
Sustainable and resilient critical infrastructure systems is an emerging paradigm in an evolving era of depleting assets in the midst of natural and man-made threats to provide a sustainable and high quality of life with optimized resources from social, economic, societal and environmental considerations. The increasing complexity and interconnectivity of civil and other interdependent infrastructure systems (electric power, energy, cyber-infrastructures, etc.) require inter- and multidisciplinary expertise to design, engineer, monitor, and sustain these distributed large-scale complex adaptive infrastructure systems. This edited book is motivated by recent advances in simulation, modeling, sensing, communications, and intelligent and sustainable technologies that have resulted in the development of sophisticated methodologies and instruments to design, characterize, optimize, and evaluate critical infrastructure systems, their resilience, and their condition and the factors that cause their deterioration. Specific topics discussed in this book include, but are not limited to: optimal infrastructure investment allocation for sustainability; framework for manifestation of such critical infrastructure knowledge, interdependencies between energy and transportation systems for national long term planning, intelligent transportation infrastructure technologies; emerging research issues in infrastructure interdependence research, frameworks for assessing the resilience of infrastructure systems and economic systems, maintenance optimization for heterogeneous infrastructure systems, optimal emergency infrastructure inspection scheduling, and sustainable rehabilitation of deteriorated transportation infrastructure systems.

This book aims to provide a good understanding of and perspective on sustainable transport in Asia by focusing on economic, environmental, and social sustainability. It is widely acknowledged that the current situation and trends in transport are not always sustainable in Asia, due in part to the fast-growing economy and the astounding speed of urbanization as well as least-mature governance. As essential research material, the book provides strong support for policy makers and planners by comprehensively covering three groups of strategies, characterized by the words “avoid” (e.g., urban form design and control of car ownership), “shift” (e.g., establishing comprehensive transportation systems and increasing public transportation systems for both intractability and intercity travel), and “improve” (e.g., redesign of paratransit system, low-emission vehicles, intelligent transportation systems, and eco-life). These are elaborated in the book along side consideration of the uncertainty of policy effects in the future. The book is also valuable for scholars and scientists because of the diverse methodologies presented and proposed herein. Among those are the four-step model with full feedback mechanisms, the bi-level programming model with sustainability goals, data envelopment analysis and stochastic frontier analysis approaches, structural equation models, discrete and/or continuous choice models, copula-based models, survival models, and driving risk models with short-term memory. Using data collected from more than ten Asian cities, including those in both developed and developing nations, the pathway to sustainable transport in Asia gradually becomes clear.

Engineer and implement sustainable transportation solutions Featuring in-depth coverage of passenger and freight transportation, this comprehensive resource discusses contemporary transportation systems and options for improving their sustainability. The book addresses vehicle and infrastructure design, economics, environmental concerns, energy security, and alternative energy sources and platforms. Worked-out examples, case studies, illustrations, equations, and end-of-chapter problems are also included in this practical guide. Sustainable Transportation Systems Engineering covers: Background on energy security and climate change Sustainability systems analysis tools and techniques Individual choices and transportation demand Transportation systems and vehicle design Physical design of transportation infrastructure Congestion mitigation in urban passenger transportation Role of intelligent transportation systems Public transportation and multimodal solutions Personal mobility and accessibility Intercity passenger transportation Freight transportation and function and current trends Freight modal and supply chain management approaches Spatial and geographic aspects of freight transportation Alternative fuels and platforms Electricity and hydrogen as alternative fuels Bioenergy resources and systems Transportation Security and planning for extreme weather events PRAISE FOR SUSTAINABLE TRANSPORTATION SYSTEMS ENGINEERING: “This book addresses one of the great challenges of the 21st century—how to transform our resource-intensive passenger and freight transportation system into a set of low-carbon, economically efficient, and socially equitable services.” -- Dan Song, Professor and Director, Sustainable, Energy-efficient Transportation Infrastructure, Smart Cities, Green Technologies, and Intelligent Transportation Systems Internet of Things and Big Data Analytics for Smart Generation An Introduction to Sustainable Transportation Transportation Planning and Engineering and Planning – Volume IIEconomic Impacts of Intelligent Transportation Systems Eco-Cities and Green Transport Models and Technologies for Smart, Sustainable and Safe Transportation Systems Perspectives on Intelligent Transportation Systems (ITS) Sustainable Transport Studies in Asia The Future of Intelligent Transportation Systems

