Seaside Operations Planning In Container Terminals

#container terminal planning #seaside operations management #port logistics optimization #maritime operational efficiency #quay side planning strategies

Effective seaside operations planning is vital for modern container terminals to ensure smooth vessel handling, optimize cargo flow, and enhance overall port efficiency. This strategic approach involves co-ordinating various resources and activities along the quay to minimize delays and maximize throughput, directly impacting global supply chain reliability.

Seaside Operations Planning in Container Terminals

1. 1 Motivation and Scope of Research Container terminals in seaports constitute interfaces be- tween sea and land tra- port of goods in global transport chains. These logistics facilities face an increasing demandof service capacity,as is re ected by a tremendousgrowthin the worldwide container transshipments per year. For example, the top 20 terminals in the world showed an average relative increase of 14% with respect to the number of handled container units from 2006 to 2007, see Port of Hamburg Marketing (2008). In spite of this development, competition is high among container terminals within the same region. A terminal’s customers, rst and foremost the vessel op- ators, expect a high level of service quality where reliability is one of the most importantdimensions,seeWiegmansetal. (2001). Regardingtheserviceofavessel, reliability means to realize all transshipment operations within its projected service time interval. The reliability of terminal operations impacts the reliability of v- sels in meeting their liner schedules. According to Notteboom (2006) unexpected waiting times of vessels before berthing and unexpected low transshipment prod- tivity at terminals are responsible for about 86% of liner schedule disturbances, see Fig. 1. 1. Currently, many terminal operators counteract this situation by extending their transshipment capacities. They build new terminals or enlarge existing ter- nals and purchase new or upgrade existing equipment. Ilmer (2005) provides an overview of current projects for building terminal capacity in northern Europe.

Handbook of Terminal Planning

Container Terminals (CT) operate as central nodes in worldwide hub-and-spoke networks and link ocean-going vessels with smaller feeder vessels as well as with inbound and outbound hinterland transportation systems using road, rail, or inland waterways. The volume of transcontinental container flows has gained appreciably over the last five decades -- throughput figures of CT reached new records, frequently with double-digit annual growth rates. Stimulated by throughput requirements and stronger competition between terminals settled in the same region or serving a similar hinterland, respectively, cost efficiency and throughput capabilities become more and more important. Nowadays,

both terminal capacity and costs have to be regarded as key indicators for CT competitiveness. In respect of this steady growth, this handbook focuses on planning activities being aimed at “order of magnitude improvements” in terminal performance and economic viability. On the one hand the book is intended to provide readership with technological and organizational CT basics for strategic planning. On the other hand this book offers methodical assistance for fundamental dimensioning of CT in terms of 'technique', 'organization' or 'man'. The former primarily considers comprehensive information about container handling technologies representing the state of the art for present terminal operations, while the latter refers to methodological support comprising in particular quantitative solutions and modeling techniques for strategic terminal decisions as well as straightforward design guidelines. The handbook includes an introductory contribution which gives an overview of strategic planning problems at CT and introduces the contributions of the volume with regard to their relationship in this field. Moreover, each paper contains a section or paragraph that describes the impact of findings investigated by the author(s) for problem-solving in long-term planning of CT (as an application domain). The handbook intends to provide solutions and insights that are valuable for both practitioners in industry who need effective planning approaches to overcome problems and weaknesses in terminal design/development and researchers who would like to inform themselves about the state of the art in methodology of strategic terminal planning or be inspired by new ideas. That is to say, the handbook is addressed to terminal planners in practice as well as to students of maritime courses of study and (application oriented) researchers in the maritime field.

Port Operations, Planning and Logistics

A comprehensive and detailed analysis of world port systems through applying both theoretical and practical (managerial) approaches to port operations, management and policy.

