Optimization Of Logistics | f54b1fd487f59c75bb3499bc2fa6f4e2

Planning and Optimization for Logistics Management in the Food Industry

Application of Optimization in Production, Logistics, Inventory, Supply Chain Management and Block Chain

New Algorithms for Two Logistics Optimization Problems

The second edition of Multi-Objective Management in Freight Logistics builds upon the first, providing a detailed study of freight transportation systems, with a specific focus on multi-objective modelling. It offers decision-makers methods and tools for implementing multi-objective optimisation models in logistics. The second edition also includes brand-new chapters on green supply chain and hybrid fleet management problems. After presenting the general framework and multi-objective optimization, the book analyses green logistic focusing on two main aspects: green corridors and network design; next, it studies logistic issues in a maritime terminal and route planning in the context of hazardous material transportation. Finally, heterogeneous fleets distribution and coordination models are discussed. The book presents problems providing the mathematics, algorithms, implementations, and the related experiments for each problem. It offers a valuable resource for postgraduate students and researchers in transportation, logistics and operations, as well as practitioners working in service systems.

Logistics Engineering and Health

The aim of this book is to present qualitative aspects of logistics operations and supply chain management which help to implement the sustainable policy principles in the companies and public sector’s institutions. Authors in individual chapters address the issues related
to reverse network configuration, forward and reverse supply chain integration, CO2 reduction in transportation, improvement of the production operations and management of the recovery activities. Some best practices from different countries and industries are presented. This book will be valuable to both academics and practitioners wishing to deepen their knowledge in the field of logistics operations and management with regard to sustainability issues.

**Logistics Systems: Design and Optimization**

**Optimization Tools for Logistics**

Logistics providers typically own large fleets of transportation vehicles such as rail cars or trucks. These fleets do not only determine to a large extent the service level the company can offer, but also make up a large part of total costs. Proper management of the fleet is therefore a crucial factor for these companies. In this book the author presents planning approaches that address the optimal management of vehicle fleets. Firstly, methods for determining the mixture of vehicle types and the optimal size of a fleet are developed. Secondly, approaches for supporting new service models such as customer segmentation are derived. Potential readership includes scholars and graduate students who are interested in the field of fleet planning and practitioners from logistics companies looking for new planning approaches.

**Applied Simulation and Optimization 2**

The evolution of industrial development since the 18th century is now experiencing the fourth industrial revolution. The effect of the development has propagated into almost every sector of the industry. From inventory to the circular economy, the effectiveness of technology has been fruitful for industry. The recent trends in research, with new ideas and methodologies, are included in this book. Several new ideas and business strategies are developed in the area of the supply chain management, logistics, optimization, and forecasting for the improvement of the economy of the society and the environment. The proposed technologies and ideas are either novel or help modify several other new ideas. Different real life problems with different dimensions are discussed in the book so that readers may connect with the recent issues in society and industry. The collection of the articles provides a glimpse into the new research trends in technology, business, and the environment.

**Innovative Process Optimization Methods in Logistics**

The content of this book is motivated by the recent changes in global markets and the availability of new transportation services. Indeed, the complexity of current supply chains suggests todays shippers and logistics operators work with sets of objectives (Pareto optimal) solutions, mainly to capture different economical objectives that, in general, one optimal solution related to a single objective function is not able to capture entirely. Motivated by these reasons, we study freight transportation systems with a specific focus on multi-objective modelling. The goal is to provide decision-makers with new methods and tools to implement multi-objective optimization models in logistics. The book combines theoretical aspects with applications, showing the advantages and the drawbacks of adopting scalarization techniques, and when it is worthwhile to reduce the problem to a goal-programming one. Also, we show applications where more than one decision maker evaluates the effectiveness of the logistic system and thus a multi-level programming is sought to attain meaningful solutions. After presenting the general working framework, we analyze logistics issues in maritime terminals. Next, we study multi-objective route planning, relying on the application of hazardous material transportation. Then, we examine freight distribution on a smaller scale, as for the case of goods distribution in metropolitan areas. Finally, we present a human–workforce problem arising in logistic platforms. The general approach followed in the text is that of presenting mathematics, algorithms and the related experimentations for each problem.

