In recent times, the number of school building projects in Saudi Arabia has increased to a large extent, particularly projects undertaken by the School Building Agency (SBA). As this number has risen, the inefficiency in projects handled by the SBA has raised concerns. The main purpose of this study is to investigate the reasons behind the inefficiency in terms of time, quality, and cost. Further, to mitigate the inefficiency, the use of project management practices by the SBA has been investigated. The beneficial aspects of project management practices have been adopted in many Western countries, and these can be implemented in developing countries, such as Saudi Arabia, to maximize the potential of these practices. The extent of the use of project management practices by the SBA has been monitored using solutions provided by the respondents. To achieve this purpose, a detailed literature review was undertaken, followed by a structured questionnaire that was posted online for targeted respondents in order to clearly understand the present situation at the SBA and find practical solutions. In addition, a number of interviews were conducted with people working with the SBA. The goal of the research was accomplished with the identification of ten significant issues causing inefficiency in the projects undertaken by the SBA, which relate to the SBA itself, as well as contractors, suppliers, consultants, rules and regulations, and other issues. Moreover, the five lowest uses of project management practices on projects undertaken by the SBA were identified. Lastly, the ten most effective methods to enhance the performance of SBA projects were studied. Finally, this study culminated in specific recommendations to SBA top management to enhance the efficiency of its projects and optimize the use of project management practices within the organization.

"This book aims to bridge the gap in the current literature by addressing the overall problems present in major infrastructure in society, and the technologies that may be applied to overcome these problems"--Provided by publisher.
This open access book focuses on the development of methods, interoperable and integrated ICT tools, and survey techniques for optimal management of the building process. The construction sector is facing an increasing demand for major innovations in terms of digital dematerialization and technologies such as the Internet of Things, Big data, advanced manufacturing, robotics, 3D printing, blockchain technologies and artificial intelligence. The demand for simplification and transparency in information management and for the rationalization and optimization of very fragmented and splintered processes is a key driver for digitization. The book describes the contribution of the ABC Department of the Polytechnic University of Milan (Politecnico di Milano) to R&D activities regarding methods and ICT tools for the interoperable management of the different phases of the building process, including design, construction, and management. Informative case studies complement the theoretical discussion. The book will be of interest to all stakeholders in the building process - owners, designers, constructors, and faculty managers - as well as the research sector.

Challenges, Opportunities and Solutions in Structural Engineering and Construction addresses the latest developments in innovative and integrative technologies and solutions in structural engineering and construction, including: Concrete, masonry, steel and composite structures; Dynamic impact and earthquake engineering; Bridges and special structures; Structural optimization and computation; Construction materials; Construction methods and management; Construction maintenance and infrastructure; Organizational behavior; Sustainability and energy conservation; Engineering economics; Information technology; Geotechnical engineering, foundation and tunneling. The book appeals to structural and construction engineers, architects, academics, researchers, students and those involved in the building and construction industry.

This volume constitutes the proceedings of the combined 7th International Workshop on Trends in Enterprise Architecture Research (TEAR 2012) and the 5th Working Conference on Practice-Driven Research on Enterprise Transformation (PRET-5), held in Barcelona, Spain, October 23-24, 2012, and co-located with The Open Group’s Conference on Enterprise Architecture, Cloud Computing, and Security. Joining the forces of the two events with The Open Group Conference provided the unique opportunity for an intensive exchange between practitioners as well as for discussions on standardization efforts and academic research in the areas of enterprise transformation and enterprise architecture (EA). Based on careful reviews by at least three Program Committee members, 18 papers were chosen for inclusion in these proceedings. They were presented in six sessions on enterprise architecture management (EAM) effectiveness, languages for EA, EAM and the ability to change, advanced topics in EA, governing enterprise transformations, and EA applications.

This is an innovative new business series that presents 60 succinct techniques to improve core business skills, each technique to be read and digested in 60 seconds. 'Management' provides 60 practical, effective management techniques that can be immediately applied to transform your management style and help you to succeed as a manager. Covers all vital management skills, and each of the techniques can be read and digested in 60 seconds. 60 fast solutions packaged in small, handy format will enable advice-hungry businessmen and women to dip in and out of this book when ever they have a spare minute!