Container Handling and Transport

Contents: Pt. 1: Introduction. Container trade growth - an introduction -- Container handling techniques and trends -- Trends in vessel design and container characteristics - the implications for terminal development. Pt. 2: Terminal design. Systems analysis - a terminal design tool -- Basic operational design of sea container terminals -- Terminal capacity -- Terminal design with particular reference to civil engineering. Pt. 3: Terminal operations. Limited-user container terminals with particular reference to Southampton -- A multi-user terminal based on rail mounted yard gantry cranes -- A common-user terminal based on the rubber tyred yard gantry system -- A multi-user container terminal based on straddle carrier handling with particular reference to Bremerhaven -- The combi-terminal concept with particular reference to Antwerp. Pt. 4: Terminal equipment. Equipment selection -- Equipment - engineering features -- Equipment specification and tender evaluation -- Equipment maintenance. Pt. 5: Other operating factors. The manpower aspects of container terminal operation -- Documentation and control at a multi-user terminal -- Container safety -- Security -- Costs and charges. Pt. 6: Container service operating philosophy. Integrated deep-sea service based on sea-land philosophy -- An integrated short-sea container service -- A ro-ro philosophy explained. Pt. 7: The inland interface. Inland ports - the UK containerbase system -- Rail transport - the freightliner system -- Containers and the road transport industry in Europe. Pt. 8: Developing countries. Planning for the change to containers in developing countries. App. 1. Simulation to test the viability of the proposed operating system -- App. 2. A combined physical/computer model for simulation of terminal operations -- App. 3. Estimating container yard and container freight station space requirements -- App. 4. Establishing terminal operational control procedures -- App. 5. Extracts from reports or telexes sent on terminals becoming operational in the early 1970s -- App. 6. Basic specification outline for a dockside crane -- App. 7. Computers in the maintenance environment -- App. 8. A maintenance management computer system -- App. 9. International comparison of container ship productivity.

Container Terminals and Automated Transport Systems

Container transportation is the predominant mode of inter-continental cargo traffic. Since container ships and port terminals involve a huge capital investment and significant daily operating costs, it is of crucial importance to efficiently utilize the internal resources of container terminals and transportation systems. Today there is an ongoing trend to use automated container handling and transportation technology, in particular, in countries with high labour costs. This in turn requires highly sophisticated control strategies in order to meet the desired performance measures. The primary objective of this book is to reflect these recent developments and to present new insights and successful solutions

to operational problems of automated container terminals and transportation systems. It comprises reports on the state of the art, applications of quantitative methods, as well as case studies and simulation results. Its contributions are written by leading experts from academia and business. The book addresses practitioners as well as academic researchers in logistics, transportation, and management.

Planning and Operation of Container Terminals

Planning and Operation of Container Terminals provides methodologies to optimize the design of container handling systems. The book offers various optimization models and details how to apply the models. In addition, it captures key points of academic research to provide a thorough and up-to-date guide on this rapidly changing field. Sections cover various aspects of terminal operation and propose key issues for their optimization. In addition, the relationships among various operational problems are described, along with tactics for the efficient utilization of resources. Students and professionals alike will find this a useful resource for getting up-to-speed in this dynamic field. The efficiency of a container terminal highly depends on the design of handling systems and operation methods of the terminal. In recent decades, the development of ports has become large-scale, modern and automatic, so it is necessary to learn about the design and operation of modern ports quickly and to understand the research hotspots, research frontiers and research status in the current field, as well as the use and innovation of research methods. Provides a well-organized overview on the optimization of design and the operation of container terminals Covers nearly every issue related to terminal operation Includes algorithms that will be especially useful to those in industry, particularly those involved in the automation of terminal equipment

Container Terminals and Cargo Systems

This book presents new insights and successful solutions to the operational problems of automated container terminals and cargo systems. It comprises reports on the state of the art, applications of quantitative methods, as well as case studies and simulation results. Its contributions are written by leading experts from academia and business and address practitioners and researchers in logistics, transportation, and management.

