Project Management and BIM for Sustainable Modern Cities

Product Lifecycle Management for Society
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 of BIM 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 better buildings that consume fewer materials and require less time, labor, and capital resources.

The BIM Management Handbook
A key problem facing the construction industry is that all work is done by transient project teams, and in the past there has been no structured approach to learning from projects once they are completed. Now, though, the industry is adapting concepts of knowledge management to improve the situation. This book brings together 13 contributors from research and industry to show how managing construction knowledge can bring real benefits to organisations and projects. It covers a wide range of issues, from basic definitions and fundamental concepts, to the role of information technology, and understanding the information sharing culture. Practical examples from construction and other industry sectors are used throughout to illustrate the various dimensions of knowledge management. The challenges of implementing knowledge management are outlined and the ensuing benefits highlighted.

Product Lifecycle Management in the Era of Internet of Things
The BIM Manager's Handbook: Guidance for Professionals in Architecture, Engineering, and Construction Building Information Modelling (BIM) is a design and construction software that manages not just graphics, but also information—information that enables the automatic generation of drawings and reports, design analysis, schedule simulation, facilities management, and cost analysis—ultimately enabling any building team to make better-informed decisions. This allows a range of professionals—architects, engineers, construction managers, surveyors, cost estimators, project managers, and facility managers—to share this information throughout a building’s lifecycle. BIM is now recognized worldwide for the efficiencies it delivers in terms of working collaboratively, communication, processes, cost savings, and a property’s lifecycle management. With the widespread adoption of BIM, BIM Managers have become a much-needed new breed of professionals in architectural, engineering, and construction practice. Their role is often misunderstood and ill-defined, and such the day-to-day deliverables that they are likely to face. The BIM Manager's Handbook provides an in-depth account of the breadth of activities that any BIM Manager or staff member, who is actively engaged in the delivery of project, is required to undertake.

Providing prerequisites of the final work, The BIM Manager's Handbook ePart series isolates significant topics around BIM management. In the sixth and final ePart, BIM is taken to the next level by outlining what is required to truly excel as a BIM Manager. It highlights how BIM Managers acquire the necessary communication skills to maximize an efficient information flow between the BIM Manager and others. It illustrates how BIM Managers tie their activities to cutting-edge BIM research and development globally. Lastly, this ePart lays out how to promote BIM excellence both within an organization and beyond.

BIM for Project Managers
Implementing Virtual Design and Construction using BIM outlines the team structure, software and production ecosystem needed for an effective Virtual Design and Construction (VDC) process through current real world case studies of projects both in development and under construction. It provides the reader with a better understanding of the successful implementation of VDC and Building Information Modelling (BIM), and the benefits to the project team throughout the design and construction process. For readers already familiar with VDC, the book will provide invaluable examples of best practices and real world solutions. Richly illustrated in color with actual VDC documentation, visualizations, and statistics, the reader is shown the real processes undertaken and outputs generated when working on high profile building information models. Online animations, interviews with practitioners, and downloadable templates, forms and files make this an interactive and highly engaging way to learn a crucial set of skills. While keeping up with current industry practice is a minimum requirement, this book goes further by helping you prepare for the next level of virtual design and construction. This is essential reading for project managers, construction managers, architects, design managers, and anybody with a role in BIM or virtual construction.

Integrated Building Information Modelling
Construction projects involve a complex set of relationships, between parties with different professional backgrounds trying to achieve a very complex goal. Under these difficult circumstances, the quality of information on which projects are based should be of the highest possible standard. The line-based, two dimensional drawings on which conventional construction is based render this all but impossible. This is the source of some major shortcomings in the construction industry, and this book focuses on the two most fundamental of these: the failure to deliver projects predictably to the required quality, on time and within budget; and the failure of most firms in the industry to make a survivable level of profit. By transforming the quality of information used in building, BIM aims to transform construction completely. After describing and explaining these problems, the way in which BIM promises to provide solutions is examined in detail. A discussion of the theory and practice of BIM is also provided, followed by a review of various recent surveys of BIM usage in the US, UK and selected European economies. The way in which other industries, including retail and manufacturing, have been transformed by information are explored and compared with current developments in the deployment of BIM in construction. Five case studies from the UK show how BIM is being implemented, and the effects it is having on architects and contractors. This book is perfect for any construction professional interested in improving the efficiency of their business, as well as undergraduate and postgraduate students wishing to understand the importance of BIM.

