Supply Chain Network Design Applying Optimization And Analytics To The Global Supply Chain Ft Press Operations Management

A brand new collection of world-class supply chain design solutions… 3 authoritative books, now in a convenient e-format, at a great price! 3 authoritative eBooks deliver state-of-the-art guidance for designing and optimizing highly competitive global supply chains! This unique 3 eBook package will help you design state-of-the-art supply chains that deliver rapid, quantifiable, and sustainable competitive advantage. The Encyclopedia of Operations Management is the perfect single-volume "field manual" for every supply chain or operations management practitioner and student. Nearly 1,500 well-organized, up-to-date definitions cover every facet of supply chain design, planning, management, and optimization. Next, in Reinventing the Supply Chain Life Cycle, Marc J. Schniederjans and Stephen B. LeGrand show how to optimize supply chains throughout their entire lifecycle: creation, growth, maturity, and decline! Reflecting up-to-the-minute "in-the-trenches" experience and pioneering research, this book illuminates the complex transformational processes associated with managing complex supply chains that incorporate multiple products and services within ever-changing networks. They walk you through: starting, creating, and building new supply chains; realigning them for growth; adjusting to dynamic change, readjusting networks, building flexibility, and managing new risks. Next, they offer practical, realistic guidance for realigning "mature" supply chains, innovating, controlling costs; and smoothly managing declining demand. Throughout, they offer invaluable insights, tools, and examples for negotiation, performance measurement, anticipating change, improving agility, meeting commitments to social responsibility and the law; and more. Finally, in Supply Chain Network Design, four leading IBM and Northwestern University experts show how to use strategic supply chain network design to achieve dramatic new savings. They integrate rigorous principles and practical applications to help you select the right number, location, territory, and size of warehouses, plants, and production lines; and optimize the flow of all products through even the most complex global supply chain. You'll find better ways to decide what (and where) to manufacture internally; and which products to outsource (and to whom). You'll get help managing cost vs. service-level tradeoffs; using analytics to improve decision-making; and re-optimizing regularly for even more savings. Whatever your role in supply chain design, this collection will help you systematically optimize performance, customer value, and profitability. From world-renowned supply chain experts Arthur V. Hill, Marc J. Schniederjans, Stephen B. LeGrand, Michael Watson, Sara Lewis, Peter Cacioppi, and Jay Jayaraman
For over a decade, there has been an increasing interest in the use of supply chain methods to improve performance across the entire business enterprise. Numerous industries have recognized the importance of efficient supply chain integration, and, as a result, supply chain management has become a standard part of business practice. The Practice of Supply Chain Management: Where Theory and Application Converge is a must-have volume for users of supply chain management methods, supply chain management researchers, and students in supply chain management. The objective of the book is to provide an overview of this

important practice-research cycle, and it is organized into three sections: Core Concepts and Practices; Emerging Supply Chain Practices; and Supply Chain in Action. The focus of the book is on supply chain practice, but supply chain practice that has been heavily influenced by supply chain research. It is this synergy between research and practice that continues to simulate new directions for research.

This proceedings book presents selected peer-reviewed papers from the 9th International Workshop on 'Service Oriented, Holonic and Multi-agent Manufacturing Systems for the Industry of the Future' organized by Universitat Politècnica de València, Spain, and held on October 3–4, 2019. The SOHOMA 2019 Workshop aimed to foster innovation in the digital transformation of manufacturing and logistics by promoting new concepts and methods and solutions through service orientation in holonic and agent-based control with distributed intelligence. The book provides insights into the theme of the SOHOMA'19 Workshop – 'Smart anything everywhere – the vertical and horizontal manufacturing integration, ' addressing 'Industry of the Future' (IoF), a term used to describe the 4th industrial revolution initiated by a new generation of adaptive, fully connected, analytical and highly efficient robotized manufacturing systems. This global IoF model describes a new stage of manufacturing, that is fully automatized and uses advanced information, communication and control technologies such as industrial IoT, cyber-physical production systems, cloud manufacturing, resource virtualization, product intelligence, and digital twin, edge and fog computing. It presents the IoF interconnection of distributed manufacturing entities using a 'system-of-systems' approach, discussing new types of highly interconnected and self-organizing production resources in the entire value chain; and new types of intelligent decision-making support based on from real-time production data collected from resources, products and machine learning processing. This book is intended for researchers and engineers working in the manufacturing value chain, and specialists developing computer-based control and robotics solutions for the 'Industry of the Future'. It is also a valuable resource for master's and Ph.D. students in engineering sciences programs.

