

Electrical Technology June 2014 Exemplar Paper

The second of two volumes in the Electronic Design Automation for Integrated Circuits Handbook, Second Edition, Electronic Design Automation for IC Implementation, Circuit Design, and Process Technology thoroughly examines real-time logic (RTL) to GDSII (a file format used to transfer data of semiconductor physical layout) design flow, analog/mixed signal design, physical verification, and technology computer-aided design (TCAD). Chapters contributed by leading experts authoritatively discuss design for manufacturability (DFM) at the nanoscale, power supply network design and analysis, design modeling, and much more. New to This Edition: Major updates appearing in the initial phases of the design flow, where the level of abstraction keeps rising to support more functionality with lower non-recurring engineering (NRE) costs Significant revisions reflected in the final phases of the design flow, where the complexity due to smaller and smaller geometries is compounded by the slow progress of shorter wavelength lithography New coverage of cutting-edge applications and approaches realized in the decade since publication of the previous edition—these are illustrated by new chapters on 3D circuit integration and clock design Offering improved depth and modernity, Electronic Design Automation for IC Implementation, Circuit Design, and Process Technology provides a valuable, state-of-the-art reference for electronic design automation (EDA) students, researchers, and professionals.

Small Satellites – Regulatory Challenges and Chances edited by Irmgard Marboe addresses the booming phenomenon of small satellites. It shows the importance of existing rules and regulations to ensure the safe and responsible use of outer space by universities, start-ups and governments.

Future Communication Technology and Engineering is a collection of papers presented at the 2014 International Conference on Future Communication Technology and Engineering (Shenzhen, China 16-17 November 2014). Covering a wide range of topics (communication systems, automation and control engineering, electrical engineering), the book includes the

This book includes the best works presented at the scientific and practical conference that took place on February 1, 2018 in Pyatigorsk, Russia on the topic “Perspectives on the use of New Information and Communication Technology (ICT) in the Modern Economy”. The conference was organized by the Institute of Scientific Communications (Volgograd, Russia), the Center for Marketing Initiatives (Stavropol, Russia), and Pyatigorsk State University (Pyatigorsk, Russia). The book present the results of research on the complex new information and communication technologies in the modern economy and law as well as research that explore limits of and opportunities for their usage. The target audience of this book includes undergraduates and postgraduates, university lecturers, experts, and researchers studying various issues concerning the use of new information and communication technologies in modern economies. The book includes research on the following current topics in modern economic science: new challenges and opportunities for establishing information economies under the influence of scientific and technical advances, digital economy as a new vector of development of the modern global economy, economic and legal aspects of using new information and communication technologies in developed and developing countries, priorities of using the new information and communication technologies in modern economies, platforms of communication integration in tourism using new information and communication technologies, and economic and legal managerial aspects and peculiarities of scientific research on the information society.

Comprehensive, cross-disciplinary coverage of Smart Grid issues from global expert researchers and practitioners. This definitive reference meets the need for a large scale, high quality work reference in Smart Grid engineering which is pivotal in the development of a low-carbon energy infrastructure. Including a total of 83 articles across 3 volumes The Smart Grid Handbook is organized in to 6 sections: Vision and Drivers, Transmission, Distribution, Smart Meters and Customers, Information and Communications Technology, and Socio-Economic Issues. Key features: Written by a team representing smart grid R&D, technology deployment, standards, industry practice, and socio-economic aspects. Vision and Drivers covers the vision, definitions, evolution, and global development of the smart grid as well as new technologies and standards. The Transmission section discusses industry practice, operational experience, standards, cyber security, and grid codes. The Distribution section introduces distribution systems and the system configurations in different countries and different load areas served by the grid. The Smart Meters and Customers section assesses how smart meters enable the customers to interact with the power grid. Socio-economic issues and information and communications technology requirements are covered in dedicated articles. The Smart Grid Handbook will meet the need for a high quality reference work to support advanced study and research in the field of electrical power generation, transmission and distribution. It will be an essential reference for regulators and government officials, testing laboratories and certification organizations, and engineers and researchers in Smart Grid-related industries.

