

Triz Principles For Information Technology

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Design Science Research Methods and Patterns - Vijay K. Vaishnavi
2015-05-06

Presenting innovative research methods, this second edition of a bestseller describes a simple and practical methodology for conducting cutting-edge design science research (DSR). It provides comprehensive guidance on how to conduct such research and supplies in-depth treatment of design science theory and the different types of theory that can be generated in design science research. Making novel use of the concept of patterns, it presents 84 research patterns for conducting effective DSR. It emphasizes design science theory throughout and is filled with practical examples of using patterns to conduct information and communication technology research (ICT). With a focus on reusing research activities to increase the effectiveness and efficiency of conducting design science research, the book relies on familiar patterns to provide the fundamentals of various research philosophies and techniques required to innovate ICT. It describes design science research in relation to other information systems research paradigms such as positivist and interpretivist research. New to this edition are relevant design science research patterns adapted from TRIZ, the widely regarded European engineering design and creativity method. This

edition also provides greatly expanded treatment of theory building in design science research (DSR), a topic of rapidly growing interest in addition to a new chapter presenting a framework for theory development in DSR. The book provides an expanded examination of patterns in DSR presented using a new pattern classification mechanism to group patterns with like functionality. This book will be of value to those interested in learning to conduct design science research, particularly in the ICT disciplines the book focuses on.

Machine Learning for Computer and Cyber Security - Brij B. Gupta
2019-02-05

While Computer Security is a broader term which incorporates technologies, protocols, standards and policies to ensure the security of the computing systems including the computer hardware, software and the information stored in it, Cyber Security is a specific, growing field to protect computer networks (offline and online) from unauthorized access, botnets, phishing scams, etc. Machine learning is a branch of Computer Science which enables computing machines to adopt new behaviors on the basis of observable and verifiable data and information. It can be applied to ensure the security of the computers and the information by detecting anomalies using data mining and other such

techniques. This book will be an invaluable resource to understand the importance of machine learning and data mining in establishing computer and cyber security. It emphasizes important security aspects associated with computer and cyber security along with the analysis of machine learning and data mining based solutions. The book also highlights the future research domains in which these solutions can be applied. Furthermore, it caters to the needs of IT professionals, researchers, faculty members, scientists, graduate students, research scholars and software developers who seek to carry out research and develop combating solutions in the area of cyber security using machine learning based approaches. It is an extensive source of information for the readers belonging to the field of Computer Science and Engineering, and Cyber Security professionals. Key Features: This book contains examples and illustrations to demonstrate the principles, algorithms, challenges and applications of machine learning and data mining for computer and cyber security. It showcases important security aspects and current trends in the field. It provides an insight of the future research directions in the field. Contents of this book help to prepare the students for exercising better defense in terms of understanding the motivation of the attackers and how to deal with and mitigate the situation using machine learning based approaches in better manner.

[Advances in Smart Vehicular Technology, Transportation, Communication and Applications](#) - Yong Zhao 2018-11-30

This book highlights papers presented at the Second International Conference on Smart Vehicular Technology, Transportation, Communication and Applications (VTCA 2018), which was held at Mount Emei, Sichuan Province, China from 25 to 28 October 2018. The conference was co-sponsored by Springer, Southwest Jiaotong University, Fujian University of Technology, Chang'an University, Shandong University of Science and Technology, Fujian Provincial Key Lab of Big Data Mining and Applications, and the National Demonstration Center for Experimental Electronic Information and Electrical Technology Education (Fujian University of Technology). The conference was intended as an international forum for researchers and

professionals engaged in all areas of smart vehicular technology, vehicular transportation, vehicular communication, and applications.