'Dynamic Supply Chains is a masterpiece in the field of supply chain management' Dr Rakesh Singh, Chairman, Institute of Supply Chain Management, India Dynamic supply chains are at the heart of your business. You need to get them right. Are your supply chains equipped to compete for a faster, more flexible future? Supply chains are not just part of your business: in many ways they are your business. They are made up of living, active people, and to really get supply chains right you need to capture the dynamism that people can bring to the flow of goods and services, both inside and outside your business. In this third edition of Dynamic Supply Chains, renowned international expert John Gattorna gives you a practical and effective new model for supply chains that will help you get closer to your customers and suppliers, and set your business on a new path to growth. John's 'outside-in' philosophy is based on 'Design Thinking' principles, underpinned by business analytics, visualization, and the passion to get things done. This is indeed, supply chains by design.

Practitioners in process industry have to increasingly adapt their global production networks to changes in the competitive environment. A majority of the supply network design models proposed by academia do not sufficiently capture the questions that

have to be resolved. This book provides the necessary operations research decision support tools. It builds on an example of the specialty chemicals industry.

This edited book describes new trends in supply chain design and management with an emphasis on technologies and methodologies. It contains guidelines detailing the real-world applications of these technologies and methodologies. This book is of interest to researchers and practitioners and can also be used as a reference handbook by lecturers and postgraduate students in this field.

Economic, marketing, and legislative considerations are increasingly leading companies to take back and recover their products after use. From a logistics perspective, these initiatives give rise to new goods flows from the user back to the producer. The management of these goods flows opposite to the traditional supply chain flows is addressed in the recently emerged field of Reverse Logistics. This monograph considers quantitative models that support decision making in Reverse Logistics. To this end, several recent case studies are reviewed. Moreover, first hand insight from a study on used electronic equipment is reported on. On this basis, logistics issues arising in the management of "reverse" goods flows are identified. Moreover, differences between Reverse Logistics and more traditional logistics contexts are highlighted. Finally, attention is paid to capturing the characteristics of Reverse Logistics in appropriate quantitative models.

Supply Chain Network DesignApplying Optimization and Analytics to the Global Supply ChainPearson Education

To maintain a competitive edge against other businesses, companies must ensure the most effective strategies and procedures are in place. This is particularly critical in smaller business environments with fewer resources. Strategic Optimization of Medium-Sized Enterprises in the Global Market is a critical scholarly resource that highlights the optimization of management functions, such as working capital and marketing, and how to implement sustainable business management practices in the global world market. Featuring coverage on a broad range of topics such as social entrepreneurship, marketing optimization, and globalization, this book is geared towards business managers, medium-sized enterprises, policy makers, business professionals, and upper-level students seeking current research on the performances of medium-sized enterprises across the world and their broader supply chain.

This book deals with complex problems in the fields of logistics and supply chain management and discusses advanced methods, especially from the field of computational intelligence (CI), for solving them. The first two chapters provide general introductions to logistics and supply chain management on the one hand, and to computational intelligence on the other hand. The subsequent chapters cover specific fields in logistics and supply chain management, work out the most relevant problems found in those fields, and discuss approaches for solving them. Chapter 3 discusses problems in the field of production and inventory management. Chapter 4 considers planning activities on a finer level of granularity which is usually denoted as scheduling. In chapter 5 problems in transportation planning such as different types of vehicle routing problems are considered. While chapters 3 to 5 rather discuss planning problems which appear on an operative level, chapter 6 discusses the strategic problem of designing a supply chain or network. The final chapter provides an overview of academic and commercial software and information systems for the discussed applications. There appears to be a gap between general textbooks on logistics and supply chain management and more specialized literature dealing with methods for computational intelligence, operations research, etc., for solving the

complex operational problems in these fields. For readers, it is often difficult to proceed from introductory texts on logistics and supply chain management to the sophisticated literature which deals with the usage of advanced methods. This book fills this gap by providing state-of-the-art descriptions of the corresponding problems and suitable methods for solving them.