**BIM for Design Coordination**

An authoritative and practical road map for those implementing and managing BIM workflows. With the 2016 deadline for BIM level 2 fast approaching and the growing realisation of the huge benefits BIM brings these skills are becoming industry essentials. Concentrating on the how rather than the why this will help you to adapt by clearly, and without jargon, explaining standard BIM processes, Government standards and the effective coordination of design, construction and asset information. Spanning both organisational strategy and day-to-day practical tasks it explores bottom line business reasoning as well as potential risks and challenges. This is the go-to guide for BIM Coordinators and Managers, architectural principals, design team leaders and architectural technicians ensuring you are ‘BIM ready’ in 2016. It will also be invaluable for Part 3 students getting to grips with BIM strategy and implementation.

**BIM for Facility Managers**

What is BIM and how does it affect the health and safety professional? How are BIM technologies used on a practical level? What opportunities are there for the use of BIM in the health and safety arena? This concise and practical guide aims to answer all these questions and more. The health and safety role is evolving towards collaboration, structured data and sharing of information as BIM – the incarnation of these sensibilities - increasingly underpins construction practice. As the industry begins to see how these two topics can and should intersect this guide provides context and practical advice by explaining the basic principles of BIM, how it will shape the health and safety professional’s role and what tools and processes will need to be embedded in the future. It also highlights the wealth of opportunities that BIM provides to improve health and safety standards and effective coordination – the means to exploit the potential of BIM.

**ICSBE 2018**

This volume presents innovative work on innovative methods, tools and practices aimed at supporting the transition of Asian and Middle Eastern cities and regions towards a more smart and sustainable dimension. The role of the built and urban environment are becoming more pronounced in Asia and Middle East as the regions continues to experience rapid increase in population and urbanisation, which have only led to an increase in environmental degradation but also rise in energy consumption and emissions. Individual chapters covers timely topics such as sustainable infrastructure, transportation, renewable energy, water and methods supporting an innovative and sustainable development of urban areas. Real-world examples are presented to highlight recent developments and advancements in design, construction and transportation infrastructures. The volume is based on the best contributions to the 2nd GeoMEast International Congress and Exhibition on Sustainable Civil Infrastructures, Egypt 2018 – The official international congress of the Soil-Structure Interaction Group in Egypt (SSIGE).

**Construction Manager’s BIM Handbook**

Building Information Modelling (BIM) harnesses digital technologies to unlock more efficient methods of designing, creating and maintaining built environment assets, so the Construction Manager’s BIM Handbook ensures the reader understands what BIM is, what the UK strategy is and what it means for key roles in the construction team. ensure that all readers understand what BIM and are fully aware of the implications of BIM for them and their organisations provides concise summaries of key aspects of BIM ensure that all readers can begin to adopt this approach in future projects includes industry case studies illustrating the use of BIM on large and small projects.

**Implementing Virtual Design and Construction using BIM**

**BIM and Construction Management**

Novel research in construction management is often distant from existing practice. This collection of reviews serves to bridge this gap under three major themes: innovation, organisation and human behaviour, and methods and tools. It outlines a series of successful collaborative projects between industry and the academic and research communities. Many of the authors have worked in technology transfer, as change agents, resolving industrially-relevant problems by using scientifically-based research. The book reveals the source of ideas, data and results to provide a useful resource for researchers, academics and graduate students, and a challenging guide for senior industry managers.

**Building Information Modeling For Dummies**

Launch your career in construction management with this one-of-a-kind book. The construction management industry is expected to increase employment by 16 percent over the next decade. This second edition of a bestselling introduction to construction management walks you through each stage of the construction management process. Written from the constructor’s perspective, this book will familiarize you with all the construction management fundamentals and how Building Information Modeling (BIM) is impacting the construction management profession. Covers interoperability of technology advances in the construction industry Explains how BIM is challenging the traditional approach to project delivery and how this affects the constructor’s role Elaborates each stage of the design and construction process and the tasks associated with each of them Shows step-by-step how to estimate project costs, administer contracts, manage job site and construction operations, plan and schedule a project, monitor project performance, manage project quality and safety, and assess project risks Provides review questions at the end of each chapter to help enforce understanding The tried-and-true project management principles presented in this book will help ensure you a successful start to your career.

**The Impact of Building Information Modelling**

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 interest about the challenges of reaching target 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.

**BIM Handbook**

**Performance Improvement in Construction Management**

Building Information Modelling (BIM) harnesses digital technologies to unlock more efficient methods of designing, creating and maintaining built environment assets, so the Construction Manager’s BIM Handbook ensures the reader understands what BIM is, what the UK strategy is and what it means for key roles in the construction team. Ensure that all readers understand what BIM and are fully aware of the implications of BIM for them and their organisations provides concise summaries of key aspects of BIM ensure that all readers can begin to adopt this approach in future projects includes industry case studies illustrating the use of BIM on large and small projects.