Lean Management Principles for Information Technology - Gerhard J. Plenert 2011-07-28

Whether it's because of a lack of understanding, poor planning, or a myriad of other things, 50 to 60 percent of the IT effort in most companies can be considered waste. Explaining how to introduce Lean principles to your IT functions to reduce and even eliminate this waste, *Lean Management Principles for Information Technology* provides the tools and understanding to make better decisions, increase efficiencies, and make IT a major force in delivering sustainable improvements to your supply chain. The proven Toyota Production System principles described in this book have already helped many IT organizations double and triple their output. It introduces some of the most powerful Lean tools and techniques—including Six Sigma, value stream mapping, and spaghetti charting—and provides a methodology for implementing them to reduce waste in your IT environment. Discussing information production processes, IT systems, and change management through the lens of Lean principles, the book: Provides step-by-step guidance through the processes of implementing Lean principles in your IT supply chain management system Illustrates successful implementation across a range of industries and countries Examines how to use Lean methods to achieve ongoing improvement in IT personnel Explains how to implement Lean in the supply chain, while reducing IT cycle time and costs The text reviews the major management challenges facing IT and illustrates solutions with stories, examples, and case studies of how Lean IT has led to unprecedented improvements in the private and government sectors. Demonstrating how to structure the components of your IT system in accordance with Lean, the book details the measures required to achieve and sustain a world-class Lean IT supply chain management system.

A Service Engineering Method for Knowledge-Intense Person-Oriented Services - Philipp Menschner 2015-01-01

Keine Angaben

Extenics and Innovation Methods - Wen Cai 2013-07-15

Society forges ahead in the process of solving various contradictory problems and it is ceaselessly innovating. It is the desire of mankind to use computers and computing networks to help deal with contradictory problems and to conduct innovative activities. Using formal models to discuss object extension and the possibility of change, as well as the

R&D Management in the Knowledge Era - Tuğrul Daim 2019-06-24
This volume explores emerging models, methods and tools in the management of research and development (R&D) in the knowledge era, with a particular focus on the challenges of the emerging technologies. The contributions are organized in five parts. Part I, Managing Emerging Technologies, provides methods and tools to understand the challenges created by the emergence of new technologies. Part II, Technology and Engineering Management Tools and Policies, explores different technology and engineering tools, including topics such as product concept development, design, selection and adoption, using technology roadmaps and bibliometrics. Part III, Technological Innovation and Entrepreneurship, explores R&D, knowledge transfer and entrepreneurial education. Part IV, Commercialization of Technological Innovations, explores the development and application of the technology transfer process which allows managers to succeed in commercializing the outcomes of R&D projects. Part V, Managing the Engineering Enterprise, explores the effect economic decision-making, leadership styles, change management and quality management have on an organization's ability to plan and execute initiatives and projects. Research and Development has always played a critical role in the engineering and technology focused industries. In an era of big data and smart applications, knowledge has become a key enabler for R&D. Managing R&D in the knowledge era requires use of key tools and methods. However, emerging technologies pose many challenges and cause uncertainties or discontinuities, which make the task of managing R&D even more difficult. This book will examine these challenges and provide tools and methods to overcome them. Exploring such industries as automotive, healthcare, business intelligence, energy and home appliances, this book is a valuable resource for academics, scholars,

professionals and leaders in innovation, R&D, technology, and engineering management.

Quality Management Practices for Global Excellence - Alok Bansal 2015-01-05

Achieving excellence in the fast changing global scenario of business and world economic structure demands deeper insight into the quality management practices. To survive in this competitive and challenging global business arena one needs to adopt quality management strategies that incorporate the best global practices. An attempt has been made in the present book to focus on quality aspects and solutions that can enhance global business excellence.