Civil and environmental engineers work together to develop, build, and maintain the man-made and natural environments that make up the infrastructures and ecosystems in which we live and thrive. Civil and Environmental Engineering: Concepts, Methodologies, Tools, and Applications is a comprehensive multi-volume publication showcasing the best research on topics pertaining to road design, building maintenance and construction, transportation, earthquake engineering, waste and pollution management, and water resources management and engineering. Through its broad and extensive coverage on a variety of crucial concepts in the field of civil engineering, and its subfield of environmental engineering, this multi-volume work is an essential addition to the library collections of academic and government institutions and appropriately meets the research needs of engineers, environmental specialists, researchers, and graduate-level students.

"This book provides knowledge and insights on present and future AI applications in Operations Management presenting tools and decisions in terms of theoretical and empirical models, methods and proposed applications"--Provided by publisher.

'Supply Chain Management' illustrates the key drivers of good supply chain management in order to help students understand what creates a competitive advantage. It also provides strong coverage of analytic skills so that students can gauge the effectiveness of the techniques described.

Using strategic supply chain network design, companies can drive consistent dramatic savings throughout their global supply chains. Logistics experts at IBM and Northwestern University have brought together the rigorous principles and the practical applications supply chain designers need to improve the flow of physical products across the globe.

Closed loop supply chains and their management have become mandatory for firms to stay competitive and profitable. This book provides insights into designing supply chain networks by understanding and incorporating key return parameters into the network design, which will affect profitability. The book discusses how customer categories and their acceptance behavior are incorporated into the network design. It also shows how to analyze the interaction of parameters on supply chain network design and profitability, offers modeling framework for incorporating uncertainties in the return product parameters, and shows how to design a robust network. Invaluable for managers in designing a sustainable, robust, and profitable supply chain network and ideal for managers, practitioners, and researchers in the area of supply chain network design and optimization.

This book is aimed at an important and under-served niche within the supply chain market: strategic supply chain design. Almost all supply chain professionals need to know about this discipline. No current book covers the theory and practice in a way that ensures readers will be successful with this discipline in the field.Strategic network design is about selecting the right number, location, and size of warehouses, plants, and production lines. It is about determining the territories of your facilities, what product should be made where, and how product should flow through the supply chain. It is about developing a good model of your supply chain so you can make good operational decisions.Network design is important because a good design helps a firm execute its strategy.To do it right, it requires analytics and optimization. And, when firms do it right, they can reduce supply chain costs by 5-15% which can translate into tens of millions of dollars of savings for the firm.The book brings together our experience in completing 100s of these projects, our teaching of this material, and our understanding of the science that drives these studies.The book is ideal for supply chain managers, analysts, and consultants who must do

these studies, for people who work for a company or organization with a supply chain and want to understand the design and strategy better, and for professors who want to bring a practical and intellectually interesting material to the classroom.Our goal is to help you deeply understand this topic. We covers the topics with realistic case studies, discussions of practical consideration, and a mix of the science. This helps you understand the topic, understand how it applies to you, and build your intuition.We hope you enjoy the book!

When it comes to optimization techniques, in some cases, the available information from real models may not be enough to construct either a probability distribution or a membership function for problem solving. In such cases, there are various theories that can be used to quantify the uncertain aspects. Optimization Techniques for Problem Solving in Uncertainty is a scholarly reference resource that looks at uncertain aspects involved in different disciplines and applications. Featuring coverage on a wide range of topics including uncertain preference, fuzzy multilevel programming, and metaheuristic applications, this book is geared towards engineers, managers, researchers, and post-graduate students seeking emerging research in the field of optimization.

All too often, entrepreneurs start small businesses unaware of their need for a supply chain network. And, large companies are acquired and their product lines merged with little regard for supply chain network integration and rationalization. Written for practitioners by a practitioner with 40 years of experience, Supply Chain Construction: The Ba

Introduction and basic building blocks. Adding costs to two echelon supply chains. Advanced modeling and expanding to multiple echelons. How to get industrial streng results. Case study wrap up.

