

The Six Sigma Way Springer

This book illustrates the integration of both Lean and Six Sigma as a process excellence methodology which can be utilized in Higher Education environments for achieving and sustaining world class efficiency and effectiveness. It showcases various studies carried out by leading research scholars, academics and practitioners.

The success of any business relies heavily on the evaluation and improvement on current strategies and processes. Such progress can be facilitated by implementing more effective decision-making systems. Tools and Techniques for Economic Decision Analysis provides a thorough overview of decision models and methodologies in the context of business economics. Highlighting a variety of relevant issues on finance, economic policy, and firms and networks, this book is an ideal reference source for managers, professionals, students, and academics interested in emerging developments for decision analysis.

This book constitutes the proceedings of two events held at the CAiSE conference and relating to the areas of enterprise, business process and information systems modeling: The 20th International Conference on Business Process Modeling, Development and Support, BPMDS 2019, and the 24th International Conference on Evaluation

and Modeling Methods for Systems Analysis and Development, EMMSAD 2019. The conferences took place in Rome, Italy, in June 2019. The 7 full and 2 short papers accepted for BPMDS were carefully reviewed and selected from a total of 20 submissions; for EMMSAD 15 full papers were accepted from 38 submissions. The papers were organized in topical sections named as follows: BPMDS: large and complex business process modeling and development; execution and understandability of declarative process models; novel approaches in enterprise modeling; transformative business process modeling, development, and support. EMMSAD: foundations of modeling and method engineering; enterprise process and capability modeling; information systems and requirements modeling; domain-specific and ontology modeling; and evaluation of modeling approaches.

Sustainable Operations and Supply Chain Management addresses the most relevant topics of operations and supply chain management from the perspective of sustainability. The main focus is to provide a step by step guide for managerial decisions made along the product life-cycle, following a path made up of the following steps: product design, sourcing, manufacturing, packaging and physical distribution, reverses logistics and recovery.

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This handbook focuses on two sides of the lean production debate that rarely interact. On the one hand, management and industrial engineering scholars have presented a positive view of lean production as the epitome of efficiency and quality. On the other hand, sociology, industrial relations, and labor relations scholars focus on work speedups, management by stress, trade union positions, and self-exploitation in lean teams. The editors of this volume understand the merits of both views and present them accordingly, bridging the gaps among five disciplines and presenting the best of each perspective. Chapters by internationally acclaimed authors examine the positive, negative and neutral possible effects of lean, providing a global view of lean production while adjusting lean to the cultural and political contexts of different nation-states. As the first multi-lens view of lean production from academic and consultant perspectives, this volume charts a way forward in the world of work and management in our global economy.

This timely volume in the Springer Annual Review of Nursing Education series reflects the hottest issues and trends igniting national discourse today. Written by nurse educators and focused on the practice of teaching across settings, the Annual Review provides educators in associate, baccalaureate, and graduate nursing programs, staff development, and continuing education with an array of strategies to

expand their horizons and enrich their teaching. From the lessons nurse educators and students learned in surviving the Gulf coast hurricanes to the impact of foreign nurses' immigration on American nursing education, Volume 5 presents topics in the vanguard of nursing education concerns. Topics included in this volume: Standardized patients in nursing education Strategy for teaching cultural competence Managing difficult student situations Challenges calling American nurses to think and act globally Using benchmarking for continuous quality improvement E-portfolios in nursing education

In today's global and highly competitive environment, continuous improvement in the processes and products of any field of engineering is essential for survival. This book gathers together the full range of statistical techniques required by engineers from all fields. It will assist them to gain sensible statistical feedback on how their processes or products are functioning and to give them realistic predictions of how these could be improved. The handbook will be essential reading for all engineers and engineering-connected managers who are serious about keeping their methods and products at the cutting edge of quality and competitiveness. If you do not measure, you do not know, and if you do not know, you cannot manage. Modern Quality Management and Six Sigma shows us how to measure and, consequently, how to manage the

companies in business and industries. Six Sigma provides principles and tools that can be applied to any process as a means used to measure defects and/or error rates. In the new millennium thousands of people work in various companies that use Modern Quality Management and Six Sigma to reduce the cost of products and eliminate the defects. This book provides the necessary guidance for selecting, performing and evaluating various procedures of Quality Management and particularly Six Sigma. In the book you will see how to use data, i.e. plot, interpret and validate it for Six Sigma projects in business, industry and even in medical laboratories.