This book is the first stocktaking of what the decarbonization of the world economy means for fossil fuel†dependent countries. These countries are the most exposed to the impacts of global climate policies and, at the same time, are often unprepared to manage them. They depend on the export of oil, gas, or coal; the use of carbon-intensive infrastructure (for example, refineries, petrochemicals, and coal power plants); or both. Fossil fuel†dependent countries face financial, fiscal, and macro-structural risks from the transition of the global economy away from carbon-intensive fuels and the value chains based on them. This book focuses on managing these transition risks and harnessing related opportunities. Diversification and Cooperation in a Decarbonizing World identifies multiple strategies that fossil fuel†dependent countries can pursue to navigate the turbulent waters of a low-carbon transition. The policy and investment choices to be made in the next decade will determine these countries’ degree of exposure and overall resilience. Abandoning their comfort zones and developing completely new skills and capabilities in a time frame consistent with the Paris Agreement on climate change is a daunting challenge and requires long-term revenue visibility and consistent policy leadership. This

book proposes a constructive framework for climate strategies for fossil fuel-dependent countries based on new approaches to diversification and international climate cooperation. Climate policy leaders share responsibility for creating room for all countries to contribute to the goals of the Paris Agreement, taking into account the specific vulnerabilities and opportunities each country faces.

Singing the Body Electric explores the relationship between the human voice and technology, offering startling insights into the ways in which technological mediation affects our understanding of the voice, and more generally, the human body. From the phonograph to magnetic tape and now to digital sampling, Miriama Young visits particular musical and literary works that define a century-and-a-half of recorded sound. She discusses the way in which the human voice is captured, transformed or synthesised through technology. This includes the sampled voice, the mechanical voice, the technologically modified voice, the pliable voice of the digital era, and the phenomenon by which humans mimic the sounding traits of the machine. The book draws from key electro-vocal works spanning a range of genres - from Luciano Berio's *Thema: Omaggio a Joyce* to Radiohead, from Alvin Lucier's *I Am Sitting in a Room*, to Björk, and from Pierre Henry's *Variations on a Door and a Sigh* to Christian Marclay's *Maria Callas*. In essence, this book transcends time and musical style to reflect on the way in which the machine transforms our experience of the voice. The chapters are interpolated by conversations with five composers who work creatively with the voice and technology: Trevor Wishart, Katharine Norman, Paul Lansky, Eduardo Miranda and Bora Yoon. This book is an interdisciplinary enterprise that combines music aesthetics and musical analysis with literature and philosophy.

The creative industries are becoming of increasing importance from economic, cultural, and social perspectives. This Handbook explores the relationship, whether positive or negative, between creative industries and intellectual property (IP) rights.

Provides practical guidance on the coordination issue of power protective relays and fuses Protecting electrical power systems requires devices that isolate the components that are under fault while keeping the rest of the system stable. *Optimal Coordination of Power Protective Devices* provides a thorough introduction to the optimal coordination of power systems protection using fuses and protective relays. Integrating fundamental theory and real-world practice, the text begins with an overview of power system protection and optimization, followed by a systematic description of the essential steps in designing directional overcurrent relays and other optimal coordinators. Subsequent chapters present mathematical formulations for solving many standard test systems, and cover a variety of popular hybrid optimization schemes and their mechanisms. The author also discusses a selection of advanced topics and extended applications including adaptive optimal coordination, optimal coordination with multiple time-current curves, and optimally coordinating multiple types of protective devices. *Optimal Coordination of Power Protective Devices: Covers fuses and overcurrent, directional overcurrent, and distance relays* Explains the relation between fault current and operating time of protective relays Discusses performance and design criteria such as sensitivity, speed, and simplicity Includes an up-to-date literature review and a detailed overview of the fundamentals of power system protection Features numerous illustrative examples, practical case studies, and programs coded in MATLAB and Python programming languages *Optimal Coordination of Power Protective Devices* is the perfect textbook for instructors in electric power system protection courses, and a must-have reference for protection engineers in power electric companies, and for researchers and industry professionals specializing in power system protection.