Computational Intelligence (CI) is a term corresponding to a new generation of algorithmic methodologies in artificial intelligence, which combines elements of learning, adaptation, evolution and approximate (fuzzy) reasoning to create programs that can be considered intelligent. Supply Chain Optimization, Design, and Management: Advances and Intelligent Methods presents computational intelligence methods for addressing supply chain issues. Emphasis is given to techniques that provide effective solutions to complex supply chain problems and exhibit superior performance to other methods of operations research.

With an emphasis on modeling techniques, Jeremy Shapiro's MODELING THE SUPPLY CHAIN is the perfect tool for courses in supply chain management or for professional managers who seek better analytical tools for managing their supply chains, information technologists who are responsible for developing and/or maintaining such tools, and consultants who conduct supply chain studies using models. Shapiro examines in detail the roles of data, models, and modeling systems in helping companies improve the management of their supply chains. The focus is on optimization models based on linear and mixed integer programming. The complementary role played by descriptive models in developing data inputs for optimization models is thoroughly reviewed. Using numerous applications, Shapiro clearly illustrates that when properly implemented, these methodologies can create accurate and comprehensive models of great practical value. The book also shows how competitive advantage in supply chain management can be most fully realized by developing and applying optimization modeling systems.

Supply Chain Management (SCM) has always been an important aspect of an enterprise's business model and an effective supply chain network is essential to remaining competitive in a global environment. By properly managing the flow of goods and services, businesses can operate more efficiently while managing most of the workload behind-the-scenes. The Handbook of Research on Global Supply Chain Management is an in-depth reference source that covers emerging issues and relevant applications of information pertaining to supply chain management from an international perspective. Featuring coverage on topics such as the global importance of SCMs to strategies for

producing an effective supply chain, this comprehensive publication is an essential resource for academics and business professionals alike interested in uncovering managerial insight and logistics solutions.

Management of supply chains has been evolving rapidly over the last few years due to the inception of Industry 4.0, where businesses adopt automation technologies and data exchanges leading to dynamic and interconnected supply chain systems. Emphasizing on analytical approaches such as predictive and prescriptive modeling, this book presents state-of-the-art original research work dealing with advanced analytical models for the design, planning, and operation of the supply chain to provide faster and smarter decisions in the era of digitization. In particular, the book integrates machine learning and operations research models for faster and smarter decisions, presents prescriptive analytics models for strategic, tactical, and operational decision making in the supply chain, and addresses recent challenges such as sustainability in the supply chain, supply chain visibility, and supply chain digitalization. Key concepts are illustrated using real-life case studies, making the book a valuable reference for researchers, technical professionals, and students.

This book gathers extended versions of the best papers presented at the Global Joint Conference on Industrial Engineering and Its Application Areas (GJCIE), held in Vienna on July 20-21, 2017. They offer a snapshot of the current state of the art in three main related fields of research, namely industrial engineering, engineering and technology management, and healthcare systems engineering management. The book is intended to integrate theory and practice and to merge different perspectives, from the academic to the industrial and governmental one.

This book presents the latest developments in optimization and optimal control models; exact, approximate and hybrid methods; and their applications in lean and green supply chains. It examines supply chain network design and modeling, closed loop supply chains, and lean, green, resilient and agile or responsive networks, and also discusses corporate social responsibility and occupational health and safety. It particularly focuses on supply chain management under uncertainty – employing stochastic or nonlinear modeling, simulation based studies and optimization – multi-criteria decision-making and applications of fuzzy set theory, and covers various aspects of supply chain management such as risk management, supplier selection or the design of automated warehouses. Lastly, using experimental applications and practical case studies, it shows the impact of lean and green applications on vehicle/fleet management and operations management.