Springer Handbook of Engineering Statistics Springer Science & Business Media

This book presents a comprehensive overview of recent developments in production planning. The monograph begins with an introductory chapter reviewing the need for these production planning models, that operate by determining time-phased releases of work into the facility or supply chain, relating these to the Manufacturing Planning and Control (MPC) and Advanced Planning and Scheduling (APS) frameworks, that form the basis of most academic research and industrial practice. The extensive body of work on Workload Control is also placed in this context, and proves the need for improved models with a discussion of the difficulties,

these approaches encounter. The next two chapters present a detailed review of the state of the art in optimization models based on exogenous planned lead times, and examines the cases where these can take both integer and fractional values. The difficulties arising in estimating planned lead times are consistent with factory behavior which are highlighted, noting that many of these lead to non-convex optimization models. Attempts to address these difficulties by iterative multimodel approaches, that combine simulation and mathematical programming, are also discussed in detail. The next three chapters of the volume address the set of techniques developed using clearing functions, which represent the expected output of a resource in a planning period, as a function of the expected workload of the resource, during that period. The chapters on this subject propose a basic optimization model for multiple products, discuss the difficulties of this model and some possible solutions. It also reviews prior work, and discuss a number of alternative formulations of the clearing function concept with their respective advantages and disadvantages. Applications to lot sizing decisions and a number of other specific problems are also described. This volume concludes with an assessment of the state of the art described in the volume, and several directions for future work. Seit vielen Jahren werden die Prozesse entlang der

Wertschöpfungskette analysiert und optimiert, oftmals wird hierbei ein entscheidender Einflussfaktor auf die Wertschöpfungskette vergessen - die Personalprozesse. Mittels einer eigens für die Arbeit erhobenen Studie zeigt der Autor die Bedeutung von Prozessoptimierung im Personalwesen auf, führt die unterschiedlichsten Methodiken ein und gibt einen Anwendungsbeispiel anhand eines Business Case zur Optimierung des Recruiting Prozesses. Wenn Unternehmen in Zeiten des demographischen Wandels weiterhin erfolgreich sein wollen, brauchen sie dafür effiziente und am jeweiligen Kunden ausgerichtete Personalprozesse. Personalarbeit ist eine gute Möglichkeit sich intern wie auch extern von seinen Konkurrenten zu differenzieren.

Lean Six Sigma - eine Kombination aus Six Sigma und Lean Management - ist wesentlicher Bestandteil des Prozessmanagements sowohl in der Industrie als auch in der Dienstleistungsbranche. Auch in der Finanzindustrie ist (Lean) Six Sigma mittlerweile Mittel der Wahl. Die praktische Umsetzung von Lean Six Sigma in den jeweiligen Unternehmen stellt dabei eine große Herausforderung dar.

Unternehmensindividuelle Strukturen oder die Bereitschaft der Mitarbeiter, bei der Einführung mitzuwirken, stellen nicht selten Stolpersteine für den Erfolg von Lean Six Sigma dar. Das Buch beschreibt anschaulich anhand einer Vielzahl von

Beispielen, wie Lean Six Sigma erfolgreich in Unternehmen implementiert werden kann. Die Autoren greifen auf ihren tiefen und langjährigen Erfahrungsschatz in der Umsetzung von Lean Six Sigma in verschiedenen (Finanz-)Dienstleistungsunternehmen zurück. Damit bietet das Buch sowohl Lean-Six-Sigma-Neulingen als auch -Experten eine Reihe von Best-Practice-Beispielen; Tipps und Hinweise geben Anregungen für konkrete Umsetzungsfragen. Dem Management von Unternehmen bietet es darüber hinaus einen Überblick, was Lean Six Sigma ist und wie die Umsetzung erfolgt.

