

Product Lifecycle Management Grieves

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Product Lifecycle Management for Society Alain Bernard 2013-11-09 This book constitutes the refereed proceedings of the 10th IFIP WG 5.1 International Conference on Product Lifecycle Management, PLM 2013, held in Nantes, France, in July 2013. The 63 full papers presented together with 2 keynote talks were carefully reviewed and selected from 91 submissions. They are organized in the following topical sections: PLM for sustainability, traceability and performance; PLM infrastructure and implementation processes; capture and reuse of product and process information; PLM and knowledge management; enterprise system integration; PLM and influence of/from social networks; PLM maturity and improvement concepts; PLM and collaborative product development; PLM virtual and simulation environments; and building information modeling.

Innovative Mobile and Internet Services in Ubiquitous Computing Leonard Barolli 2020-06-09 This book presents the latest research findings, methods and development techniques, challenges and solutions concerning UPC from both theoretical and practical perspectives, with an emphasis on innovative, mobile and Internet services. With the proliferation of wireless technologies and electronic devices, there is a rapidly growing interest in Ubiquitous and Pervasive Computing (UPC), which makes it possible to create a human-oriented computing environment in which computer chips are embedded in everyday objects and interact with the physical world. Through UPC, people can go online even while moving around, thus enjoying nearly permanent access to their preferred services. Though it has the potential to revolutionize our lives, UPC also poses a number of new research challenges.

Emerging Topics in Hardware Security Mark Tehranipoor 2021-04-30 This book provides an overview of emerging topics in the field of hardware security, such as artificial intelligence and quantum computing, and highlights how these technologies can be leveraged to secure hardware and assure electronics supply chains. The authors are experts in emerging technologies, traditional hardware design, and hardware security and trust. Readers will gain a comprehensive understanding of hardware security problems and how to overcome them through an efficient combination of conventional approaches and emerging technologies, enabling them to design secure, reliable, and trustworthy hardware.

Advanced Digital Architectures for Model-Driven Adaptive Enterprises Kulkarni, Vinay 2020-04-03 The five digital forces (mobility and pervasive computing, cloud, big data, artificial intelligence and robotics, and social media) are poised to bring great academic and industrial breakthroughs. All stakeholders want to understand how to best harness these forces to their advantage. While literature exists for understanding each force independently, there is a lack of knowledge on how to utilize all the forces together to realize future enterprises. Advanced Digital Architectures for Model-

Driven Adaptive Enterprises is an essential reference source that explores the potential in unifying the five digital forces to achieve increased levels of agility, efficiency, and scale. Featuring coverage on a wide range of topics including socio-technical systems, adaptive architectures, and enterprise modeling, this book is ideally designed for managers, executives, programmers, designers, computer engineers, entrepreneurs, tool builders, digital practitioners, researchers, academicians, and students at the graduate level.

Product Lifecycle Management Antti Saaksvuori 2005-12-06 In today's industrial manufacturing Product Lifecycle Management (PLM) is essential in order to cope with the challenges of more demanding global competition. New and more complex products must be introduced to markets faster than ever before. Companies form large collaborative networks, and the product process must flow flexibly across company borders. This first book on Product Lifecycle Management in English language is designed to introduce the reader to the basic terms and fundamentals of PLM and to give a solid foundation for starting a PLM development project. It gives ideas and examples how PLM can be utilized in various industries. In addition, it also offers an insight into how PLM can assist in creating new business opportunities and in making real eBusiness possible.

First Complex Systems Digital Campus World E-Conference 2015 Paul Bourguine 2016-12-24 This book contains the proceedings as well as invited papers for the first annual conference of the UNESCO Unitwin Complex System Digital Campus (CSDC), which is an international initiative gathering 120 Universities on four continents, and structured in ten E-Departments. First Complex Systems Digital Campus World E-Conference 2015 features chapters from the latest research results on theoretical questions of complex systems and their experimental domains. The content contained bridges the gap between the individual and the collective within complex systems science and new integrative sciences on topics such as: genes to organisms to ecosystems, atoms to materials to products, and digital media to the Internet. The conference breaks new ground through a dedicated video-conferencing system - a concept at the heart of the international UNESCO UniTwin, embracing scientists from low-income and distant countries. This book promotes an integrated system of research, education, and training. It also aims at contributing to global development by taking into account its social, economic, and cultural dimensions. First Complex Systems Digital Campus World E-Conference 2015 will appeal to students and researchers working in the fields of complex systems, statistical physics, computational intelligence, and biological physics.