**BIM and Big Data for Construction Cost Management**

This collection contains 182 peer-reviewed papers on BIM and prefabricated technology for construction engineering presented at the 2016 International Conference on Construction and Real Estate Management, held in Edmonton, Alberta, Canada, September 29-October 1, 2016.

**BIM Teaching and Learning Handbook**

This book is designed to help practitioners and students in a wide range of construction project management professions to understand what building information modelling (BIM) and big data could mean for them and how they should prepare to work with and develop BIM-compliant projects and maintain their competencies in this essential and expanding area. In this book, the state-of-the-art information technologies that support high-profile BIM implementation are introduced, and case studies show how BIM has integrated core quantity surveying and cost management responsibilities and how big data can enable informed decision-making for cost control and cost planning. The authors’ combined professional and academic experience demonstrates, with practical examples, the importance of using BIM and particularly the fusion of BIM and big data, to sharpen competitiveness in global and domestic markets. This book is a highly valuable guide for people in a wide range of construction project management and quantity surveying roles.

In addition, implications for project management, facilities management, contract administration, and dispute resolution are also explored through the case studies, making this book essential reading for built environment and engineering professionals.

**BIM and Construction Management**

“The BIM Handbook is an extensively researched and meticulously written book, showing evidence of years of work rather than something that has been quickly put together in the course of a few months. It brings together most of the current information about BIM, its history, as well as its potential future in one convenient place, and can serve as a handy reference book on BIM for anyone who is involved in the design, construction, and operation of buildings and needs to know about the technologies that support it. The need for such a book is indisputable, and it is terrific that Chuck Eastman and his team were able to step up to the plate and make it happen. Thanks to their efforts, anyone in the AEC industry looking for a deeper understanding of BIM now knows exactly where to look for it.” —AECbytes book review, August 28, 2008 (www.aecbytes.com/review/2008/BIMHandbook.html)

**Discover BIM: A Better Way to Build Better Buildings**

BIM offers a novel 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. The BIM Handbook, Second 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: Completely updated material covering the current practice and technology in this fast-moving field Expanded coverage of lean construction and its use of BIM, with special focus on Integrated Project Delivery throughout the book New insight on the ways BIM facilitates sustainable building New information on interoperability schemas and collaboration tools Six new case studies Painting a colorful and thorough picture of the state of the art in building information modeling, the BIM Handbook, Second 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.

**Understanding BIM**

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

**Getting to Grips with BIM**

A convergence of lean management and quality management thinking has taken place in organizations across many industries, including construction. Practices in procurement, design management and construction management are all evolving constantly and understanding these changes and how to react is essential to successful management. This book provides valuable insights for owners, designers and constructors in the construction sector. Starting by introducing the language of total quality, lean and operational excellence, this book takes the reader right up to the latest industry practice in this sector, and demonstrates the best way to manage change. Written by two of the world’s leading experts, Total Construction Management: Lean Quality in Construction project delivery offers a clearly structured introduction to the most important management concepts and practices used in the global construction industry today. This authoritative book covers issues such as procurement, BIM, all forms of waste, construction safety, and design and construction management, all explained with international case studies. It is a perfect guide for managers in all parts of the industry, and ideal for
BIM Handbook

Building Lean, Building BIM

The BIM Manager now also in English translation: At the center of the presentations stands the successful introduction of BIM in your company. The author explains the most important terms and clarifies them with the help of real-life examples. The BIM Manager is particularly suitable for managers, department heads, BIM users, BIM-Manager as well as architects and building engineers.

Claiming Identity Through Redefined Teaching in Construction Programs

Delivering Value with BIM

Building Lean, Building BIM is the essential guide for any construction company that wants to implement Lean Construction and Building Information Modelling (BIM) to gain a strategic edge over their competition. The first of its kind, the book outlines the principles of Lean, the functionality of BIM, and the interactions between the two, illustrating them through the story of how Tidhar Construction has implemented Lean Construction and BIM in a concerted effort over four years. Tidhar is a small-to-medium-sized construction company that pioneered a way of working that gave it a profit margin unheard of in its market. The company's story serves as a case study for the various facets of Lean Construction and BIM. Each chapter describes a principle of Lean and/or BIM, the achievements and failures in Tidhar's implementation based on the experiences of the key people involved, and reviews the relevant background and theory. The implementation at Tidhar has not been a pure success, but by examining their motives alongside their achievements and failures, readers will learn about what pitfalls and pinnacles to expect. A number of chapters also compare the experience of Tidhar with those of other companies who are leaders in their fields, such as Skanska and DPR. This book is highly relevant and useful to a wide range of readers from the construction industry, especially those who are frustrated with the inefficiencies in their companies and construction projects. It is also essential reading for Lean and BIM enthusiasts, researchers and students from a variety of industries and backgrounds.

