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The book aims to be reading for asset maintenance management in a perspective of whole life cycle of any type of physical asset. It deals with acquisition management, including econometric models to evaluate its life cycle, and the maintenance policies to adopt during its life until withdrawal. It also covers vital areas such as EAM/CMMS systems and its integration with the many technologies that are used to aid condition monitoring and the internet of things to improve maintenance management and to increase equipment availability. This will equip readers with new management methodologies, their requisites, and its importance to the improvement of corporate competitiveness. Key Features • Presents life cycle analysis in asset management • Attribution of tools to improve the life cycle of equipment • Provides assistance on the diagnosis of the maintenance state • Presentation of the state-of-the-art of technology to aid maintenance • Explores integration of EAM/CMMS systems with internet of things

De tout temps l’homme a sans doute voulu construire des choses fiables. Mais les évaluations quantifiées, probabilisées ont vu le jour récemment d’abord pour systèmes militaires (missiles, satellites) puis nucléaires, automobiles et les biens d’équipements. On peut citer que dès 1906 les constructeurs de tubes à vides américains se sont préoccupés de fiabilité, de là est née la fiabilité électronique, puis mécanique, informatique et humaine des systèmes et composants. Cette évolution contemporaine a produit de nombreux outils, concepts et méthodes. Ces développements sont au centre de l’ouvrage. Fiabilité Technique et Humaine rassemble les concepts, techniques et outils de la fiabilité des composants et systèmes en considérant toutes les technologies et dimensions, notamment la mécanique, l’électronique, l’informatique et les aspects humains. En effet, les erreurs humaines sont à l’origine de nombreuses défaillances et de ce fait ne peuvent être ignorées lors de la conception ou du maintien des installations. Les diverses formes de fiabilité, prévisionnelle, expérimentale et opérationnelle sont explicitées et illustrées aux travers d’applications industrielles. Les concepts, outils et techniques de fiabilité les plus complexes sont présentés à partir d’exemples permettant au lecteur de se familiariser avec ce domaine. La présentation très didactique de ces concepts, étayée par plus de 100 exercices et problèmes corrigés en fait un ouvrage incontournable pour la maîtrise de la fiabilité technique et humaine.

Der MHI e.V. ist ein Netzwerk leitender Universitätsprofessoren aus dem deutschsprachigen Raum, die sowohl grundlagenorientiert als auch anwendungsnah in der Montage, Handhabung und Industrierobotik erfolgreich forschend tätig sind. Die Gründung der Gesellschaft erfolgte im Frühjahr 2012. Der MHI e.V. hat derzeit 20 Mitglieder, die über ihre Institute und Lehrstühle zurzeit ca. 1.000 Wissenschaftler repräsentieren. Die übergeordnete Zielsetzung des MHI e.V. ist die Förderung der Zusammenarbeit von deutschsprachigen Wissenschaftlerinnen und Wissenschaftlern untereinander, sowie mit der Industrie im Bereich Montage, Handhabung und Industrierobotik zur Beschleunigung der Forschung, Optimierung der Lehre und zur Verbesserung der internationalen Wettbewerbsfähigkeit der deutschen Industrie in diesem Bereich. Das Kolloquium fokussiert auf einen akademischen Austausch auf hohem Niveau, um die gewonnenen Forschungsergebnisse zu verteilen, synergetische Effekte und Trends zu bestimmen, die Akteure persönlich zu verbinden und das Forschungsfeld sowie die MHI-Gemeinschaft zu stärken.

Business industries depend on advanced models and tools that provide an optimal and objective decision-making process, ultimately guaranteeing improved competitiveness, reducing risk, and eliminating uncertainty. Thanks in part to the digital era of the modern world, reducing these conditions has become much more manageable. Advanced Models and Tools for Effective Decision Making Under Uncertainty and Risk Contexts provides research exploring the theoretical and practical aspects of effective decision making based not only on mathematical techniques, but also on those technological tools that are available nowadays in the Fourth Industrial Revolution. Featuring coverage on a broad range of topics such as industrial informatics, knowledge management, and production planning, this book is ideally designed for decision makers, researchers, engineers, academicians, and students.

