

Stanford University Bim Execution Plan

Construction Innovation and Process Improvement John Wiley & Sons

Originating from the 2019 International Conference on Building Information Modelling this book presents latest findings in the field. This volume presents research from a panel of experts from industry, practice and academia touching on key topics, the development of innovative solutions, and the identification future trends.

This book presents articles from The 16th East Asian-Pacific Conference on Structural Engineering and Construction, 2019, held in Brisbane, Australia. It provides a forum for professional engineers, academics, researchers and contractors to present recent research and developments in structural engineering and construction.?

A revolutionary, collaborative approach to design and construction project delivery Integrated Project Delivery is the first book-length discussion of IPD, the emergent project delivery method that draws on each stakeholder's unique knowledge to address problems before they occur. Written by authors with over a decade of research and practical experience, this book provides a primer on IPD for architects, designers, and students interested in this revolutionary approach to design and construction. With a focus on IPD in everyday operation, coverage includes a detailed explanation and analysis of IPD guidelines, and case studies that show how real companies are applying these guidelines on real-world projects. End-of-chapter questions help readers quickly review what they've learned, and the online forum allows them to share their insights and ideas with others who either have or are in the process of implementing IPD themselves. Integrated Project Delivery brings together the owners, architect, engineers, and contractors early in the development stage to ensure that problems are caught early, and to address them in a collaborative way. This book describes the parameters of this new, more efficient approach, with expert insight on real-world implementation. Compare traditional procurement with IPD Understand IPD guidelines, and how they're implemented Examine case studies that illustrate everyday applications Communicate with other IPD adherents in the online forum The IPD approach revolutionizes not only the workflow, but the relationships between the stakeholders – the atmosphere turns collaborative, and the team works together toward a shared goal instead of viewing one another as obstructions to progress. Integrated Project Delivery provides a deep exploration of this approach, with practical guidance and expert insight.

In today's digital, green, and consumer driven marketplace, it is critical to be knowledgeable about the latest approaches, tools and systems that can help you seamlessly and reliably conduct building performance verification assessments. This groundbreaking book provides you with a solid understanding of the underpinnings of embedded commissioning (ECx) as the overarching building evaluation approach. You find a review of significant and emerging approaches within ECx, including product models, process models, BIM (building information modeling), laser technology based modeling, mapping between process and product models, building codes, and data access and exchange standards. Moreover, this forward-looking resource provides you with details on the latest research findings in the areas of sensor networks, value based design, field tools and AR/AV methods, just-in-time technologies, and wearable computers."

Businesses consistently work on new projects, products, and workflows to remain competitive and successful in the modern business environment. To remain zealous, businesses must employ the most effective methods and tools in human resources, project management, and overall business plan execution as competitors work to succeed as well. Advanced Methodologies and Technologies in Business Operations and Management provides emerging research on business tools such as employee engagement, payout policies, and financial investing to promote operational success. While highlighting the challenges facing modern organizations, readers will learn how corporate social responsibility and utilizing artificial intelligence improve a company's culture and management. This book is an ideal resource for executives and managers, researchers, accountants, and financial investors seeking current research on business operations and management.

Building Information Modelling (BIM) in Design, Construction, and Operations contains the proceedings of the first in a planned series of conferences dealing with design coordination, construction, maintenance, operation and decommissioning. The book gives details of how BIM tools and techniques have fundamentally altered the manner in which modern construction teams operate, the processes through which designs are evolved, and the relationships between conceptual, detail, construction and life cycle stages. The papers contributed by experts from industry, practice and academia, debate key topics, develop innovative solutions, and predict future trends. The interdisciplinary nature of the contents and the collaborative practices discussed, so important within the built environment, will appeal to those engaged in design, surveying, visualisation, infrastructure, real estate, construction law, insurance, and facilities management. Topics covered include: BIM in design coordination; BIM in construction operations, BIM in building operation and maintenance; BIM and sustainability; BIM and collaborative working and practices; BIM health and safety and BIM-facilities management integration, among others. Buildings and infrastructure represent principal assets of any national economy as well as prime sources of environmental degradation. Making them more sustainable represents a key challenge for the construction, planning and design industries and governments at all levels; and the rapid urbanisation of the 21st century has turned this into a global challenge. This book embodies the results of a major research programme by members of the Australia Co-operative Research Centre for Construction Innovation and its global partners, presented for an international audience of construction researchers, senior professionals and advanced students. It covers four themes, applied to regeneration as well as to new build, and within the overall theme of Innovation: Sustainable Materials and Manufactures, focusing on building material products, their manufacture and assembly – and the reduction of their ecological 'fingerprints', the extension of their service lives, and their re-use and recyclability. It also explores the prospects for applying the principles of the assembly line. Virtual Design, Construction and Management, viewed as increasing sustainable development through automation, enhanced collaboration (such as virtual design teams), real time BL performance assessment during design, simulation of the construction process, life-cycle management of project information (zero information loss) risk minimisation, and increased potential for innovation and value adding. Integrating Design, Construction and Facility Management over the Project Life Cycle, by converging ICT, design science engineering and sustainability science. Integration across spatial scales, enabling building–infrastructure synergies (such as water and energy efficiency). Convergences between IT and design and operational processes are also viewed as a key platform increased sustainability.

