Manufacturing Execution Systeme Mes German Edition

The rapid progress of information technology allows for increasingly powerful software intensive embedded systems (machines) executing integrated applications connected by and to global networks. Thus these systems are more and more networked among each other, but also with data and services on the Internet. Intelligent solutions originate which gather processes of the living environment by means of sensors and actuators, connect them to virtual software worlds and interpret, monitor and control these processes in interaction with people. In this way, so-called Cyber-Physical Systems evolve – a living in a networked world. The interlocking applications include smart cities, social infrastructures with integrated telemedicine care, enhanced connected mobility with fully or semi-autonomous driving cars and traffic systems, safety, security and privacy as well as networked production and the sustainable energy turnaround. The integrated research agenda Cyber-Physical-Systems (agendaCPS) provides a comprehensive overview of the capabilities and benefits of the arising CPS-applications and manifold technological and social challenges involved. The agenda illustrates which value the subject for economy and society has: revolutionary applications of Cyber-Physical Systems address technological and social trends and needs; at the same time they penetrate and interconnect more and more areas of life. On the basis of concrete future scenarios essential application domains are shown. Their analysis reveals which capabilities and technologies form the basis of Cyber-Physical systems and which innovation and possible conflict potential is inherent. The agendaCPS makes clear which researchand action areas are from particular importance. In these contexts opportunities, but also risks become apparent for Germany by Cyber-Physical Systems. This ist the English translation of the report agenda Cyber-Physical Systems finished three years ago as a German acatech project by a German publication.

The Internet of Things, cloud computing, connected vehicles, Big Data, analytics — what does this have to do with the automotive industry? This book provides information about the future of mobility trends resulting from digitisation, connectedness, personalisation and data insights. The automotive industry is on the verge of undergoing a fundamental transformation. Large, traditional companies in particular will have to adapt, develop new business models and implement flexibility with the aid of appropriate enterprise architectures. Transforming critical business competencies is the key concept. The vehicle of the digital future is already here — who will shape it?

The first Digital Enterprise Technology (DET) International Conference was held in Durham, UK in 2002 and the second DET Conference in Seattle, USA in 2004. Sponsored by CIRP (College International pour la Recherche en Productique), the third DET Conference took place in Setúbal, Portugal in 2006. Digital Enterprise Technology: Perspectives and Future Challenges is an edited volume based on this conference. Topics include: distributed and collaborative design, process modeling and process planning, advanced factory equipment and layout design and modeling, physical-to-digital environment integrators, enterprise integration technologies, and entrepreneurship in DET.

This book constitutes the thoroughly refereed post-workshop proceedings of nine international workshops held in Hoboken, NJ, USA, in conjunction with the 8th International Conference on Business Process Management, BPM 2010, in September 2010. The nine workshops focused on Reuse in Business Process Management (rBPM 2010), Business Process Management and Sustainability (SusBPM 2010), Business Process Design (BPD 2010), Business Process Intelligence (BPI 2010), Cross-Enterprise Collaboration, People, and Work (CEC-PAW 2010), Process in the Large (IW-PL 2010), Business Process Management and Social Software (BPMS2 2010), Event-Driven Business Process Management (edBPM 2010), and Traceability and Compliance of Semi-Structured Processes (TC4SP 2010). In addition, three papers from the special track on Advances in Business Process Education are also included in this volume. The overall 66 revised full papers presented were carefully reviewed and selected from 143 submissions.

The increasing complexity of manufacturing systems as well as the overall demands for flexible and fault-tolerant control of production processes stimulates (among many others) two key emerging technologies that are already making an important breakthrough in the field of intelligent manufacturing, control, and diagnostics. These two paradigms are: • the holonic approach based on the event-driven control strategy, usually aimed at modular control systems that are directly physically linked with the manufacturing hardware equipment, and • the multi-agent approach developed in the area of distributed information processing. The research communities working in both these fields are approaching the problem of intelligent manufacturing from different viewpoints and, until recently, to a certain extent, in an independent way. We can however observe quite a clear convergence of these fields in the last few years: the communities have started to cooperate, joining efforts to solve the painful problems involved in achieving effective industrial practice. We can see convergence in the terminology, standards and methods being applied.