Digital Twin Driven Smart Design - Fei Tao 2020-05-22

Digital Twin Driven Smart Design draws on the latest industry practice and research to establish a basis for the implementation of digital twin technology in product design. Coverage of relevant design theory and methodology is followed by detailed discussions of key enabling technologies that are supported by cutting-edge case studies of implementation. This groundbreaking book explores how digital twin technology can bring improvements to different kinds of product design process, including functional, lean and green. Drawing on the work of researchers at the forefront of this technology, this book is the ideal guide for anyone interested in digital manufacturing or computer-aided design. Provides detailed case studies that explore key applications of digital twin technology in design practice Introduces the concept of using digital twins to create the virtual commissioning of design projects Presents a framework to help engineers incorporate digital twins into their product design process

Product Engineering - Doru Talaba 2006-06-01

This book contains an edited version of the lectures and selected contributions presented during the Advanced Summer Institute on "Product Engineering: Eco-Design, Technologies and Green Energy" organized at the st Transilvania University of Brasov (Romania) in the period 14-21 of July 2004. The Advanced Summer Institute (ASI) was organized in the framework of the European FP5 funded project "ADEPT

- Advanced computer aided Design of Ecological Products and Technologies integrating green energy sources” and was devoted to the Product Engineering field, with particular attention to the aspects related to the environmentally conscious design and green energy sources. The objective of the ASI was to create the framework for meeting of leading scientists with PhD holders and advanced PhD students carrying out research in the field of Eco-Design, CAD, Simulation technologies, Robotics, Manufacturing and green energy sources. The aim was to create conditions for high level training through a series of 15 invited lectures presented by world reputed scientists, as well as to give possibilities for young researchers to present their achievements and to establish professional contacts. The ASI was seen also as an opportunity for academics, practitioners and consultants from Europe and elsewhere who are involved in the study, management, development and implementation of product engineering principles in the learning and teaching sectors, as well as professionals to come together and share ideas on projects and examples of best practice.

Current Scientific and Industrial Reality - Carsten Gundlach 2007

40 Principles Genrich Altshuller 2002

TRIZ. Theory of Inventive Problem Solving - Vladimir Petrov 2019-04-01

This introductory book describes the initial (first) level of studying the theory of inventive problem solving (TRIZ) from the series “TRIZ from A to Z,” and presents the most general methods for solving inventive problems and generating new ideas. Chapter 1 examines traditional technologies for problem solving, based on trial and error. Chapter 2 describes the general concept of TRIZ, while Chapter 3 explains the main notions of “system” approaches, like system thinking, system and its hierarchy, system effect, emergency, synergetic effect and systematicity. In turn, Chapter 4 describes the notion of “ideality” and Chapter 5 addresses the notion of resources, their types, and methods for using them. Chapter 6 acquaints readers with one of the most important

aspects of TRIZ: contradiction. Chapter 7 describes the inventive principles, while Chapter 8 includes descriptions of the systems of trends proposed by G. Altshuller and the author. In closing, the author makes recommendations on how to most effectively use TRIZ tools, on how readers can improve their knowledge, skills and habits concerning the use of TRIZ, and on how they can hone their inventive thinking skills. The book also features Appendices that include analyses of selected problems, a list of the main websites related to TRIZ, and lists of examples, problems, illustrations, tables and formulae.

International Conference on Management and Engineering (CME 2014)
Alex Kong 2014-06-02

The aim objective of CME 2014 is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Information Management, Innovation Management, Project Management and Engineering. This conference provides opportunities for the delegates to exchange new ideas and application experiences face to face, to establish business or research relations and to find global partners for future collaboration. Submitted conference papers will be reviewed by technical committees of the Conference.

[New Opportunities for Innovation Breakthroughs for Developing Countries and Emerging Economies](#) - Rachid Benmoussa 2019-10-03

This book constitutes the refereed proceedings of the 19th International TRIZ Future Conference on Automated Invention for Smart Industries, held in Marrakesh, Morocco, in October 2019 and sponsored by IFIP WG 5.4. The 41 full papers presented were carefully reviewed and selected from 72 submissions. They are organized in seven thematic sections: TRIZ improvement: theory, methods and tools; TRIZ and other innovation approaches; TRIZ applications in technical design; TRIZ applications in eco design; TRIZ applications in software engineering; TRIZ applications in specific disciplinary fields; and TRIZ in teaching.