Construction Management JumpStart

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.

Total Construction Management

The book reports on the great improvements in the information and knowledge management due to the digitalization of the building sector. By summarizing several research projects addressing the implementation of BIM in different stages of the building process, and the definition of standards at Italian, European and international levels for managing information relying on the implementation of BIM-based processes, it showcases the efforts, especially within the Italian building sector, to build a standardized structure of information and develop tools for collecting, sharing and exchanging information between stakeholders involved in different stages of the building process, so as to enhance the storage, traceability, usability and re-usability of information management. Further, it presents an enhanced use of information that relies on the adoption of the standardized structure of information, and proposes dedicated applications for automating the process of information fruition. Lastly, it features a digital platform for different stakeholders in the building sector, such as manufacturers, producers and construction companies.

The BIM Manager's Handbook

This book is the essential guide to the pedagogical and industry-inspired considerations that must shape how BIM is taught and learned. It will help academics and professional educators to develop programmes that meet the competences required, and prepare both graduates and existing practitioners to advance the industry towards higher efficiency and quality. To date, systematic efforts to integrate pedagogical considerations into the way BIM is taught and remain non-existent. This book lays the foundation for forming a benchmark around which such an effort is made. It offers principles, best practices, and expected outcomes necessary to BIM curriculum and teaching development for construction-related programs across universities and professional training programmes. The aim of the book is to: Highlight BIM skill requirements, threshold concepts, and dimensions for practice; Showcase and introduce tried-and-tested practices and lessons learned in developing BIM-related curricula from leading educators; Recognise and introduce the baseline requirements for BIM education from a pedagogical perspective; Explore the challenges, as well as remedial solutions, pertaining to BIM education at tertiary education; Form a comprehensive point of reference, covering the essential concepts of BIM, for students; Promote and integrate pedagogical consideration into BIM education. This book is essential reading for anyone involved in BIM education, digital construction, architecture, and engineering, and for professionals looking for guidance on what the industry expects when it comes to BIM competency.

BIM-Based Collaborative Building Process Management
This book highlights current research and development in the area of sustainable built environments, currently one of the most important disciplines in civil engineering. It covers a range of topics, including sustainable construction and infrastructures, waste and wastewater management, enhanced sustainability, renewable and clean energy, sustainable materials and industrial ecology, building automation and virtual reality, and impact of climate change. As such it provides vital insights into responsible urbanization practices, and new tools and technologies in civil engineering that can mitigate the negative effects of the built environment.

**Construction Manager’s BIM Handbook**

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 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 off-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 & Health Science Center; USC School of Cinematic Arts; MathWorks' 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.

**Real World Applications of BIM in Construction**

Without a rich learning source that presents state-of-the-art pedagogy covering the key areas of contemporary practice, the industrial field may fall out of line with the current times. By reforming itself to embrace new norms such as social responsibility, deploying modern construction methods including modular building, and modernizing construction contracts, the recent literary material will only positively influence the workforce of the world. Claiming Identity Through Redefined Teaching in Construction Programs provides scholarly insights into the learning and teaching mechanisms developed at different institutions to address the ever-changing attributes in the field of construction management. Featuring topics that include artificial intelligence, industrial law, and operations management, the book is ideal for educators, industrial managers, academics, researchers, and students.

**BIM in the Construction Industry**

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 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.

**Digital Transformation of the Design, Construction and Management Processes of the Built Environment**

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, comprehensive set of drawings that can predict construction costs, avoid construction stops and see scheduling 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 (PExPs) 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 Provides 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.

**Handbook of Construction Management**

A sleeker, more comprehensive approach to construction projects BIM and Construction Management, Second Edition is a complete integration guide, featuring practical advice, project tested methods and workflows, and tutorials for implementing Building Information Modeling and technology in construction. Updated to align with the latest software editions from Autodesk, Trimble and Bentley, this book provides a common sense approach to leveraging BIM to provide significant value throughout a project’s life cycle. This book outlines a results-focused approach which shows you how to incorporate BIM and other technologies into all phases of construction management, such as: Project planning: Set up the BIM project to succeed right from the start by using the right contracts, the right processes and the right technology Marketing: How to exceed customer expectations and market your brand of BIM to win. Pre-construction: Take a practical approach to engineer out risks in your project by using the model early to virtually build and analyze your project, prior to physical construction. Construction: Leverage the model throughout construction to build safer and with better quality. Field work: Learn how mobile technologies have disrupted the way we work in the field to optimize efficiencies and access information faster. Closeout: Deliver a better product to your customer that goes beyond the physical structure and better prepares them for future operations. Additionally, the book provides a look at technology trends in construction and a thoughtful perspective into potential cases going forward: BIM and Construction Management, Second Edition builds on what has changed in the construction landscape and highlights a new way of delivering BIM-enabled projects. Aligning to industry trends such as Lean, integrated delivery methods, mobile platforms and cloud-based collaboration this book illustrates how using BIM and technology efficiently can create value.
**BIM and Construction Management**