Transportation plays a substantial role in the modern world; it provides tremendous benefits to society, but it also imposes significant economic, social and environmental costs. Sustainable transport planning requires integrating environmental, social, and economic factors in order to develop optimal solutions to our many pressing issues, especially carbon emissions and climate change. This essential multi-authored work reflects a new sustainable transportation planning paradigm. It explores the concepts of sustainable development and sustainable transportation, describes practical techniques for comprehensive evaluation, provides tools for multi-modal transport planning, and presents innovative methodology solutions to transportation problems. This text reflects a fundamental change in transportation decision making. It focuses on solutions rather than mobility regulation and provides current methods of evaluation and planning, and provides an innovative framework to allow planners, policy makers and the general public to determine the best solution to the transportation problems facing a community. Featuring extensive international examples and case-studies, texes, graphics, recommended reading and end of chapter questions, the authors draw on considerable teaching and researching expertise to ensure that the book is a comprehensive resource for students and professionals alike, and also serves as an important reference for those in government, business and transportation planning.可持续交通系统工程是可持续交通系统的一个新兴范式，在快速发展的过程中，资产正在不断减少，面临着自然灾害和人为威胁。作为重要研究成果，该书提供了强大的支持，以应对可持续交通系统的影响。学者和科学家可借此了解所提出的多样化方法和模型。其中，四步骤模型包含全面的反馈机制，二层编程模型具有可持续发展目标，数据包络分析和随机前沿分析方法，结构方程模型，离散和连续选择模型， copula- 基本模型，生存模型，和驾驶风险模型与短期记忆。该书使用从亚洲城市收集的数据，包括发达国家和发展中国家的，对亚洲可持续交通的路径逐渐清晰。

Engineer and implement sustainable transportation solutions Featuring in-depth coverage of passenger and freight transportation, this comprehensive resource discusses contemporary transportation systems and options for improving their sustainability. The book addresses vehicle and infrastructure design, economics, environmental concerns, energy security, and alternative energy sources and platforms. Worked-out examples, case studies, illustrations, equations, and end-of-chapter problems are also included in this practical guide. Sustainable Transportation Systems Engineering covers: Background on energy security and climate change Sustainability systems analysis tools and techniques Individual choices and transportation demand Transportation systems and vehicle design Physical design of transportation infrastructure Congestion mitigation in urban passenger transportation Role of intelligent transportation systems Public transportation and multimodal solutions Personal mobility and accessibility Intercity passenger transportation Freight transportation and function and current trends Freight modal and supply chain management approaches Spatial and geographic aspects of freight transportation Alternative fuels and platforms Electricity and hydrogen as alternative fuels Bioenergy resources and systems Transportation Security and planning for extreme weather events PRAISE FOR SUSTAINABLE TRANSPORTATION SYSTEMS ENGINEERING: “This book addresses one of the great challenges of the 21st century—how to transform our resource-intensive passenger and freight transportation system into a set of low-carbon, economically efficient, and socially equitable services.” -- Dan Song, Professor and Director, Sustainable, Energy-efficient Transportation Infrastructure, Smart Cities, Green Technologies, and Intelligent Transportation Systems Internet of Things and Big Data Analytics for Smart Generation An Introduction to Sustainable Transportation Transportation Planning and Engineering and Planning – Volume IIEconomic Impacts of Intelligent Transportation Systems Eco-Cities and Green Transport Models and Technologies for Smart, Sustainable and Safe Transportation Systems Perspectives on Intelligent Transportation Systems (ITS) Sustainable Transport Studies in Asia The Future of Intelligent Transportation Systems

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experience to present an essential, ground-breaking and authoritative text on sustainable transport. Students of various disciplines, planners, policymakers and concerned citizens will find many of its provocative ideas and approaches of considerable value as they engage in the processes of understanding and changing transportation towards greater sustainability.