[2014 International Conference on Economics and Management \(ICEM2014\)](#). - 2014-02-04

ICEM2014 is to offer scholars, professionals, academics and graduate

students to present, share, and discuss their studies from various perspectives in the aspects of social science. The ICEM2014 is hosted by Advance Information Science Research Center and is sponsored by DEStech Publication, Inc., South China University of Technology, Guangdong University of Foreign Studies. This proceedings tends to collect the up-to-date, comprehensive and worldwide state-of-art knowledge on economics and management. All of accepted papers were subjected to strict peer- reviewing by 2-4 expert referees. The papers have been selected for this proceedings based on originality, significance, and clarity for the purpose of the conference. The selected papers and additional late-breaking contributions to be presented will make an exciting technical program on conference. The conference program is extremely rich, featuring high-impact presentation. We hope this conference will not only provide the participants a broad overview of the latest research results on economics and management, but also provide the participants a significant platform to build academic connections. ICEM2014 would like to express our sincere appreciations to all authors for their contributions to this conference. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard working.

Growth and Development of Computer Aided Innovation - Runhua Tan 2009-08-19

This volume constitutes the refereed proceedings of the Third IFIP WG 5.4. Working Conference on Computer Aided Innovation, CAI 2009, held in Harbin, China, in August 2009. The papers deal with advanced approaches in education and training; data mining; text mining; semantic Web; optimization and innovation, shape and topology generators; design automation; integration of CAI methods and tools into engineering; innovation process and engineering information pipeline; innovation in collaborative networks of enterprises; professional virtual communities as well as engineering design.

TRIZ for Engineers: Enabling Inventive Problem Solving - Karen Gadd 2011-03-21

TRIZ is a brilliant toolkit for nurturing engineering creativity and innovation. This accessible, colourful and practical guide has been developed from problem-solving workshops run by Oxford Creativity, one of the world's top TRIZ training organizations started by Gadd in 1998. Gadd has successfully introduced TRIZ to many major organisations such as Airbus, Sellafield Sites, Saint-Gobain, DCA, Doosan Babcock, Kraft, Qinetiq, Trelleborg, Rolls Royce and BAE Systems, working on diverse major projects including next generation submarines, chocolate packaging, nuclear clean-up, sustainability and cost reduction. Engineering companies are increasingly recognising and acting upon the need to encourage successful, practical and systematic innovation at every stage of the engineering process including product development and design. TRIZ enables greater clarity of thought and taps into the creativity innate in all of us, transforming random, ineffective brainstorming into targeted, audited, creative sessions focussed on the problem at hand and unlocking the engineers' knowledge and genius to identify all the relevant solutions. For good design engineers and technical directors across all industries, as well as students of engineering, entrepreneurship and innovation, TRIZ for Engineers will help unlock and realise the potential of TRIZ. The individual tools are straightforward, the problem-solving process is systematic and repeatable, and the results will speak for themselves. This highly innovative book: Satisfies the need for concise, clearly presented information together with practical advice on TRIZ and problem solving algorithms Employs explanatory techniques, processes and examples that have been used to train thousands of engineers to use TRIZ successfully Contains real, relevant and recent case studies from major blue chip companies Is illustrated throughout with specially commissioned full-colour cartoons that illustrate the various concepts and techniques and bring the theory to life Turns good engineers into great engineers.

[Innovation on Demand](#) - Victor Fey 2005-10-06

This book describes a revolutionary methodology for enhancing technological innovation called TRIZ. The TRIZ methodolgy is

increasingly being adopted by leading corporations around the world to enhance their competitive position. The authors explain how the TRIZ methodology harnesses creative principles extracted from thousands of successful patented inventions to help you find better, more innovative, solutions to your own design problems. Whether you're trying to make a better beer can, find a new way to package microchips or reduce the number of parts in a lawnmower engine, this book can help.