Building Information Modeling (BIM), or the process of generating and managing digital information about physical representations of constructions, has been effectively adopted and benefited numerous civil engineering projects across the globe, particularly in developed countries. BIM Development and Trends in Developing Countries addresses the philosophies and practices for improved application of BIM in developing countries. Two case studies are presented in this reference: one from Malaysia and another representing Sri Lanka. Readers are given an introduction and background of the Malaysian and Sri Lankan construction industry and a critical review of BIM's philosophies, development and applications in different stages of a construction project. The authors present their recommendations on the way forward for BIM practices articulated from the two perspectives, namely, academia and industrial BIM practice. The case studies in this book highlight the role of adequate BIM software techniques and the importance of governmental support in facing building challenges at the moment. . BIM Development and Trends in Developing Countries provides readers useful insights on the evolution of BIM practice in emerging countries and is a unique report on two specific scenarios in BIM development. Engineers, architects, urban planners and policy makers around the globe seeking to understand practical BIM

implementation and trends will find this reference invaluable.

This book constitutes the thoroughly refereed proceedings of the 13th Workshop of the European Group for Intelligent Computing in Engineering and Architecture, EG-ICE 2006, held in Ascona, Switzerland in June 2006. The 59 revised full papers were carefully reviewed and selected from numerous submissions for inclusion in the book. All issues of advanced informatics are covered including a range of techniques.

This book contains 19 peer-reviewed papers on the subject of BIM in the construction industry. These articles cover recent advances in the development of BIM technologies and applications in the field of architecture, engineering, and construction (AEC) industry.

This book constitutes the thoroughly refereed post-conference proceedings of the International IFIP WG 5.7 Conference on Advances in Production Management Systems, APMS 2011, held in Stavanger, Norway, in September 2011. The 66 revised and extended full papers were carefully reviewed and selected from 124 papers presented at the conference. The papers are organized in 3 parts: production process, supply chain management, and strategy. They represent the breadth and complexity of topics in operations management, ranging from optimization and use of technology, management of organizations and networks, to sustainable production and globalization. The authors use a broad range of methodological approaches spanning from grounded theory and qualitative methods, via a broad set of statistical methods to modeling and simulation techniques.

This is the Proceedings of the 20th International Congress on Project Management and Engineering, that was held at the Technical University of Cartagena, Spain, from July 13 to 15, 2016. It brings together a collection of recent works of researchers and professionals in the Project Management and Engineering fields of Civil Engineering and Urban Planning, Product and Process Engineering, Environmental Engineering, Energy Efficiency and Renewable Energies and Safety, Labour Risks and Ergonomics.

Building information modelling (BIM) is a set of interacting policies, processes and technologies that generates a methodology to manage the essential building design and project data in digital format throughout the building's life cycle. BIM, makes explicit, the interdependency that exists between structure, architectural layout and mechanical, electrical and hydraulic services by technologically coupling project organizations together. Integrated Building Information Modelling is a handbook on BIM courses, standards and methods used in different regions (Including UK, Africa and Australia). 13 chapters outline essential information about integrated BIM practices such as the BIM in site layout plan, BIM in construction product management, building life cycle assessment, quantity surveying and BIM in hazardous gas monitoring projects while also presenting information about useful BIM tool and case studies. The book is a useful handbook for engineering management professionals and trainees involved in BIM practice.