These proceedings collect selected papers from the 5th International Conference on Green Intelligent Transportation Systems and Safety held in Changchun on July 1-2, 2017. The selected works, which include state-of-the-art studies, are intended to promote the development of green mobility and intelligent transportation technology to achieve interconnectivity, resource sharing, flexibility and higher efficiency. They offer valuable insights for researchers and engineers in the fields of Transportation Technology and Traffic Engineering, Automotive and Mechanical Engineering, Industrial and Systems Engineering, and Electrical Engineering.

Many transportation systems used today are costly, slow, fragmented, and dangerous. This paper explores the inefficiencies and negative impacts associated with our current transportation systems. Simple to technologically advanced solutions are explored along with how to integrate these methods for all users in a sustainable fashion. The vision proposes a blend of scientific method, technological advancement, and common sense which is environmentally aware and integrated for all users by using the Dutch Regional and Sustainable Traffic Management Process.

This book focuses on emerging technologies in the field of Intelligent Transportation Systems (ITS) namely efficient information dissemination between vehicles, infrastructures, pedestrians and public transportation systems. It presents the state-of-the-art of Vehicular Ad-hoc Networks (VANETs), with centralized and decentralized (Peer-to-Peer) communication architectures, considering several application scenarios. With a detailed treatment of emerging communication paradigms, including cross networking and distributed algorithms. Unlike most of the existing books, this book presents a multi-layer overview of information dissemination systems, from lower layers (MAC) to high layers (applications). All those aspects are investigated considering the use of mobile devices, such as smartphones/tablets and embedded systems, i.e. technologies that during last years completely changed the current market, the user expectations, and communication networks. The presented networking paradigms are supported and validated by means of extensive simulation analysis and real field deployments in different application scenarios. This book represents a reference for professional technologists, postgraduates and researchers in the area of Intelligent Transportation Systems (ITS), wireless communication and distributed systems.

This book discusses advances in smart and sustainable development of smart environments. The authors discuss the challenges faced in developing sustainable smart applications and provide potential solutions. The solutions are aimed at improving reliability and security with the goal of affordability, safety, and durability. Topics include health care applications, sustainable smart transportation systems, intelligent sustainable wearable electronics, and sustainable smart building and alert systems. Authors are from both industry and academia and present research from around the world. Addresses problems and solutions for sustainable development of smart cities: Includes applications such as healthcare, transportation, wearable, security, and more; Relevant for scientific and researchers working on real time smart city development.

Transportation Engineering and Planning is a component of Encyclopedia of Physical Sciences, Engineering and Technology Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The Theme on Transportation Engineering and Planning presents the readers with diverse sources of information and knowledge about transportation engineering and planning, to help ensure that informed actions are compatible with sustainable world development. It begins with a historical analysis of transportation development, since an understanding of how transportation technologies developed is a prerequisite for understanding issues involved in transportation systems, and for developing sound policy analysis. Next, the various chapters analyze transportation problems, discusses the state of public policy addressing those problems, considers the causes and effects of changes in demand for mobility as the socio-economic environment changes, and then deals with the fundamental questions related to transportation. These two volumes are aimed at the following a wide spectrum of audiences from the merely curious to those seeking in-depth knowledge: University and College students Educators, Professional practitioners, Research personnel and Policy analysts, managers, and decision makers and NGOs.

This unique book discusses the latest research, innovative ideas, challenges and computational intelligence (CI) solutions in sustainable computing. It presents novel, in-depth fundamental research on achieving a sustainable lifestyle for society, either from a methodological or from an application perspective. Sustainable computing has expanded to become a significant research area covering the fields of computer science and engineering, electrical engineering and other engineering disciplines, and there has been an increase in the amount of literature on aspects sustainable computing such as energy efficiency and natural resources conservation that emphasizes the role of ICT (information and communications technology) in achieving system design and operation objectives. The energy impact/design of more efficient IT infrastructures is a key challenge in realizing new computing paradigms. The book explores the uses of computational intelligence (CI) techniques for intelligent decision support that can be exploited to create effective computing systems, and addresses sustainability problems in computing and information processing environments and technologies at the different levels of CI paradigms. An excellent guide to surveying the state of the art in computational intelligence applied to challenging real-world problems in sustainable computing, it is intended for scientists, practitioners, researchers and academicians dealing with the new challenges and advances in area.