Manual of Traffic Studies for Marine Container Terminals, Oct. 1974

Maximizing reader insights into the challenges facing maritime supply chains and container port logistics service providers in Asia, this book highlights their innovative responses to these challenges through real-world case studies. With a focus on mathematical modeling, simulation and heuristics approaches, this book provides academics, engineers, container terminal operators, students in logistics and supply chain management with the latest approaches that can be used to address the planning and scheduling problem in large container terminal yards. This book can be used on a self-contained basis as teaching cases in an undergraduate or specialist class setting, or on techniques applied to maritime container operations for port operations.

Multi-agent Systems for Container Terminal Management

This book gathers the peer-reviewed proceedings of the 14th International Symposium, PRADS 2019, held in Yokohama, Japan, in September 2019. It brings together naval architects, engineers, academic researchers and professionals who are involved in ships and other floating structures to share the latest research advances in the field. The contents cover a broad range of topics, including design synthesis for ships and floating systems, production, hydrodynamics, and structures and materials. Reflecting the latest advances, the book will be of interest to researchers and practitioners alike.

Planning and Scheduling for Maritime Container Yards

This two-volume set LNCS 7902 and 7903 constitutes the refereed proceedings of the 12th International Work-Conference on Artificial Neural Networks, IWANN 2013, held in Puerto de la Cruz, Tenerife, Spain, in June 2013. The 116 revised papers were carefully reviewed and selected from numerous submissions for presentation in two volumes. The papers explore sections on mathematical and theoretical methods in computational intelligence, neurocomputational formulations, learning and adaptation emulation of cognitive functions, bio-inspired systems and neuro-engineering, advanced topics in computational intelligence and applications.

Modern Marine Terminal Operations and Management

Written by a collection of eminent figures in the field, this new edition continues to look at the rational planning for port facilities requirements (berths, storage and cargo handling equipment), organisations, management and operations with relation to planning and design of ports and marine terminals.

Practical Design of Ships and Other Floating Structures

Metaheuristic Algorithms in Maritime Operations Optimization focuses on the seaside and port side problems regarding the maritime transportation. The book reviews and introduces the most important problems regarding the shipping network design, long-term and short-term scheduling and planning problems in both bulk and container shipping as well as liquid maritime transportation. Application of meta heuristic algorithm is important for these problems, as most of them are hard and time-consuming to be solved optimally.

Advances in Computational Intelligence

Green Ports: Inland and Seaside Sustainable Transportation Strategies presents the first book to exclusively focus on this important topic that is usually only covered in brief chapters or journal articles that are too theoretical, fragmented or regionally-focused. This book comprehensively and systematically examines the key issues and best practice for understanding green ports and quantifying aspects of their environmental performance. This applied research book will help researchers formulate the needed research questions. Includes practical application tools and techniques for increasing sustainability throughout the entire transportation chain Provides an overall picture of green ports through a collection of expert specialists Examines how ports and surrounding areas are addressing the environmental impacts related to growth in the cruise business Presents a theoretical framework to identify best practices for planning and policymaking for the impacts posed by climate change

Planning and Design of Ports and Marine Terminals

Is the U.S. marine terminal on the verge of becoming a bottleneck rather than a funnel for world general cargo commerce? This volume, prepared at the request of the U.S. Maritime Administration, appraises issues pertinent to the productivity of these marine terminals, addressing such topics as the state of the art of technology and engineering design in general cargo terminals; the comparison of technology and design with that of other countries; the interrelationship of port and terminal practices; and the implications of port and terminal costs, practices, engineering design, and use of technology.

Metaheuristics for Maritime Operations

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 at 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.

Green Ports

This handbook focuses on Data Envelopment Analysis (DEA) applications in operations analytics which are fundamental tools and techniques for improving operation functions and attaining long-term competitiveness. In fact, the handbook demonstrates that DEA can be viewed as Data Envelopment Analytics. Chapters include a review of cross-efficiency evaluation; a case study on measuring the environmental performance of OECS countries; how to select a set of performance metrics in DEA with an application to American banks; a relational network model to take the operations of individual periods into account in measuring efficiencies; how the efficient frontier methods DEA and stochastic frontier analysis (SFA) can be used synergistically; and how to integrate DEA and multidimensional scaling.