Product Lifecycle Management in the Era of Internet of Things Abdelaziz Bouras 2016-04-20 This book constitutes the refereed proceedings of the 12th IFIP WG 5.1 International Conference on Product Lifecycle Management, PLM 2015, held in Doha, Qatar, in October 2015. The 79 revised full papers were carefully reviewed and selected from 130 submissions. The papers are organized in the following topical sections: smart products, assessment approaches, PLM maturity, building information modeling (BIM), languages and ontologies, product service systems, future factory, knowledge creation and management, simulation and virtual environments, sustainability and systems improvement, configuration and engineering change, education studies, cyber-physical and smart systems, design and integration issues, and PLM processes and applications.

Building Industrial Digital Twins Shyam Varan Nath 2021-11-02 Build your first digital twin MVP and gain first-hand experience of using the technology, the challenges it presents, and its impact on your organization Key Features Create a digital twin prototype using Microsoft Azure Digital Twin Explore the digital twin approach to the design, operations, and maintenance of industrial assets and products Understand key characteristics and components of a digital twin through practical use cases and business scenarios Book Description Digital twin technology enables organizations to create digital

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representations of physical entities such as assets, systems, and processes throughout their life cycle. It improves asset performance, utilization, and safe operations and reduces manufacturing, operational, and maintenance costs. The book begins by introducing you to the concept of digital twins and sets you on a path to develop a digital twin strategy to positively influence business outcomes in your organization. You'll understand how digital twins relate to physical assets, processes, and technology and learn about the prerequisite conditions for the right platform, scale, and use case of your digital twins. You'll then get hands-on with Microsoft's Azure Digital Twins platform for your digital twin development and deployment. The book equips you with the knowledge to evaluate enterprise and specialty platforms, including the cloud and industrial IoT required to set up your digital twin prototype. Once you've built your prototype, you'll be able to test and validate it relative to the intended purpose of the twin through pilot deployment, full deployment, and value tracking techniques. By the end of this book, you'll have developed the skills to build and deploy your digital twin prototype, or minimum viable twin, to demonstrate, assess, and monitor your asset at specific stages in the asset life cycle. What you will learn

Identify key criteria for the applicability of digital twins in your organization
Explore the RACI matrix and rapid experimentation for choosing the right tech stack for your digital twin system
Evaluate public cloud, industrial IoT, and enterprise platforms to set up your prototype
Develop a digital twin prototype and validate it using a unit test, integration test, and functional test
Perform an ROI analysis of your digital twin to determine its economic viability for the business
Discover techniques to improve your digital twin for future enhancements

Who this book is for
The digital twin book is for mid-career subject experts, including engineers and operations managers, building their first prototype (MVP) using digital twin technology. The book will help professionals responsible for mechanical, process, and reliability engineering domains. You don't have to be a developer or programmer, but beginner-level programming skills will be helpful.

Quality Management System Handbook for Product Development Companies Vivek Nanda 2005-01-27
Quality Management System Handbook for Product Development Companies describes a systematic approach for quality management and continuous improvement via a formal management system. The approach centers on a high-level process for defining a QMS from essential prerequisites to improvement mechanisms. The book outlines the five major QMS

[Industrial Engineering: Concepts, Methodologies, Tools, and Applications](#) Management Association, Information Resources 2012-08-31
Industrial engineering affects all levels of society, with innovations in manufacturing and other forms of engineering oftentimes spawning cultural or educational shifts along with new technologies. *Industrial Engineering: Concepts, Methodologies, Tools, and Applications* serves as a vital compendium of research, detailing the latest research, theories, and case studies on industrial engineering. Bringing together contributions from authors around the world, this three-volume collection represents the most sophisticated research and developments from the field of industrial engineering and will prove a valuable resource for researchers, academics, and practitioners alike.