The contemporary media landscape might be described in simple terms as a digital terrain where real and virtual worlds collide. Stephen Kennedy investigates the concept of our digital space leading up to the digital turn of the 1990s to fully understand how our perceptions of orientation in space in time was altered. *Chaos Media: A Sonic Economy of Digital Space* re-thinks the five fundamental paths to our contemporary understanding of the digital age: cultural, political, economic, scientific, and aesthetic, and ties them together to form a coherent whole in order to demonstrate how critical thinking can be reconfigured using a methodological approach that uses 'chaos' and 'complexity' as systematic tools for studying contemporary mediated space. Kennedy introduces the concept of Sonic Economy, a methodology that allows for a critical engagement with the heterogeneous elements of an information society wherein the dispersion of discrete elements is manifest but not always clearly visible.

The job interview is probably the most important step you will take in your job search journey. Because it's always important to be prepared to respond effectively to the questions that employers typically ask at a job interview Petrogav International has prepared this eBooks that will help you to get a job in oil and gas industry. Since these questions are so common, hiring managers will expect you to be able to answer them smoothly and without hesitation. This eBook contains 150 questions and answers for job interview and as a BONUS 230 links to video movies. This course covers aspects like HSE, Process, Mechanical, Electrical and Instrumentation & Control that will enable you to apply for any position in the Oil and Gas Industry.

In this versatile and engaging textbook the authors integrate diverse, global examples with coverage of all key topics to produce the most practical and multi-perspective international business environment textbook. Students are supported in their learning with chapter summaries, diagrams, and a comprehensive glossary, but also challenged by counterpoint boxes, learning tasks, and review questions in every chapter, encouraging critical thinking and research skills. Even with its comprehensive breadth of coverage, *The International Business Environment* remains concise and accessible through use of the PESTLE framework to steer its analysis. Now in its fourth edition, this book is the ideal companion to any international business environment course. **New to this Edition** An extensive refresh of case studies across the book ensures that the most contemporary developments in global businesses are available for exploration and analysis. These include the exploits of companies like Google, Netflix, Uber, and Apple, as well as international developments such as Brexit, the Trump presidency, China's One Belt One Road project, and Saudi Arabian women's rights. **New contributors**

join the author team to offer their relevant expertise on the different contexts of the international business environment. Figures, tables, and statistics have been updated throughout to give the latest picture and provide the most up-to-date analysis. This title is available as an eBook. Please contact your Sales and Learning Resource Consultant for more information.

Legislation, Technology and Practice of Mine Land Reclamation contains the proceedings of the Beijing International Symposium on Land Reclamation and Ecological Restoration (LRER 2014, Beijing, China, 16-19 October 2014). The contributions cover a wide range of topics: - Monitoring, prediction and assessment of environmental damage in mining areas - Subsidence land reclamation and ecological restoration - Soil, vegetation and biological diversity - Mining methods and measures for minimization of land and environmental damage - Solid wastes and AMD treatment - Contaminated land remediation - Land reclamation and ecological restoration policies and management - Surface mined land reclamation and ecological restoration - Case study on mining reclamation and ecological restoration Legislation, Technology and Practice of Mine Land Reclamation will be of interest to engineers, scientists, consultants, government officials and students involved in environmental engineering, soil science, ecology, forestry, mining, and land reclamation and ecological restoration in mining areas.

Drawing on empirical insights from the field of desktop 3D printing, this book elaborates the concept of innovation communities as a pattern of open and distributed innovation. As these communities spur a fruitful exchange of explorative, open source knowledge, they represent a novel mode of "doing innovation", which considerably differs from established practices in market and business realms. Hence, the people that participate in these collective endeavors often develop entrepreneurial ambitions and start to exploit community-based innovations commercially. The book presents deep insights on the institutional idiosyncrasies of innovation communities, the associated dilemma of entrepreneurship and the strategies of 3D-printing startups to face the corresponding challenges.