This book comprises the select proceedings of the 2nd International Conference on Future Learning Aspects of Mechanical Engineering (FLAME) 2020. In particular, this volume discusses different topics of industrial and production engineering such as sustainable manufacturing processes, logistics, Industry 4.0 practices, circular economy, lean six sigma, agile manufacturing, additive manufacturing, IoT and Big Data in manufacturing, 3D printing, simulation, manufacturing management and automation, surface roughness, multi-objective optimization and modelling for production processes, developments in casting, welding, machining, and machine tools. The contents of this book will be useful for researchers as well as industry professionals.

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This book provides an accessible one-volume introduction to Lean Six Sigma and statistics in engineering for students and industry practitioners. Lean production has long been regarded as critical to business success in many industries. Over the last ten years, instruction in Six Sigma has been linked more and more with learning about the elements of lean production. Building on the success of the first and second editions, this book expands substantially on major topics of increasing relevance to organizations interested in Lean Six Sigma. Each chapter includes summaries and review examples plus problems with their solutions. As well as providing detailed definitions and case studies of all Six Sigma methods, the book uniquely describes the relationship between operations research techniques and Lean Six Sigma. Further, this new edition features more introductory material on probability and inference and information about Deming's philosophy, human factors engineering, and the motivating potential score – the material is tied more directly to the Certified Quality Engineer (CQE) exam. New sections that explore motivation and change management, which are critical subjects for achieving valuable results have also been added. The book examines in detail Design For Six Sigma (DFSS), which is critical for many organizations seeking to deliver desirable products. It covers reliability, maintenance, and product safety, to fully

span the CQE body of knowledge. It also incorporates recently emerging formulations of DFSS from industry leaders and offers more introductory material on experiment design, and includes practical experiments that will help improve students' intuition and retention. The emphasis on lean production, combined with recent methods relating to DFSS, makes this book a practical, up-to-date resource for advanced students, educators and practitioners.

This is a detailed summary of research on design rationale providing researchers in software engineering with an excellent overview of the subject. Professional software engineers will find many examples, resources and incentives to enhance their ability to make decisions during all phases of the software lifecycle. Software engineering is still primarily a human-based activity and rationale management is concerned with making design and development decisions explicit to all stakeholders involved.

In nur 50 Minuten die Six-Sigma-Methode verstehen
Six Sigma ist ein statistischer Ansatz, mit dem Prozesse so verbessert werden können, dass sich ihre Zuverlässigkeitsrate 99,99 % annähert. Der Kunde und seine Zufriedenheit stehen hierbei im Mittelpunkt. Durch Messung und Analyse der Prozesse und eine Quantifizierung der Daten lässt sich ermitteln, inwieweit sich die momentane

Leistung von der insgesamt möglichen Leistung unterscheidet. Danach können Verbesserungsmaßnahmen ergriffen werden, um erkannte Fehler zu beseitigen und die Zuverlässigkeit der Prozesse zu erhöhen. Die Six-Sigma-Methode sollte nicht lediglich im akuten Problemfall eingesetzt werden, sondern versteht sich als kontinuierlicher Verbesserungsansatz, mit dem stetig an der Perfektion gearbeitet wird. Nach 50 Minuten können Sie:

- die Bestandteile der Methode benennen
- häufige Fehler bei der Umsetzung vermeiden
- die Methode auf Ihre Prozesse anwenden und diese somit perfektionieren

Anhand praktischer Beispiele wird die Theorie leicht verständlich veranschaulicht. So erhalten Sie einen interessanten und praxisorientierten Überblick über das Wesentliche. Der Einstieg in ein neues Kapitel Ihrer Unternehmensgeschichte! Über 50MINUTEN | BUSINESS – MANAGEMENT UND MARKETING Was bewegt die Wirtschaftswelt? Mit der Serie Business – Management und Marketing der Reihe 50Minuten verstehen Sie schnell die wichtigsten Theorien und Konzepte. Unsere Titel versorgen Sie mit der notwendigen Theorie, prägnanten Definitionen und interessanten Fallstudien in einem einfachen und leicht verständlichen Format. Sie sind der ideale Ausgangspunkt für Leserinnen und Leser, die ihre Fähigkeiten und Kenntnisse erweitern möchten.