Environmental awareness is driven mainly by the scarcity of natural resources and by more strict legal regulations. The modern enterprise policy should look at the relations between economic actions and ecological consequences. Ecoproduction is a new business approach which focuses on the most efficient and productive use of raw materials and natural resources in order to minimize footprints on the natural environment. This book aims to provide the state- of- the- art as well as new ideas of the environmental conscious operations management. The contributors present in the individual chapters problems related to: eco-friendly production technologies; recycling and waste reduction. Scope of topics discussed in this book covers also pollution prevention, energy efficiency. The authors describe problems of information management in complex systems

This book describes how manufacturing enterprises, by reinforcing their existing monitoring and control of manufacturing processes, can successfully face the ever-increasing pressure from internal and external environments to maintain their competitive advantage. Numerous performance measurement systems have been elaborated to satisfy these

requirements, stressing the importance of financial and operational metrics. It also highlights the fact that research on generating and linking financial and operational metrics, especially in real-time, has not garnered sufficient attention to date. The book follows an approach that integrates enterprises across different levels and departments. By computing and linking the financial and operational metrics in real-time, the book demonstrates how to provide a comprehensive view of an entire enterprise.

This publication examines the opportunities and challenges, for business and government, associated with technologies bringing about the "next production revolution". These include a variety of digital technologies (e.g. the Internet of Things and advanced robotics), industrial...

Enterprise Interoperability is the ability of an enterprise or organisation to work with other enterprises or organisations without special effort. It is now recognised that interoperability of systems and thus sharing of information is not sufficient to ensure common understanding between enterprises. Knowledge of information meaning and understanding of how is to be used must also be shared if decision makers distributed between those enterprises in the network want to act consistently and efficiently. Industry's need for Enterprise Interoperability has been one of the significant drivers for research into the Internet of the Future. EI research will embrace and extend contributions from the Internet of Things and the Internet of Services, and will go on to drive the future needs for Internets of People, Processes, and Knowledge.

This edited volume includes all papers presented at the 22nd International Conference on Mine Planning and Equipment Selection (MPES), Dresden, Germany, 2013. Mineral Resources are needed for almost all processes of modern life, whilst the mining industry is facing strict requirements regarding efficiency and sustainability. The research papers in this volume deal with the latest developments and research results in the fields of mining, machinery, automatization and environment protection.

Collected here are 112 papers concerned with all manner of new directions in manufacturing systems given at the 41st CIRP Conference on Manufacturing Systems. The high-quality material presented in this volume includes reports of work from both scientific and engineering standpoints and several invited and keynote papers addressing the current cutting edge and likely future trends in manufacturing systems. The book's subjects include: (1) new trends in manufacturing systems design: sustainable design, ubiquitous manufacturing, emergent synthesis, service engineering, value creation, cost engineering, human and social aspects of manufacturing, etc.; (2) new applications for manufacturing systems – medical, life-science, optics, NEMS, etc.; (3) intelligent use of advanced methods and new materials – new manufacturing process technologies, high-hardness materials, bio-medical materials, etc.; (4) integration and control for new machines – compound machine tools, rapid prototyping, printing process integration, etc.