In recent years, a considerable amount of effort has been devoted, both in industry and academia, to improving maintenance. Time is a critical factor in maintenance, and efforts are placed to monitor, analyze, and visualize machine or asset data in order to anticipate to any possible failure, prevent damage, and save costs. The MANTIS Book aims to highlight the underpinning fundamentals of Condition-Based Maintenance related conceptual ideas, an overall idea of preventive maintenance, the economic impact and technical solution. The core content of this book describes the outcome of the Cyber-Physical System based Proactive Collaborative Maintenance project, also known as MANTIS, and funded by EU ECSEL Joint Undertaking under Grant Agreement nº 662189. The ambition has been to support the creation of a maintenance-oriented reference architecture that support the maintenance data lifecycle, to enable the use of novel kinds of maintenance strategies for industrial machinery. The key enabler has been the fine blend of collecting data through Cyber-Physical Systems, and the usage of machine learning techniques and advanced visualization for the enhanced monitoring of the machines. Topics discussed include, in the context of maintenance: Cyber-Physical Systems, Communication Middleware, Machine Learning, Advanced Visualization, Business Models, Future Trends. An important focus of the book is the application of the techniques in real world context, and in fact all the work is driven by the pilots, all of them centered on real machines and factories. This book is suitable for industrial and maintenance managers that want to implement a new strategy for maintenance in their companies. It should give readers a basic idea on the first steps to implementing a maintenance-oriented platform or information system.

It is critical to improve the asset management system implementation as well as economics and industrial decision making to ensure that a business may move smoothly internally. Maintenance management should be aligned to the activities of maintenance in accordance with key business strategies, which must be designed under the comprehensive approach of an asset management process. After transforming the priorities of the business into priorities of maintenance, maintenance managers will use their medium-team strategies to tackle potential weaknesses in the

maintenance of the equipment in accordance with these objectives. Cases on Optimizing the Asset Management Process explains and summarizes the processes and the reference frame necessary for the implementation of the Maintenance Management Model (MMM). This book acts as an overview of the current state of the art in asset management, providing innovative tools and practices from the fourth industrial revolution. Presenting topics like criticality analysis, physical asset maintenance, and unified modelling language, this text is essential for industrial and manufacturing engineers, plant supervisors, academicians, researchers, advanced-level students, technology developers, and managers who make decisions in this field.

This book addresses the steps needed to monitor health assessment systems and the anticipation of their failures: choice and location of sensors, data acquisition and processing, health assessment and prediction of the duration of residual useful life. The digital revolution and mechatronics foreshadowed the advent of the 4.0 industry where equipment has the ability to communicate. The ubiquity of sensors (300,000 sensors in the new generations of aircraft) produces a flood of data requiring us to give meaning to information and leads to the need for efficient processing and a relevant interpretation. The process of traceability and capitalization of data is a key element in the context of the evolution of the maintenance towards predictive strategies.

Collaborative Networks A Tool for Promoting Co-creation and Innovation The collaborative networks paradigm offers powerful socio-organizational mec- nisms, supported by advanced information and communication technologies for p- moting innovation. This, in turn, leads to new products and services, growth of better customer relationships, establishing better project and process management, and building higher-performing consortia. By putting diverse entities that bring different perspectives, competencies, practices, and cultures, to work together, collaborative networks develop the right environment for the emergence of new ideas and more efficient, yet practical, solutions. This aspect is particularly important for small and medium enterprises which typically lack critical mass and can greatly benefit from participation in co-innovation networks. However, larger organizations also benefit from the challenges and the diversity found in collaborative ecosystems. In terms of research, in addition to the trend identified in previous years toward a sounder consolidation of the theoretical foundation in this discipline, there is now a direction of developments more focused on modeling and reasoning about new c- laboration patterns and their contribution to value creation. “Soft issues,” including social capital, cultural aspects, ethics and value systems, trust, emotions, behavior, etc. continue to deserve particular attention in terms of modeling and reasoning. Exploi- tion of new application domains such as health care, education, and active aging for retired professionals also help identify new research challenges, both in terms of m- eling and ICT support development.