Product Lifecycle Management John Stark 2006-03-30
Product Lifecycle Management (PLM), a new paradigm for product manufacturing, enables a company to manage its products all the way across their lifecycles in the most effective way. It helps companies get products to market faster, provide better support for their use, and manage end-of-life better. In today's highly competitive global markets, companies must meet the increasing demands of customers to rapidly and continually improve their products and services. PLM meets these needs, extending and bringing together previously separate fields such as Computer Aided Design, Product Data Management, Sustainable Development, Enterprise Resource Planning, Life Cycle Analysis and Recycling. *Product Lifecycle Management: 21st century Paradigm for Product Realisation* explains the importance of PLM, from both the business and technical

viewpoints, supported by examples showing how world-class engineering and manufacturing companies are implementing PLM successfully. The book: - introduces PLM, a unique holistic view of product development, support, use and disposal for industry worldwide, based on experience with internationally renowned companies; - shows you how to take full advantage of PLM, how to prepare people to work in the PLM environment, how to choose the best solution for your situation; - provides deep understanding, nurturing the skills you will need to successfully implement PLM and achieve world-class product development and support performance; and - gives access to a companion www site containing further material.

Springer Handbook of Mechanical Engineering Grote Jark-Heinrich 2009-01-13 This resource covers all areas of interest for the practicing engineer as well as for the student at various levels and educational institutions. It features the work of authors from all over the world who have contributed their expertise and support the globally working engineer in finding a solution for today's mechanical engineering problems. Each subject is discussed in detail and supported by numerous figures and tables.

Bridge Safety, Maintenance, Management, Life-Cycle, Resilience and Sustainability Joan Ramon Casas 2022-06-27 Bridge Safety, Maintenance, Management, Life-Cycle, Resilience and Sustainability contains lectures and papers presented at the Eleventh International Conference on Bridge Maintenance, Safety and Management (IABMAS 2022, Barcelona, Spain, 11-15 July, 2022). This e-book contains the full papers of 322 contributions presented at IABMAS 2022, including the T.Y. Lin Lecture, 4 Keynote Lectures, and 317 technical papers from 36 countries all around the world. The contributions deal with the state-of-the-art as well as emerging concepts and innovative applications related to the main aspects of safety, maintenance, management, life-cycle, resilience, sustainability and technological innovations of bridges. Major topics include: advanced bridge design, construction and maintenance approaches, safety, reliability and risk evaluation, life-cycle management, life-cycle, resilience, sustainability, standardization, analytical models, bridge management systems, service life prediction, structural health monitoring, non-destructive testing and field testing, robustness and redundancy, durability enhancement, repair and rehabilitation, fatigue and corrosion, extreme loads, needs of bridge owners, whole life costing and investment for the future, financial planning and application of information and computer technology, big data analysis and artificial intelligence for bridges, among others. This volume provides both an up-to-date overview of the field of bridge engineering and significant contributions to the process of making more rational decisions on bridge safety, maintenance, management, life-cycle, resilience and sustainability of bridges for the purpose of enhancing the welfare of society. The volume serves as a valuable reference to all concerned with and/or involved in bridge structure and infrastructure systems, including students, researchers and practitioners from all areas of bridge engineering.

Product Lifecycle Management (Volume 4): The Case Studies John Stark 2019-05-07 This book presents some twenty case studies, showing how companies in different industry sectors and of different sizes make advances in Product Lifecycle Management (PLM). Like the author's previous volumes, this book provides a valuable resource for those wishing to learn about PLM and how to implement and apply it in their companies. Helping readers to · learn about implementing and benefiting from PLM; · learn about good PLM solutions and best practice; · improve their planning and decision-making abilities; · benefit from the lessons learned by the companies featured in the case studies; · proceed faster and further with PLM the book presents effective PLM solutions and best practices. At the same time, the case studies included demonstrate how different companies implement and benefit from PLM. Each case study is addressed in a separate chapter and details a different situation, enabling readers to put themselves in the situation and think through different actions and decisions. A valuable resource for PLM team managers and employees in engineering and manufacturing companies, the book is also of interest to

researchers and students in industrial engineering fields.