[Systematic Complex Problem Solving in the Age of Digitalization and Open Innovation](#) - Denis Cavallucci 2020-10-09

This book constitutes the refereed proceedings of the 20th International TRIZ Future Conference on Automated Invention for Smart Industries, TFC 2020, held in Cluj-Napoca, Romania, in October 2020 and sponsored by IFIP WG 5.4. The conference was held virtually. The 34 full papers presented were carefully reviewed and selected from 91 submissions. They are organized in the following thematic sections: computing TRIZ; education and pedagogy; sustainable development; tools and techniques of TRIZ for enhancing design; TRIZ and system engineering; TRIZ and complexity; and cross-fertilization of TRIZ for innovation management.

Innovative Business Management Using TRIZ - Sunil Kumar V. Kaushik 2018-01-02

TRIZ is the Russian acronym for theory of inventive problem solving. The basic assumption behind this theory is "someone somewhere has already solved your problem or a very similar problem, and all we need to do is apply the same principle to the current problem and solve it similarly." It guides you to think in a specific direction rather than getting lost. The goal of this book is to use some of the simple TRIZ tools to help readers immediately solve problems, innovate, be creative, think, and discover the joy of experiencing the thinking process in new dimensions that you might not have previously. It is specifically focused on helping nonengineering and management professionals to apply the concepts of TRIZ immediately and reap benefits. Interspersed throughout the book are vignettes from the author's round-the-world bicycle tour on a budget of less than five U.S. dollars per day, having conducted close to 50 workshops and training sessions and trained more than 1,000

professionals on TRIZ without any remuneration throughout 21 countries, including Thailand, Laos, Vietnam, China, Kyrgyzstan, Uzbekistan, Turkmenistan, Iran, Turkey, Georgia, Armenia, Greece, Italy, France, Spain, and Portugal.

Information Technology Project Management - Bennet Lientz 2017-09-16

Many of the project management methods and techniques of the past are still being used today, even though the technology, management and environment have changed. Information Technology Project Management explores the need to employ a modern project management approach to reflect today's environment. Focusing on IT projects, Lientz provides a comprehensive examination of the project management process, from the initiation of the project through to the planning, design, execution and closing. Key Features: - Detailed coverage of PMBoK and PRINCE2 methodologies - Explores the practical aspects of project management - Extensive case studies from a variety of industries - Checklists and scorecards to measure all aspects of the project management process - Coverage of HRM and other 'soft' elements of project management - Guidelines on preventing project problems and failure Based on the authors own extensive industry and teaching practice, Information Technology Project Management is an essential resource for undergraduate, postgraduate and MBA students studying project management. Earlier editions of this work were published as Breakthrough Technology Project Management.

Advances in Manufacturing Technology - Zheng Yi Jiang 2012-11-12 Volume is indexed by Thomson Reuters CPCI-S (WoS). The studies presented here cover composites, micro/nano-materials and equipment, metallic alloys, steels, polymer materials, optical/electronic/magnetic materials, energy materials and new energy technology, environmentally-friendly materials and waste utilization, biomaterials and preparation technology, thin films, structural materials and earthquake-resistant structures, functional materials, surface-engineering/coatings, modeling, analysis and simulation, materials processing technology, laser-processing technology, mechanical behavior and fracture, tooling testing

and evaluation of materials, thermal engineering theory and applications, detection and control technology.

Knowledge-Based and Intelligent Information and Engineering Systems, Part IV - Andreas König 2011-09-15

The four-volume set LNAI 6881-LNAI 6884 constitutes the refereed proceedings of the 15th International Conference on Knowledge-Based Intelligent Information and Engineering Systems, KES 2011, held in Kaiserslautern, Germany, in September 2011. Part 4: The total of 244 high-quality papers presented were carefully reviewed and selected from numerous submissions. The 46 papers of Part 4 are organized in topical sections on human activity support in knowledge society, knowledge-based interface systems, model-based computing for innovative engineering, document analysis and knowledge science, immunity-based systems, natural language visualisation advances in theory and application of hybrid intelligent systems.