Since 1994, the European Conference on Product and Process Modelling (www.ecppm.org) has been providing a review of research, development and industrial implementation of product and process model technology in construction. The 7th European Conference on Product and Process Modelling (ECPPM 2008) provided a unique discussion platform for topics of In the last two decades, the biannual ECPPM (European Conference on Product and Process Modelling) conference series has provided a unique platform for the presentation and discussion of the most recent advances with regard to the ICT (Information and Communication Technology) applications in the AEC/FM (Architecture, Engineering, Construction and Facilities Management) domains. ECPPM 2014, the 10th European Conference on Product and Process Modelling, was hosted by the Department of Building Physics and Building Ecology of the Vienna University of Technology, Austria (17-19 September 2014). This book entails a substantial number of high-quality contributions that cover a large spectrum of topics pertaining to ICT deployment instances in AEC/FM, including: - BIM (Building Information Modelling) - ICT in Civil engineering & Infrastructure - Human requirements & factors - Computational decision support - Commissioning, monitoring & occupancy - Energy & management - Ontology, data models, and IFC (Industry Foundation Classes) - Energy modelling - Thermal performance simulation - Sustainable buildings - Micro climate modelling - Model calibration - Project & construction management - Data & information management As such, eWork and eBusiness in Architecture, Engineering and Construction 2014 represents a rich and comprehensive resource for academics and professionals working in the interdisciplinary areas of information technology applications in architecture, engineering, and construction.

This book presents state-of-the-art research and case studies on new approaches to the design, construction and planning of our cities. Emphasis is placed on the role of alternative and renewable energy in the development of urban infrastructures that enable sustainable futures. Reflecting the multi-faceted efforts required to successfully meet sustainability challenges, this book is a collaboration between practitioners and academics across a broad spectrum of specializations. Compelling research findings are explained in the context of practical implementation, enhanced by case studies from industry leaders in order to create a pragmatic reference across policy areas where environmentally aware decision making is required.

Are you unsure about: the current US legal environment with respect to BIM and VDC? the evolving standards of care for design and construction professionals using BIM and VDC? what practical methods and techniques can be used for analyzing construction claims and disputes involving BIM technologies and VDC processes? Building Information Modeling (BIM) technologies and Virtual Design and Construction (VDC) processes are aggressively and fundamentally changing the design, construction and operation of buildings. Supporters of BIM have highlighted the potential these technologies have to reduce the need for claims, disputes and litigation, but evidence from several early sources shows they are not universally successful in this. This timely and unique book provides crucial new methods for analyzing construction disputes in this emerging AEC technological landscape. It explains how BIM & VDC has significantly altered the production and delivery of construction drawings, quantity surveys, and schedules, and how these changes might impact construction disputes. The findings and advice in this book are indispensable to any stakeholder in a construction project using BIM. It will help Contractors, Cost Managers, Architects, Building Designers, Quantity Surveyors, and Project Managers to navigate and understand their responsibilities and exposure to risk when working with this new technology.

Building Information Modelling (BIM) is a global phenomenon which is gaining significant momentum across the world. Currently there is little information on how to realise and monitor benefits from implementing BIM across the life-cycle of a built environment asset. This book provides a practical and strategic framework to realise value from implementing BIM by adapting Benefit Realisation Management theory. It presents an approach for practitioners aiming to implement BIM across the life-cycle of built environment assets, including both buildings and infrastructure. Additionally, the book