This book presents the proceedings of the 5th International Conference on Advanced Intelligent Systems and Informatics 2019 (AISI2019), which took place in Cairo, Egypt, from October 26 to 28, 2019. This international and interdisciplinary conference, which highlighted essential research and developments in the fields of informatics and intelligent systems, was organized by the Scientific Research Group in Egypt (SRGE). The book is divided into several sections, covering the following topics: machine learning and applications, swarm optimization and applications, robotic and control systems, sentiment analysis, e-learning and social media education, machine and deep learning algorithms, recognition and image processing, intelligent systems and applications, mobile computing and networking, cyber-physical systems and security, smart grids and renewable energy, and micro-grid and power systems.

Green and Intelligent Technologies for Sustainable and Smart Asphalt Pavements contains 124 papers from 14 different countries which were presented at the 5th International Symposium on Frontiers of Road and Airport Engineering (IFRAE 2021, Delft, the Netherlands, 12-14 July 2021). The contributions focus on research in the areas of “Circular, Sustainable and Smart Airport and Highway Pavement” and collect the state-of-the-art and state-of-practice areas of long-life and circular materials for sustainable, cost-effective smart airport and highway pavement design and construction. The main areas covered by the book include: • Green and sustainable pavement materials • Recycling technology • Warm & cold mix asphalt materials • Functional pavement design • Self-healing pavement materials • Eco-efficiency pavement materials • Pavement preservation, maintenance and rehabilitation • Smart pavement materials and structures • Safety technology for smart roads • Pavement monitoring and big data analysis • Role of transportation engineering in future pavements Green and Intelligent Technologies for Sustainable and Smart Asphalt Pavements aims at researchers, practitioners, and administrators interested in new materials and innovative technologies for achieving sustainable and renewable pavement materials and design methods, and for those involved or working in the broader field of pavement engineering.

This book features original papers from the 3rd International Conference on Smart IoT Systems: Innovations and Computing (SSIC 2021), presenting scientific work related to smart solution concepts. It discusses scientific works related to smart solutions concept in the context of computational collective intelligence consisted of interactions between smart devices for smart environments and interactions. Thanks to the high-quality content and the broad range of the topics covered, the book appeals to researchers pursuing advanced studies.

City logistics planning is vital to improve goods transport in urban areas. It involves consolidation and coordination of goods transport activities to reduce the negative impacts of freight transport on city residents and their environment. The book presents novel and innovative approaches in the area of sustainable city logistics planning and is composed of three volumes. The first volume addresses key problem areas related to city logistics assessment and evaluation, mobility management, vehicle routing, demand management, smart city solutions, sustainable supply chain management, risk management, intelligent transportation systems, delivery location optimization,
electricity planning, and transit policy simulation. The second volume is dedicated to electric vehicle charging, stakeholder engagement, e-commerce deliveries, corporate social responsibility, urban freight data collection, dynamic project management, postal logistics, sustainable hub location, urban freight transport planning, and stakeholder mobilization. The third volume deals with truck route choice planning, empty container repositioning, logistics planning under disruption, dynamic risk under sequential decision-making, parking management, sustainable parcel delivery planning, and smart multi-purpose utility tunnels. A variety of methods based on systems modeling and simulation, optimization, and data mining are proposed. Survey studies, best practices, state of the art, and practical applications complement the presented theoretical approaches. The book will serve as a useful resource to academicians and practitioners working in the area.