"This book presents relevant theoretical frameworks and most recent research findings in this area, providing significant theories for research students and scholars to carry out their continuous research as well as practitioners who aim to improve upon their understanding of distributed production planning"--

Manufacturing Execution System - MESSpringer Science & Business Media

Carbon emissions reached an all-time high in 2018, when global carbon dioxide emissions from burning fossil fuels increased by about 2.7%, after a 1.6% increase in 2017. Thus, we need to pay special attention to carbon emissions and work out possible solutions if we still want to meet the targets of the Paris climate agreement. This Special Issue collects 16 carbon emissions-related papers (including 5 that are carbon tax-related) and 4 energy-related papers using various methods or models, such as the input–output model, decoupling analysis, life cycle impact analysis (LCIA), relational analysis model, generalized Divisia index model (GDIM), forecasting model, three-indicator allocation model, mathematical programming, real options model, multiple linear regression, etc. The research studies come from China, Taiwan, Brazil, Thailand, and United States. These researches involved various industries such as agricultural industry, transportation industry, power industry, tire industry, textile industry, wave energy industry, natural gas industry, and petroleum industry. Although this Special Issue does not fully solve our concerns, it still provides abundant material for implementing energy conservation and carbon emissions reduction. However, there are still many issues regarding the problems caused by global warming that require research.

According to New China's long-term development plan, the Chinese military will complete its modernization by 2035. Moreover, a beautiful China will fully blossom as well by 2035, in its various charming and radiant aspects, including its ancient culture with modern Chinese characteristics, its benign positive soft power, its clean and green ecology and environment, its friendly and peaceful global diplomacy, and its win-win and progress-prosper relationships with the world's nations, through the Belt and Road Initiative (BRI) to cooperate and co-develop for bilateral and international/regional benefits, and for the common good and the shared future of humanity. By 2049, New China will complete its ambitious, ardent and arduous century-long march of national development, modernization, and rejuvenation/renewal, and strongly establish its own world-class military forces. Following the previous two volumes: (1) China's Renaissance on its phenomenal rise and transformation over the past 70 years (1949-2019), and (2) China's Long March of Modernization with its remarkable and unique portfolio of blueprints,masterplans and roadmaps for full development, modernization, and rejuvenation by mid-21st century, this third volume incorporates (1) SOARING DRAGON which further explores China's present and future developments, and (2) CHINA AT THE CUTTING-EDGE which provides a brief on China's revolutionary breakthroughs and innovations in both the economic and military fields. And its message: New China is standing tall as a leading global innovator. This timely publication completes the New China development Quartet on the country's envisioned and planned/scripted 100-year-long (1949-2049) struggles to comprehensively and fully develop, modernize, and rejuvenate/renew itself, and to build up a world-class military with distinctive Chinese characteristics. The contemporary Chinese Dream is China's Vision 2050: of a boldly-reinvented, fully-restored and gloriously-transformed nationhood by 2050. According to its manifest destiny, New China will regain its historical foremost status among the world's nations, by the highly auspicious time of the People's Republic of China (PRC)'s centenary on 1 October 2049. As they say, history will repeat itself. And, it will do so, magnificently, in New China's restoration to geopolitical preeminence.

This book brings several original contributions to research and practical applications in the field of mass customization from the designer, manufacturer, and customer perspectives respectively. It presents advancements in product design for mass customization, design of assembly and supply chain processes, variety induced complexity models, complexity management, marketing tools, information systems to support decision-making, and critical success factors of this manufacturing and marketing strategy.. A special focus of interest is also on

the use of product configurators in practice and sustainability assessment for mass customization strategy. The aim is to disseminate current developments and approaches for further theoretical investigation and practical applications of mass customized manufacturing systems.

The four-volume set LNAI 6276--6279 constitutes the refereed proceedings of the 14th International Conference on Knowledge-Based Intelligent Information and Engineering Systems, KES 2010, held in Cardiff, UK, in September 2010. The 272 revised papers presented were carefully reviewed and selected from 360 submissions. They present the results of high-quality research on a broad range of intelligent systems topics.