features: wide-ranging information about BIM, the challenges of monitoring progress towards benefit goals and the greater context of implementation; a set of dictionaries that illustrate: how benefits can be achieved, what the benefit flows are and the enabling tools and processes that contribute to achieving and maximising them; a suite of measures that can serve to monitor progress with examples of how they have been used to measure benefits from BIM; real-world examples from across the world and life-cycle phases that show how these benefits can be achieved; and information on international maturity and competency measures to complement the value realisation framework. Including a blend of academic and industry input, this book has been developed in close collaborative consultation with industry, government and international research organisations and could be used for industry courses on BIM benefits and implementation for asset management or by universities that teach BIM-related courses. This book presents the Proceedings of The 6th Brazilian Technology Symposium (BTSym'20). The book discusses the current technological issues on Systems Engineering, Mathematics and Physical Sciences, such as the Transmission Line, Protein-Modified Mortars, Electromagnetic Properties, Clock Domains, Chebyshev Polynomials, Satellite Control Systems, Hough Transform, Watershed Transform, Blood Smear Images, Toxoplasma Gondii, Operation System Developments, MIMO Systems, Geothermal-Photovoltaic Energy Systems, Mineral Flotation Application, CMOS Techniques, Frameworks Developments, Physiological Parameters Applications, Brain-Computer Interface, Artificial Neural Networks, Computational Vision, Security Applications, FPGA Applications, IoT, Residential Automation, Data Acquisition, Industry 4.0, Cyber-Physical Systems, Digital Image Processing, Patterns Recognition, Machine Learning, Photocatalytic Process, Physical-Chemical Analysis, Smoothing Filters, Frequency Synthesizers, Voltage-Controlled Ring Oscillator, Difference Amplifier, Photocatalysis, Photodegradation, current technological issues on Human, Smart and Sustainable Future of Cities, such as the Digital Transformation, Data Science, Hydrothermal Dispatch, Project Knowledge Transfer, Immunization Programs, Efficiency and Predictive Methods, PMBOK Applications, Logistics Process, IoT, Data Acquisition, Industry 4.0, Cyber-Physical Systems, Fingerspelling Recognition, Cognitive Ergonomics, Ecosystem Services, Environmental, Ecosystem Services Valuation, Solid Waste and University Extension.

Technological evolutions have changed the field of architecture exponentially, leading to more stable and energy-efficient building structures. Architects and engineers must be prepared to further enhance their knowledge in the field in order to effectively meet new and advancing standards. Architecture and Design: Breakthroughs in Research and Practice is an authoritative resource for the latest research on the application of new technologies and digital tools that revolutionize the work of architects globally, aiding in architectural design, planning, implementation, and restoration. Highlighting a range of pertinent topics such as design anthropology, digital preservation, and 3D modeling, this publication is an ideal reference source for researchers, scholars, IT professionals, engineers, architects, contractors, and academicians seeking current research on the development and creation of architectural design.

Building Information Modeling (BIM) is a new way of working and AEC professionals and researchers are trying to understand its implementation and impacts. To develop this understanding, one of the approaches is to study what happened on past projects that have implemented BIM and to synthesize the differences and commonalities. However, the current BIM stories typically present fragmented project data that cannot capture BIM implementations in a structured, sufficient, and consistent way. In addition, the currently available BIM guidelines lack validation by a large number of projects. Given these shortcomings, AEC professionals and researchers cannot achieve knowledge that guides them towards well-defined, measurable, and monitored BIM implementations. A framework to characterize BIM implementations is needed to link the broken chain "from data to knowledge". Through case studies on 40 construction projects, this research provides a framework to characterize why, when, for whom, in what level of detail, with which tools, how, for how much, and how well BIM implementations are done on projects. With the characterization framework, past projects can be documented sufficiently and consistently so that BIM managers or BIM researchers can compare a group of BIM projects to gain insight into how to maximize the benefits of BIM. The contribution of this research is a characterization framework that: 1) Organizes project data of BIM implementations into categories, factors, and measures with an increasing levels of detail; 2) Sufficiently and consistently captures why, when, for whom, at what level of detail, with which tools, how, for how much, and how well BIM implementations were done on the 40 case projects; and 3) Supports cross-project comparisons of BIM implementations to gain insights into implementation patterns (i.e., how to plan a BIM implementation to maximize benefits).

This book brings together some of the best practitioners and thinkers from around the world to discuss the likely future of information and communication technologies for the construction industry. It addresses a range of innovative developments, state of the art applications, research work and theoretical arguments with regard to the use of virtual technologies in design, construction and procurement. From a future oriented perspective, the book presents what can be expected from the next generation of these technologies.

