

Logistics Handbook

This book explores the methodological and application developments of network design in transportation and logistics. It identifies trends, challenges and research perspectives in network design for these areas. Network design is a major class of problems in operations research where network flow, combinatorial and mixed integer optimization meet. The analysis and planning of transportation and logistics systems continues to be one of the most important application areas of operations research. Networks provide the natural way of depicting such systems, so the optimal design and operation of networks is the main methodological area of operations research that is used for the analysis and planning of these systems. This book defines the current state of the art in the general area of network design, and then turns to its applications to transportation and logistics. New research challenges are addressed. Network Design with Applications to Transportation and Logistics is divided into three parts. Part I examines basic design problems including fixed-cost network design and parallel algorithms. After addressing the basics, Part II focuses on more advanced models. Chapters cover topics such as multi-facility network design, flow-constrained network design, and robust network design. Finally Part III is dedicated entirely to the potential application areas for network design. These areas range from rail networks, to city logistics, to energy transport. All of the chapters are written by leading researchers in the field, which should appeal to analysts and planners. .

Global logistics entails tradeoffs in facility location, distribution networks, the routing and scheduling of deliveries by different modes of travel (e.g., air, water, truck, rail), procurement, and the overall management of international supply chains. In an increasingly global economy, then, logistics has become a very important matter in the success or failure of an organization. It is an integral part of supply chain management that involves not just operations management considerations, but production engineering and regional science issues as well. As Director of the prestigious Waterloo Management of Integrated Manufacturing Systems Research Group (WATMIMS), which specializes in logistics and manufacturing, Jim Bookbinder is uniquely qualified to edit a handbook on global logistics. He has aligned a set of prominent contributors for this volume. The chapters in the Handbook are organized into discrete sections that examine modes; logistics in particular countries; operations within a free-trade zone; innovative features impacting international logistics; case studies of specific companies; and a look toward the future. Contributors are from the Americas, Europe, and Asia, and they push the state of the art in areas such as trade vs. security; border issues; cabotage within NAFTA; Green logistics corridors within the EU; inland ports; direct-to-store considerations; and all the questions that need to be confronted in any given region. This will certainly appeal to researchers and practitioners alike, and could serve as required or supplementary reading in graduate-level logistics courses as well.

Applying sophisticated management techniques to freight transport offers the potential for significant cost savings as well as greater efficiency. Yet the inherent complexity of intermodal transport presents many challenges. This practical textbook on the operations of intermodal transport and logistics focuses on the practical concerns and the basics of operations, such as vehicles, containers, handling operations, logistics management and optimisation. All chapters are written by field specialists, and the volume includes additional chapters on economics, law and the environment to put the practical topics into context. It presents a balanced textbook for postgraduate students and also a reference text for those in industry or the public sector involved in the planning of intermodal freight transport.

This volume contains commissioned refereed papers that cover the main elements of transport logistics. The authors were selected from around the world and asked to provide critiques of their subject areas as well as a review of the state of the art and case study examples. Despite its importance, logistics engineering often lags industry requirements, especially in terms of engineering-based needs. Filling the gap between education and practice, this brief but comprehensive volume covers the most basic material in the field of logistics engineering, making it suitable for those who require an overview of the topic. The book discusses logistics from historical and economic perspectives, covers the basic tools required for the study and practice of logistics, and reviews the metrics that can be used to evaluate progress. It then delves into activities that commonly fill the workdays of logisticians. The book closes with an excellent chapter on logistics as an integrating systems function.

The Fourth Industrial Revolution is now transforming logistics and supply chain industries. Consumer habits are changing fast and supply chains are having to adapt to meet the challenges created by this dynamic new environment. Traditional logistics operating models are under threat. Incumbent freight operators across the entire transport and warehousing spectrum have been forced to develop strategies to effectively compete with new start-ups. The Logistics and Supply Chain Innovation Handbook provides a comprehensive overview of all the major new technologies and business models currently under development and looks at this process of disruption in detail. The Logistics and Supply Chain Innovation Handbook covers many important topics, such as crowd sourcing and shipping, on-demand delivery, autonomous vehicles, automation in the warehouse, electric vehicles and alternative fuels. It provides readers with a straightforward and easy to understand assessment of these innovations and their impact on the industry. Online supporting resources include PowerPoints and sample case studies.