Vehicles are intrinsically linked to our lives. This book covers all technical details of the vehicle electrification process, with focus on power electronics. The main challenge in vehicle electrification consists of replacing the engine-based mechanical, pneumatic, or hydraulic ancillary energy sources with electrical energy processed through an electromagnetic device. The book illustrates this evolutionary process with numerous series-production examples for either of body or chassis systems, from old milestones to futuristic luxury vehicles. Electrification of ancillaries and electric propulsion eventually meet into an all-electric vehicle and both processes rely heavily on power electronics. Power electronics deals with electronic processing of electrical energy. This makes it a support technology for the automotive industry. All the automotive visions for the next decade (2020-2030) are built on top of power electronics and the automotive power electronics industry is expected at 15% compound annual growth rate, the highest among all automotive technologies. Hence, automotive power electronics industry is very appealing for recent and future graduates. The book structure follows the architecture of the electrical power system for a conventional engine-based vehicle, with a last chapter dedicated to an introduction onto electric propulsion. The first part of the book describes automotive technologies for generation and distribution of electrical power, as well as its usage within body systems, chassis systems, or lighting. The second part explores deeper into the specifics of each component of the vehicle electric power system. Since cars have been on the streets for over 100 years, each chapter starts with a list of historical achievements. Recognizing the engineering effort span over more than a century ennobles the R&D efforts of the new millennium. Focus on history of electricity in vehicle applications is another attractive treat of the book. The book fills a gap between books targeting practical education and works sharing advanced academic vision, offering students and academics a quick tour of the basic tools and long-standing infrastructure, and offering practicing engineers an introduction on newly introduced power electronics-based technologies. It is therefore recommended as a must-have book for students and early graduates in automotive power electronics activities.

Drawing on the work of leading researchers and practitioners from a range of disciplines, including economic geography, economics, economic history, finance, law, and public policy, this edited collection provides a comprehensive assessment of stranded assets and the environment, covering the fundamental issues and debates, including climate change and societal responses to environmental change, as well as its origins and theoretical basis. The volume provides much needed clarity as the discourse on stranded assets gathers further momentum. In addition to drawing on scholarly contributions, there are chapters from practitioners and analysts to provide a range of critical perspectives. While chapters have been written as important standalone contributions, the book is intended to systematically take the reader through the key dimensions of stranded assets as a topic of research inquiry and practice. The work adopts a broad based social science perspective for setting out what stranded assets are, why they are relevant, and how they might inform the decision-making of firms, investors, policymakers, and regulators. The topic of stranded assets is inherently multi-disciplinary, cross-sectoral, and multi-jurisdictional and the volume reflects this diversity. This book will be of great relevance to scholars, practitioners and policymakers with an interest in include economics, business and development studies, climate policy and environmental studies in general.

Providing critical insights that will interest readers ranging from economists to environmentalists, policymakers, and politicians, this book analyzes the economics and technology trends involved in the dilemma of decarbonization and addresses why aggressive policy is required in a capitalist political economy to create a sea change away from fossil fuels. • Presents comprehensive and understandable reviews of more than 200 recent empirical studies of market imperfections in the energy efficiency and climate change literature, providing a basis for targeting policies at the most important causes of poor market performance • Argues that aggressive action to induce change and overcome resistance, using targeted policies rather than broad-based taxes, is the strategy that will create movement towards a decarbonized economy and world • Provides a logical decision-making framework and portfolio analysis that enables policymakers and regulators to choose, explain, and defend their decisions, objectively and

transparently

This book is a compilation of recent research on distributed optimization algorithms for the integral load management of plug-in electric vehicle (PEV) fleets and their potential services to the electricity system. It also includes detailed developed Matlab scripts. These algorithms can be implemented and extended to diverse applications where energy management is required (smart buildings, railways systems, task sharing in micro-grids, etc.). The proposed methodologies optimally manage PEV fleets' charge and discharge schedules by applying classical optimization, game theory, and evolutionary game theory techniques. Taking owner's requirements into consideration, these approaches provide services like load shifting, load balancing among phases of the system, reactive power supply, and task sharing among PEVs. The book is intended for use in graduate optimization and energy management courses, and readers are encouraged to test and adapt the scripts to their specific applications.

The World Investment Report series provides the latest data and analysis foreign direct investment (FDI) and other activities of transnational corporations, as well as the policies to regulate them at the national and international levels. It aims to analyse the cross-border activities of translational corporations and related policy measures with a view to helping policymakers formulate appropriate policy responses.

The job interview is probably the most important step you will take in your job search journey. Because it's always important to be prepared to respond effectively to the questions that employers typically ask at a job interview Petrogav International has prepared this eBooks that will help you to get a job in oil and gas industry. Since these questions are so common, hiring managers will expect you to be able to answer them smoothly and without hesitation. This eBook contains 273 questions and answers for job interview and as a BONUS 230 links to video movies. This course covers aspects like HSE, Process, Mechanical, Electrical and Instrumentation & Control that will enable you to apply for any position in the Oil and Gas Industry.