Documents, such as drawings, memos and specifications, form an essential function in the design and construction industry. Throughout the lifecycle of a built asset, starting from an initial design idea, right through to a final built form and its ongoing management, thousands, even millions of documents can be used to convey various forms of information to a range of interested parties. In many ways, therefore, the success of a design, or construction-based company, relies upon an understanding of the use of documents and the techniques for managing them. The Digital Document provides an extensive background to the issues and technologies surrounding this very important topic. It examines a technical subject in an insightful manner that is neither intimidating nor confusing, even to the novice computer user. By introducing the subject through a series of preliminary reviews of current practices and essential computing technologies, the reader is able to better appreciate the benefits and capabilities of a wide range of digital document types. This book explores the role of documents in a professional practice, examines the components, capabilities, viability, and use of digital documents in the design and construction industry, and identifies and explains many of the standards in use today. In order to facilitate a better understanding of digital document technologies, a number of essential reviews are included: - the definition and purpose of a document - how documents are typically used by design professionals - the nature of the digital document environment - the data types which make up digital documents The Digital Document is an essential reference for the architect, engineer or design professional that wants to find out more about effective communication in the digital workplace. Bruce Duyshart is an IT Project Manager with Lend Lease Corporation and specialises in the development and implementation of digital media and information management technologies on design and construction projects. He holds a Masters degree in Architecture and is also an academic associate of the Faculty of Architecture, Building and Planning at the University of Melbourne. He has written numerous papers on emerging technologies in the architecture, engineering and construction industry, and has developed Internet web sites for the Royal Australian Institute of Architects and Architecture Media.

"Many books have been written about granular activated carbon. Some focus on the theory of performance and removal mechanisms while others focus on design features. This book focuses on solutions. It describes the challenges facing water providers to provide safe water that is acceptable to their customers, utility experiences using activated carbon, and capabilities and of a wide range of digital document types. This book explores the role of documents in a professional practice, examines the components, capabilities, viability, and use of digital documents in the design and construction industry, and identifies and explains many of the standards in use today. In order to facilitate a better understanding of digital document technologies, a number of essential reviews are included:- the definition and purpose of a document - how documents are typically used by design professionals - the nature of the digital document environment - the data types which make up digital documents The Digital Document is an essential reference for the architect, engineer or design professional that wants to find out more about effective communication in the digital workplace. Bruce Duyshart is an IT Project Manager with Lend Lease Corporation and specialises in the development and implementation of digital media and information management technologies on design and construction projects. He holds a Masters degree in Architecture and is also an academic associate of the Faculty of Architecture, Building and Planning at the University of Melbourne. He has written numerous papers on emerging technologies in the architecture, engineering and construction industry, and has developed Internet web sites for the Royal Australian Institute of Architects and Architecture Media.

"Many books have been written about granular activated carbon. Some focus on the theory of performance and removal mechanisms while others focus on design features. This book focuses on solutions. It describes the challenges facing water providers to provide safe water that is acceptable to their customers, utility experiences using activated carbon, activated carbon applications, and design and procurement approaches. The appendices include detailed case studies and a life-cycle assessment demonstrating favorable sustainability considerations for activated carbon when compared to other treatment technologies. Never before has all of this information been together in one location. The what, why, and how of activated carbon are connected in this book and demonstrate why this treatment technology has maintained its status as an integral treatment technology in the quest for pure water over millennia"--