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. The managed flow of goods and information from raw material to final sale also known as a "supply chain" affects everything--from the U.S. gross domestic product to where you can buy your jeans. The nature of a company's supply chain has a significant effect on its success or failure--as in the success of Dell Computer's make-to-order system and the failure of General Motor's vertical integration during the 1998 United Auto Workers strike. Supply Chain Integration looks at this crucial component of business at a time when product design, manufacture, and delivery are changing radically and globally. This book explores the benefits of continuously improving the relationship between the firm, its suppliers, and its customers to ensure the highest added value. This book identifies the state-of-the-art developments that contribute to the success of vertical tiers of suppliers and relates these developments to the capabilities that small and medium-sized manufacturers must have to be viable participants in this system. Strategies for attaining these capabilities through manufacturing extension centers and other technical assistance providers at the national, state, and local level are suggested. This book identifies action steps for small and medium-sized manufacturers--the "seed corn" of business start-up and development--to improve supply chain management. The book examines supply chain models from consultant firms, universities, manufacturers, and associations. Topics include the roles of suppliers and other supply chain participants, the rise of outsourcing, the importance of information management, the natural tension between buyer and seller, sources of assistance to small and medium-sized firms, and a host of other issues. Supply Chain Integration will be of interest to industry policymakers, economists, researchers, business leaders, and forward-thinking executives.

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 the latest developments concerning techniques, tools, and methodologies in supply chain

ecosystems. It gathers contributions from a variety of experts, who analyze a range of case studies and industrial sectors such as manufacturing, energy, agricultural, healthcare, humanitarian logistics, and urban goods distribution, to name but a few. The book is chiefly intended to meet the needs of two sectors: firstly, the academic sector, so as to familiarize students, professors, and researchers with the tools that are now being used to optimize supply chains; and secondly, the industrial and managerial sector, so that supply chain management practitioners can benefit from methods and tools that are yielding valuable results in other contexts.

Business practices are constantly evolving in order to meet growing customer demands. Evaluating the role of logistics and supply chain management skills or applications is necessary for the success of any organization or business. As market competition becomes more aggressive, it is crucial to evaluate ways in which a business can maintain a strategic edge over competitors. Supply Chain and Logistics Management: Concepts, Methodologies, Tools, and Applications is a vital reference source that centers on the effective management of risk factors and the implementation of the latest supply management strategies. It also explores the field of digital supply chain optimization and business transformation. Highlighting a range of topics such as inventory management, competitive advantage, and transport management, this multi-volume book is ideally designed for business managers, supply chain managers, business professionals, academicians, researchers, and upper-level students in the field of supply chain management, operations management, logistics, and operations research.

"This book addresses the coordination of operations planning of supply chains involves simplifying complex decision problems into a hierarchy of mutually inter-dependent decision problems. It also provides insights and support executives concerned with the management of expertise, knowledge, information and organizational development in different types of work communities and environments"--

In today's rapidly changing business environment, strong influence of globalization and information technologies drives practitioners and researchers of modern supply chain management, who are interested in applying different contemporary management paradigms and approaches, to supply chain process. This book intends to provide a guide to researchers, graduate students and practitioners by incorporating every aspect of management paradigms into overall supply chain functions such as procurement, warehousing, manufacturing, transportation and disposal. More specifically, this book aims to present recent approaches and ideas including experiences and applications in the field of supply chains, which may give a reference point and useful information for new research and to those allied, affiliated with and peripheral to the field of supply chains and its management.

A guide to help readers meet the demands of an evolving competitive business environment, Modeling of Responsive Supply Chain outlines

novel concepts and strategies for implementing a fully integrated system of business improvement methodologies. This self-contained reference covers various key aspects of supply chain management, which is crucial to boosting industrial growth in the face of expanding globalization in the manufacturing and transportation sectors. The book focuses on topics that could potentially improve the free flow of goods and services between nations by helping users assess the performance of logistic systems deployed to achieve this end. Chapters present a conventional and evolutionary approach to coordinating all elements of the supply chain to optimize an enterprise's competitive advantage. The authors explore different models associated with transportation, facility location, and assignments, as well as planning and scheduling. They also address diverse technologies, such as RFID tags used to monitor product flow within the supply chain network. This book addresses the importance of: Recognizing responsiveness as a metric of supply chain performance Domain interfaces for solving the optimization problem by making supply chains more responsive Coordination through contracts to enhance responsiveness System dynamics methodology to achieve responsiveness, as well as management principles, control theory, and computer simulation The use of different types of technologies to build a better supply chain that achieves higher responsiveness Few, if any, single volumes provide the detailed explanation of practical and conceptual approaches found in this book. It covers the entire spectrum of topics and will be equally useful as a reference for scholars and graduate students and as a compendium for practitioners dealing with real-life problems in contemporary supply chain management.