This handbook begins with the history of Supply Chain (SC) Engineering, it goes on to explain how the SC is connected today, and rounds out with future trends. The overall merit of the book is that it introduces a framework similar to sundial that allows an organization to determine where their company may fall on the SC Technology Scale. The book will describe those who are using more historic technologies, companies that are using current collaboration tools for connecting their SC to other global SCs, and the SCs that are moving more towards cutting edge technologies. This book will be a handbook for practitioners, a teaching resource for academics, and a guide for military contractors. Some figures in the eBook will be in color. Presents a decision model for choosing the best Supply Chain Engineering (SCE) strategies for Service and Manufacturing Operations with respect to Industrial Engineering and Operations Research techniques Offers an economic comparison model for evaluating SCE strategies for manufacturing outsourcing as opposed to keeping operations in-house Demonstrates how to integrate automation techniques such as RFID into planning and distribution operations Provides case studies of SC inventory reductions using automation from AIT and RFID research Covers planning and scheduling, as well as transportation and SC theory and problems

All the ILS expertise needed to achieve a more supportable system and cost-effective support infrastructure Engineers and managers can turn to the updated Third Edition of Integrated Logistics Support Handbook for expert guidance on applying Integrated Logistics Support (ILS) for acquisition and procurement planning in new product development. Long-established as the definitive ILS resource, this handbook distills thousands of pages of directives, instructions, and related material into a coherent, one-stop reference that can be used to enhance any military or commercial project. The Third Edition features new information on reliability and maintainability engineering...testability...supportability engineering...cost of ownership...personnel...support equipment...training...technical documentation...level-of-repair analysis...software support...life-cycle cost...logistics plans...contracts...and much more. Filled with step-by-step guidelines and 300 illustrations, the updated Integrated Logistics Support Handbook explains how to: Apply MIL HDBK 502, Acquisition Logistics Meet the requirements of MIL-PRF 49506, Logistics Management Information Develop and measure Performance-Based Logistics requirements New to this edition: applications of ILS to software-based systems, applications to commercial off-the-shelf solutions, and the latest Department of Defense requirements

In today's developing world, international trade is a field that is rapidly growing. Within this economic market, traders need to implement new approaches in order to satisfy consumers' rising demands. Due to the high level of competition, merchants have focused on developing new

transportation and logistics strategies. In order to execute effective transportation tactics, decision makers need to know the fundamentals, current developments, and future trends of intercontinental transportation. The Handbook of Research on the Applications of International Transportation and Logistics for World Trade provides emerging research exploring the effective and productive solutions to global transportation and logistics by applying fundamental and in-depth knowledge together with current applications and future aspects. Featuring coverage on a broad range of topics such as international regulations, inventory management, and distribution networks, this book is ideally designed for logistics authorities, trading companies, logistics operators, transportation specialists, government officials, managers, policymakers, researchers, academicians, and students.

In this era of globalization, entrepreneurship and its implications on international trade and supply chain management are becoming more critical. In today's change-oriented and complex business environment, both entrepreneurs and managers need to keep up with the latest developments around them. With the help of globalization, it is getting more attractive for entrepreneurs to generate innovative ideas to run business both nationally and internationally. Competitive advantages and the key for sustainable growth for globally founded institutions lies behind effective supply chain management originating from a single idea about establishing a company and the process to the end goal of reaching consumers. This focus on entrepreneurship, business, and supply chain comes at a time when rapid technological advances are continually being made. The Handbook of Research on Recent Perspectives on Management, International Trade, and Logistics reveals the latest data based on research on the issues of entrepreneurship, innovation, contemporary management techniques, and global supply chain management. Chapters include topics such as the effective management of the supply chain, supply chain modeling, e-business solutions, digitalizing the supply chain process, e-business applications, and more. This book is ideal for managers, executives, supply chain specialists, entrepreneurs, business professionals, researchers, academicians, and students interested in the latest findings in international trade, management, logistics, and business.

Practical, easy-to-implement advice on the most successful logistics management techniques being used today--from selecting the best carriers, setting logistics performance goals, and planning logistics strategies, to streamlining shipping and receiving and slashing logistics costs, and negotiating and managing third party logistics service providers.