In other chapters, authors construct a dynamic three-stage network DEA model; a bootstrapping based methodology to evaluate returns to scale and convexity assumptions in DEA; hybridizing DEA and cooperative games; using DEA to represent the production technology and directional distance functions to measure band performance; an input-specific Luenberger energy and environmental productivity indicator; and the issue of reference set by differentiating between the uniquely found reference set and the unary and maximal types of the reference set. Finally, additional chapters evaluate and compare the technological advancement observed in different hybrid electric vehicles (HEV) market segments over the past 15 years; radial measurement of efficiency for the production process possessing multi-components under different production technologies; issues around the use of accounting information in DEA; how to use DEA environmental assessment to establish corporate sustainability; a summary of research efforts on DEA environmental assessment applied to energy in the last 30 years; and an overview of DEA and how it can be utilized alone and with other techniques to investigate corporate environmental sustainability questions.

Improving Productivity in U.S. Marine Container Terminals

This volume constitutes the papers presented at the 15th International Conference on Computer Aided Systems Theory, EUROCAST 2015, held in February 2015 in Las Palmas de Gran Canaria, Spain. The total of 107 papers presented were carefully reviewed and selected for inclusion in the book. The contributions are organized in topical sections on Systems Theory and Applications; Modelling Biological Systems; Intelligent Information Processing; Theory and Applications of Metaheuristic Algorithms; Computer Methods, Virtual Reality and Image Processing for Clinical and Academic Medicine; Signals and Systems in Electronics; Model-Based System Design, Verification, and Simulation; Digital Signal Processing Methods and Applications; Modelling and Control of Robots; Mobile Platforms, Autonomous and Computing Traffic Systems; Cloud and Other Computing Systems; and Marine Sensors and Manipulators.

Handbook of Ocean Container Transport Logistics

The present book includes a set of selected extended papers from the fifth International Joint Conference on Computational Intelligence (IJCCI 2013), held in Vilamoura, Algarve, Portugal, from 20 to 22 September 2013. The conference was composed by three co-located conferences: The International Conference on Evolutionary Computation Theory and Applications (ECTA), the International Conference on Fuzzy Computation Theory and Applications (FCTA), and the International Conference on Neural Computation Theory and Applications (NCTA). Recent progresses in scientific developments and applications in these three areas are reported in this book. IJCCI received 111 submissions, from 30 countries, in all continents. After a double blind paper review performed by the Program Committee, only 24 submissions were accepted as full papers and thus selected for oral presentation, leading to a full paper acceptance ratio of 22%. Additional papers were accepted as short papers and posters. A further selection was made after the Conference, based also on the assessment of presentation quality and audience interest, so that this book includes the extended and revised versions of the very best papers of IJCCI 2013. Commitment to high quality standards is a major concern of IJCCI that will be maintained in the next editions, considering not only the stringent paper acceptance ratios but also the quality of the program committee, keynote lectures, participation level and logistics.

Handbook of Operations Analytics Using Data Envelopment Analysis

The work contains selected and thoroughly reviewed research papers of the topics Operations Management, Supply Chain Management, Digitalization, Sustainability, Transportation Management, Process Management, Risk Management, Corporate Social Responsibility and Governance. The papers reflect the current state-of-the-art in logistics and supply chain management and new ideas and technical developments are discussed.

Computer Aided Systems Theory – EUROCAST 2015

This proceedings book is the fourth edition of a series of works which features emergent research trends and recent innovations related to smart city presented at the 5th International Conference on Smart City Applications SCA20 held in Safranbolu, Turkey. This book is composed of peer-reviewed chapters written by leading international scholars in the field of smart cities from around the world. This book covers all the smart city topics including Smart Citizenship, Smart Education, Smart Mobility, Smart Healthcare, Smart Mobility, Smart Security, Smart Earth Environment & Agriculture, Smart

Economy, Smart Factory and Smart Recognition Systems. This book contains a special section intended for Covid-19 pandemic researches. This book edition is an invaluable resource for courses in computer science, electrical engineering and urban sciences for sustainable development.