This congress proceedings provides recent research on leading-edge manufacturing processes. The aim of this scientific congress is to work out diverse individual solutions of "production in the border area" and transferable methodological approaches. In addition, guest speakers with different backgrounds will give the congress participants food for thoughts, interpretations, views and suggestions. The manufacturing industry is currently undergoing a profound structural change, which on the one hand produces innovative solutions through the use of high-performance communication and information technology, and on the other hand is driven by new requirements for goods, especially in the mobility and energy sector. With the social discourse on how we should live and act primarily according to guidelines of sustainability, structural change is gaining increasing dynamic. It is essential to translate politically specified sustainability goals into socially accepted and marketable technical solutions. Production research is meeting this challenge and will make important contributions and provide innovative solutions from different perspectives.

The papers in this volume present recent and highly relevant topics in the fields of production research as 3D printing, additive manufacturing processes, agile product development, change dynamics in companies, configurable material systems, data analysis in process optimization, future technologies with high potential in value creation, global production, learning production systems, production of the future, organization of assemblies, resource efficiency in production, robotics in assembly, and technology trends in machine tools. Researchers and practitioners in the field of mechanical engineering and production technology will benefit from this content.

The two volumes IFIP AICT 397 and 398 constitute the thoroughly refereed post-conference proceedings of the International IFIP WG 5.7 Conference on Advances in Production Management Systems, APMS 2012, held in Rhodes, Greece, in September 2012. The 182 revised full papers were carefully reviewed and selected for inclusion in the two volumes. They are organized in 6 parts: sustainability; design, manufacturing and production management; human factors, learning and innovation; ICT and emerging technologies in production management; product and asset lifecycle management; and services, supply chains and operations.

"This encyclopedia provides the most comprehensive compilation of information on the design and implementation of e-collaboration technologies, their behavioral impact on individuals and groups, and theoretical considerations on links between the use of e-collaboration technology and behavioral patterns. It delivers indispensable content to libraries and researchers looking to develop programs of investigation into the use of e-collaboration"--Provided by publisher.

Agile manufacturing is defined as the capability of surviving and prospering in a competitive environment of continuous and unpredictable change by reacting quickly and effectively to changing markets, driven by customer-designed products and services. Critical to successfully accomplishing AM are a few enabling technologies such as the standard for the exchange of products (STEP), concurrent engineering, virtual manufacturing, component-based hierarchical shop floor control system, information and communication infrastructure, etc. The scope of the book is to present the undergraduate and graduate students, senior managers and researchers in manufacturing systems design and management, industrial engineering and information technology with the conceptual and theoretical basis for the design and implementation of AMS. Also, the book focuses on broad policy directives and plans of agile manufacturing that guide the monitoring and evaluating the manufacturing strategies and their performance. A problem solving approach is taken throughout the book, emphasizing the context of agile manufacturing and the complexities to be addressed.

Modern factories are experiencing rapid digital transformation supported by emerging technologies, such as the Industrial Internet of things (IIOT), industrial big data and cloud technologies, deep learning and deep analytics, AI, intelligent robotics, cyber-physical systems and digital twins, complemented by visual computing (including new forms of artificial vision with machine learning, novel HMI, simulation, and visualization). This is evident in the global trend of Industry 4.0. The impact of these technologies is clear in the context of high-performance manufacturing. Important improvements can be achieved in productivity, systems reliability, quality verification, etc. Manufacturing processes, based on advanced mechanical principles, are enhanced by big data analytics on industrial sensor data. In current machine tools and systems, complex sensors gather useful data, which is captured, stored, and processed with edge, fog, or cloud computing. These processes improve with digital monitoring, visual data analytics, AI, and computer vision to achieve a more productive and reliable smart factory. New value chains are also emerging from these technological changes. This book addresses these topics, including contributions deployed in production, as well as general aspects of Industry 4.0.

This two-volume set (LNAI 9329 and LNAI 9330) constitutes the refereed proceedings of the 7th International Conference on Collective Intelligence, ICCCI 2014, held in Madrid, Spain, in September 2015. The 110 full papers presented were carefully reviewed and selected from 186 submissions. They are organized in topical sections such as multi-agent systems; social networks and NLP; sentiment analysis; computational intelligence and games; ontologies and information extraction; formal methods and simulation; neural networks, SMT and MIS; collective intelligence in Web systems – Web systems analysis; computational swarm intelligence; cooperative strategies for decision making and optimization; advanced networking and security technologies; IT in biomedicine; collective computational intelligence in educational context; science intelligence and data analysis; computational intelligence in financial markets; ensemble learning; big data mining and searching.