The book is developed to provide significant information and guidelines to construction and project management professionals (owners, designers, consultants, construction managers, project managers, supervisors, contractors, builders, developers, and many others from the construction-related industry) involved in construction projects (mainly civil construction projects, commercial-AE projects) and construction-related industries. It covers the importance of construction management principles, procedures, concepts, methods, and tools, and their applications to various activities/components/subsystems of different phases of the life cycle of a construction project. These applications will improve the construction process in order to conveniently manage the project and make the project most qualitative, competitive, and economical. It also discusses the interaction and/or combination among some of the activities/elements of management functions, management processes, and their effective implementation and applications that are essential throughout the life cycle of project to conveniently manage the project. This handbook will: Focus on the construction management system to manage construction projects Include a number of figures and tables which will enhance reader comprehension Provide all related topics/areas of construction management Be of interest to all those involved in construction management and project management Provide information about Building Information Modeling (BIM), and ISO Certification in Construction Industry Offer a chapter on Lean construction The construction project life cycle phases and its activities/elements/subsystems are comprehensively developed and take into consideration Henri Fayol's Management Function concept which was subsequently modified by Koontz and O'Donnell and Management Processes Knowledge Areas described in PMBOK® published by Project Management Institute (PMI). The information available in the book will also prove valuable for academics/instructors to provide construction management/project management students with in-depth knowledge and guidelines followed in the construction projects and familiarize them with construction management practices.

**Effects of Building Information Modeling (BIM) on Construction Management Functions**

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.

**The BIM-Manager**

This book constitutes the refereed proceedings of the 10th IFIP WG 6.1 International Conference on Product Lifecycle Management, PLM 2013, held in Nantes, France, in July 2013. The 63 full papers presented together with 2 keynote talks were carefully reviewed and selected from 91 submissions. They are organized in the following topical sections: PLM for sustainability, traceability and performance, PLM infrastructure and implementation processes; capture and reuse of product and process information; PLM and knowledge management; enterprise system integration; PLM and influence of/from social networks; PLM maturity and improvement concepts; PLM and collaborative product development; PLM virtual and simulation environments; and building information modeling.

**BIM for Construction Health and Safety**

With the UK government’s 2016 BIM threshold approaching, support for small organisations on interpreting, filtering and applying BIM protocols and standards is urgently required. Many small UK construction industry supply chain firms are uncertain about what Level 2 BIM involves and are unsure about taking first steps towards having BIM capability. As digitisation, increasingly impacts on work practices, Getting to Grips with BIM offers an insight into an industry in change supplemented by practical guidance on managing the transition towards more widespread and integrated use of digital tools to manage the design, construction and whole life use of buildings.

**Knowledge Management in Construction**

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.

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Real World Applications of BIM in Construction has been written for students in the fields of construction management, construction/architectural technology, civil engineering, and others interested in exploring Building Information Modelling (BIM) as it is actually used in the world of construction. This workbook explores BIM applications of construction processes using simple and easy-to-follow tutorials. It introduces quantity takeoff, cost estimation, clash detection, simple 4-D scheduling and project visualization using common BIM tools. Additionally, the planning aspects to properly implement BIM into a project is introduced. Students and readers will find this text to be an eye-opening first step into how BIM can be used to improve the construction process providing added value to contractors, designers, and owners. This text is intended to be a dynamic workbook with tutorials illustrating the basic processes involved in the applications previously mentioned. Although there is a vast array of BIM-related software available in the marketplace, this workbook has chosen to use software that is both widely adopted with versions that are currently available at no cost to students - including Autodesk’s Revit®, Autodesk’s Navisworks Manage®, and Trimble’s SketchUp Make®. Since most construction project managers have little-to-no knowledge of how models are created by designers, this workbook focuses only on construction applications related to BIM and assumes that the reader has no previous exposure to BIM software. The workbook comes with a pre-packaged CD containing all the model files the student will need to complete the tutorials and assignments.

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