This book provides a comprehensive overview of how to strategically manage the movement and storage of products or materials from any point in the manufacturing process to customer fulfillment. Topics covered include important tools for strategic decision making, transport, packaging, warehousing, retailing, customer services and future trends. An introduction to logistics Provides practical applications Discusses trends and new strategies in major parts of the logistic industry

"This book examines related research in decision, management, and other behavioral sciences in order to exchange and collaborate on information among business, industry, and government, providing innovative theories and practices in operations research"--Provided by publisher.

Designed for students, young managers and seasoned practitioners alike, this handbook explains the nuts and bolts of the modern logistics and distribution world in plain language. Illustrated throughout, this second edition includes new chapters on areas previously not covered, such as: intermodal transport; benchmarking; environmental matters; and vehicle and depot security.

The definitive guide to supply chain philosophy, strategy AND the practicalities of logistics and distribution. The Handbook of Logistics and Distribution Management is a step-by-step guide to setting up and managing supply chains to add maximum value to the organisations they serve. Benefiting from the author team's years of practical field-based experience in some of the most challenging environments across the world from developed economies to third world countries and war zones, this is a book that will enthuse students and be an invaluable desk reference throughout the careers of practitioners. Packed with worked examples and real-world data The Handbook of Logistics and Distribution Management offers complete coverage on all the key aspects of distribution, logistics and supply chain planning and management with clear and straightforward explanations. This is not a compilation of work drawn from a disparate collection of research papers and miscellaneous projects but a logical and complete holistic view of how supply chains fit together including the detailed, nitty gritty of the distribution and logistics. Globalisation, increased competition and new technologies have all changed the landscape in which supply chains operate. This fully revised 6th edition of The Handbook of Logistics and Distribution Management provides solutions to the key challenges. With new material on international freight forwarding, environmental best practice, cool chain, intermodal shipping and outsourcing and a new, detailed index of contents this is the ultimate study/reference companion. New online resources including PowerPoint lecture slides (tables, images and formulae from the text), glossary of terms, weblinks, blog articles, video interviews and infographics.

WINNER: ACA-Bruel 2015 - Prix des Associations With the growth of the food industry come unique logistics challenges, new supply routes, demand dynamics and investment re-shaping the future of the food logistics industry. It is therefore important for the food industry to innovate both with regards to demand management and sustainability of food sources for a growing population. Food Supply Chain Management and Logistics provides an accessible and essential guide to food supply chain management, considering the food supply chain from 'farm to fork'. Samir Dani shows the reader how to stay ahead of the game by keeping abreast of global best practice, harnessing the very latest technology and squeezing efficiency and profit from increasingly complex supply chains. Food Supply Chain Management and Logistics covers essential topics in food supply chain management, including: food supply chain production and manufacturing; food logistics; food regulation, safety and quality; food sourcing; food retailing; risk management; food innovation; technology trends; food sector and economic regeneration; challenges in International food supply chains; triple bottom-line trends in the food sector; food security and future challenges. Winner of the 2015 Prix des Associations, this book has been commended for its comprehensive coverage of the design, governance, supporting mechanisms and future challenges in the food supply chain.

Why study air cargo? Consider that this sector moves only 2% of the global volume of goods but a huge 35% by value, reserved for the most costly and time-sensitive products. Air logistics is an economically and strategically important industry, and a rich source of opportunity for graduating students and logistics or SCM professionals. Get a head start in this vital part of your business with this comprehensive and lively overview. It's the only book available to focus on the role of air freight in the global supply chain. It includes a brief history; the functions of the various players in the industry (forwarders, airlines, airports, government agencies); regulations and restrictions; terrorism management. It details the

benefits of air transport, and weighs them against its considerable environmental impact to explore the question of its sustainability. Finally, it considers the future of the industry in a dynamic and increasingly globalised world. Enriched throughout with real life case studies and contributions from global industry experts, this is a ground-level introduction with a practical approach: all the student or professional will need to get ahead in air logistics!