This book presents a new understanding on how control systems truly operate, and explains how to recognize, simulate, and improve control systems in all fields of activity. It also reveals the fundamental and indispensable role of control processes and the need to develop a control-oriented thinking is based on uncomplicated but effective models derived from systems thinking - the true discipline of control. Over the book thirteen chapters, Piero Mella shows that there are simple control systems (rather than complex ones) that can easily help us to manage complexity without drawing upon more sophisticated control systems. It begins by reviewing the basic language of systems thinking and the models it allows users to create. It then introduces the control process, presenting the theoretical structure of three simple control systems we all can observe in order to gain fundamental knowledge from them about the basic structure of a control system. The next chapter presents the anatomy of the simplest agic ring and the general theoretical model of this system. This is followed by an introduction to a general typology of control systems and a broader view of control systems by establishing multi-lever control systems and multi-objective systems. The book undertakes the concepts through various environments, increasingly broader in scope to suggest to readers how to recognize therein control systems manifestations in everyday life. Updated for the 2nd edition, new chapters explore quality and productivity and control of stocks and costs. Finally it concludes by dealing with the learning process, problem solving, and designing the logical structure of control systems.

This book provides a detailed introduction to maintenance policies and the current and future research in these fields, highlighting mathematical formulation and optimization techniques. It comprehensively describes the state of art in maintenance modelling and optimization for single- and multi-unit technical systems, and also investigates the problem of the estimation process of delay-time parameters and how this affects system performance. The book discusses delay-time modelling for multi-unit technical systems in various reliability structures, examining the optimum maintenance policies both analytically and practically, focusing on a delay-time modelling technique that has been employed by researchers in the field of maintenance engineering to model inspection intervals. It organizes the existing work into several fields, based mainly on the classification of single- and multi-unit models and assesses the applicability of the reviewed works and maintenance models. Lastly, it identifies potential future research directions and suggests research agendas. This book is a valuable resource for maintenance engineers, reliability specialists, and researchers, as it demonstrates the latest developments in maintenance, inspection and delay-time-based maintenance modelling issues. It is also of interest to graduate and senior undergraduate students, as it introduces current theory and practice in maintenance modelling issues, especially in the field of delay-time modelling.

Advances in Renewable Energies Offshore is a collection of the papers presented at the 3rd International Conference on Renewable Energies Offshore (RENEW 2018) held in Lisbon, Portugal, on 8-10 October 2018. The 104 contributions were written by a diverse international group of authors and have been reviewed by an International Scientific Committee. The book is organized in the following main subject areas: - Modelling tidal currents - Modelling waves - Tidal energy devices (design, applications and experiments) - Tidal energy arrays - Wave energy devices (point absorber, multibody, applications, control, experiments, CFD, coastal OWC, OWC and turbines) - Wave energy arrays - Wind

energy devices - Wind energy arrays - Maintenance and reliability - Combined platforms - Moorings, and - Flexible materials Advances in Renewable Energies Offshore collects recent developments in these fields, and will be of interest to academics and professionals involved in the above mentioned areas.

The book presents the proceedings of the 5th EAI International Conference on Management of Manufacturing Systems (MMS 2020), which took place online on October 27-29, 2020. The conference covers the management of manufacturing systems with support for Industry 4.0, logistics and intelligent manufacturing systems and applications, cooperation management, and its effective applications. Topics include RFID applications, economic impacts in logistics, ICT support for Industry 4.0, industrial and smart Logistics, intelligent manufacturing systems and applications, and much more. The topic is of interest to researchers, practitioners, students, and academics in manufacturing and communications engineering. Presents the proceedings of the 5th EAI International Conference on Management of Manufacturing Systems (MMS 2020); Covers topics such as Industry 4.0, smart logistics, smart cities, and intelligent manufacturing; Relevant for researchers, academics, and professionals.

This book features expert contributions on key sustainability aspects of urban water management in Chinese agglomerations. Both technical and institutional pathways to sustainable urban water management are developed on the basis of a broad, interdisciplinary problem analysis.

This book constitutes extended selected papers from the 17th Conference on Advanced Information Technologies for Management, AITM 2019, and the 14th Conference on Information Systems Management, ISM 2019, held as part of the Federated Conference on Computer Science and Information Systems, FedCSIS, which took place in Leipzig, Germany, in September 2019. The total of 7 full and 6 short papers presented in this volume were carefully reviewed and selected from a total of 45 submissions. The papers selected to be included in this book contribute to the understanding of relevant trends of current research on and future directions of information technology for management in business and public organizations. They were organized in topical sections named: information technology assessment for future development; methods and models for designing information technology, and aspects of implementing information technology.