Computational Intelligence

The two-volume set LNCS 8111 and LNCS 8112 constitute the papers presented at the 14th International Conference on Computer Aided Systems Theory, EUROCAST 2013, held in February 2013 in Las Palmas de Gran Canaria, Spain. The total of 131 papers presented were carefully reviewed and selected for inclusion in the books. The contributions are organized in topical sections on modelling biological systems; systems theory and applications; intelligent information processing; theory and applications of metaheuristic algorithms; model-based system design, verification and simulation; process modeling simulation and system optimization; mobile and autonomous transportation systems; computer vision, sensing, image processing and medical applications; computer-based methods and virtual reality for clinical and academic medicine; digital signal processing methods and applications; mechatronic systems, robotics and marine robots; mobile computing platforms and technologies; systems applications.

Logistics Management

This book constitutes the refereed post-conference proceedings of the 21st Annual Simulation Technology and Training Conference, SimTecT 2016, and the 47th International Simulation and Gaming Association Conference, ISAGA 2016, Held as Part of the First Australasian Simulation Congress, ASC 2016, held in Melbourne, VIC, Australia, in September 2016. The 28 revised full papers included in the volume were carefully reviewed and selected from 55 submissions. They are organized in the following topical sections: Making the grade; Come to think of it; From here to fidelity; The name of the game; and Ahead of the game.

Innovations in Smart Cities Applications Volume 4

Written by leading experts in the field, this book offers an introduction to recent developments in port and hinterland strategies, operations and related specializations. The book begins with a broad overview of port definitions, concepts and the role of ports in global supply chains, and an examination of strategic topics such as port management, governance, performance, hinterlands and the port-city relationship. The second part of the book examines operational aspects of maritime, port and land networks. A range of topics are explored, such as liner networks, finance and business models, port-industrial clusters, container terminals, intermodality/synchromodality, handling and warehousing. The final section of the book provides insights into key issues of port development and management, from security, sustainability, innovation strategies, transition management and labour issues. Drawing on a variety of global case studies, theoretical insights are supplemented with real world and best practice examples, this book will be of interest to advanced undergraduates, postgraduates, scholars and professionals interested in maritime studies, transport studies, economics and geography.

Computer Aided Systems Theory -- EUROCAST 2013

This book gathers selected research papers presented at the First International Conference on Embedded Systems and Artificial Intelligence (ESAI 2019), held at Sidi Mohamed Ben Abdellah University, Fez, Morocco, on 2–3 May 2019. Highlighting the latest innovations in Computer Science, Artificial Intelligence, Information Technologies, and Embedded Systems, the respective papers will encourage and inspire researchers, industry professionals, and policymakers to put these methods into practice.

Intersections in Simulation and Gaming

This book focuses on port collaborative operation, an important emerging topic in the port and shipping industry, and deeply analyzes the high-quality collaborative mechanism of port groups from the perspectives of port groups' supply chain cooperative operation mechanism, port groups' logistics network optimization, port groups' collaborative scheduling optimization of resources, etc. Based on the combination of qualitative and quantitative analysis on China's cases, this book makes comprehensive use of game theory, network optimization, multi-dimensional resource cooperative scheduling optimization, and other theories and methods, and promotes the update and innovation

of current research methods in related research areas. The feasible policy insights for optimization of port groups' collaborative operation are suggested at the end of book, which will help with the improvement of economic, environmental, and social benefits of port groups, and promote the port industry's innovation, upgrading, and transformation. The translation was done with the help of artificial intelligence. A subsequent human revision was done primarily in terms of content. The present version has been revised technically and linguistically by the authors in collaboration with a professional translator.