At the beginning of the Fourth Industrial Revolution, the advent of digitalization, innovative technologies and materials, and new construction techniques have begun transforming the way that infrastructure, real estate, and other built assets can be designed, constructed, and operated in order to create a more attractive, energy-efficient, comfortable, affordable, safe, and sustainable built environment. Developments in materials and cutting-edge technologies (such as artificial intelligence, robotics, nanotechnology, 3D printing, and biotechnology) have finally started to move the construction towards a new era. Massive changes are occurring as a result of the possibilities created by big data and the Internet of Things, along with the technological advances that are driving down the cost of sensors, data storage, and computer services. Construction 4.0: Advanced Technology, Tools and Materials for the Digital Transformation of the Construction Industry presents a thorough review of developments in materials, emerging trends, cutting-edge technologies, and strategies in the fields of smart building design, construction, and operation, providing the reader with a comprehensive guideline on how to exploit the new
possibilities offered by the digital revolution. It will be an essential reference resource for academic researchers, material scientists, and civil engineers, undergraduate and graduate students, and other professionals working in the fields of smart eco-efficient construction and cutting-edge technologies applied to construction. Features discussions on how nanomaterials, bio-based materials, and recycled materials are applied in the construction of buildings. Provides case studies on cutting-edge digital technology such as AI and machine learning. Examines all aspects of sustainability, including end-of-life of buildings.

The industry-standard guide to earthmoving and machines—thoroughly revised to cover the latest advances. This fully updated resource covers every aspect of site preparation and management, and details the machines and vehicles needed to perform each task. Written by a team of excavation experts, the book helps you choose the right approach for any job, select appropriate equipment, and understand the related safety requirements. You will get clear explanations of the different types of excavation methods, including compaction, grading, blasting, structural excavation, and aggregate production. The text also provides examples of how to calculate machine production. Moving the Earth: Excavation Equipment, Safety, and Costs. Seventh Edition. Covers: Cost estimating and planning • Soil and rock • Machine fundamentals • Dozer and land clearing • Excavators and loaders • Trucks and trailers • Scrapers • Structural excavation • Trenching and trenchless technologies • Compaction, stabilization, and finishing • Compressors and drills • Blasting • Aggregate processing.

Developers, designers, and operators are increasingly needing to create versatile sport and leisure amenities that are of lasting value to local and wider communities. Placing facilities design and operation at the heart of sports development, this book adopts a holistic approach, integrating experience in the field with collective knowledge across many different uses and technologies. Extensive use of case studies from around the world makes this book a definitive reference for practitioners and students in sports and leisure, building design and facilities management.

Understanding the relationship between landslides and climate change is crucially important in planning a proactive approach to hazard and risk management. Advances in geohazard modelling and prediction enable us to be better prepared for the impacts of climate change, but there is still a need for effective risk management and informed planning.

Launched in May 2000, the aims of the COST C12 cooperative action were: to develop, combine and disseminate new technical engineering technologies to improve the quality of urban buildings, and to propose new technical solutions to architects and planners to reduce the disturbance caused by construction in urban areas and improve urban quality of life. This volume contains the proceedings of the COST C12 Final conference held in Innsbruck, Austria from January 20-22 2005. The book reflects not only the outcome of the four years' work of the cooperative, but also the contributions made by other international experts at the conference, focused on three broad themes: mixed building technology, structural integrity under exceptional actions; and urban design.

This work provides a single text to support the learning process associated with the study of the construction of domestic housing. The text includes a series of learning sessions or modules covering individual components of the topic.

These are the proceedings of the 3rd International Conference on Engineering Sciences and Technologies (EStA 2018), held from 12th - 14th September 2018 in the High Tatras Mountains, Tatranské Matliare, Slovak Republic. EStA 2018 was organized under the auspices of the Faculty of Civil Engineering, Technical University of Košice - Slovak Republic in collaboration with Peter the Great St. Petersburg Polytechnic University - Russia after the successful organization with excellent feedback of the previous international conferences EStA 2015 and EStA 2016. The proceedings is covering various topics and disciplines in civil engineering sciences, such as Buildings and Architectural Engineering, Bearing Structures, Material and Environmental Engineering, Construction Technology and Management, Building Physics and Facilities, Geodesy, Surveying and Mapping, Geotechnics and Traffic Engineering. The proceedings report on new and original progress and trends in various fields of engineering sciences that will be of interest to a wide range of
The book consists of 35 extended chapters which have been selected and invited from the submissions to the 4th International Conference on Computational Collective Intelligence Technologies and Applications (ICCCI 2012) held on November 28-30, 2012 in Ho Chi Minh City, Vietnam. The book is organized into six parts, which are semantic web and ontologies, social networks and e-learning, agent and multiagent systems, data mining methods and applications, soft computing, and optimization and control, respectively. All chapters in the book discuss theoretical and practical issues connected with computational collective intelligence and related technologies. The editors hope that the book can be useful for graduate and Ph.D. students in Computer Science, in particular participants in courses on Soft Computing, Multiagent Systems, and Data Mining. This book can be also useful for researchers working on the concept of computational collective intelligence in artificial populations. It is the hope of the editors that readers of this volume can find many inspiring ideas and use them to design new cases of intelligent collectives. Many such challenges are suggested by particular approaches and models presented in individual chapters of this book. The editors hope that readers of this volume can find many inspiring ideas and influential practical examples and use them in their future work.