In today's dynamic business world, the success of a company increasingly depends on its ability to react to changes in its environment in a quick and flexible way. Companies have therefore identified process agility as a competitive advantage to address business trends like increasing product and service variability or faster time to market, and to ensure business IT alignment. Along this trend, a new generation of information systems has emerged—so-called process-aware information systems (PAIS), like workflow management systems, case handling tools, and service orchestration engines. With this book, Reichert and Weber address these flexibility needs and provide an overview of PAIS with a strong focus on methods and technologies fostering flexibility for all phases of the process lifecycle (i.e., modeling, configuration, execution and evolution). Their presentation is divided into six parts. Part I starts with an introduction of fundamental PAIS concepts and establishes the context of process flexibility in the light of practical scenarios. Part II focuses on flexibility support for pre-specified processes, the currently predominant paradigm in the field of business process management (BPM). Part III details flexibility support for loosely specified processes, which only partially specify the process model at build-time, while decisions regarding the exact specification of certain model parts are deferred to the run-time. Part IV deals with user- and

data-driven processes, which aim at a tight integration of processes and data, and hence enable an increased flexibility compared to traditional PAIS. Part V introduces existing technologies and systems for the realization of a flexible PAIS. Finally, Part VI summarizes the main ideas of this book and gives an outlook on advanced flexibility issues. The book's target groups include researchers, PhD students and Master students in the field of information systems. After reading the book, they will better understand PAIS flexibility aspects. To support the easy use as a textbook, a series of exercises is provided at the end of each chapter and slides and further teaching material are available on the book's web site www.flexible-processes.com. Professionals specializing in business process management (BPM) who want to obtain a good understanding of flexibility challenges in BPM and state-of-the-art solutions will also benefit from the presentations of open source as well as commercial process management systems and related practical scenarios.

The rapidly growing demand for online courses and supporting technology has resulted in a plethora of structural and functional changes and challenges for universities and colleges. These changes have led many distance education providers to recognize the value of understanding the fundamental concepts of both e-learning and knowledge management

(KM)—including the e-learning economic model and how to change the current culture of delivery system providers. Supplying a complete examination of the synergy between KM and e-learning, Knowledge Management and E-Learning begins by considering KM practices, techniques, and methodologies in e-learning. These chapters explain how knowledge capture, retention, transfer, and sharing can help enhance the e-learning experience. Edited and written by leading authorities in the fields of knowledge management and e-learning, the book contains international case studies that illustrate the applications of KM to e-learning in businesses, government agencies, and universities in the United States, Canada, Mexico, United Kingdom, Europe, and Asia. The text is divided into four parts: Setting the Stage Methodologies and Techniques Case Studies and Applications Industry Perspectives This groundbreaking reference discusses the use of digital media engagement and social media to enhance the e-learning experience through the ability to share knowledge among various communities and individuals. It details key KM and social networking methodologies, trends, and technologies. The text concludes with a summary of current and emerging trends by those at the forefront of this rapidly evolving field.

This volume of *Advances in Library Administration and Organization* attempts to put project

management into the toolboxes of library administrators through overviews of concepts, analyses of experiences, and forecasts for the use of project management within the profession.

This book presents the integration of new tools, the modification of existing tools, and the combination of different tools and approaches to create new technical resources for assisting the innovation process. It describes the efforts deployed for assisting the transformation of Product-Service Systems and explains the main key success factors or drivers for success of each tool or approach applied to solve an innovation problems. The book presents a set of case studies to illustrate the application of several tools and approaches, mainly in developing countries.

The current, second edition of this book reflects the 15 years of practical experience with the Six Sigma+Lean toolbox. It is a comprehensive collection of all the tools necessary for project work and running workshops when improving processes. All tools have been illustrated in a clear and comprehensible structure with examples and tips for applying the tools included. The chronology corresponds to the procedure of an improvement project comprising the steps D(efine), M(easure), A(nalyze), I(mprove) and C(ontrol). The most important innovation of this edition is the fact that it guides the user to select the appropriate tool using

questions. The paradigm change from a Toolset to a Mindset has proven worthwhile in project work and ensures that corporate problems are addressed with the goal of achieving efficient solutions rather than having a large quantity of perfect tools to choose from. The efficiency factor of work in projects and workshops will therefore improve significantly. Through this paradigm change, connected with its unique structure, this book provides an effective tool not only for project and workshop leaders but also for the executives/sponsors involved who will be guided to solve the given task formulation quickly and in a sustainable way.