Product Lifecycle Management: Driving the Next Generation of Lean Thinking Michael Grieves 2005-11-16 Product Lifecycle Management (PLM) is the newest wave in productivity. This revolutionary approach is an outcome of lean thinking; however, PLM eliminates waste and efficiency across all aspects of a product's life--from design to deployment--not just in its manufacture. By using people, product information, processes, and technology to reduce wasted time, energy, and material across an organization and into the supply chain, PLM drives the next generation of lean thinking. Now PLM pioneer Michael Grieves offers everyone from Six Sigma and lean practitioners to supply chain managers, product developers, and consultants a proven framework for adopting this information-driven approach. Product Lifecycle Management shows you how to greatly enhance your firm's productivity by integrating the efforts of your entire organization. Most companies are seeing the returns of their efforts in lean methods diminishing, as the most fruitful applications have already been addressed. Here, Grieves reveals how PLM gives you an opportunity to make improvements both within and across functional areas in order to increase agility, optimize efficiency, and reduce costs across the board. He gives you the most comprehensive view of PLM available, fully outlining its characteristics, method, and tools and helping you assess your organizational readiness. There's also proven examples from the field, where PLM is being widely adopted by leading companies, including General Motors, General Electric, and Dell, that are widely adopting the approach. You'll see how PLM has saved these companies billions in unnecessary costs and shaved as much as 60% off cycle times. With this book you'll learn how to: Develop and implement your PLM strategy to support your corporate objectives Engage all your employees in using information to eliminate waste Enable improved information flow Better organize and utilize your intellectual capital Foster an environment that drives PLM Lean manufacturing can only take your organization so far. To bring your productivity to the next level and save remarkable amounts of time, money, and resources, Product Lifecycle Management is your one-stop, hands-on guide to implementing this powerful methodology.

Virtually Perfect Michael Grieves 2011

Fixing Your Scrum Ryan Ripley 2020-01-07 A Scrum Master's work is never done. The Development team needs your support, the Product Owner is often lost in the complexities of agile product management, and your managers and stakeholders need to know what will be done, by when, and for how much. Learn how experienced Scrum Masters balance the demands of these three levels of servant leadership while removing organizational impediments and helping Scrum Teams deliver real world value. Discover how to visualize your work, resolve impediments, and empower your teams to self-organize and deliver using the Scrum Values, Agile Principles, and advanced coaching and facilitation techniques. A Scrum Master needs to know when their team is in trouble and understand how to help them get back on the path to delivery. Become a better Scrum master so you can find the problems holding your teams back. Has your Daily Scrum turned in to a meeting? Does your team struggle with creating user stories? Are stakeholders disengaged during Sprint Review? These issues are common. Learn to use empiricism as your guide and help your teams create great products. Scrum is so much more than a checklist of practices to follow, yet that's exactly how many organizations practice it. Bring life back to your Scrum events by using advanced facilitation techniques to leverage the full intelligence of your team. Improve your retrospectives with new formats and exercises. Ask powerful questions that spark introspection and improvement. Get support and buy-in from management. Use Scrum as a competitive advantage for your organization. Create a definition of done that improves quality and fix failing sprints. Take the next step on your journey as a Scrum master. Transform your Scrum practices to help your teams enjoy their work again as they deliver high quality products that bring value to the world. What You Need: A moderate

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level of experience using the Scrum Framework.

Product Lifecycle Management and the Industry of the Future José Ríos 2017-12-19 This book constitutes the refereed post-conference proceedings of the 14th IFIP WG 5.1 International Conference on Product Lifecycle Management, PLM 2017, held in Seville, Spain, in July 2017. The 64 revised full papers presented were carefully reviewed and selected from 78 submissions. The papers are organized in the following topical sections: PLM maturity, implementation and adoption; PLM for digital factories; PLM and process simulation; PLM, CAX and knowledge management; PLM and education; BIM; cyber-physical systems; modular design and products; new product development; ontologies, knowledge and data models; and Product, Service, Systems (PSS).