Based on the work of the STELLA (Sustainable Transport in Europe and Links and Liaisons with America) Focus Group 3, this volume brings together leading transport academics to discuss society behaviour and public/private transport. Theoretical and empirical research from across North America and Europe form the basis of this book, which is composed of twelve chapters that fall into four logical sections. Chapters in the first section provide a contextual overview and survey trends in mobility behaviour and prospects of sustainable transport in the two continents. Theoretical and empirical research from across North America and Europe form the basis of this book, which is composed of twelve chapters that fall into four logical sections. Chapters in the first section provide a contextual overview and survey trends in mobility behaviour and prospects of sustainable transport in the two continents. Chapters in the second section provide comparative assessments of difficulties posed by contemporary transport systems for particular user groups (low-income, female, and elderly), interventions indicated, and research needed. The third set of chapters surveys recent developments in behavioural modelling that lend themselves to the study of the constellation of issues concerning STELLA Focus Group 3. The remaining chapters of the book address critical issues of equity and policy implementation.

There are unique complexities associated with the economic valuation of Intelligent Transportation Systems (ITS) and telematics. Traditional methods of quantitative analysis may not be appropriate in accurately and reliably assessing the economic impacts of these technologies. Although advanced transportation and related technologies are being planned and deployed at an increasingly rapid pace, many of the technologies are still relatively new, and their use may not be widespread. Much of the initial information and statistics gathered have been anecdotal and have focused more on benefits rather than costs. Therefore, difficulties arise due to the lack of historical data and 'lessons learned' from which to draw upon. In addition, compared with traditional transportation infrastructure, ITS technologies have different life cycles, cost structures, and a number of interrelated elements. This book addresses these concerns and proposes new economic assessment techniques as well as modifications to existing ones. Included are case studies from a multitude of North American, European, and Asian nations and major metropolitan areas covering a wide range of ITS technologies including freewave management, electronic toll collection, advanced driver assistance systems, and traveller information systems.

This book presents a discussion of problems encountered in the deployment of Intelligent Transport Systems (ITS). It puts emphasis on the early tasks of designing and proofing the concept of integration of technologies in Intelligent Transport Systems. In its first part the book concentrates on the design problems of urban ITS. The second part of the book features case studies representative for the different modes of transport. These are freight transport, road transport and aerospace transport encompassing also space stations. The book provides ideas for deployment which may be developed by scientists and engineers engaged in the design of Intelligent Transport Systems. It can also be used in the training of specialists, students and post-graduate students in universities and transport high schools.

Toward Sustainable Communities uses six case studies to illustrate innovative strategies in specific policy areas: air pollution control, water pollution control, land use, transportation, urban redevelopment, and regional ecosystem management.

The Future of Intelligent Transport Systems considers ITS from three perspectives: users, business models and regulation/policy. Topics cover in vehicle applications, such as autonomous driving, vehicle-to-vehicle/vehicle-to-infrastructure communication, and related applications, such as autonomous driving, vehicle-to-infrastructure communication, and related applications, such as autonomous driving, vehicle-to-infrastructure communication, and related applications, such as autonomous driving, vehicle-to-infrastructure communication, and related applications, such as autonomous driving, vehicle-to-infrastructure communication, and related applications, such as autonomous driving, vehicle-to-infrastructure communication, and related applications, such as autonomous driving, vehicle-to-infrastructure communication, and related applications, such as autonomous driving, vehicle-to-infrastructure communication, and related applications. The book also examines ITS technology enablers, such as sensing technologies, wireless communication, computational technology, user behavior as part of the transportation chain, financial models that influence ITS, regulations, policies and standards affecting ITS, and the future of ITS applications. Users will find a holistic approach to the most recent technological advances and the future spectrum of mobility. Systematically presents the whole spectrum of next generation Intelligent Transport Systems (ITS) technologies. Integrates coverage of personalized mobility and digital assistants, big data analytics and autonomous driving Includes end-of-chapter, open-ended questions that trigger thinking on the technological, managerial and regulatory aspects of ITS.

This book constitutes the thoroughly refereed proceedings of the 4th International Conference on Smart Cities and Green ICT Systems, SMARTGREENS 2015, and the 1st International Conference on Vehicle Technology and Intelligent Transport Systems, VEHITS 2015, held in Lisbon, Portugal, in May 2015. The 15 full papers of SMARTGREENS 2015 presented were carefully reviewed and selected from 73 submissions. VEHITS 2015 received 27 paper submissions from which 3 papers were selected and published in this book. The papers reflect topics such as smart cities, energy-aware systems and technologies, sustainable computing and communications, sustainable transportation and smart mobility.