Ports and Networks

This book aims to highlight the interrelations between maritime ports, supply chains and logistics. Inland corridors could be defined as major arteries for inland transportation from and to the maritime port. They link together one or several ports located on the maritime range with one or several major inland metropolitan areas. The efficiency of international supply chains depends not only on the smooth operations in the port but also on the efficiency of inland distribution in terms of cost, reliability, added value services for the goods, safety and finally the environment. With contributions from international experts, the book offers a transversal perspective on logistics corridor development using case studies on the Seine Axis, among others. Organized into four key sections, the book highlights the interrelations between ports and corridors using both empirical and theoretical research from various disciplines, including engineering as well as human and social sciences. Maritime Ports,Supply Chains and Logistics Corridors will be directly relevant to a wide variety of scholars and postgraduate researchers in the fields of transport studies and management, maritime logistics, supply chain management and international logistics as well as industrial engineering, geography, economics and political science.

Container Terminals and Cargo Systems

This book presents a comprehensive study on intelligent container terminals. Based on the development experience gained to date with container terminals, it analyzes information flows and their interactions with container terminals; illustrates the operation management process from information collection to resource planning and from equipment scheduling to field operation; highlights several dynamic decision-making problems concerning digital operation processes and container terminals; reveals the basis of the discrete logistics system; and discusses the future of intelligent container terminals.

Embedded Systems and Artificial Intelligence

Heuristics are strategies using readily accessible, loosely applicable information to control problem solving. Algorithms, for example, are a type of heuristic. By contrast, Metaheuristics are methods used to design Heuristics and may coordinate the usage of several Heuristics toward the formulation of a single method. GRASP (Greedy Randomized Adaptive Search Procedures) is an example of a Metaheuristic. To the layman, heuristics may be thought of as 'rules of thumb' but despite its imprecision, heuristics is a very rich field that refers to experience-based techniques for problem-solving, learning, and discovery. Any given solution/heuristic is not guaranteed to be optimal but heuristic methodologies are used to speed up the process of finding satisfactory solutions where optimal solutions are impractical. The introduction to this Handbook provides an overview of the history of Heuristics along with main issues regarding the methodologies covered. This is followed by Chapters containing various examples of local searches, search strategies and Metaheuristics, leading to an analyses of Heuristics and search algorithms. The reference concludes with numerous illustrations of the highly applicable nature and implementation of Heuristics in our daily life. Each chapter of this work includes an abstract/introduction with a short description of the methodology. Key words are also necessary as part of top-matter to each chapter to enable maximum search engine optimization. Next, chapters will include discussion of the adaptation of this methodology to solve a difficult optimization problem, and experiments on a set of representative problems.

Port Development

Transdisciplinary engineering transcends other inter- and multi-disciplinary ways of working, such as Concurrent Engineering (CE). In particular, transdisciplinary processes are aimed at solving complex, ill-defined problems, or problems for which the solution is not immediately obvious. No one discipline or single person can provide sufficient knowledge to solve such problems, so collaboration is essential. This book presents the proceedings of the 27th ISTE International Conference on Transdisciplinary

Engineering, organized by Warsaw University of Technology, Poland, from 1-10 July 2020. ISTE2020 was the first of this conference series to be held virtually, due to the COVID-19 restrictions. Entitled Transdisciplinary Engineering for Complex Socio-technical Systems - Real-life Applications, the book includes 71 peer-reviewed papers presented at the conference by authors from 17 countries. These range from theoretical and conceptual to strongly pragmatic and addressing industrial best practice and, together with invited talks, they have been collated into 9 sections: Transdisciplinary Engineering (7 papers); Transdisciplinary Engineering Education (4 papers); Industry 4.0, Methods and Tools (7 papers); Human-centered Design (8 papers); Methods and Tools for Design and Production (14 papers); Product and Process Development (9 papers); Knowledge and Data Modeling (13 papers); Business Process and Supply Chain Management (7 papers); and Sustainability (2 papers). The book provides an overview of new approaches, methods, tools and their applications, as well as current research and development, and will be of interest to researchers, design practitioners, and educators working in the field.