Advances in Intelligent Manufacturing Grzegorz Krolczyk 2020-06-09 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.

Real-time Simulation for Sustainable Production Juhani Ukko 2021-05-31 This book provides a comprehensive overview of potential opportunities and the business value position related to implementing physics-based real-time simulation to production. The objective of real-time simulation is to provide value for all three dimensions of sustainability: economic, social, and environmental. By reviewing actual industrial cases and presenting relevant academic research, the book examines the topic from four interrelated viewpoints: the industrial need for sustainable production, the development of game-like virtual environments, capturing customer value and enhancing the user experience, and finally, establishing business value. It offers a framework that will enable a rethink and shift in mindset to appreciate how real-time simulation can change the way products are manufactured and services are produced. This book will appeal to researchers and scholars in areas as diverse as strategic management, manufacturing and operations management, marketing, industrial economics, and product lifecycle management.

Product Lifecycle Management for Digital Transformation of Industries Ramy Harik 2017-03-15 This book constitutes the refereed proceedings of the 13th IFIP WG 5.1 International Conference on Product Lifecycle Management, PLM 2016, held in Columbia, SC, USA, in July 2016. The 57 revised full papers presented were carefully reviewed and selected from 77 submissions. The papers are organized in the following topical sections: knowledge sharing, re-use and preservation; collaborative development architectures; interoperability and systems integration; lean product development and the role of PLM; PLM and innovation; PLM tools; cloud computing and PLM tools; traceability and performance; building information modeling; big data analytics and business intelligence; information lifecycle management; industry 4.0; metrics, standards and regulation; and product, service and systems.

Product Lifecycle Management (Volume 1) John Stark 2015-04-10 This third edition updates and adds to the successful second edition and gives the reader a thorough description of PLM, providing them with a

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full understanding of the theory and the practical skills to implement PLM within their own business environment. This new and expanded edition is fully updated to reflect the many technological and management advances made in PLM since the release of the second edition. Describing the environment in which products are developed, manufactured and supported, before addressing the Five Pillars of PLM: business processes, product data, PLM applications, Organisational Change Management (OCM) and Project Management, this book explains what Product Lifecycle Management is, and why it's needed. The final part of the book addresses the PLM timeline, showing the typical steps and activities of a PLM project or initiative. "Product Lifecycle Management" will broaden the reader's understanding of PLM, nurturing the skills needed to implement PLM successfully and to achieve world-class product performance across the lifecycle.

A Brief History of Cyberspace Huansheng Ning 2022-04-06 With the widespread growth of the Internet, a new space - cyberspace - has appeared and has rapidly been integrated into every facet of life and work. It has effectively become the fourth basic living space for human beings. Although cyberspace has become a topic of increasing widespread concern, it is still difficult to understand cyberspace well because of its many definitions, vast and varied content, and differences with other similar spaces. A Brief History of Cyberspace attempts to establish a complete knowledge system about the evolution and history of cyberspace and cyber-enabled spaces (i.e., cyber-enabled physical space, cyber-enabled social space, and cyber-enabled thinking space). By providing a comprehensive overview, this book aims to help readers understand the history of cyberspace and lays a solid foundation for researchers and learners who are interested in cyberspace. The book has three main objectives: To provide a comprehensive understanding of the development of cyberspace, ranging from its origin, evolutions, and research status to open issues and future challenges, as well as related hot topics in industry and academia. To examine cyber life, cyber syndrome, and health in addition to cyber-enabled spaces designed for better living. To describe cyberspace governance from the perspective of the individual, society, and national and international levels in order to promote a more profound and reasonable direction to the development of cyberspace. Consisting of 16 chapters, the book is divided into three parts. Chapter 1 introduces the origins and basic concept of cyberspace, cyber philosophy, and cyber logic to help readers have a general understanding of cyberspace. Chapters 2 through 7 discuss a wide variety of topics related to human behavior, psychology, and health to help people better adapt to cyberspace. Chapters 8 through 16 present the history of cyberspace governance and various social and culture aspects of cyberspace. Each chapter concludes with a discussion of future development.