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Modular Systems for Energy and Fuel Recovery and Conversion surveys the benefits of the modular approach in the front end of the energy industry. The book also outlines strategies for managing modular approaches for fossil, renewable, and nuclear energy resource recovery and conversion with the help of successful industrial examples. The book points out that while the modular approach is most applicable for distributed and small-scale energy systems, it is also often used for parts of large-scale centralized systems. With the help of successful industrial examples of modular approaches for energy and fuel recovery and conversion, the book points out the need for more balance between large-scale centralized systems and small-scale distributed systems to serve the energy needs of rural and isolated communities. Coal, oil, natural gas, hydrogen, biomass, waste, nuclear, geothermal solar, wind, and hydro energy are examined, showing that modular operations are very successfully used in all these components of the energy industry. Aimed at academic researchers and industry professionals, this book provides successful examples and analysis of the modular operation for energy and fuel recovery and conversion. It is also a reference for those who are engaged in the development of modular systems for energy and fuel recovery and conversion.

This book will present the theory involved in wastewater treatment processes, define the important design parameters involved, and provide typical values of these parameters for ready reference; and also provide numerical applications and step-by-step calculation procedures in solved examples. These examples and solutions will help enhance the readers' comprehension and deeper understanding of the basic concepts, and can be applied by plant designers to design various components of the treatment facilities. It will also examine the actual calculation steps in numerical examples, focusing on practical application of theory and principles into process and water treatment facility design.

This book introduces 10 mega business trends, ranging from big data to the O2O model. By mining and analyzing mountains of data, the author identifies these 10 emerging trends and goes to great lengths to explain and support his views with up-to-date cases. By incorporating the latest developments, this book allows readers to keep abreast of rapidly advancing digital technologies and business models. In this time of mass entrepreneurship and innovation, acquiring deep insights into business trends and grasping opportunities for innovation give readers (business executives in particular) and their companies a competitive advantage and the potential to become the next success story. The Chinese version of the book has become a hit, with some business schools using it as a textbook for their S&T Innovation and Business Trends programs. It also provides business executives with a practical guide for their investment and operation decisions.

Contains the Budget Message of the President, information on the President's priorities and budget overviews by agency, and summary tables.

This book discusses key ethical and deontological problems concerning the use of the most common information and communication devices. It focuses on the challenges of the new environments we now find ourselves in thanks to these technologies, and the issues arising from the newly established relationship between the virtual sphere and the real world. Each aspect is analysed by starting from a very specific example or a case study presenting a dilemma that can only be resolved by making a reasoned ethical choice. Rather than thematically addressing only one of the many aspects mentioned above (for example, computer ethics or social network ethics), the book presents a comprehensive introduction to, and a co-ordinated overview of, the various deontological and ethical issues regarding the spread of the most common information and communication technologies.

This best-selling introduction to research methods provides students and researchers with unrivalled coverage of both quantitative and qualitative methods, making it invaluable for anyone embarking on social research. Bridging the gap between theory and practice, Social Research Methods is packed full of engaging examples and practical tips to equip students with the tools and knowledge needed for them to complete their own research projects. In addition to providing practical advice, Bryman deftly explores the nature of social research and the wider issues impinging on it. This book is supported by an Online Resource Centre, which includes: For Students* A researcher's toolkit to take students step by step through the research process* Multiple choice questions to help students test their knowledge and understanding* A guide to using Excel in data analysis to help develop

analytical skills For Lecturers* A test bank of questions which can be customized to meet teaching needs* PowerPoint slides for each chapter* New seminar outlines including suggested activities and tasks * New exam and course work questions to set in class