**Logistics Management and Optimization through Hybrid Artificial Intelligence Systems**
In a world with highly competitive markets and economic instability due to capitalization, industrial competition has increasingly intensified. In order for many industries to survive and succeed, they need to develop highly effective coordination between supply chain partners, dynamic collaborative and strategic alliance relationships, and efficient logistics and supply chain network designs. Consequently, in the past decade, there has been an explosion of interest among academic researchers and industrial practitioners in innovative supply chain and logistics models, algorithms, and coordination policies. Mathematically distinct from classical supply chain management, this emerging research area has been proven to be useful and applicable to a wide variety of industries. This book brings together recent advances in supply chain and logistics research and computational optimization that apply to a collaborative environment in the enterprise.

Applied Simulation and Optimization

This book is the collection of my own studies in the optimization of logistics and supply chain systems, targeted to a broad readership. In this book, first few chapters of the optimization concepts come out of the materials I used to refer while doing my research. I brought together some of these materials to form a guidance material on the fundamentals of the optimization concepts along with my own studies in the application of optimization methods. For a macro level logistics and supply chain systems optimization perspective, I added several chapters that are the results of my studies, which use the Global Trade Analysis Project (GTAP and GDyn) simulations. The static and dynamic computable general equilibrium (CGE) concept is also the essential part of the optimization study of logistics and supply chain systems. Therefore, the fundamentals of the static and dynamic (CGE) models are introduced. As the demand for logistics depends mostly on the volume of trade and trade patterns, international trade affects the transport and logistics, as it might generate a higher or lower demand for transport and logistics services, which are calculated by various approaches of optimization studies. This book consists of six parts and twenty chapters. The first part of the book, which includes three chapters, is about introduction to optimization with typical base problems and algorithms for solving these problems. The second part of this book includes five my own researches in the application of optimization methods. The third part of the book shortly introduces you to the general concepts of the computable general equilibrium models (CGE) and presents you the fundamentals of a CGE model. In each chapter of the fourth part, short articles that include five simulations based on various scenarios are presented. The fifth part of the book briefly introduces you to the basic concepts of the computable general equilibrium models (CGE) and then, presents you the fundamentals of dynamic general equilibrium models. In each chapter of the sixth part, two short articles that simulate various scenarios are presented. All the chapters in this book are independent of each other. I hope you will find this book informative, beneficial and appropriate for your needs.

Optimization of Logistics Systems

Optimization Models in Support of Performance Based Logistics (PBL) Contracts

Presenting techniques, case-studies and methodologies that combine the use of simulation approaches with optimization techniques for facing problems in manufacturing, logistics, or aeronautical problems, this book provides solutions to common industrial problems in several fields, which range from manufacturing to aviation problems, where the common denominator is the combination of simulation's flexibility with optimization techniques' robustness. Providing readers with a comprehensive guide to tackle similar issues in industrial environments, this text explores novel ways to face industrial problems through hybrid approaches (simulation-optimization) that benefit from the advantages of both paradigms, in order to give solutions to important problems in service industry, production processes, or supply chains, such as scheduling, routing problems and resource allocations, among others.

Methods and Mathematical Models for the Optimization in Logistics and Production
This book consists of two parts and six chapters. The first part of the book, which consists of three chapters, is about introduction to optimization with typical base problems and algorithms for solving problems. The second part of this book consists of three my own researches on the application of optimization methods.

**Supply Chain Optimization for Fertilizer Logistics**

**Optimization of Logistics and Supply Chain Systems**

**Optimization of Logistics**

**Evidence-based Optimization in Humanitarian Logistics**

Companies across different industries are launching technology-enabled (digital) business transformation programs to improve their strategic, tactical, and operational supply chain processes. The greatest challenges that they are facing include the lack of preparation and knowledge of the digital transformation life cycle and poorly addressing or neglecting the “people-related” aspects of them. Therefore, improvement initiatives have been short-lived or incomplete, and expected business benefits have not been achieved or materialized. Technology Optimization and Change Management for Successful Digital Supply Chains is a pivotal reference source that provides vital research on the application of digital business transformation programs to improve strategic, tactical, and operational supply chain processes. While highlighting topics such as maturity models, predictive analysis, and communication planning, this publication explores the limited literature in the field of digital supply chain optimization and business transformation, and complements it with practical and proven tactics from the industry. This book is ideally designed for program managers, engineers, students, and practitioners seeking current research on the field’s latest best practices on digital supply chain enablement.