This new edition of a core undergraduate textbook for construction managers reflects current best practice, topical industry preoccupations and latest developments in courses and fundamentals for students. While the construction process still requires traditional skills, changes over recent decades today demand improved understanding of modern business, production and contractual practices. The authors have responded accordingly. The book has undergone a thorough re-write, eliminating some of the older material and adding new processes now considered essential to achieving lean construction. Particular emphasis is given, for example, to supply chains and networks, value and risk management, BIM, ICT, project arrangements, corporate social responsibility, training, health and welfare and environmental sustainability. Modern Construction Management presents construction as an aspirationally responsible, innovative, carbon-reducing, manager-involved, people-oriented, crisis-free industry that is efficient and cost effective. The overall themes for the Seventh Edition are: Drivers for efficiency: Lean construction underpinning production management and off-site production methods. Sustainability: reflecting the transition to a low carbon economy. Corporate Social Responsibility: embracing health & safety, modernistic contracts, effective procurement, and employment issues. Building Information Management: directed towards the improvement of construction management systems. The comprehensive selection of worked examples, based on real land practical situations in construction management and methodology will help to consolidate learning. A companion website at a href="http://www.wiley.com/go/MCM7"www.wiley.com/go/MCM7/a offers invaluable support material for both tutors and students: Solutions to self-learning exercises PowerPoint slides with discussion topics Journal and web references Structured to reflect the site, business and corporate responsibilities of managers in construction, the book continues to provide strong coverage of the salient elements required for developing and equipping the modern construction manager with the competencies and skills for both technical and professional roles.

The offsite and modular market is continuing to grow. This book builds on the success of a number of initiatives, including formative findings from literature, research and development and practice-based evidence (success stories). It presents new thinking and direction from leading experts in the fields of: design, process, construction, engineering, manufacturing, logistics, robotics, delivery platforms, business and transformational strategies, change management, legislation, organisational learning, software design, innovation and biomimetics. This book is particularly novel and timely, as it brings together a number of cogent subjects under one collective 'umbrella'. Each of these chapters contains original findings, all of which culminate into an interesting cross-cutting and symbiotic force that exist between each of these chapters. This approach also provides readers with new contextualised understanding of the wider issues affecting the offsite market, from the need to embrace societal challenges, through to the development of rich value-laden solutions required for creating societal resilience. Content includes a balance between case studies and practice-based work, through to technical topics, theoretical propositions, pioneering research and future offsite opportunities ready for exploitation. This work includes: stakeholder integration, skills acquisition, new business models and processes, circularity and sustainable business strategies, robotics and automation, innovation and change, lean production methodologies and new construction methods. Design for Manufacturing and Assembly, scaled portfolio platforms and customisability, new legal regulatory standards and conformance issues and offsite feasibility scenario development/integration.