This book explores the application of breakthrough technologies to improve transportation performance. Transportation systems represent the “blood vessels” of a society, in which people and goods travel. They also influence people’s lives and affect the liveability and sustainability of our cities. The book shows how emergent technologies are able to monitor the condition of the structure in real time in order to schedule the right moment for maintenance activities an so reduce the disturbance to users. This book is a valuable resource for those involved in research and development in this field. Part I discusses the context of transportation systems, highlighting the major issues and challenges, the importance of understating human factors that could affect the maintenance operations and the main goals in terms of safety standards. Part II focuses on process-oriented innovations in transportation systems; this section stresses the importance of including design parameters in the planning, offering a comparison between risk-based and condition-based maintenance and, lastly, showing applications of emergent technologies. Part III goes on to reflect on the technical-oriented innovations, discussing the importance of studying the physical phenomena that are behind transportation system failures and problems. It then introduces the general trend of collecting and analyzing big data using real-world cases to evaluate the positive and negative aspects of adopting extensive smart sensors for gathering information on the health of the assets. The last part (IV) explores cultural and behavioural changes, and new knowledge management methods, proposing novel forms of maintenance and vocational training, and introduces the need for radical new visions in transportation for managing unexpected events. The continuous evolution of maintenance fields suggests that this compendium of “state-of-the-art” applications will not be the only one; the authors are planning a collection of cutting-edge examples of transportation systems that can assist researchers and practitioners as well as students in the process of understanding the complex and multidisciplinary environment of maintenance engineering applied to the transport sector.

This book addresses the use, operation and maintenance of new renewable energy systems, taking into account their integration in the current electrical markets and in the new emergent uses of energy. The book is based on practical experiences which present different perspectives about what occurs once an energy production plant based on sources of renewable energy is in production. Questions to be addressed include: how the energy produced is integrated into the current system of energy production, what is its consideration in the electrical market, what the impact is on society, how differential the strategies of operation and maintenance are with respect to conventional systems of energy production, etc.

Das Werk arbeitet die rechtlich relevanten Aspekte von Inspektions-, Wartungs- und Instandsetzungsverträgen heraus: Es bringt Klarheit in alle bedeutenden Bereiche von der Leistungsschuld über die Abnahme bis zu den Mängelansprüchen und deren Verjährung. Dazu definiert es u. a. auch Grundbegriffe und geht detailliert auf das AGB-Recht ein, wobei entscheidende Klauseln hinterfragt werden. Angaben über einschlägige Urteile machen das Info-Paket komplett.

The main objective of FEEMCE 2013 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 Energy, Environmental Materials and Civil Engineering. This conference provides opportunities for the delegates to exchange new ideas and experiences face to face, to establish business or research relations and to find global partners for future collaboration.

New, global and extended markets are forcing companies to process and manage increasingly differentiated products with shorter life cycles, low volumes and reduced customer delivery times. In today’s global marketplace production systems need to be able to deliver products on time, maintain market credibility and introduce new products and services faster than competitors. As a result, a new production paradigm of a production system has been developed and a supporting management decision-making approach simultaneously incorporating design, management, and control of the production system is necessary so that this