Product-driven process design – from molecule to enterprise provides process engineers and process engineering students with access to a modern and stimulating methodology to process and product design. Throughout the book the links between product design and process design become evident while the reader is guided step-by-step through the different stages of the intertwining product and process design activities. Both molecular and enterprise-wide considerations in design are introduced and addressed in detail. Several examples and case studies in emerging areas such as bio- and food-systems, pharmaceuticals and energy are discussed and presented. This book is an excellent guide and companion for undergraduate, graduate students as well as professional

practitioners.

The Complete Business Process Handbook is the most comprehensive body of knowledge on business processes with revealing new research. Written as a practical guide for Executives, Practitioners, Managers and Students by the authorities that have shaped the way we think and work with process today. It stands out as a masterpiece, being part of the BPM bachelor and master degree curriculum at universities around the world, with revealing academic research and insight from the leaders in the market. This book provides everything you need to know about the processes and frameworks, methods, and approaches to implement BPM. Through real-world examples, best practices, LEADing practices and advice from experts, readers will understand how BPM works and how to best use it to their advantage. Cases from industry leaders and innovators show how early adopters of LEADing Practices improved their businesses by using BPM technology and methodology. As the first of three volumes, this book represents the most comprehensive body of knowledge published on business process. Following closely behind, the second volume uniquely bridges theory with how BPM is applied today with the most extensive information on extended BPM. The third volume will explore award winning real-life examples of leading business process practices and how it can be

replaced to your advantage. Learn what Business Process is and how to get started Comprehensive historical process evolution In-depth look at the Process Anatomy, Semantics and Ontology Find out how to link Strategy to Operation with value driven BPM Uncover how to establish a way of Thinking, Working, Modelling and Implementation Explore comprehensive Frameworks, Methods and Approaches How to build BPM competencies and establish a Center of Excellence Discover how to apply Social BPM, Sustainable and Evidence based BPM Learn how Value & Performance Measurement and Management Learn how to roll-out and deploy process Explore how to enable Process Owners, Roles and Knowledge Workers Discover how to Process and Application Modelling Uncover Process Lifecycle, Maturity, Alignment and Continuous Improvement Practical continuous improvement with the way of Governance Future BPM trends that will affect business Explore the BPM Body of Knowledge Dependability and cost effectiveness are primarily seen as instruments for conducting international trade in the free market environment. These factors cannot be considered in isolation of each other. This handbook considers all aspects of performability engineering. The book provides a holistic view of the entire life cycle of activities of the product, along with the associated cost of environmental preservation at each stage, while maximizing the performance.

Business Process Management (BPM) has become one of the most widely used approaches for the design of modern organizational and information systems. The conscious treatment of business processes as significant corporate assets has facilitated substantial improvements in organizational performance but is also used to ensure the conformance of corporate activities. This Handbook presents in two volumes the contemporary body of knowledge as articulated by the world's leading BPM thought leaders. This first volume focuses on arriving at a sound definition of BPM approaches and examines BPM methods and process-aware information systems. As such, it provides guidance for the integration of BPM into corporate methodologies and information systems. Each chapter has been contributed by leading international experts. Selected case studies complement their views and lead to a summary of BPM expertise that is unique in its coverage of the most critical success factors of BPM. The second edition of this handbook has been significantly revised and extended. Each chapter has been updated to reflect the most current developments. This includes in particular new technologies such as in-memory data and process management, social media and networks. A further focus of this revised and extended edition is on the actual deployment of the proposed theoretical concepts. This volume

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includes a number of entire new chapters from some of the world's leading experts in the domain of BPM. This book covers a variety of topics in the field of mechanical engineering, with a special focus on methods and technologies for modeling, simulation, and design of mechanical systems. Based on a set of papers presented at the 1st International Conference "Innovation in Engineering", ICIE, held in Guimarães, Portugal, on June 28-30, 2021, it focuses on innovation in mechanical engineering, spanning from engineering design and testing of medical devices, evaluation of new materials and composites for different industrial applications, fatigue and stress analysis of mechanical structures, and application of new tools such as 3D printing, CAE 3D models, and decision support systems. This book, which belongs to a three-volume set, provides engineering researchers and professionals with extensive and timely information on new technologies and developments in the field of mechanical engineering and materials. .