Measuring the Impact of Product Lifecycle Management C. Tomovic 2000

Product Lifecycle Management for a Global Market Shuichi Fukuda 2014-12-17 This book constitutes the refereed post-proceedings of the 11th IFIP WG 5.1 International Conference on Product Lifecycle Management, PLM 2014, held in Yokohama, Japan, in July 2014. The 51 full papers presented were carefully reviewed and selected from 77 submissions. They are organized in the following topical sections: BIM operations, maintenance, and renovation; BIM concepts and lifecycle management; design and education; naval engineering and shipbuilding; aeronautical and automotive engineering; industry and consumer products; interoperability, integration, configuration, systems engineering; change management and maturity; knowledge engineering; knowledge management; service and manufacturing; and new PLM.

Product Lifecycle Management to Support Industry 4.0 Paolo Chiabert 2018-12-08 This book constitutes the refereed post-conference proceedings of the 15th IFIP WG 5.1 International Conference on Product Lifecycle Management, PLM 2018, held in Turin, Spain, in July 2018. The 72 revised full papers

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presented were carefully reviewed and selected from 82 submissions. The papers are organized in the following topical sections: building information modeling; collaborative environments and new product development; PLM for digital factories and cyber physical systems; ontologies and data models; education in the field of industry 4.0; product-service systems and smart products; lean organization for industry 4.0; knowledge management and information sharing; PLM infrastructure and implementation; PLM maturity, implementation and adoption; 3D printing and additive manufacturing; and modular design and products and configuration and change management.

An Integrated Approach to New Food Product Development Howard R. Moskowitz 2009-06-24 New products often fail not because they are bad products, but because they don't meet consumer expectations or are poorly marketed. In other cases, the marketing is spot on, but the product itself does not perform. These failures drive home the need to understand the market and the consumer in order to deliver a product which fulfills the two equa

Global Innovation Science Handbook Praveen Gupta 2013-11-12 A GROUNDBREAKING GUIDE TO THE ART, SCIENCE, TOOLS, AND DEPLOYMENT OF INNOVATION "It has never been more important to educate people and organizations how to out-imagine, out-create, and out-innovate...The insight and experiences captured by [this book] make an important contribution toward reaching this goal." -- From the Foreword by Deborah Wince-Smith, President, Council on Competitiveness Developed by the editors of the International Journal of Innovation Science and featuring contributions from more than 40 innovation experts and thought leaders, Global Innovation Science Handbook presents a proven approach for understanding and implementing innovation in any industry. This pioneering work is based on a defined body of knowledge that includes intent, methodology, tools, and measurements. It challenges the popular paradigm that "learned" innovation is impossible, and lays out a systematic process for developing innovation skills. Each chapter can be independently read and utilized in the daily practice of innovation. Real-world case studies from financial, government, and education sectors illustrate the concepts discussed in this definitive resource. Global Innovation Science Handbook covers: Preparing for innovation--establishing a framework and creating a culture for innovation Key innovation concepts, such as creativity, neuroscience, biomimetics, benchmarking, and ethnography Creativity tools, including Kano analysis, storyboarding, absence thinking, Lotus Blossom, SCAMPER, and others Techniques essential to innovation science, such as Six Thinking Hats, mind mapping, social networks, market research, and lead user analysis Innovation radar, indices, and other measurements Idea management--the process of creating, screening, exploring, and evaluating ideas to bring those most valuable from concept to reality Innovation methodologies, including TRIZ, Brinnovation, crowdsourcing, Eureka, stage gate, and others Deployment--a life-cycle approach involving inspiration, strategy, organization, excellence, culture, measurement, protection of intellectual property, and launch Case studies featuring cutting-edge technological innovations in finance, government, and education

Product Lifecycle Mgmt Grieves 2006-09 If you want to take lean approaches to the next level, this groundbreaking book introduces the next evolution of lean thinking: Product Lifecycle Management (PLM). This new methodology reduces time, energy, and material expenditures across an organization and has saved billions in costs while shaving 60% off cycle times for performance-driven companies that include IBM, General Electric, Toyota, and Ford. Now PLM expert Michael Grieves shows business professionals how to roll out PLM across their entire organization. By applying this integrated, information-driven approach to all aspects of a product's life, managers will dramatically increase agility, optimize efficiency, reduce costs, and enhance productivity.