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A comprehensive political analysis of the rapid growth in renewable wind and solar power, mapping an energy transition through theory, case studies, and policy. Wind and solar are the most dynamic components of the global power sector. How did this happen? After the 1973 oil crisis, the limitations of an energy system based on fossil fuels created an urgent need to experiment with alternatives, and some pioneering governments reaped political gains by investing heavily in alternative energy such as wind or solar power. Public policy enabled growth over time, and economies of scale brought down costs dramatically. In this book, Michaël Aklin and Johannes Urpelainen offer a comprehensive political analysis of the rapid growth in renewable wind and solar power, mapping an energy transition through theory, case studies, and policy analysis. Aklin and Urpelainen argue that, because the fossil fuel energy system and political support for it are so entrenched, only an external shock—an abrupt rise in oil prices, or a nuclear power accident, for example—allows renewable energy to grow. They analyze the key factors that enable renewable energy to withstand political backlash, and they draw on this analysis to explain and predict the development of renewable energy in different countries over time. They examine the pioneering efforts in the United States, Germany, and Denmark after the 1973 oil crisis and other shocks; explain why the United States surrendered its leadership role in renewable energy; and trace the recent rapid growth of modern renewables in electricity generation, describing, among other things, the return of wind and solar to the United States. Finally, they apply the lessons of their analysis to contemporary energy policy issues.

Focusing on technical, policy and social/societal practices and innovations for electrified transport for personal, public and freight purposes, this book provides a state-of-the-art overview of developments in e-mobility in Europe and the West Coast of the USA. It serves as a learning base for further implementing and commercially developing this field for the benefit of society, the environment and public health, as well as for economic development and private industry. A fast-growing, interdisciplinary sector, electric mobility links engineering, infrastructure, environment, transport and sustainable development. But despite the relevance of the topic, few publications have ever attempted to document or promote the wide range of electric mobility initiatives and projects taking place today. Addressing this need, this publication consists of case studies, reports on technological developments and examples of successful infrastructure installation in cities, which document current initiatives and serve as an inspiration for others.

Every nuclear weapons program for decades has relied extensively on illicit imports of nuclear-related technologies. This book offers the most detailed public account of how states procure what they need to build nuclear weapons, what is currently being done to stop them, and how global efforts to prevent such trade could be strengthened. While illicit nuclear trade can never be stopped completely, effective steps to block illicit purchases of nuclear technology have sometimes succeeded in slowing nuclear weapons programs and increasing their costs, giving diplomacy more chance to work. Hence, this book argues, preventing illicit transfers wherever possible is a key element of an effective global non-proliferation strategy.

The proceedings collect the latest research trends, methods and experimental results in the field of electrical and information technologies for rail transportation. The topics cover intelligent computing, information processing, communication technology, automatic control, and their applications in rail transportation etc. The proceedings can be a valuable reference work for researchers and graduate students working in rail transportation, electrical engineering and information technologies.

The Paris Agreement on Climate Change adopted on December 12, 2015 is a voluntary effort to reduce greenhouse gas emissions. In order to reach the goals of this agreement, there is a need to generate electricity without greenhouse gas emissions and to electrify transportation. An infrastructure of SPCSs can help accomplish both of these transitions. Globally, expenditures associated with the generation, transmission, and use of electricity are more than one trillion dollars per year. Annual transportation expenditures are also more than one trillion dollars per year. Almost everyone will be impacted by these changes in transportation, solar power generation, and smart grid developments. The benefits of reducing greenhouse gas emissions will differ with location, but all will be impacted. This book is about the benefits associated with adding solar panels to parking lots to generate electricity, reduce greenhouse gas emissions, and provide shade and shelter from rain and snow. The electricity can flow into the power grid or be used to charge electric vehicles (EVs). Solar powered charging stations (SPCSs) are already in many parking lots in many countries of the world. The prices of solar panels have decreased recently, and about 30% of the new U.S. electrical generating capacity in 2015 was from solar energy. More than one million EVs are in service in 2016, and there are significant benefits associated with a convenient charging infrastructure of SPCSs to support transportation with electric vehicles. Solar Powered Charging Infrastructure for Electric Vehicles: A Sustainable Development aims to share information on pathways from our present situation to a world with a more sustainable transportation system with EVs, SPCSs, a modernized smart power grid with energy storage, reduced greenhouse gas emissions, and better urban air quality. Covering 200 million parking spaces with solar panels can generate about 1/4 of the electricity that was generated in 2014 in the United States. Millions of EVs with 20 to 50 kWh of battery storage can help with the transition to wind and solar power generation through owners responding to time-of-use prices. Written for all audiences, high school and college teachers and students, those in industry and government, and those involved in community issues will benefit by learning more about the topics addressed in the book. Those working with electrical power and transportation, who will be in the middle of the transition, will want to learn about all of the challenges and developments that are addressed here.