Using strategic supply chain network design, companies can achieve dramatic savings from their supply chains. Now, experts at IBM and Northwestern University have brought together both the rigorous principles and the practical applications you need to master. You'll learn how to use supply chain network design to select the right number, location, territory, and size of warehouses, plants, and production lines; and optimize the flow of all products through your supply chain even if extends around the globe. The authors present better ways to decide what to manufacture internally, where to make these products, which products to outsource, and which suppliers to use. They guide you in more effectively managing tradeoffs such as cost vs. service level, improving operational decision-making by integrating analytics throughout supply chain management; and re-optimizing regularly for even greater savings. Supply Chain Network Design combines best practices, the latest methods in optimization and analytics, and cutting-edge case studies: everything you need to maximize the value of supply chain network design. For all supply chain executives, managers, strategists, and analysts; and for all students, instructors, and researchers in advanced supply chain management and/or logistics courses.

With future competitive landscape shifting from competition between companies themselves to trading partner networks, understanding and mastering process design and change is becoming more critical than ever. In order to succeed, companies are starting to weave their key business processes into hard-to-imitate strategic capabilities that distinguish them from their competitors. Supply Chain Networks and Business Process Orientation: Advanced Strategies and Best Practices will help you "connect the dots" by offering insights on how to achieve greater integration within your supply chain networks and realize the performance possible with today's interaction economics. Based on exhaustive research of supply chains and newly successful networked corporations in the US and Europe, the authors demonstrate how your company can be successful in building an effective supply chain network. Prescriptive benchmarking models illustrate proven strategies, tactics, and methods for achieving a superior level of supply chain performance.

Supply chain management (SCM) is "the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long term

performance of the individual companies and the supply chain as a whole."[2] It has also been defined as the "design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand and measuring performance globally.

Circular-Economy is a new concept in operations management. Its goal is to redefine growth, focusing on positive benefits arising for society as a whole out of efficiencies such as designing waste out the operations process. This book will help practitioners use the proper strategy for effective adoption of Circular practices to use in their organization. Features: Provides a complete understanding of Circular-Economy practices Offers advanced mathematical models to help industry management adopt the correct practices Presents a deep understanding of cross-functional and customer-focused design thinking Covers how to develop sustainable practices in all types of activities within operations management. Circular Economy for the Management of Operations will be of interest to practitioners and researchers in engineering as well as business management

Describes ways to incorporate domain modeling into software development.

Winner of IIE Book of the Month, December 2013 The introduction of reverse supply chains has created many challenges in network design, transportation, selection of used products, selection and evaluation of suppliers, performance measurement, marketing-related issues, end-of-life (EOL) alternative selection, remanufacturing, disassembly, and product acquisition management, to name a few. Under the guidance of an expert editor and with contributions from pioneers in the field, Reverse Supply Chains: Issues and Analysis addresses several important issues faced by strategic, tactical, and operation planners of reverse supply chains, using efficient models in a variety of decision-making situations providing easy-to-use mathematical and/or simulation modeling-based solution methodologies for a majority of the issues. The book introduces the basic concepts of reverse logistics and systematically analyzes the literature by classifying more than 400 published references into five major types of product returns. It then identifies the basic activities and scope of reverse logistics, examining its drivers and barriers as well as major issues and challenges. The chapters cover metrics for quantitatively comparing competing new-product designs for end-of-life disassembly on a reverse production line, how to use the theory of constraints thinking processes to determine the core problems in reverse logistics, and an integrated multi-criteria decision-making methodology using Taguchi loss functions AHP (Analytic Hierarchy Process) and fuzzy programming. They explore issues associated with remanufacturing and green and resilient supply chain management and propose system modeling based on graph theory and network flows application to analyze material resource flows in the life cycle of a product. Reverse supply chains is a new and fast growing area of research and only a handful of books are on the market, however those books discuss specific projects rather than provide a cohesive focus on the topics. This book will provide a foundation and understanding of the topic and also highlight how current issues can be approached in a decision-making situation—using the appropriate technique.

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