Project management as a discipline has experienced near-exponential growth in its application across the business and not-for-profit sectors. This original, authoritative guide provides an essential reference for students and researchers with a complete guide to research practice on project management. In Design, Methods and Practices for Research in Project Management, Beverly Pasian has brought together original chapters from a veritable who’s who of project management research including authors such as Harvey Maylor, Christophe Bredillet, Derek Walker, Miles Shepherd, Janice Thomas, Naomi Brookes and Darren Dalcher. The collection looks at research strategy, management, methodology, techniques as well as the broader flexibility of topics such as social network analysis. The 38 chapters offer an international perspective with examples from a wide range of project management applications; engineering, construction, mega-projects, high-risk environments and social transformation. Each chapter includes tips and exercises for the research student, as well as a complete set of further references.

Organizations increasingly need to deal with unstructured processes that traditional business process management (BPM) suites are not designed to deal with. High-risk, yet high-value, loan origination or credit approvals, police investigations, and healthcare patient treatment are just a few examples of areas where a level of uncertainty makes out

The tactical organization of resources is a vital component to any industry in modern society. Effectively managing the flow of materials through various networks ensures that the requirements of customers are met. Sustainable Logistics and Strategic Transportation Planning is a pivotal reference source for the latest research on the management of logistics through the lens of sustainability, as well as for emerging procedures that are particularly critical to the transportation sector. Highlighting international perspectives, frameworks, and targeted investigations, this book is ideally designed for policy makers, professionals, researchers, and upper-level students interested in logistics and transport systems.

This volume consists of ten collections of four special lectures, six general reports and 112 papers presented at the Sixth International Symposium of Geotechnical Aspects of Underground Construction in Soft Ground (IS-Shanghai) held between 10 and 12 April 2008 in Shanghai, China. The Symposium was organised by Tongji University and the following t
Every industry has its standard professional directory -- advertising has its Black Book, manufacturing its Thomas's Register -- except, that is, for architecture and design and construction. While there are dozens of smaller directories, each addressing a specific market niche, none speak to all three industries in a comprehensive way. And larger product directories, like Sweets, are advertising driven and therefore incomplete. Felder's Comprehensive is the first pan-industry guide of its kind, and it is many times more comprehensive than the nearest competitor. It is an annual desk reference, directory, and product source guide with more reference information than any other title currently available. It contains thousands of listings of time-sensitive and timeless reference information for anyone involved in the business or practice of architecture, design, design/build, construction, interior design, facility management, and real-estate development. For example, readers can find listings for more than 12,000 manufacturers of furnishings, fixtures, equipment, and materials listed alphabetically, and, most importantly, by product category. Felder's also lists design competitions, domestic and international trade shows, trade publications and other media, trade associations, professional organizations, and more. Most sections are indexed and cross-referenced for easy referral and identification. Felder's is the first truly comprehensive reference guide of its kind for the A/E/C marketplace and is certain to become the industry standard.

Karst aquifers are important sources of drinking water worldwide. This volume presents a discussion of the current state of knowledge on karst science, advances in karst mapping and karst aquifer monitoring technologies, case studies of karst aquifer assessment, and regulatory perspectives on land use and water management in karst environments. It offers valuable reference material for researchers involved in karst science and environmental studies, as well as a guide for experts at governmental agencies, scientists, engineers and other professionals involved in karst aquifer protection and the design of land and water management systems in karst areas around the globe.

This book highlights the latest technologies and applications of Artificial Intelligence (AI) in the domain of construction engineering and management. The construction industry worldwide has been a late bloomer to adopting digital technology, where construction projects are predominantly managed with a heavy reliance on the knowledge and experience of construction professionals. AI works by combining large amounts of data with fast, iterative processing, and intelligent algorithms (e.g., neural networks, process mining, and deep learning), allowing the computer to learn automatically from patterns or features in the data. It provides a wide range of solutions to address many challenging construction problems, such as knowledge discovery, risk estimates, root cause analysis, damage assessment and prediction, and defect detection. A tremendous transformation has taken place in the past years with the emerging applications of AI. This enables industrial participants to operate projects more efficiently and safely, not only increasing the automation and productivity in construction but also enhancing the competitiveness globally.

This is a comprehensive review of research related to construction informatics, with a particular focus on the related 5th framework EU projects on product and process technology and the implementation of the new economy technologies and business models in the construction industry.