"Perspectives on ITS" is a collection of the Intelligent Transportation Systems (ITS) writings of Professor Joseph M. Szumski from MIT. Professor Szumski is a long-time major participant in the ITS world, beginning with his work on the core writing team in the original "IVHS" Strategic Plan in 1991-92, and continuing on to the present day. He has worked in a number of ITS area and is a keen observer of the ITS scene in general. The book contains extended articles on various aspects of ITS and personal views on the future of the field, building on its rich history; organizational issues related to ITS – in particular, regionalism and the transportation / information infrastructure; and ITS implications for the transportation profession at large and for transportation education. In addition it contains 14 selected columns from the ITS Quarterly.

The increasingly rapid growth of global urbanization requires cities to be built in an ecologically sustainable, energy efficient, and livable way. A critical component in achieving these goals is an urban transportation system that use natural resources as reasonably as possible. The outcome of a ten-year data collection research effort by the author and his team, Eco-cities and Green Transport sheds new insights into these challenges using a thorough investigation of traffic systems in 20 cities from 13 countries throughout Asia, Europe and the US. Presenting each case in a systematic, uniform, and structured way, Eco-cities and Green Transport examines different cities at different scales to suggest unique solutions appropriate to each scale. It examines city infrastructure and the built environment, transport system supply and demand, and transport behavior to offer innovative policy solutions for various transport modes. With end of chapter experiences and lessons summarized, Eco-cities and Green Transport provides an in-depth analysis of the advantages and disadvantages for transforming cities and their transport systems to meet residents current and future needs.

During the last two decades, sustainability has become the dominant concern of transportation planners and policymakers. This timely text provides a framework for developing systems that move people and products efficiently while minimizing damage to the local and global environment. The book offers a uniquely comprehensive perspective on the problems surrounding current transportation systems: climate change, urban air pollution, diminishing petroleum reserves, safety issues, and congestion. It explores the full range of possible solutions, including applications of pricing, planning, policy, education, and technology: Numerous figures, tables, and examples are featured, with a primary focus on North America.

This book constitutes the refereed proceedings of the 11th workshop co-located with the 16th International Conference on Practical Applications of Agents and Multi-Agent Systems, PAAMS 2018, held in Toledo, Spain, in June 2018. The 47 full papers presented were carefully reviewed and selected from 72 submissions. The volume presents the papers that have been accepted for the following workshops: Workshop on Agents and Multi-agent Systems for AAL and e-HEALTH; Workshop on Agent-based Applications for Air Transport; Workshop on Agent-based Artificial Markets Computational Economics; Workshop on Agents-Based Solutions for Manufacturing and Supply Chain; Workshop on MAS for Complex Networks and Social Computation; Workshop on Intelligent Systems and Context Information Fusion; Workshop on Multi-agent based Applications for Energy Markets; Smart Grids and Sustainable Energy Systems; Workshop on Multiagent System based Learning Environments; Workshop on Smart Cities and Intelligent Agents; Workshop on Swarm Intelligence and Swarm Robotics; Workshop on Multi-Agent Systems and Simulation.

Innovative and smart mobility systems are expected to make transportation systems more sustainable, inclusive, and safe. Because of changing mobility paradigms, transport planning and design require different methodological approaches. Over twelve chapters, this book examines and analyzes Mobilities as a Service (MaaS), travel...
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behavior, traffic control, intelligent transportation system design, electric, connected, and automated vehicles, and much more.

Intelligent Transportation Systems (ITS) are the way forward for sustainable growth of mobility at all levels (local, regional, national, transnational). The book reviews the current status of Research & Development. It includes connected (and autonomous) cars and buses, real-world large-scale field trials, data analysis and assessment of technological solutions. Standards and normative aspects in the domain of Electronic Fee Collection and Cooperative Systems oriented to probe data collection, safety and non-safety critical applications in vehicular networks, are studied. The book provides the rational, perspectives, and technical issues for the implementation of ITS solutions in a genuine inter-modal scenario, taking the example of a Mediterranean seaport, actively involved in testing and validation of ITS standards. The novelty of this book is that it covers R&D, standards, and pilots, all under one cover. Rather than stressing the novelty in ICT, the authors have presented the need for system-level integration, assessment of existing (standard) solutions, and piloting experiments in real-world industrial scenarios.