Digital Twin Driven Smart Manufacturing Fei Tao 2019-02-07 Digital Twin Driven Smart

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Manufacturing examines the background, latest research, and application models for digital twin technology, and shows how it can be central to a smart manufacturing process. The interest in digital twin in manufacturing is driven by a need for excellent product reliability, and an overall trend towards intelligent, and connected manufacturing systems. This book provides an ideal entry point to this subject for readers in industry and academia, as it answers the questions: (a) What is a digital twin? (b) How to construct a digital twin? (c) How to use a digital twin to improve manufacturing efficiency? (d) What are the essential activities in the implementation of a digital twin? (e) What are the most important obstacles to overcome for the successful deployment of a digital twin? (f) What are the relations between digital twin and New Technologies? (g) How to combine digital twin with the New Technologies to achieve high efficiency and smartness in manufacturing? This book focuses on these problems as it aims to help readers make the best use of digital twin technology towards smart manufacturing. Analyzes the differences, synergies and possibilities for integration between digital twin technology and other technologies, such as big data, service and Internet of Things Discuss new requirements for a traditional three-dimension digital twin and proposes a methodology for a five-dimension version Investigates new models for optimized manufacturing, prognostics and health management, and cyber-physical fusion based on the digital twin

Product Lifecycle Management Enabling Smart X Felix Nyffenegger 2020-11-19 This book constitutes the refereed post-conference proceedings of the 17th IFIP WG 5.1 International Conference on Product Lifecycle Management, PLM 2020, held in Rapperswil, Switzerland, in July 2020. The conference was held virtually due to the COVID-19 crisis. The 60 revised full papers presented together with 2 technical industrial papers were carefully reviewed and selected from 80 submissions. The papers are organized in the following topical sections: smart factory; digital twins; Internet of Things (IoT, IIoT); analytics in the order fulfillment process; ontologies for interoperability; tools to support early design phases; new product development; business models; circular economy; maturity implementation and adoption; model based systems engineering; artificial intelligence in CAx, MBE, and PLM; building information modelling; and industrial technical contributions.

Transdisciplinary Perspectives on Complex Systems Franz-Josef Kahlen 2016-08-16 This book presents an internationally comprehensive perspective into the field of complex systems. It explores the challenges of and approaches to complexity from a broad range of disciplines, including big data, health care, medicine, mathematics, mechanical and systems engineering, air traffic control and finance. The book's interdisciplinary character allows readers to identify transferable and mutually exclusive lessons learned among these disciplines and beyond. As such, it is well suited to the transfer of applications and methodologies between ostensibly incompatible disciplines. This book provides fresh perspectives on comparable issues of complexity from the top minds on systems thinking.

Digital Transformation in Industry Vikas Kumar

System Lifecycle Management Martin Eigner 2021-08-09 Years of experience in the area of Product Lifecycle Management (PLM) in industry, research and education form the basis for this overview. The author covers the development from PDM via PLM to SysLM (System Lifecycle Management) in the form commonly used today, which are necessary prerequisites for the sustainable development and implementation of IoT/IIoT, Industry 4.0 and Engineering 4.0 concepts. The building blocks and properties of future-proof systems for the successful implementation of the concepts of Engineering 4.0 are thereby dedicated to holistic considerations, which also inform in detail. SysLM functions and processes in mechatronic development and design as well as across the entire product lifecycle - from requirements management to the Digital Twin - are covered as examples. SysLM trends such as low code development,

cloud, disruptive business models, and bimodality provide an outlook on future developments. The author dedicates the treatment of the agile SysLM introduction to the implementation in the enterprise. The basics are deepened with examples of a concrete SysLM system.