challenge can be effectively and efficiency met. "Maintenance Engineering and its Applications in Production Systems" meets this need by introducing an original and integrated idea of maintenance: maintenance for productivity. The volume starts with the introduction and discussion of a new conceptual framework based on productivity, quality, and safety supported by maintenance. Subsequent chapters illustrate the most relevant models and methods to plan, organise, implement and control the whole maintenance process (reliability evaluation models and prediction, maintenance strategies and policies, spare parts management, computer maintenance management software – CMMS, and total productive maintenance – TPM, etc.). Several examples of problems supported by solutions, and real applications to help and test the reader's comprehension are included. "Maintenance Engineering and its Applications in Production Systems" will certainly be valuable to engineering students, doctoral and post-doctoral students and also to maintenance practitioners, as well as managers of industrial and service companies.
Maintenance for Industrial SystemsSpringer Science & Business Media
This book gathers the proceedings of an international conference held at Empa (Swiss Federal Laboratories for materials Science and Technology) in Dübendorf, Switzerland, in July 2020. The conference series was established by the International Society of Maintenance and Rehabilitation of Transport Infrastructure (iSMARTi) for promoting and discussing state-of-the-art design, maintenance, rehabilitation and management of pavements. The inaugural conference was held at Mackenzie Presbyterian University in Sao Paulo, Brazil, in 2000. The series has steadily grown over the past 20 years, with installments hosted in various countries all over the world. The respective contributions share the latest insights from research and practice in the maintenance and rehabilitation of pavements, and discuss advanced materials, technologies and solutions for achieving an even more sustainable and environmentally friendly infrastructure.
Prevention is an attempt to look into the future and have a positive influence on it – therefore it is one of the most important aspects in the area of collection care, the central, current field of applied research in conservation and restoration. With sustainability damage and loss are avoided, dangers averted and research conducted. Collection care is only successful, if the theory is appropriately implemented in museum practice.
The fundamental motivation of this book is to contribute to the future advancement of Asset Management in the context of industrial plants and infrastructures. The book aims to foster a future perspective that takes advantage of value-based and intelligent asset management in order to make a step forward with respect to the evolution observed nowadays. Indeed, the current understanding of asset management is primarily supported by well-known standards. Nonetheless, asset management is still a young discipline and the knowledge developed by industry and academia is not set in stone yet. Furthermore, current trends in new organizational concepts and technologies lead to an evolutionary path in the field. Therefore, this book aims to discuss this evolutionary path, starting first of all from the consolidated theory, then moving forward to discuss: • The strategic understanding of value-based asset management in a company; • An operational definition of value, as a concept on the background of value-based asset management; • The identification of intelligent asset management, with the aim to frame a set of "tools" recommended to support the asset-related decision-making process over the asset lifecycle; • The emergence of new technologies such as cyber physical systems and digital twins, and the implications of this on asset management.
This book features a selection of the best papers presented at two recent conferences organized by the SIEV (Italian Society of Appraisal and Valuation). Taking into account the current need for evaluative skills in order to make effective and sustainable investments, it highlights the multidisciplinary role of valuation, which opens the door for interactions with other sectors, scientific and professional fields. The book collects twenty-two papers, divided into three parts (Territory & Urban Planning, Real Estate Assets & the Construction Building Process, Real Estate Finance & Property Management) that reflect the main issues of interest for future urban development policies, namely: feasibility analysis for investments; selecting which decision support models to apply in complex contexts; enhancement of public and private assets; evaluating the effects produced by territorial investments; valuation approaches to properties; risk assessment; and strategies for monitoring energy consumption and soil sealing.
This book includes the latest research presented at the International Conference on Artificial Intelligence in Renewable Energetic Systems held in Tipaza, Algeria on October 22–24, 2017. The development of renewable energy at low cost must necessarily involve the intelligent optimization of energy flows and the intelligent balancing of production, consumption and energy storage. Intelligence is distributed at all levels and allows information to be processed to optimize energy flows according to constraints. This thematic is shaping the outlines of future economies of and offers the possibility of transforming society. Taking advantage of the growing power of the microprocessor makes the complexity of renewable energy systems accessible, especially since the algorithms of artificial intelligence make it possible to take relevant decisions or even reveal unsuspected trends in the management and optimization of renewable energy flows. The book enables those working on energy systems and those dealing with models of artificial intelligence to combine their knowledge and their intellectual potential for the benefit of the scientific community and humanity.
The focus of the Congress will be leading-edge manufacturing processes. Topics include manufacturing at extreme speed, size, accuracy, methodology, use of resources, interdisciplinarity and more. Contributions from production and industrial engineering are welcome. Challenges from the areas of manufacturing, machines and production systems will be addressed. Production research constantly pushes the boundaries of what is feasible. The Congress "Production at the leading edge of technology" will highlight production processes that are advancing into areas that until recently were considered unfeasible, also in terms of methodology, use of resources and interdisciplinarity. But where does the search for new limits lead? Which limitations do we still have to overcome, which ones do we not want to overcome? The aim of the German-speaking colloquium is to establish connections between the research locations and to intensify the overall transfer of results and experience with industrial users.
The Handbook of Reliability, Maintenance, and System Safety through Mathematical Modeling discusses the many factors affect reliability and performance, including engineering design, materials, manufacturing, operations, maintenance, and many more. Reliability is one of the fundamental criteria in engineering systems design, with maintenance serving as a way to support reliability throughout a system's life. Addressing these issues requires information, modeling, analysis and testing. Different techniques are proposed and implemented to help readers analyze various behavior measures (in terms of the functioning and performance) of systems. Enables mathematicians to convert