Issues in General Science and Scientific Theory and Method: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Mixed Methods Research. The editors have built Issues in General Science and Scientific Theory and Method: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information

about Mixed Methods Research in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of *Issues in General Science and Scientific Theory and Method: 2013 Edition* has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

Six Sigma has arisen in the last two decades as a breakthrough Quality Management Methodology. With Six Sigma, we are solving problems and improving processes using as a basis one of the most powerful tools of human development: the scientific method. For the analysis of data, Six Sigma requires the use of statistical software, being R an Open Source option that fulfills this requirement. R is a software system that includes a programming language widely used in academic and research departments. Nowadays, it is becoming a real alternative within corporate environments. The aim of this book is to show how R can be used as the software tool in the development of Six Sigma projects. The book includes a gentle introduction to

Six Sigma and a variety of examples showing how to use R within real situations. It has been conceived as a self contained piece. Therefore, it is addressed not only to Six Sigma practitioners, but also to professionals trying to initiate themselves in this management methodology. The book may be used as a text book as well.

Die ständige Prozessoptimierung eines jeden Unternehmens stellt eine der zentralen Aufgaben des operativen Managements da. So täuscht die Annahme, dass die Aufbau- und Ablauforganisation von Unternehmen nur als statische und unveränderliche Festlegung zu verstehen sind. Ganz im Gegenteil, denn die Verbesserung der Prozessleistung, die Reduktion von Zeitbedarf und Kosten werden ebenso gefordert wie die Anpassung an sich verändernde Kundenerwartungen. Anhand des Vergleichs von Six Sigma und Kaizen, zwei möglichen Managementkonzepten, wird ein guter Einblick in die Methoden und deren Chancen sowie in mögliche Probleme in der Anwendung gegeben. Dieses Buch ist für alle Leser hilfreich, die sich erstmalig mit den Methoden und einem Vergleich von verschiedenen Managementkonzepten auseinandersetzen möchten.

This book constitutes the proceedings of the 21st International Conference on Business Information Systems, BIS 2018, held in Berlin, Germany, in July 2018. The BIS conference follows popular research

trends, both in the academic and the business domain. Thus the theme of BIS 2018 was "Digital Transformation - An Imperative in Today's Business Markets". The 30 papers presented in this volume were carefully reviewed and selected from 96 submissions. They were organized in topical sections named: big and smart data and artificial intelligence; business and enterprise modeling; ICT project management; process management; smart infrastructures; social media and Web-based business information systems; applications, evaluations, and experiences.

This book is a carefully developed integration of mathematical models that relate Six Sigma and reliability measures for the first time. Several case studies are used throughout the book to illustrate the application of the models discussed. The strength of Six Sigma is the way in which it structures the problem and the solution methodology to solve the problem. This is probably the only concept to attract the attention of almost all companies across the world irrespective of their business mission.

The rise of Information and Communication Technology (ICT) in the second half of the 20th century became the dominant force in economics. Its rise accelerates in the first 15 years of this century at an astonishing speed. The world of ICT right now is in the process of cosmic inflation. In the early universe, quantum fluctuations in a microscopic

inflationary agile region became the seed for growing structures in the universe of galactic nebula, galaxies and stars, making the universe transparent. This phenomenon, familiar to physicist and cosmologists, happens right now to ICT. The current observation is that "things" of the physical world become intelligent, receive IP addresses and connect to the Internet. The possibilities to create new ICT-based products seem unlimited; however, sponsors must fuel the inflation. Complexity was already an issue when developing software in the early days of ICT. Software development is often done in projects that turn out to be exploratory in the sense that they aim at translating human voices, uttering requirements, into a machine-readable language. Requirements for the software to be build are usually not known at the beginning; the project must uncover them. Developing software without knowing the outcome in advance is a complex undertaking. Predicting the outcome of software projects by proven methods of civil engineering did not work out well. Now, new levels of complexity arise with ICT. Agile approaches are appropriate for software development; however, predicting the outcome of projects still is difficult. New techniques must manage the growing levels of complexity within ICT. Fortunately, mathematics has provided these new techniques. They rely on transfer functions and Eigenwert theory. Its usefulness already has been proven in major search

engines of this century. However, this is not the end of the story. This books makes the mathematics of Lean Six Sigma transfer functions available to ICT practitioners. It provides the basic theory, explained with many examples, and even more suggestions, how Six Sigma Transfer Functions help with complex problems.