Everything you need to make the most of building information modeling If you're looking to get involved in the world of BIM, but don't quite know where to start, Building Information Modeling For Dummies is your one-stop guide to collaborative building using one coherent system of computer models rather than as separate sets of drawings. Inside, you'll find an easy-to-follow introduction to BIM and hands-on guidance for understanding drivers for change, the benefits of BIM, requirements you need to get started, and where BIM is headed. The future of BIM is bright—it provides the industry with an increased understanding of predictability, improved efficiency, integration and coordination, less waste, and better value and quality. Additionally, the use of BIM goes beyond the planning and design phase of the project, extending throughout the building life cycle and supporting processes, including cost management, construction management, project management, and facility operation. Now heavily adopted in the U.S., Hong Kong, India, Singapore, France, Canada, and countless other countries, BIM is set to become a mandatory practice in building work in the UK, and this friendly guide gives you everything you need to make sense of it—fast. Demonstrates how BIM saves time and waste on site Shows you how the information generated from BIM leads to fewer errors on site Explains how BIM is based on data sets that describe objects virtually, mimicking the way they'll be handled physically in the real world Helps you grasp how the integration of BIM allows every stage of the life cycle to work together without data or process conflict Written by a team of well-known experts, this friendly, hands-on guide gets you up and running with BIM fast.

Discover BIM: A better way to build better buildings. Building Information Modeling (BIM) is a new approach to design, construction, and facility management in which a digital representation of the building process is used to facilitate the exchange and interoperability of information in digital format. BIM is beginning to change the way buildings look, the way they function, and the ways in which they are designed and built. BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers, and Contractors provides an in-depth understanding of BIM technologies, the business and organizational issues associated with its implementation, and the profound advantages that effective use of BIM can provide to all members of a project team. The Handbook: Introduces Building Information Modeling and the technologies that support it Reviews BIM and its related technologies, in particular parametric and object-oriented modeling, its potential benefits, its costs, and needed infrastructure Explains how designing, constructing, and operating buildings with BIM differs from pursuing the same activities in the traditional way using drawings, whether paper or electronic Discusses the present and future influences of BIM on regulatory agencies; legal practice associated with the building industry; and manufacturers of building products Presents a rich set of BIM case studies and describes various BIM tools and technologies Shows how specific disciplines owners, designers, contractors, and fabricators can adopt and implement BIM in their companies Explores BIM's current and future impact on industry and society Painting a colorful and thorough picture of the state of the art in Building Information Modeling, the BIM Handbook guides readers to successful implementations, helping them to avoid needless

frustration and costs and take full advantage of this paradigm-shifting approach to build better buildings, that consume fewer materials, and require less time, labor, and capital resources.

This book provides scholars working in the many disciplines that relate to the concept of the Circular Economy with a cross-disciplinary forum, looking at areas such as: Theory, Policy and Contexts; Improving Resource Efficiency and Reducing Waste; Changing Consumption and Behaviour by Design; and Transforming Technologies of Production.

This book sets out the innovative practices that have been introduced from other industries and shows how the construction industry has learnt from these.

A practical look at extending the value of Building Information Modeling (BIM) into facility management—from the world's largest international association for professional facility managers Building owners and facility managers are discovering that Building Information Modeling (BIM) models of buildings are deep reservoirs of information that can provide valuable spatial and mechanical details on every aspect of a property. When used appropriately, this data can improve performance and save time, effort, and money in running and maintaining the building during its life cycle. It can also provide information for future modifications. For instance, a BIM could reveal everything from the manufacturer of a light fixture to its energy usage to maintenance instructions. BIM for Facility Managers explains how BIM can be linked to facility management (FM) systems to achieve very significant life-cycle advantages. It presents guidelines for using BIM in FM that have been developed by public and private owners such as the GSA. There is an extensive discussion of the legal and contractual issues involved in BIM/FM integration. It describes how COBie can be used to name, capture, and communicate FM-related data to downstream systems. There is also extensive discussion of commercial software tools that can be used to facilitate this integration. This book features six in-depth case studies that illustrate how BIM has been successfully integrated with facility management in real-life projects at: Texas A&M Health Science Center USC School of Cinematic Arts MathWork's new campus Xavier University State of Wisconsin Facilities University of Chicago Library renovation BIM for Facility Managers is an indispensable resource for facility managers, building owners, and developers alike.