any process or system into a model that can be analyzed through a specific technique Examines reliability and mathematical modeling in a variety of disciplines, unlike competitors which typically examine only one Includes a table of contents with simple to complex examples, starting with basic models and then refining modeling approaches step-by-step

These are the proceedings of the International Conference on Engineering Science and Production Management, 16th 17th April 2015, Tatransktrba, High Tatras Mountains - Slovak Republic . The proceedings contain articles focusing on:- Production Management, Logistics- Industrial development, sustainable production- Planning, management and pr

The ability of future industry to create interactive, flexible and always-on connections between design, manufacturing and supply is an ongoing challenge, affecting competitiveness, efficiency and resourcing. The goal of enterprise interoperability (EI) research is therefore to address the effectiveness of solutions that will successfully prepare organizations for the advent and uptake of new technologies. This volume outlines results and practical concepts from recent and ongoing European research studies in EI, and examines the results of research and discussions cultivated at the I-ESA 2018 conference, “Smart services and business impact of enterprise interoperability”. The conference, designed to encourage collaboration between academic inquiry and real-world industry applications, addressed a number of advanced multidisciplinary topics including Industry 4.0, Big Data, the Internet of Things, Cloud computing, ontology, artificial intelligence, virtual reality and enterprise modelling for future “smart” manufacturing. Readers will find this book to be a source of invaluable knowledge for enterprise architects in a range of industries and organizations.

This proceedings of the 13th World Congress on Engineering Asset Management covers a range of topics that are timely, relevant and practically important in the modern digital era towards safer, cost effective, efficient, and secure engineered assets such as production and manufacturing plants, process facilities, civil structures, equipment, machinery, and infrastructure. It has compiled some pioneering work by domain experts of the global Engineering Asset Management community representing both public and private sectors. The professional coverage of the book includes: Asset management in Industry 4.0; Standards and models; Sustainable assets and processes; Life cycle perspectives; Smart and safer assets; Applied data science; Workplace safety; Asset health; Advances in equipment condition monitoring; Critical asset processes; and Innovation strategy and entrepreneurship The breadth and depth of these state-of-the-art, comprehensive proceedings make them an excellent resource for asset management practitioners, researchers and academics, as well as undergraduate and postgraduate students.

Engineering Asset Management discusses state-of-the-art trends and developments in the emerging field of engineering asset management as presented at the Fourth World Congress on Engineering Asset Management (WCEAM). It is an excellent reference for practitioners, researchers and students in the multidisciplinary field of asset management, covering such topics as asset condition monitoring and intelligent maintenance; asset data warehousing, data mining and fusion; asset performance and level-of-service models; design and life-cycle integrity of physical assets; deterioration and preservation models for assets; education and training in asset management; engineering standards in asset management; fault diagnosis and prognostics; financial analysis methods for physical assets; human dimensions in integrated asset management; information quality management; information systems and knowledge management; intelligent sensors and devices; maintenance strategies in asset management; optimisation decisions in asset management; risk management in asset management; strategic asset management; and sustainability in asset management.

This introductory textbook links theory with practice using real illustrative cases involving products, plants and infrastructures and exposes the student to the evolutionary trends in maintenance. Provides an interdisciplinary approach which links, engineering, science, technology, mathematical modelling, data collection and analysis, economics and management Blends theory with practice illustrated through examples relating to products, plants and infrastructures Focuses on concepts, tools and techniques Identifies the special management requirements of various engineered objects (products, plants, and infrastructures)