This book presents cutting-edge emerging technologies and approaches in the areas of service-oriented architectures, intelligent devices and cloud-based cyber-physical systems. It provides a clear view on their applicability to the management and automation of manufacturing and process industries. It offers a holistic view of future industrial cyber-physical systems and their industrial usage and also depicts technologies and architectures as well as a migration approach and engineering tools based on these. By

providing a careful balance between the theory and the practical aspects, this book has been authored by several experts from academia and industry, thereby offering a valuable understanding of the vision, the domain, the processes and the results of the research. It has several illustrations and tables to clearly exemplify the concepts and results examined in the text and these are supported by four real-life case-studies. We are witnessing rapid advances in the industrial automation, mainly driven by business needs towards agility and supported by new disruptive advances both on the software and hardware side, as well as the cross-fertilization of concepts and the amalgamation of information and communication technology-driven approaches in traditional industrial automation and control systems. This book is intended for technology managers, application designers, solution developers, engineers working in industry, as well as researchers, undergraduate and graduate students of industrial automation, industrial informatics and production engineering.

The two-volume set IFIP AICT 591 and 592 constitutes the refereed proceedings of the International IFIP WG 5.7 Conference on Advances in Production Management Systems, APMS 2020, held in Novi Sad, Serbia, in August/September 2020. The 164 papers presented were carefully reviewed and selected from 199 submissions. They discuss globally pressing issues in smart manufacturing, operations management, supply chain management, and Industry 4.0. The papers are organized in the following topical sections: Part I: advanced modelling, simulation and data analytics in production and supply networks; advanced, digital and smart manufacturing; digital and virtual quality management systems; cloud-manufacturing; cyber-physical production systems and digital twins; IIOT interoperability; supply chain planning and optimization; digital and smart supply chain management; intelligent logistics networks management; artificial intelligence and blockchain technologies in logistics and DSN; novel production planning and control approaches; machine learning and artificial intelligence; connected, smart factories of the future; manufacturing systems engineering: agile, flexible, reconfigurable; digital assistance systems: augmented reality and virtual reality; circular products design and engineering; circular, green, sustainable manufacturing; environmental and social lifecycle assessments; socio-cultural aspects in production systems; data-driven manufacturing and services operations management; product-service systems in DSN; and collaborative design and engineering Part II: the Operator 4.0: new physical and cognitive evolutionary paths; digital transformation approaches in production management; digital transformation for more sustainable supply chains; data-driven applications in smart manufacturing and logistics systems; data-driven services: characteristics, trends and applications; the future of lean thinking and practice; digital lean manufacturing and its emerging practices; new reconfigurable, flexible or agile production systems in the era of industry 4.0; operations management in engineer-to-order manufacturing; production management in food supply chains; gastronomic service system design; product and asset life cycle management in the circular economy; and production ramp-up strategies for product

This book constitutes the refereed proceedings of four workshops held in conjunction with the Third European Conference, ServiceWave 2010, held in Ghent, Belgium, in December 2010. The book includes 23 reviewed papers from four workshops that were selected from eight high-quality workshop session proposals. They represent diverse aspects of the theory and practice of service computing, ranging from service engineering to service infrastructures. The workshops are: First Workshop on Optimising Cloud Services (OCS 2010), International Workshop on Emergency Management through Service-Oriented Architectures (EMSOA 2010), First International Workshop on Service Modelling and Representation Techniques (SMART 2010), and From Event-Driven Business Process Management to Ubiquitous Complex Event Processing (EDBPM 2010).