This book consists of select proceedings of the International Conference on Functional Material, Manufacturing and Performances (ICFMMP) 2019, and presents latest research on using the combined intelligence of people, processes, and machines to impact the overall economics of manufacturing. The book focuses on optimizing manufacturing resources, improving business value and safety, and reducing waste – both on the floor and in back-office operations. It highlights the applications of the latest manufacturing execution system (MES), intelligent devices, machine-to-machine communication, and data analysis for the production lines and facilities. This book will be useful to manufacturers of finished goods and of sub-assemblies in the automotive, agriculture, and construction equipment sector. It will also provide solutions to make production strategies exceptional and can be a useful reference for beginners, researchers, and professionals interested in intelligent manufacturing technologies. This book draws new attention to domain-specific conceptual modeling by presenting the work of thought leaders who have designed and deployed specific modeling methods. It provides hands-on guidance on

how to build models in a particular domain, such as requirements engineering, business process modeling or enterprise architecture. In addition to these results, it also puts forward ideas for future developments. All this is enriched with exercises, case studies, detailed references and further related information. All domain-specific methods described in this volume also have a tool implementation within the OMiLAB Collaborative Environment – a dedicated research and experimentation space for modeling method engineering at the University of Vienna, Austria – making these advances accessible to a wider community of further developers and users. The collection of works presented here will benefit experts and practitioners from academia and industry alike, including members of the conceptual modeling community as well as lecturers and students. This book addresses the need for a better understanding of the design, implementation and improvement of process management. It presents and organizes concepts and problems in the field of process management, and indicates supporting tools assigned to each of the four basic stages of the process life cycle (modeling, implementation, verification and perfection). By comparing non-economic and economic organisations, the authors demonstrate that a uniform approach to process management (one that does not take into account the specifics of an organizations goals) is ineffective; instead, process management needs to account for the individuality of an organisation. This book will appeal to researchers studying process and organizational excellence. Anna Kosieradzka is

Professor at the Faculty of Management, Chair of Innovativeness and Entrepreneurship at Warsaw University of Technology, Poland. She is also the President of the Warsaw Branch of the Polish Society of Production Management, and has taken part in various projects in the field of production management and productivity improvement, including development projects for public organizations. Katarzyna Rostek is Professor at the Faculty of Management, Chair of Management Systems at the Warsaw University of Technology, Poland. She has above twenty five years of experiences in IT project management, risk management and business continuity management in both - business and public organizations.

To maintain a healthy ecosystem for contemporary society, and for future generations, policies must be implemented to protect the environment. This can be achieved by consistent evaluation of new initiatives and strategies. *Sustainable Development: Concepts, Methodologies, Tools, and Applications* is a comprehensive source of scholarly information on the latest research for sustainability concerns across a multidisciplinary perspective. Highlighting a broad range of innovative topics such as renewable energy, urban development, and green technologies, this multi-volume book is ideally designed for academics, researchers, professionals, students, and practitioners interested in the preservation of the environment.

Sustainability has become a topic of global relevance: Corporations and other economically acting organizations increasingly need to realize economic,

environmental and social objectives in order to survive. Supplementary to "classical" environmental management, realizing corporate sustainability requires comprehensive approaches which allow the integration of social and economic aspects. Such concepts can be found e.g. in international excellence models mainly based on a TQM thinking but also in the field of human factors in organizational design and management. Understood as systems approaches, they include the interests of all relevant stakeholders with a mid- or long-term time perspective and are thus highly linked with the principles of sustainable development. In this book internationally leading scientists discuss the issue of sustainability from their perspective, resulting in an innovative view on different management approaches under the umbrella of corporate sustainability.

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