Theincreasingcomplexityofspacevehiclessuchassatellites,andthecostreduction measures that have affected satellite operators are increasingly driving the need for more autonomy in satellite diagnostics and control systems. Current methods for detecting and correcting anomalies onboard the spacecraft as well as on the ground are primarily manual and labor intensive, and therefore, tend to be slow. Operators inspect telemetry data to determine the current satellite health. They use various statisticaltechniques andmodels,buttheanalysisandevaluation ofthelargevolume of data still require extensive human intervention and expertise that is prone to error. Furthermore, for spacecraft and most of these satellites, there can be potentially unduly long delays in round-trip communications between the ground station and the satellite. In this context, it is desirable to have onboard fault-diagnosis system that is capable of detecting, isolating, identifying or classifying faults in the system withouttheinvolvementandinterventionofoperators.Towardthisend,theprinciple goal here is to improve the ef?ciency, accuracy, and reliability of the trend analysis and diagnostics techniques through utilization of intelligent-based and hybrid-based methodologies.

This book deals with Invitations to Tender (ITTs) for the provision of Facility Management (FM) services. It presents a framework to support companies in preparing clear, comprehensive and effective ITTs, focusing on such key aspects as: organizational structures, tools and procedures for managing information, allocation of information responsibilities, procedures for services monitoring and control, quality policies, and risk management. It discusses and analyzes a range of basic terms and concepts, procedures, and international standards concerning the Tendering Process, as well as the contents of ITTs, which should represent the translation of information needs into requirements related to: the client’s goals, main categories of information to deal with, expected organization of information, modalities of reporting and control, and level of knowledge to be reached. A further major focus is on potential key innovation scenarios concerning current FM practice, such as Sustainable Procurement, Building Information Modeling (BIM), Big Data and Internet of Things (IoT) technologies, highlighting both the possible benefits and the possible risks and implications that could negatively affect the quality of FM service provision if not properly treated within the ITT. The book will be of interest to real estate owners, demand organizations and facility managers, enhancing their ability to prepare, interpret and/or critically analyze ITTs.

This book promotes and describes the application of objective and effective decision making in asset management based on mathematical

models and practical techniques that can be easily implemented in organizations. This comprehensive and timely publication will be an essential reference source, building on available literature in the field of asset management while laying the groundwork for further research breakthroughs in this field. The text provides the resources necessary for managers, technology developers, scientists and engineers to adopt and implement better decision making based on models and techniques that contribute to recognizing risks and uncertainties and, in general terms, to the important role of asset management to increase competitiveness in organizations.

This book is published open access under a CC BY 4.0 license. This book summarizes presentations and discussions from the two-day international workshop held at UC Berkeley in March 2015, and derives questions to be addressed in multi-disciplinary research toward a new paradigm of nuclear safety. The consequences of the Fukushima Daiichi nuclear accident in March 2011 have fuelled the debate on nuclear safety: while there were no casualties due to radiation, there was substantial damage to local communities. The lack of common understanding of the basics of environmental and radiological sciences has made it difficult for stakeholders to develop effective strategies to accelerate recovery, and this is compounded by a lack of effective decision-making due to the eroded public trust in the government and operators. Recognizing that making a society resilient and achieving higher levels of safety relies on public participation in and feedback on decision-making, the book focuses on risk perception and mitigation in its discussion of the development of resilient communities.

This book presents the main concepts, state of the art, advances, and case studies of fault detection, diagnosis, and prognosis. This topic is a critical variable in industry to reach and maintain competitiveness. Therefore, proper management of the corrective, predictive, and preventive politics in any industry is required. This book complements other subdisciplines such as economics, finance, marketing, decision and risk analysis, engineering, etc. The book presents real case studies in multiple disciplines. It considers the main topics using prognostic and subdiscipline techniques. It is essential to link these topics with the areas of finance, scheduling, resources, downtime, etc. to increase productivity, profitability, maintainability, reliability, safety, and availability, and reduce costs and downtime. Advances in mathematics, modeling, computational techniques, dynamic analysis, etc. are employed analytically. Computational techniques, dynamic analysis, probabilistic methods, and mathematical optimization techniques are expertly blended to support the analysis of prognostic problems with defined constraints and requirements. The book is intended for graduate students and professionals in industrial engineering, business administration, industrial organization, operations management, applied microeconomics, and the decisions sciences, either studying maintenance or needing to solve large, specific, and complex maintenance management problems as part of their jobs. The work will also be of interest to researches from academia.