New global standards are the basis for new MES products that have appeared in the last five years in the marketplace Features a comprehensive presentation of available MES technologies

Decisive potential in business is a question of process capability, rather than production capability. Process capability in business requires real-time systems for optimization. Business-IT needs to be developed from telecommunications and ERP to real-time services, which are not offered by the prevailing ERP systems. This book shows how modern information technology Manufacturing Execution Systems (MES) becomes the prerequisite for process capability of the company on the basis of many practical examples. It describes the requirements for optimized MES. It gives an overview of the efficiency potentials and different applications of MES.

This book includes a selection of peer-reviewed papers presented at the 10th China Academic Conference on Printing and Packaging, which was held in Xi'an, China, on November 14-17, 2019. The conference was jointly organized by the China Academy of Printing Technology, Beijing Institute of Graphic Communication, and Shaanxi University of Science and Technology. With 9 keynote talks and 118 papers on graphic communication and packaging technologies, the conference attracted more than 300 scientists. The proceedings cover the latest findings in a broad range of areas, including color science and technology, image processing technology, digital media technology, mechanical and electronic engineering, Information Engineering and Artificial Intelligence Technology, materials and detection, digital process management technology in printing and packaging, and other technologies. As such, the book appeals to university researchers, R&D engineers and graduate students in the graphic arts, packaging, color science, image science, material science, computer science, digital media, and network technology.

This book constitutes the proceedings of the 15th German Conference on Multiagent System Technologies, MATES 2017, held in Lepzig, Germany, in August 2017. The 17 full papers presented in this volume were carefully reviewed and selected from 24 submissions for inclusion in the proceedings. Over these 15 years, the MATES conference series has been aiming at the promotion of and the cross-fertilization between theory and application of intelligent agents and multi-agent systems.

Cost Oriented Automation 2004 addresses a new integration environment that enables the evolution of collaborative e-design paradigm. This design paradigm aims at seamless

and dynamic integration of distributed design objects and engineering tools over the internet.

This contributed volume collects research papers, presented at the CIRP Sponsored Conference Robust Manufacturing Control: Innovative and Interdisciplinary Approaches for Global Networks (RoMaC 2012, Jacobs University, Bremen, Germany, June 18th-20th 2012). These research papers present the latest developments and new ideas focusing on robust manufacturing control for global networks. Today, Global Production Networks (i.e. the nexus of interconnected material and information flows through which products and services are manufactured, assembled and distributed) are confronted with and expected to adapt to: sudden and unpredictable large-scale changes of important parameters which are occurring more and more frequently, event propagation in networks with high degree of interconnectivity which leads to unforeseen fluctuations, and non-equilibrium states which increasingly characterize daily business. These multi-scale changes deeply influence logistic target achievement and call for robust planning and control strategies. Therefore, understanding the cause and effects of multi-scale changes in production networks is of major interest. New methodological approaches from different science disciplines are promising to contribute to a new level comprehension of network processes. Unconventional methods from biology, perturbation ecology or auditory display are gaining increasing importance as they are confronted with similar challenges. Advancements from the classical disciplines such as mathematics, physics and engineering are also becoming of continuing importance.

The purpose of this Special Issue is to investigate topics related to sustainability issues in the new era, especially in Industry 4.0 or other new manufacturing environments. Under Industry 4.0, there have been great changes with respect to production processes, production planning and control, quality assurance, internal control, cost determination, and other management issues. Moreover, it is expected that Industry 4.0 can create positive sustainability impacts along the whole value chain. There are three pillars of sustainability, including environmental sustainability, economic sustainability, and social sustainability. This Special Issue collects 15 sustainability-related papers from various industries that use various methods or models, such as mathematical programming, activity-based costing (ABC), material flow cost accounting, fuel consumption model, artificial intelligence (AI)-based fusion model, multi-attribute decision model (MADM), and so on. These papers are related to carbon emissions, carbon tax, Industry 4.0, economic sustainability, corporate social responsibility (CSR), etc. The research objects come from China, Taiwan, Thailand, Oman, Cyprus, Germany, Austria, and Portugal. Although the research presented in this Special Issue is not exhaustive, this Special Issue provides abundant, significant research related to environmental, economic, and social sustainability. Nevertheless, there still are many research topics that require our attention to solve problems of sustainability.