Advances in Software Engineering - Dominik Ślęzak 2009-11-24

As future generation information technology (FGIT) becomes specialized and fragmented, it is easy to lose sight that many topics in FGIT have common threads and, because of this, advances in one discipline may be transmitted to others. Presentation of recent results obtained in different disciplines encourages this interchange for the advancement of FGIT as a whole. Of particular interest are hybrid solutions that combine ideas taken from multiple disciplines in order to achieve something more significant than the sum of the individual parts. Through such hybrid philosophy, a new principle can be discovered, which has the propensity to propagate throughout multifaceted disciplines. FGIT 2009 was the first mega-conference that attempted to follow the above idea of hybridization in FGIT in a form of multiple events related to particular disciplines of IT, conducted by separate scientific committees, but coordinated in order to expose the most important contributions. It included the following international conferences: Advanced Software Engineering and Its Applications (ASEA), Bio-Science and Bio-Technology (BSBT), Control and Automation (CA), Database Theory and Application (DTA), Disaster Recovery and Business Continuity (DRBC; published independently),

Future Generation Communication and Networking (FGCN) that was combined with Advanced Communication and Networking (ACN), Grid and Distributed Computing (GDC), Multimedia, Computer Graphics and Broadcasting (MulGraB), Security Technology (SecTech), Signal Processing, Image Processing and Pattern Recognition (SIP), and u- and e-Service, Science and Technology (UNESST).

The Innovation Tools Handbook, Volume 3. James Harrington 2016-09-19

This book focuses on the creative tools and techniques, decisions, activities, and practices that move ideas to realization generate business value. It has a unique leaning on learning and mastering the improvement tools for managing the investment in creating new opportunities for generating customer value. It includes the discipline of managing the creative tools, methods and processes involved in innovation. It can be used to develop both product and organizational innovation. This Handbook includes a set of tools that allow managers and engineers to cooperate with a common understanding of goals and processes.

Advanced Manufacturing Systems, ICMSE 2011 - Dao Guo Yang 2011-02-21

This work brings together the latest applications of, and advances in, CAD/CAM/CAE, energy storage and energy development, mining machinery manufacturing, new energy equipment and manufacturing, cloud manufacturing and extreme manufacturing, bio-manufacturing, enterprise informationization, integrated manufacturing systems, quality monitoring and control of manufacturing processes, measurement control technologies and intelligent systems, embedded systems, etc. This broad overview of the latest advances also provides a reference source for researchers in this field.

Advances in Life Cycle Engineering for Sustainable Manufacturing Businesses- Shozo Takata 2007-07-26

Life cycle engineering explores technologies for shifting industry from mass production and consumption paradigms to closed-loop manufacturing paradigms, in which required functions are provided with

the minimum amount of production. This subject is discussed from various aspects: life cycle design, design for environment, reduce-reuse-recycle, life cycle assessment, and sustainable business models. This book collects papers from the 14th International CIRP Life Cycle Engineering Conference, the longest-running annual meeting in the field.

The Power of Design Angèle H. Reinders 2012-11-28

The Power of Design offers an introduction and a practical guide to product innovation, integrating the key topics that are necessary for the design of sustainable and energy-efficient products using sustainable energy technologies. Product innovation in sustainable energy technologies is an interdisciplinary field. In response to its growing importance and the need for an integrated view on the development of solutions, this text addresses the functional principles of various energy technologies next to the latest design processes and innovation methods. From the perspective of product applications, the book provides clear explanations of technologies that are significant for product integration, such as batteries, photovoltaic solar energy, fuel cells, small wind turbines, human power, energy saving lighting, thermal energy technologies in buildings, and piezoelectric energy conversions. The design processes and innovation methods presented in this book include various approaches ranging from technical, societal and creative methods that can be applied in different stages of the design process. Other features include: a methodological approach, enabling readers to easily apply the theory to their research projects and to the actual design of sustainable products with energy technologies discussion on interaction design and smart grid interventions colour photographs that illustrate the final products numerous case studies of product development projects and concepts in practice, enabling readers to understand and design energy-efficient products in several different markets a companion website containing useful information about the cases and an additional design cases with sustainable energy technologies The Power of Design provides a comprehensive and visually-appealing opening into the subject for third and fourth year students, postgraduates, and professionals in the areas of energy,