This book paves the way for researchers working on the sustainable interdependent networks spread over the fields of computer science, electrical engineering, and smart infrastructures. It provides the readers with a comprehensive insight to understand an in-depth big picture of smart cities as a thorough example of interdependent large-scale networks in both theory and application aspects. The contributors specify the importance and position of the interdependent networks in the context of developing the sustainable smart cities and provide a comprehensive investigation of recently developed optimization methods for large-scale networks. There has been an emerging concern regarding the optimal operation of power and transportation networks. In the second volume of Sustainable Interdependent Networks book, we focus on the interdependencies of these two networks, optimization methods to deal with the computational complexity of them, and their role in future smart cities. We further investigate other networks, such as communication networks, that indirectly affect the operation of power and transportation networks. Our reliance on these networks as global platforms for sustainable development has led to the need for developing novel means to deal with arising issues. The considerable scale of such networks, due to the large number of buses in smart power grids and the increasing number of electric vehicles in transportation networks, brings a large variety of computational complexity and optimization challenges. Although the independent optimization of these networks lead to locally optimum operation points, there is an exigent need to move towards obtaining the globally-optimum operation point of such networks while satisfying the constraints of each network properly. The book is suitable for senior undergraduate students, graduate students interested in research in multidisciplinary areas related to future sustainable networks, and the researchers working in the related areas. It also covers the application of interdependent networks which makes it a perfect source of study for audience out of academia to obtain a general insight of interdependent networks.

With the advent of disruptive digital technologies, companies are facing unprecedented challenges and opportunities. Advanced manufacturing systems are of paramount importance in making key enabling technologies and new products more competitive, affordable, and accessible, as well as fostering their economic and social impact. The manufacturing industry also serves as an innovator for sustainability since automation coupled with advanced manufacturing technologies have helped manufacturing practices transition into the circular economy. To that end, this Special Issue of the journal Applied Sciences, devoted to the broad field of Smart Sustainable Manufacturing Systems, explores recent research into the concept, methods, tools, and applications for smart sustainable manufacturing, in order to advance and promote the development of modern and intelligent manufacturing systems. In light of the above, this Special Issue is a collection of the latest research on relevant topics and addresses the current challenging issues associated with the introduction of smart sustainable manufacturing systems. Various topics have been addressed in this Special Issue, which focuses on the design of sustainable production systems and factories; industrial big data analytics and cyberphysical systems; intelligent maintenance approaches and technologies for increased operating life of production systems; zero-defect manufacturing strategies, tools and methods towards online production management; and connected smart factories.

From driverless cars to vehicular networks, recent technological advances are being employed to increase road safety and improve driver satisfaction. As with any newly developed technology, researchers must take care to address all concerns, limitations, and dangers before widespread public adoption. Intelligent Transportation and Planning: Breakthroughs in Research and Practice is an innovative reference source for the latest academic material on the applications, management, and planning of intelligent transportation systems. Highlighting a range of topics, such as automatic control, infrastructure systems, and system architecture, this publication is ideally designed for engineers, academics, professionals, and practitioners actively involved in the transportation planning sector.

This book discusses emerging technologies in the field of the Internet of Things and big data, an area that will be scaled in next two decades. Written by a team of leading experts, it is the only book focusing on the broad areas of both the Internet of things and big data. The thirteen chapters present real-time experimental methods and theoretical explanations, as well as the implementation of these technologies through various applications. Offering a blend of theory and hands-on practices, the book enables graduate, postgraduate and research students who are involved in real-time project scaling techniques to understand projects and their execution. It is also useful for senior computer students, researchers and industry workers who are involved in experimenting with the Internet of Things and big data technologies, helping them to solve the real-time problem. Moreover, the chapters covering cutting-edge technologies help multidisciplinary researchers who are bridging the gap of two different output real-time problems.

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