This book gathers the proceedings of the I-ESA'18 Conference, which was organised by the Fraunhofer IPK, on behalf of the European Virtual Laboratory for Enterprise Interoperability (INTEROP-VLab) and the DFI, and was held in Berlin, Germany in March 2018. It presents contributions ranging from academic research and case studies, to industrial and administrative experiences with interoperability that show how, in a globalised market scenario – where the ability to cooperate with other organisations efficiently is essential in order to remain economically, socially and environmentally cost-effective – the most innovative digitised and networked enterprises ensure that their systems and applications can interoperate across heterogeneous collaborative networks of independent organisations. Furthermore, the content addresses smart services, and the business impact of enterprise interoperability on organisations. Many of the papers in this ninth volume of the I-ESA Conference proceedings include examples and illustrations to help deepen readers' understanding and generate new ideas. Offering a detailed guide to the state of the art in systems interoperability, the book will be of great value to all engineers and computer scientists working in manufacturing and other process industries, and to software engineers and electronic and manufacturing engineers working in academic settings.

Operations Management: Managing Global Supply Chains takes a holistic, integrated approach to managing operations and supply chains by exploring the strategic, tactical, and operational decisions and challenges facing organizations worldwide. Authors Ray R. Venkataraman and Jeffrey K. Pinto address sustainability in each chapter, showing that sustainable operations and supply chain practices are not only attainable, but are critical and often profitable practices for organizations to undertake. With a focus on critical thinking and problem solving, Operations Management provides students with a comprehensive introduction to the field and equips them with the tools necessary to thrive in today's evolving global business environment.

This open access book reports on cutting-edge electrical engineering and microelectronics solutions to foster and support digitalization in the semiconductor industry. Based on the outcomes of the European project iDev40, which were presented at the two first conference editions of the European Advances in Digital Transformation Conference (EADCT 2018 and EADTC 2019), the book covers different, multidisciplinary aspects related to digital transformation, including technological and industrial developments, as well as human factors research and applications. Topics include modeling and simulation methods in semiconductor operations, supply chain management issues, employee training methods and workplaces optimization, as well as smart software and hardware solutions for semiconductor manufacturing. By highlighting industrially relevant developments and discussing open issues related to digital transformation, the book offers a timely, practice-oriented guide to graduate students, researchers and professionals interested in the digital transformation of manufacturing domains and work environments.

This Proceedings volume contains articles presented at the CIRP-Sponsored Inter- tional Conference on Digital Enterprise Technology (DET2009) that takes place December 14–16, 2009 in Hong Kong. This is the 6th DET conference in the series and the first to be held in Asia. Professor Paul Maropoulos initiated, hosted and chaired the 1st International DET Conference held in 2002 at the University of D- ham. Since this inaugural first DET conference, DET conference series has been s- cessfully held in 2004 at Seattle, Washington USA, in 2006 at Setubal Portugal, in 2007 at Bath England, and in 2008 at Nantes France. The DET2009 conference continues to bring together International expertise from the academic and industrial fields, pushing forward the boundaries of research kno- edge and best practice in digital enterprise technology for design and manufacturing, and logistics and supply chain management. Over 120 papers from over 10 countries have been accepted for presentation at DET2009 and inclusion in this Proceedings volume after stringent refereeing process. On behalf of the organizing and program committees, the Editors are grateful to the many people who have made DET2009 possible: to the authors and presenters, es- cially the keynote speakers, to those who have diligently reviewed submissions, to members of International Scientific Committee, Organizing Committee and Advisory Committes, and to colleagues for their hard work in sorting out all the arrangements. We would also like to extend our gratitude to DET2009 sponsors, co-organizers, and supporting organizations.