environment, product design and engineering

Entrepreneurial Management Theory and Practice - Lee Tzong Ru 2018-08-29

People like to have their own business, but few succeed. In this book, we show you what the process and procedures are to start-up your own business. Around 100 real cases featuring SMEs in Asia are introduced to show how businesses are run in the real world. From these practice cases, we can find rules to make a business sustainable. After reading this book, you will be able to find out what your advantages and disadvantages are, especially if you are keen to start a business in Asia. This book might even help you decide whether it is time for you to start-up your own business or not.

Systematic (software) Innovation - Darrell L. Mann 2008

EcoDesign and Sustainable Innovation Yusuke Kishita 2020-11-02

This book highlights cutting-edge ecodesign research, covering product and service design, smart manufacturing, and social perspectives in ecodesign. Featuring selected papers presented at EcoDesign 2019: 11th International Symposium on Environmentally Conscious Design and Inverse Manufacturing, it also includes diverse, interdisciplinary approaches to foster ecodesign research and activities. In the context of Sustainable Development Goals (SDGs), it addresses the need for the manufacturing industry to design innovations for sustainable value creation, taking into account technological developments, legislation, and consumer lifestyles. Further, the book discusses the concept of circular economy, which originated in Europe and aims to increase resource efficiency by shifting away from the linear economy. Focusing on product life cycle design and management, smart manufacturing, circular economy, and business strategies, and providing useful approaches and solutions to these emerging concepts, this book is intended for both researchers and practitioners working in the broad field of ecodesign and sustainability.

And Suddenly the Inventor Appeared - Genrich Altshuller 1996

Advances and Impacts of the Theory of Inventive Problem Solving - Sebastian Koziółek 2018-11-29

This book offers a collection of cutting-edge research on the Theory of Inventive Problem Solving (TRIZ). Introduced by Genrich Altshuller in 1956, TRIZ has since been used by engineers, inventors and creators as an essential structured innovation method at businesses and organizations around the globe. The chapters of this book showcase work by selected authors from the 'TRIZ Future' conferences, which are organized by the European TRIZ Association (ETRIA). The chapters reflect an international mix of new ideas on TRIZ and knowledge-based innovation, highlight recent advances in the TRIZ community, and provide examples of successful collaboration between industry and academia. The book first introduces the reader to recent methodological innovations, then provides an overview of established and new TRIZ tools, followed by a collection of case studies and examples of TRIZ implementation in various scientific and social contexts.

Creative Solutions for a Sustainable Development - Yuri Borgianni 2021-09-15

This book constitutes the refereed proceedings of the 21st International TRIZ Future Conference on Automated Invention for Smart Industries, TFC 2021, held virtually in September 2021 and sponsored by IFIP WG 5.4. The 28 full papers and 8 short papers presented were carefully reviewed and selected from 48 submissions. They are organized in the following thematic sections: inventiveness and TRIZ for sustainable development; TRIZ, intellectual property and smart technologies; TRIZ: expansion in breadth and depth; TRIZ, data processing and artificial intelligence; and TRIZ use and divulgation for engineering design and beyond. Chapter 'Domain Analysis with TRIZ to Define an Effective "Design for Excellence"' is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Research and Practice on the Theory of Inventive Problem Solving - Leonid Chechurin 2016-09-12

This book clarifies the common misconception that there are no systematic instruments to support ideation, heuristics and creativity.