Social Impacts of Smart Grids: The Future of Smart Grids and Energy Market Design explores the significant, unexplored societal consequences of our meteoric evolution towards intelligent, responsive and sustainable power generation and distribution systems—the so-called 'smart grid'. These consequences include new patterns of consumption behavior, systems planning under increasing uncertainty, and the ever-growing complexities involved. The work covers the historical impact of the transformation, examines the changing role of production and consumption behavior, articulates the principles and options for socially responsible smart grid power market design, and explores social acceptance of the smart grid. Where relevant, it examines adjacent literatures from P2P electricity markets, electric vehicles, smart homes and smart cities, and related 'internet of energy' developments. Finally, it provides insights into mitigating the likely social consequences of our integrated low-carbon energy future. Evaluates the connections between the concept of sustainability and the social

impacts of the smart grids Analyzes emerging trends in smart grids connected with trends towards the sharing economy Investigates environmental degradation awareness and environmental stewardship goals associated with smart grids Explores how to mitigate social challenges with effective smart grid power market design Integrates energy stewardship and social acceptance literatures into the discussion of the smart grid

The American economy faces two deep problems: expanding innovation and raising the rate of quality job creation. Both have roots in a neglected problem: the resistance of Legacy economic sectors to innovation. While the U.S. has focused its policies on breakthrough innovations to create new economic frontiers like information technology and biotechnology, most of its economy is locked into Legacy sectors defended by technological/ economic/ political/ social paradigms that block competition from disruptive innovations that could challenge their models. Americans like to build technology "covered wagons" and take them "out west" to open new innovation frontiers; we don't head our wagons "back east" to bring innovation to our Legacy sectors. By failing to do so, the economy misses a major opportunity for innovation, which is the bedrock of U.S. competitiveness and its standard of living. Technological Innovation in Legacy Sectors uses a new, unifying conceptual framework to identify the shared features underlying structural obstacles to innovation in major Legacy sectors: energy, air and auto transport, the electric power grid, buildings, manufacturing, agriculture, health care delivery and higher education, and develops approaches to understand and transform them. It finds both strengths and obstacles to innovation in the national innovation environments - a new concept that combines the innovation system and the broader innovation context - for a group of Asian and European economies. Manufacturing is a major Legacy sector that presents a particular challenge because it is a critical stage in the innovation process. By increasingly offshoring production, the U.S. is losing important parts of its innovation capacity. "Innovate here, produce here," where the U.S. took all the gains of its strong innovation system at every stage, is being replaced by "innovate here, produce there," which threatens to lead to "produce there, innovate there." To bring innovation to Legacy sectors, authors William Bonvillian and Charles Weiss recommend that policymakers focus on all stages of innovation from research through implementation. They should fill institutional gaps in the innovation system and take measures to address structural obstacles to needed disruptive innovations. In the specific case of advanced manufacturing, the production ecosystem can be recreated to reverse "jobless innovation" and add manufacturing-led innovation to the U.S.'s still-strong, research-oriented innovation system.

New scientific discoveries, technologies and techniques often find their way into the space and equipment of domestic and professional kitchens. Using approaches based on anthropology, archaeology and history, *Cooking Technology* reveals the impact these and the associated broader socio-cultural, political and economic changes have on everyday culinary practices, explaining why people transform – or, indeed, refuse to change – their kitchens and food habits. Focusing on Mexico and Latin America, the authors look at poor, rural households as well as the kitchens of the well-to-do and professional chefs. Topics range from state subsidies for traditional ingredients, to the promotion of fusion foods, and the meaning of kitchens and cooking in different localities, as a result of people taking their cooking technologies and ingredients with them to recreate their kitchens abroad. What emerges is an image of Latin American kitchens as places where 'traditional' and 'modern' culinary values are constantly being renegotiated. The thirteen chapters feature case studies of areas in Mexico, the American-Mexican border, Cuba, Guatemala, Costa Rica, Venezuela, Colombia, Peru, and Brazil. With contributions from an international range of leading experts, *Cooking Technology* fills an important gap in the literature and provides an excellent introduction to the topic for students and researchers working in food studies, anthropology, history, and Latin American studies.

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