Achieving state-of-the-art excellence and attaining the cost reductions associated with outstanding logistics efforts is an obvious gain in terms of competitive edge and profitability. As logistics tools evolve in comprehensiveness and complexity, and the use of these new tools becomes more pervasive, maintaining a position of leadership in logistics functions also becomes increasingly difficult. And in spite of its importance not only to the bottom line but also to the functionality of your operations, logistics improvement often lags industry requirements. Taking a unique engineering approach, the Logistics Engineering Handbook provides comprehensive coverage of traditional methods and contemporary topics. The book delineates basic concepts and practices, provides a tutorial for common problems and solution techniques, and discusses current topics that define the state of the logistics market. It covers background information that defines engineering logistics, activities and implementation, transportation management, enabling technologies, and emerging trends. Each chapter includes either a brief case study overview of an industrially motivated problem or a tutorial using fabricated data designed to highlight important issues. Presentation, organization, and quality of content set this book apart. Its most distinctive feature is the engineering focus, instead of the more usual business/supply chain focus, that provides a mathematically rigorous treatment without being overly analytical. Another important characteristic is the emphasis on transportation management, especially freight transportation. The section on emerging and growing trends makes the handbook particularly useful to the savvy logistics professional wishing to exploit possible future trends in logistics practice. The handbook is a one-stop shopping location for logistics engineering reference materials ranging from basics to traditional problems, to state-of-the-market concerns and opportunities.

Freight Transport Modelling is a unique new reference book that provides insight into the state-of-the-art of freight modelling. Focusing on models used to support public transport policy analysis, Freight Transport Modelling systematically introduces the latest freight transport modelling approaches and describes the main methods and techniques used to arrive at operational models. As freight transport has grown exponentially in recent decades, policymakers now need to include freight flows in quantitative evaluations of transport systems. Whereas early freight modelling practice was inspired by passenger transport models, by now it has developed its separate stream of methods and techniques inspired by disciplines such as economic geography and supply chain management. Besides summarizing the latest achievements in fundamental research, this book describes the state of practice and advises practitioners on how to cope with typical challenges such as limitations in data availability. Uniquely focused book exploring the key issues and logistics of freight transport modelling Highlights the latest approaches and describes the main methods and techniques used to arrive at operational models Summarizes fundamental research into freight transport modeling, as well as current practices and advice for practitioners facing day-to-day challenges

City logistics is one of the most popular fields of transportation sciences, dealing with sustainably supplying cities and at the same time reducing congestion and pollution related to goods transport in urban areas. Recently, humanitarian, emergency, and crises logistics has been a subject of increasing interest, often seen from an international viewpoint. However, some of the recent natural crises have shown the importance of resilience and reliability of the current urban logistics systems. The Handbook of Research on Urban and Humanitarian Logistics is a critical scholarly publication that addresses urban logistics and resilience, sustainable urban logistics, humanitarian logistics in urban areas both for crisis or long-term, and planning for resilient urban development. Featuring a broad range of topics that discuss the new and future trends in urban logistics and resilient cities, this publication is ideal for public planners; urban planners; company managers in logistics and transport; consulting agencies; regional, national, and international institutions and organizations; researchers; academicians; and students.

The third-party logistics industry is a growing field. This is the first practical handbook to support managers in the creation and negotiation of logistics contracts from the legal and economic perspective. The book provides the general framework and an extensive analysis of the content, structure and best practices of logistics contracts.

The Logistics Handbook encompasses all of the latest advances in warehousing and distribution. It provides invaluable "how to" problem-solving tools and techniques for all the ever-increasing logistical problems managers face -- making it the most complete and authoritative handbook to date. Special features include: * The most in-depth coverage of a wide range of topics, including information systems, benchmarking, and environmental issues * Contributions found nowhere else from the leading executives, consultants, and academics in the field, such as C. John Langlely, James Heskett, and David Anderson * State of the art graphics * Information-packed appendixes of logistics publications and organizations This all-inclusive reference will enable the next generation of managers to thoroughly integrate their logistics operations at all levels -- strategic, structural, functional, and implementation -- into a comprehensive logistics strategy.

Many texts are excellent sources of knowledge about individual statistical tools, but the art of data analysis is about choosing and using multiple tools. Instead of presenting isolated techniques, this text emphasizes problem solving strategies that address the many issues arising when developing multivariable models using real data and not standard textbook examples. It includes imputation methods for dealing with missing data effectively, methods for dealing with nonlinear relationships and for making the estimation of transformations a formal part of the modeling process, methods for dealing with "too many variables to analyze and not enough observations," and powerful model validation techniques based on the bootstrap. This text realistically deals with model uncertainty and its effects on inference to achieve "safe data mining".

"This book explores the creation of integrated supply chains, the developments of virtual business, and the processes of

re-engineering for business development"--Provided by publisher.