This book explains how to combine and exploit sensor networks and internet-of-things (IoT) technologies and Web-service design patterns to enrich and integrate Building Information Models (BIMs). It provides approaches and software architectures for facilitating the interaction with (and between) BIMs through Web services, and for enabling and facilitating the fusion of the information residing in such models or of information acquired from IoT technologies. The proposed software architectures are presented in the form of design patterns. This information fusion will facilitate many novel application fields ranging from emergency response, to urban monitoring and surveillance, and to smart buildings. The book consists of 8 chapters. The first 2 chapters focus on the basics of BIMs, while chapter 3 presents fundamental service-oriented architecture patterns for complex information models. Subsequently, chapters 4 and 5 elaborate on the hardware and software side of IoT, with a special focus on their use for BIMs. Chapter 6 provides advanced SOA patterns for BIMs, while chapter 7 details patterns for IoT, and for BIM and IoT information fusion. Lastly, chapter 8 summarizes the work and provides an outlook on promising future developments. Overall, the book will be beneficial for researchers and developers in the fields of building information models, IoT applications, and systems integration.

Discover BIM: A better way to build better buildings Building Information Modeling (BIM) offers a novel approach to design, construction, and facility management in which a digital representation of the building product and process is used to facilitate the exchange and interoperability of information in digital format. BIM is beginning to change the way buildings look, the way they function, and the ways in which they are designed and built. The BIM Handbook, Third Edition provides an in-depth understanding of BIM technologies, the business and organizational issues associated with its implementation, and the profound advantages that effective use of BIM can provide to all members of a project team. Updates to this edition include: Information on the ways in which professionals should use BIM to gain maximum value New topics such as collaborative working, national and major construction clients, BIM standards and guides A discussion on how various professional roles have expanded through the widespread use and the new avenues of BIM practices and services A wealth of new case studies that clearly illustrate exactly how BIM is applied in a wide variety of conditions Painting a colorful and thorough picture of the state of the art in building information modeling, the BIM Handbook, Third Edition guides readers to successful implementations, helping them to avoid needless frustration and costs and take full advantage of this paradigm-shifting approach to construct better buildings that consume fewer materials and require less time, labor, and capital resources.

"The book is structured in five parts that present the history and contemporary conditions that shape today's building industry, the tools and tactics needed to develop and foster collaboration amongst various project stakeholders, and explores the changing nature of the workforce, emerging technologies, and innovative business models that will impact the future of our practice. Each of the parts is briefly outlined below"--

A tactical guide to successful Virtual Design and Construction project coordination, featuring case studies from leading VDC firms. Virtual Design Coordination (VDC) employs information-rich Building Information Modeling (BIM) to enable specialty designers and contractors to create a single, coordinated set of designs that can prevent cost overruns, avoid schedule delays, and identify issues in the field. Although BIM-based design coordination is widely used in the commercial construction industry, there remains a need for a standardized practice. BIM for Design Coordination formalizes industry best practices and provides structured guidelines to the process. Helping readers gain the benefits of BIM-based design coordination, this practical guide covers areas such as setting up a project for success, model quality impacts on design coordination, carrying out a successful VDC session, and more. Specific guidelines for various project stakeholders are laid out in detail, while real-world examples of project design coordination workflows and

templates for BIM Project Execution Plans (PxPs) are provided throughout the text. Written by a leading expert and educator in the field, this book: Provides a formal set of BIM-based design coordination guidelines that emphasize construction-stage coordination Features real-life case studies that illustrate how leading firms approach design coordination Covers BIM-based design coordination in other industries, such as infrastructure and industrial sectors Presents guidelines for all project stakeholders, including subcontractors, architects, engineers, fabricators, and owners Includes chapters on teaching BIM-based design coordination and the future of the field BIM for Design Coordination: A Virtual Design and Construction Guide for Designers, General Contractors, and MEP Subcontractors is a much-needed resource for general contractors and members of VDC teams, as well as academics, students, and professionals new to BIM-based design coordination.