Advances in Production Management Systems. Initiatives for a Sustainable World Irenilza Nääs 2017-03-15 This book constitutes the refereed post-conference proceedings of the International IFIP WG 5.7 Conference on Advances in Production Management Systems, APMS 2016, held in Iguassu Falls, Brazil, in September 2016. The 117 revised full papers were carefully reviewed and selected from 164 submissions. They are organized in the following topical sections: computational intelligence in production management; intelligent manufacturing systems; knowledge-based PLM; modelling of business and operational processes; virtual, digital and smart factory; flexible, sustainable supply chains; large-scale supply chains; sustainable manufacturing; quality in production management; collaborative systems; innovation and collaborative networks; agrifood supply chains; production economics; lean manufacturing; cyber-physical technology deployments in smart manufacturing systems; smart manufacturing system characterization; knowledge management in production systems; service-oriented architecture for smart manufacturing systems; advances in cleaner production; sustainable production management; and operations management in engineer-to-order manufacturing.

Product Lifecycle Management in the Digital Twin Era Clement Fortin 2020-02-28 This book constitutes the refereed post-conference proceedings of the 16th IFIP WG 5.1 International Conference on Product Lifecycle Management, PLM 2019, held in Moscow, Russia, in July 2019. The 38 revised full papers presented were carefully reviewed and selected from 63 submissions. The papers are organized in the following topical sections: 3D modelling and data structures; PLM maturity and industry 4.0; ontologies and semantics; PLM and conceptual design; knowledge and change management; IoT and PLM; integrating manufacturing realities; and integration of in-service and operation.

Complex Systems Engineering Simon Briceno 2019

Lean Manufacturing William M Feld 2000-09-28 There are some very good books available that explain the Lean Manufacturing theory and touch on implementing its techniques. However, you cannot learn "how to be" lean from merely reading the theory. And to be successful in the real-work environment you need a clear comprehension of how lean techniques work, rather than just a remote understanding of what they are. You need to know what does and does not work in different situations. And you need the benefit of practical experience in their implementation. *Lean Manufacturing: Tools, Techniques, and How to Use Them* gives you the benefit of author and practitioner William Feld's 15 years of hands-on experience - and the lessons he's learned. Feld provides insight into the appropriate use of assessment, analysis, design, and, most importantly, deployment of a successful lean manufacturing program. Packed with practical advice and tips but not bogged down in theory, this book covers how, why, when, and what to do while implementing lean manufacturing. It equips you with the tools and techniques you need along with an understanding of how and why they work. Feld explores why an integrated approach is so much more beneficial in securing sustained improvement. He focuses on the interdependency of the Five Primary Elements: organization, metrics, logistics, manufacturing flow, and process control. He describes a proven, applied approach to creating a lean program using these elements. To keep up globally, and even locally, your manufacturing operation must be responsive, flexible, predictable, and consistent. You must continually improve manufacturing operations and cultivate a self directed work force driven by output based, customer performance criteria. By applying what you learn from *Lean Manufacturing: Tools, Techniques, and How to Use Them* you can build a workforce - and an organization - with the capacity to satisfy world class expectations now and into the future.

Product Lifecycle Management: Towards Knowledge-Rich Enterprises Louis Rivest 2012-12-22 This book constitutes the refereed post-proceedings of the 9th IFIP WG 5.1 International Conference on Product Lifecycle Management, PLM 2012, held in Montreal, Canada, in July 2012. The 58 full papers presented were carefully reviewed and selected from numerous submissions. They cover a large range of topics such as collaboration in PLM, tools and methodologies for PLM, modeling for PLM, and PLM implementation issues.

Product Realization Mileta Tomovic 2008-12-16 Product Realization: A Comprehensive Approach is based on selected papers presented at the International Conference on Comprehensive Product Realization 2007 (ICCPR2007). The extended papers will provide the opportunity for scholars from all around the world to discuss their academic programs, identify research opportunities, and initiate joint research programs in the area of comprehensive product realization. Engineering design has evolved from an isolated semi-empirical activity to a highly interconnected, multidisciplinary product realization collaborative process. The scope of the book will focus on a number of themes within the framework of the conference that are deemed essential to educating the next generation of students and practicing engineers in the area of product realization.