Cooperative Operation Optimization for Port Groups

This book constitutes the refereed proceedings of the 9th International Conference on Computational Logistics, ICCL 2018, held in Vietri sul Mare, Italy, in October 2018. The 32 full papers presented were carefully reviewed and selected from 71 submissions. They are organized in topical sections as follows: maritime shipping and routing, container handling and container terminals, vehicle routing and mul-ti-modal transportation, network design and scheduling, logistics oriented combinatorial optimization.

Maritime Ports, Supply Chains and Logistics Corridors

Port Management looks at the numerous types of business interactions that occur at active ports. These include cooperating with other ports, coordinating deliveries with ships, overseeing port development, advertising and promotion, and enforcing security and environmental protection initiatives. Including research, practical insights and case studies, this book looks at quantitative methods and market analysis, maritime logistics, port planning and pricing, and commercial law. Port Management covers all the main aspects of management, administration and policy, and fills existing gaps in the literature in this area. Edited by two leading academics who have conducted research for the Department of Transport and the United Nations, this text is international in scope and includes research-based findings from a global team of contributors. It provides fascinating insights into the geography, economics, politics and trade involved in port management. Online supporting resources include lecture notes, lesson plans and PowerPoints.

Container Terminal Productivity in Port Botany

Over the past twenty years there has been considerable improvement and new information in the design of port and berth structures. This handbook reflects the lastest progress and developments in navigation safety, port planning and site selection, layout of container, oil and gas terminals, cargo handling, berth design and construction, fender and mooring principles. It presents guidelines and recommendations for the main items and assumptions in the layout, desing and construction of modern port structures, and the forces and loadings acting on them. The book provides an evaluation of different designs and construction methods for port and berth structures, and recommendations given by the different international harbour standards and recommendations. Practising harbour and port engineers and students will find the handbook an invaluable source of information.

Digital Management of Container Terminal Operations

Ulf Speer entwickelt zwei Optimierungsverfahren fur die Reihenfolgeplanung von verschiedenen automatischen Lagerkransystemen und vergleicht sie quantitativ anhand eines Simulationsmodells. Dabei zeigt sich insbesondere beim integrierten Ansatz ein riesiges Potential, eine gute Robustheit gegen betriebliche Störungen und eine hohe Praxisrelevanz der Ergebnisse. Schwerpunkte der Arbeit bilden die Darstellung der Planungsprobleme an Containerterminals sowie die Untersuchung und Kombination verschiedener Optimierungsverfahren und Detaillierungsgrade. Anhand einer Simulation mit praxisnahen Daten und Annahmen vergleicht der Autor Kransysteme und Optimierungsverfahren.

Handbook of Heuristics

With 80 percent of the world’s commodities being transported by water, ports are the pillars of the global economy. Port Management and Operations offers readers the opportunity to enhance their strategic thinking and problem-solving skills, while developing market foresight. It examines global port management practices at the regulatory, commercial, technological, operational, financial, and sociopolitical levels. This powerful sourcebook describes how seaports are being affected by the changes occurring nationally, regionally, and globally. Evaluating the new regulatory framework, it pinpoints the industry’s implementation readiness and identifies potential problem areas. The book classifies the spectrum of interrelated port management principles, strategies, and activities in a logical sequence and under four cornerstones—Port Strategy and Structure, Legal and Regulatory Framework, Input: Factors of Production, and Output and Economic Framework. Detailing best practices and the latest industry developments, the book highlights emerging challenges for port managers and identifies opportunities to develop forward-thinking strategies. It examines the effectiveness of current strategies, tactics, tools, and resources of numerous global ports and highlights the necessity of adopting a proactive stance in harmonizing the laws, regulations, and policies pertaining to the maritime, oil, and gas industries. The shipping industry has myriad complexities and this book provides maritime managers and professionals with the wide-ranging and up-to-date understanding required to thrive in today’s highly competitive and evolving environment.

Transdisciplinary Engineering for Complex Socio-technical Systems – Real-life Applications

Computational Logistics