Since 1994, the European Conferences of Product and Process Modelling (www.ecppm.org) have provided a review of research, development and industrial implementation of product and process model technology in the Architecture, Engineering, Construction and Facilities Management (AEC/FM) industry. Product/Building Information Modelling has matured significantly in the last few years and has never been closer to having a permanent impact on the AEC/FM industry as a mainstream technology. In this context the 9th European Conference of Product and Process Modelling provided a forum for leading experts to discuss the latest achievements, emerging trends and future directions in product and process modelling technology in this dynamic and fragmented industry, focusing on integrated project working, value-based life cycle management and intelligent and sustainable buildings and construction. eWork and eBusiness in Architecture, Engineering and Construction 2012 provides a comprehensive overview of topics including BIM in all life-cycle stages, ICT for energy efficiency, smart buildings and environmental performance, energy and building simulation, knowledge and semantic modelling, visualization technologies as well as tools and methods to support innovations in design and construction processes. It further includes the proceedings of the 3rd Workshop on eeBuildings Data Models (Energy Efficiency Vocabularies), which aim to identify ICT Energy Efficiency Vocabularies and Ontologies to foster interoperability of Energy Efficiency Management Systems. eWork and eBusiness in Architecture, Engineering and Construction 2012 will be of interest to academics and professionals working in the interdisciplinary area of information technology in architecture, engineering and construction.

To achieve successful implementation of a large-scale development, a master plan for a large-scale development must create sufficient alternatives in a structured way and analyze multiple performance metrics, taking into account economic, social, and environmental sustainability in a timely manner. In addition, the master plan must analyze both construction and operation-related metrics over time. However, unstructured decision management and the inability to integrate multiple attributes of the traditional master plan prevent project participants from creating sufficient alternatives in a structured way. In addition, manual mapping and an unintegrated reasoning process prevent the participants from quickly analyzing multiple performance metrics over time. For this study, the CIFE team investigated the existing Virtual Design and Construction (VDC) methods to determine how to overcome the problems. Since the existing VDC methods had several limitations, the CIFE team was required to develop a methodology specific to the master plan of a large-scale development as well as an integrated decision-support system capable of 4D visualization, multiple metrics analysis, and display of the metrics over time. Specifically, the CIFE team, based on the VDC, has developed the Development Strategy Formulation and Evaluation Methodology (DSFEM); it moreover has developed the Development Strategy Simulator (DSS). The DSFEM supports the quick creation of alternative scenarios in a structured way, as well as a quick information search. The DSFEM also supports 4D visualization and analysis over time for multiple metrics. The DSS provides an automatic linking and mapping process that enhances the speed and consistency of the analysis. In addition, an integrated reasoning process enables the DSS to simulate development scenarios, analyze multiple metrics over time, and display the metrics simultaneously and in a timely manner. However, since there still are limitations in both the DSFEM and the DSS, the CIFE team recommends further development of the DSFEM and the DSS.

The sudden arrival of Building Information Modelling (BIM) as a key part of the building industry is redefining the roles and working practices of its stakeholders. Many clients, designers, contractors, quantity surveyors, and building managers are still finding their feet in an industry where BIM compliance can bring great rewards. This guide is designed to help quantity surveying practitioners and students understand what BIM means for them, and how they should prepare to work successfully on BIM compliant projects. The case studies show how firms at the forefront of this technology have integrated core quantity surveying responsibilities like cost estimating, tendering, and development appraisal into high profile BIM projects. In addition to this, the implications for project management, facilities management, contract administration and dispute resolution are also explored through case studies, making this a highly valuable guide for those in a range of construction project management roles. Featuring a chapter describing how the role of the quantity surveyor is likely to permanently shift as a result of this development, as well as descriptions of tools used, this covers both the organisational and practical aspects of a crucial topic.

In recent years, our world has experienced a profound shift and progression in available computing and knowledge sharing innovations. These emerging advancements have developed at a rapid pace, disseminating into and affecting numerous aspects of contemporary society. This has created a pivotal need for an innovative compendium encompassing the latest trends, concepts, and issues surrounding this relevant discipline area. During the past 15 years, the Encyclopedia of Information Science and Technology has become recognized as one of the landmark sources of the latest knowledge and discoveries in this discipline. The Encyclopedia of Information Science and Technology, Fourth Edition is a 10-volume set which includes 705 original and previously unpublished research articles covering a full range of perspectives, applications, and

techniques contributed by thousands of experts and researchers from around the globe. This authoritative encyclopedia is an all-encompassing, well-established reference source that is ideally designed to disseminate the most forward-thinking and diverse research findings. With critical perspectives on the impact of information science management and new technologies in modern settings, including but not limited to computer science, education, healthcare, government, engineering, business, and natural and physical sciences, it is a pivotal and relevant source of knowledge that will benefit every professional within the field of information science and technology and is an invaluable addition to every academic and corporate library.