Using a collection of articles from professionals practicing the Theory of Inventive Problem Solving (TRIZ), this book presents an overview of current trends and enhancements within TRIZ in an international context, and shows its different roles in enhancing creativity for innovation in research and practice. Since its first introduction by Genrikh Saulovich Altshuller in 1956 in the USSR, the TRIZ method has been widely used by inventors, design engineers and has become a standard element of innovation support tools in many Fortune 500 companies. However, TRIZ has only recently entered the domain of scientific publications and discussion. This collection of articles is meant as a record of scientific discussion on TRIZ that reflects the most interesting talking points, research interests, results and expectations. Topics such as Creative and Inventive Design, Patent Mining, and Knowledge Harvesting are also covered in this book.

Transactional Six Sigma and Lean Servicing - Betsi Harris Ehrlich 2002-06-13

Service industries have traditionally lagged manufacturing in adoption of quality management strategies and Six Sigma is no exception. While there are a growing number of books on applying the hot topics of Six Sigma and Lean Manufacturing concepts in a manufacturing environment, there has not been a mainstream book that applies these techniques in a service environment, until now. *Transactional Six Sigma and Lean Servicing™: Leveraging Manufacturing Concepts to Achieve World Class Service* is a ground breaking "how-to" book that serves as a practical guide for implementing Six Sigma and Lean Manufacturing methods in a transactional service oriented environment. It uses real case studies and examples to show how Six Sigma and Lean Servicing™ techniques have been implemented and proven effective in achieving substantial documented results. Lean Servicing™ is the author's own term used to describe the application of Lean Manufacturing concepts to transactional and service processes. Liberal use of examples, graphics, and tables will assist you in grasping the difficult concepts. *Transactional Six Sigma and Lean Servicing™* covers both theory and practical application of Lean Servicing™, Six Sigma DMAIC and Six Sigma DFSS

concepts and methods so you can implement them effectively in your service organization and achieve reduced costs and a new level of service excellence.

Intelligent Decision Technologies - R. Neves-Silva 2013-06-13

The field of intelligent decision technologies is interdisciplinary in nature, bridging computer science with its development of artificial intelligence, information systems with its development of decision support systems, and engineering with its development of systems. This book presents the 45 papers accepted for presentation at the 5th KES International Conference on Intelligent Decision Technologies (KES-IDT 2013), held in Sesimbra, Portugal, in June 2013. The conference consists of keynote talks, oral and poster presentations, invited sessions and workshops on the applications and theory of intelligent decision systems and related areas. The conference provides an opportunity for the presentation and discussion of interesting new research results, promoting knowledge transfer and the generation of new ideas. The book will be of interest to all those whose work involves the development and application of intelligent decision systems.

Systematic Innovation Partnerships with Artificial Intelligence
Information Technology Robert Nowak 2022-09-23

This book constitutes the refereed proceedings of the 22nd International TRIZ Future Conference on Automated Invention for Smart Industries,

TFC 2022, which took place in Warsaw, Poland, in September 2022; the event was sponsored by IFIP WG 5.4. The 39 full papers presented were carefully reviewed and selected from 43 submissions. They are organized in the following thematic sections: New perspectives of TRIZ; AI in systematic innovation; systematic innovations supporting IT and AI; TRIZ applications; TRIZ education and ecosystem.

Digital Design and Manufacturing Technology - Guo Zhong Chai
2010-03-09

During the past twenty years, digital design and manufacturing technology has become indispensable in many and various applications world-wide; involving many products and rapidly expanding markets. It has not only provided industry with new methods, tools and digitalized products - from design, materials processing to operating and management procedures - but is also changing the approaches, thinking patterns and working environments of people in the manufacturing field. The rapid growth of digital design and manufacturing processes has also brought with it some processing work-flow challenges. While the various resultant products provide an ideal solution for some processing steps, more dedicated and integrated systems are sometimes required. How best can one handle incoming data and orders, automate the design and perhaps engineering, make robust plans, manage the process and data and deliver quality goods.