**Multi-objective Management in Freight Logistics**

This book presents the research that resulted from a fruitful collaboration between many CNRS research laboratories, health establishments and industrialists. This research contributes to the study and the development of logistical systems, in particular health-oriented logistical systems, in order to manage and optimize physical, informational and financial flows. The authors examine optimization and modeling methods to facilitate decision support for the management of logistics systems in the health field, including solutions to problems encountered in the management of logistics flows and the study of systems incorporating these flows. In the first chapter, logistics engineering is presented whilst the second chapter introduces the study of real cases of transport, management crisis and warehouse management logistics systems. The third chapter is devoted to the study of hospital systems and emergency services and in the fourth chapter, the authors highlight the operational aspect of the hospital system thanks to an innovative modeling approach. Finally, mathematical and algorithmic models of scheduling, and dynamic orchestration of the collaborative workflow by a multi-agent system, are introduced. Presents innovative optimization and modeling methods to provide decision support for the management of logistics systems Provides guidance to healthcare and hospital workers who must control the flow of process issues (i.e. patient information, products, equipment) and the restructuring that results internally in the pooling of resources, especially technical platforms Includes answers to problems encountered in the management of logistics flows and the study of systems incorporating these flows Addresses the challenges of quality and speed in an innovative approach to organizational, economic, technological, and informational optimization

**Computational Optimization and Logistics Challenges in Industrial Applications**
This book presents recent work that analyzes general issues of green logistics and smart cities. The contributed chapters consider operating models with important ecological, economic, and social objectives. The content will be valuable for researchers and postgraduate students in computer science, information technology, industrial engineering, and applied mathematics.

**Logistics Systems: Design and Optimization**

The subject of this book is supply chain logistics planning optimization under multiple uncertainties, the key issue in supply chain management. Focusing on the strategic-alliance three-level supply chain, the model of supply chain logistics planning was established in terms of the market prices and the market requirements as random variables of manufactured goods with random expected value programming theory, and the hybrid intelligence algorithm solution model was designed. Aiming at the decentralized control supply chain, in which the nodes were unlimited expansion, the chance-constrained stochastic programming model was created in order to obtain optimal decision-making at a certain confidence level. In addition, the hybrid intelligence algorithm model was designed to solve the problem of supply chain logistics planning with the prices of the raw-materials supply market of the upstream enterprises and the prices of market demand for products of the downstream enterprises as random variables in the supply chain unit. Aimed at the three-stage mixed control supply chain, a logistics planning model was designed using fuzzy random programming theory with customer demand as fuzzy random variables and a hybrid intelligence algorithm solution was created. The research has significance both in theory and practice. Its theoretical significance is that the research can complement and perfect existing supply chain planning in terms of quantification. Its practical significance is that the results will guide companies in supply chain logistics planning in the uncertain environment.

**Technology Optimization and Change Management for Successful Digital Supply Chains**

**Essays of Applied Mathematical Optimization in Logistics**

**Optimization of Integrated Supply Chain Planning under Multiple Uncertainty**

Optimization Tools for Logistics covers the theory and practice of the main principles of operational research and the ways it can be applied to logistics and decision support with regards to common software. The book is supported by worked problems and examples from industrial case studies, providing a comprehensive tool for readers from a variety of industries. Covers simple explanations of the mathematical theories related to logistics Contains many problems and examples from industrial case studies Includes coverage of the use of readily available software; spreadsheets, project managers, flows simulators

**Optimization of Logistics**

**Optimization of Logistics Processes in Supply Chain Management for the Oilfield Service Operators from Logistics Service Providers' Perspective**

The evolution of industrial development since the 18th century is now experiencing the fourth industrial revolution. The effect of the development has propagated into almost every sector of the industry. From inventory to the circular economy, the effectiveness of technology has been fruitful for industry. The recent trends in research, with new ideas and methodologies, are included in this book. Several new ideas and business strategies are developed in the area of the supply chain management, logistics, optimization, and
forecasting for the improvement of the economy of the society and the environment. The proposed technologies and ideas are either novel or help modify several other new ideas. Different real life problems with different dimensions are discussed in the book so that readers may connect with the recent issues in society and industry. The collection of the articles provides a glimpse into the new research trends in technology, business, and the environment.