This proceedings volume presents new methods and applications in applied economic research with an emphasis on advances in panel data analysis. Featuring papers presented at the 2017 International Conference on Applied Economics (ICOAE) held at Coventry University, this volume provides current research on econometric panel data methodologies as they are applied in microeconomics, macroeconomics, financial economics and agricultural economics. International Conference on Applied Economics (ICOAE) is an annual conference that started in 2008 designed to bring together economists from different fields of applied economic research in order to share methods and ideas. Applied economics is a rapidly growing field of economics that combines economic theory with econometrics to analyse economic problems of the real world usually with economic policy interest. In addition, there is growing interest in the field for panel data estimation methods, tests and techniques. This volume makes a contribution in the field of applied economic research in this area. Featuring country specific studies, this book will be of interest to academics, students, researchers, practitioners, and policy makers in applied economics and economic policy.

Technology development has provided fundamental benefits of speed, precision, and convenience to common business strategies; providing not only a means for functional integration, but also an opportunity to enhance competitive capability of a business firm. Implementing IT Business Strategy in the Construction Industry brings together topics on understanding business strategy and competitive advantage, as well as essential benefits of concepts and technologies for improving efficiency of the construction industry. This reference source is directed toward researchers, policy-makers, practitioners, undergraduate, and postgraduate students, in order to gain insights into the complex workings of the traditional construction industry and the concepts and tools used to facilitate a strategically IT enabled industry.

This essential book introduces the concept of nD modelling, which takes the theory of computer modelling of the built environment to n dimensions. nD modelling utilizes a decision support tool for systematic assessment and comparison between various design parameters such as cost, accessibility, maintainability, sustainability, crime, energy, whole life costing, acoustics and scheduling among others. Constructing the Future is a comprehensive book which provides a global perspective on the concept of nD modelling and examines its impact on construction, from development to application. The text offers a critique of competing views that seek to justify (or ignore) the role of nD modelling in the future of construction as well as describing developments in this area which are already happening worldwide. Presenting a thorough critique of competing views as well as providing guidance on best practice, Constructing the Future is a bold, well-grounded and illustrated title introducing construction management professionals and researchers to this exciting new development in the quest for a single building and product model.

This book presents the proceedings of CRIOCM2018, 23rd International Symposium on Advancement of Construction Management and Real Estate, sharing the latest developments in real estate and construction management around the globe. The conference was organized by the Chinese Research Institute of Construction Management (CRIOCM) working in close collaboration with Guizhou Institute of Technology (GIT). Written by international academics and professionals, the proceedings discuss the latest achievements, research findings and advances in frontier disciplines in the field of construction management and real estate. Covering a wide range of topics, including New-type urbanization, land development and land use, urban planning and infrastructure construction, housing market and housing policy, real estate finance and investment, new theories and practices on construction project management, smart city, BIM technologies and applications, construction management in big data era, green architecture and eco-city, rural rejuvenation and eco-civilization, other topics related to construction management and real estate, the discussions provide valuable insights into the advancement of construction management and real estate in the new era. The book is an outstanding reference resource for academics and professionals alike.

The construction industry is amidst a digital transformation that is focused on addressing well-documented issues and calls for significant improvements and changes through increased productivity, whole-life value, client focus, reduction of waste, and being more sustainable. The key aspect to driving change and transformation is the education and upskilling of the required workforce towards developing the required capacities. Various approaches can be taken to embed digital construction within education and through collaborative efforts in order to drive change and facilitate improvements. The Handbook of Research on Driving Transformational Change in the Digital Built Environment focuses on current developments in practice and education towards facilitating transformation in the built environment. This book provides insight, from a practice perspective, in relation to the client's understanding, digitally enabled collaboration, interoperability and open standards, and maturity/capability. Covering topics that include digital transformation and construction, digitally enabled infrastructure, building information modelling, collaborative digital education, and the digital built environment, this book is an ideal reference source for engineers, professionals, and researchers in the field of digital transformation as well as doctoral scholars, doctoral researchers, professionals, and academicians.

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