This book is focused on the impact of ocean transport logistics on global supply chains. It is the first book solely dedicated to the topic, linking the interaction of parties along this chain, including shippers, terminal operators and line carriers. While ocean container transport logistics has been greatly studied, there are many important issues that have yet to receive the attention they deserve. The editors and contributing authors of *Ocean Container Transport Logistics: Making Global Supply Chain Effective* seek to address these topics and shed new light on the subject. The book is divided into three parts. Part I examines the innovation, trends, competition and business model of container terminal operations. In Part II, the book looks at how tactical and operational management is used in shipping liners. The chapters cover topics such as empty container repositioning, slow steaming, routing, network design and disruption management. Finally Part III explores shippers and global supply chain management, with chapters on transportation service procurement, hinterland transportation, green corridors, as well as competition and co-operation in maritime logistics operations. The eighteen chapters of the book all highlight the immediate effect of ocean transport logistics on global supply chain.

The tactical organization of resources is a vital component to any industry in modern society. Effectively managing the flow of materials through various networks ensures that the requirements of customers are met. *Sustainable Logistics and Strategic Transportation Planning* is a pivotal reference source for the latest research on the management of logistics through the lens of sustainability, as well as for emerging procedures that are particularly critical to the transportation sector. Highlighting international perspectives, conceptual frameworks, and targeted investigations, this book is ideally designed for policy makers, professionals, researchers, and upper-level students interested in logistics and transport systems.

The design of facilities, warehouses, and material-handling systems as well as the management of logistics operations significantly impact the success of industrial projects. *Facility Logistics: Approaches and Solutions to Next Generation Challenges* explores recent developments in the technology, industrial practices, and business environments of facility logistics. The book first discusses the main trends impacting facility logistics operations, including visibility, security, flexibility, labor, globalization, and sustainability. It then examines the functionalities and capabilities of warehouse management systems (WMS) and outlines a comprehensive yet simple method for the quick assessment of warehouse performance. The following chapters present a set of solutions to emerging challenges in the design and management of facility logistics, along with procedures to better plan and manage the logistics activities within a production or storage facility. The final chapter reviews educational resources and offers examples of how multimedia tools can be used to develop new teaching material. With more globalization and outsourcing occurring as well as a greater emphasis on facility sustainability, new facility logistics challenges have emerged. By evaluating the impact of these issues on facility logistics, this volume helps you improve the design and management of your facility.

An essential guide to outsourcing logistics services, offering step-by-step guidelines to successful implementation and invaluable toolkits and frameworks

Focusing on the specific challenges of research design and exploring the opportunities of conducting research in humanitarian logistics and supply chain management, this handbook is a significant contribution to future research. Chapters include extensive descriptions of methods used, highlighting their advantages and disadvantages, and the challenges in scoping, sampling, collecting and analysing data, as well as ensuring the quality of studies. Covering a wide variety of topics including risk and resilience and the impact of humanitarian logistics on capacity building, sustainability and the local economy, it also explores the need for scalability and co-ordination in the humanitarian network. Contributors provide important insight on future directions and offer crucial guidance for researchers conducting projects within the field. *Sustainable Production and Logistics: Modeling and Analysis Subject Guide: Engineering - Industrial & Manufacturing* This book presents issues faced by planners of production and distribution operations in terms of smart manufacturing and sustainability, using efficient quantitative techniques in a variety of decision-making situations. Addressing the state-of-the-art of the smart and sustainable sides of production and distribution planning operations, it highlights how a current issue can be effectively approached and what particular quantitative technique can be used. The book goes on to provide a foundation in the new and fast-growing digital journey, and includes logistics 4.0 inside Industry 4.0, along with case studies. The information in this book is useful worldwide, especially in the Americas, Europe, Turkey, and Japan. It is written for academicians, researchers, practitioners, and students.

This book presents healthcare logistics solutions that have been successfully implemented at a variety of healthcare facilities. In each case, a major challenge is presented, along with the solution approach and implementation steps, followed by the impact on hospital operations. Problems encountered when implementing the results in practice are also discussed. Much of the work presented is drawn from the experiences of members of the Center for Healthcare Operations Improvement and Research (CHOIR) at Twente, along with the CHOIR spin-off company, Rhythm.

This book offers complete coverage of logistics, examining modes, general issues, logistics in specific regions, free-trade zones, innovations in international logistics, case studies and a look at the future.

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