**Process Simulation and Optimization in Sustainable Logistics and Manufacturing**

This book aims to help engineers, Masters students and young researchers to understand and gain a general knowledge of logistic systems optimization problems and techniques, such as system design, layout, stock management, quality management, lot-sizing or scheduling. It summarizes the evaluation and optimization methods used to solve the most frequent problems. In particular, the authors also emphasize some recent and interesting scientific developments, as well as presenting some industrial applications and some solved instances from real-life cases. Performance evaluation tools (Petri nets, the Markov process, discrete event simulation, etc.) and optimization techniques (branch-and-bound, dynamic programming, genetic algorithms, ant colony optimization, etc.) are presented first. Then, new optimization methods are presented to solve systems design problems, layout problems and buffer-sizing optimization. Forecasting methods, inventory optimization, packing problems, lot-sizing quality management and scheduling are presented with examples in the final chapters.

**Optimization of Rental Systems**

**Robust and Large Scale Network Optimization in Logistics**

In a context of global competition, the optimization of logistics systems is inescapable. Logistics Systems: Design and Optimization falls within this perspective and presents twelve chapters that well illustrate the variety and the complexity of logistics activities. Each chapter is written by recognized researchers who have been commissioned to survey a specific topic or emerging area of logistics. The first chapter, by Riopel, Langevin, and Campbell, develops a framework for the entire book. It classifies logistics decisions and highlights the relevant linkages to logistics decisions. The intricacy of these linkages demonstrates how thoroughly the decisions are interrelated and underscores the complexity of managing logistics activities. Each of the chapters focus on quantitative methods for the design and optimization of logistics systems.

**Modeling and Optimization in Green Logistics**

Max Gath presents a multiagent system for the optimization of transport logistics in highly complex and dynamic domains. The described solution dynamically optimizes processes and provides a high flexibility, scalability, robustness, and adaptability to individual customer demands. The experimental evaluation points out the effectiveness and efficiency by using the example of commonly applied benchmarks as well as two case studies in groupage traffic and in courier, express, and parcel services with same-day deliveries. Both case studies were performed with leading transport companies in Germany. The results demonstrate that the multiagent-based solution satisfies domain-specific requirements and exploits high optimization potential in real-world processes.

**Optimization and Logistics Challenges in the Enterprise**

**Sustainable Logistics and Transportation**

Building on the author’s earlier Applied Simulation and Optimization, this book presents novel methods for solving problems in industry,
based on hybrid simulation-optimization approaches that combine the advantages of both paradigms. The book serves as a comprehensive guide to tackling scheduling, routing problems, resource allocations and other issues in industrial environments, the service industry, production processes, or supply chains and aviation. Logistics, manufacturing and operational problems can either be modelled using optimization techniques or approaches based on simulation methodologies. Optimization techniques have the advantage of performing efficiently when the problems are properly defined, but they are often developed through rigid representations that do not include or accurately represent the stochasticity inherent in real systems. Furthermore, important information is lost during the abstraction process to fit each problem into the optimization technique. On the other hand, simulation approaches possess high description levels, but the optimization is generally performed through sampling of all the possible configurations of the system. The methods explored in this book are of use to researchers and practising engineers in fields ranging from supply chains to the aviation industry.

