, TN, in 2004, a Visiting Scholar at the Hewlett-Packard Laboratory (HPL) in Palo Alto, CA, in 2005, and Research Consultant for HP Enterprises from 2010–2016. Dr. Li currently serves as Associate Editor of the *Journal of the Operational Research Society* and *Transportation Journal*, and Editorial Board member of the *International Journal of Project Management*.

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