Application of Optimization in Production, Logistics, Inventory, Supply Chain Management and Block Chain

In a context of global competition, the optimization of logistics systems is inescapable. Logistics Systems: Design and Optimization falls within this perspective and presents twelve chapters that well illustrate the variety and the complexity of logistics activities. Each chapter is written by recognized researchers who have been commissioned to survey a specific topic or emerging area of logistics. The first chapter, by Riopel, Langevin, and Campbell, develops a framework for the entire book. It classifies logistics decisions and highlights the relevant linkages to logistics decisions. The intricacy of these linkages demonstrates how thoroughly the decisions are interrelated and underscores the complexity of managing logistics activities. Each of the chapters focus on quantitative methods for the design and optimization of logistics systems.

Optimization of Logistics

Focused on the logistics and transportation operations within a supply chain, this book brings together the latest models, algorithms, and optimization possibilities. Logistics and transportation problems are examined within a sustainability perspective to offer a comprehensive assessment of environmental, social, ethical, and economic performance measures. Featured models, techniques, and algorithms may be used to construct policies on alternative transportation modes and technologies, green logistics, and incentives by the incorporation of environmental, economic, and social measures. Researchers, professionals, and graduate students in urban regional planning, logistics, transport systems, optimization, supply chain management, business administration, information science, mathematics, and industrial and systems engineering will find the real life and interdisciplinary issues presented in this book informative and useful.

Reverse Logistics Optimization-- a Research to the Uncertainties in the Third Party Reverse Logistics

Special Issue: Advances in Vehicle Routing and Logistics Optimization

Optimizing Transport Logistics Processes with Multiagent Planning and Control

?As urban congestion continues to be an ever increasing problem, routing in these settings has become an important area of operations research. This monograph provides cutting-edge research, utilizing the recent advances in technology, to quantify the value of dynamic, time-dependent information for advanced vehicle routing in city logistics. The methodology of traffic data collection is enhanced by GPS based data collection, resulting in a comprehensive number of travel time records. Data Mining is also applied to derive dynamic information models as required by time-dependent optimization. Finally, well-known approaches of vehicle routing are adapted in order to handle dynamic information models. This book interweaves the usually distinct areas of traffic data collection, information retrieval and
time-dependent optimization by an integrated methodological approach, which refers to synergies of Data Mining and Operations Research techniques by example of city logistics applications. These procedures will help improve the reliability of logistics services in congested urban areas.

**Multi-objective Management in Freight Logistics**

The Oil and Gas industry is one of the most important engines in the global economy. For sure it is good barometer of the economic situation. Its basic foundation, which is oil, has been growing in importance for over 100 years, approaching the peak moment. Therefore, the Upstream sector along with its geographical and economic challenges is so extremely important. This is where each barrel of oil and every investment comes from. This is where the history of economic profitability begins, where costs arise and need to be optimized at every early stage of the process. This thesis aims to approximate the operational aspects of the service for Oilfield Service Operators from the perspective of a logistics company. Based on my experience and practical knowledge gained by implementing projects for my clients, I wanted analyzed the supply chain from a practical point of view. I have marked the components of this chain, identified the most important participants and explored weaknesses and strengths – looking at the subject of forwarding service for Oil and Gas not only as an operator but also as a client, subcontractor and operator.

**Logistics Optimization of the Carrier-mode Selection Problem in the Inbound Supply Chain**

"This book offers the latest research within the field of HAIS, surveying the broad topics and collecting case studies, future directions, and cutting edge analyses, investigating biologically inspired algorithms such as ant colony optimization and particle swarm optimization."

**Integration of Information and Optimization Models for Routing in City Logistics**

This book is focused on finding solutions able to maximize logistic processes efficiency and reduce the impact of transportation on the environment at the same time. The main purposes of the research have been two: finding strategies and methodologies for the reduction of the standard container management complexity and the development of a model for the selection of the optimal container solution both from an economic and environmental perspective. The model has been implemented into a tool able to automate all the computations and evaluations. The outputs of the model/tool have been operationally validated using data obtained from the operations of an American and a European Car Maker Company. The results have illustrated the consistency with real industrial applications and the importance to use a multi-criteria decision making model, like the one developed, to select the optimal solution when the interaction of several parameters make it difficult to predict the overall result.

**Logistics Management**

Copyright code: f54b1fd487f59c75bb3499bc2fa6f4e2