Bim In Action Case Study 3 Kathleen Kilgour Centre

This open access book presents theoretical and practical research relating to the vast, publicly financed program for the construction of new schools and the reorganization of existing educational buildings in Italy. This transformative process aims to give old buildings a fresh identity, to ensure that facilities are compliant with the new educational and teaching models, and to improve both energy efficiency and structural safety with respect to seismic activity. The book is divided into three sections, the first of which focuses on the social role of the school as a civic building that can serve the needs of the community. Innovations in both design and construction processes are then analyzed, paying special attention to the Building Information Modeling (BIM) strategy as a tool for the integration of different disciplines. The final section is devoted to the built heritage and tools, technologies, and approaches for the upgrading of existing buildings so that they meet the new regulations on building performance. The book will be of interest to all who wish to learn about the latest insights into the challenges posed by, and the opportunities afforded by, a comprehensive school building and renovation program.

This book constitutes the refereed proceedings of the 24th International Conference on Advanced Information Systems Engineering, CAiSE 2012, held in Gdansk, Poland, in June 2012. The 42 revised full papers, 2 full-length invited papers and 4 short tutorial papers, were carefully reviewed and selected from 297 submissions. The contributions have been grouped into the following topical sections: business process model analysis; service and component composition; language and models; system variants and configuration; process mining; ontologies; requirements and goal models; compliance; monitoring and prediction; services; case studies; business process design; feature models and product lines; and human factors.

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 eBuildings 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.

"Ready or not, it's high time to make BIM a part of your practice, or at least your vocabulary, and this book has as much to offer beginners as it does seasoned users of building information modeling software." —Chicago Architect The first book devoted to the subject of how BIM affects individuals and organizations working within the ever-changing construction industry, BIM and Integrated Design discusses the implementation of building information modeling software as a cultural process with a focus on the technology's impact and transformative effect—both potentially disruptive and liberating—on the social, psychological, and practical aspects of the workplace. BIM and Integrated Design answers the questions that BIM poses to the firm that adopts it. Through thorough research and a series of case study interviews with industry leaders—and leaders in the making out from behind the monitor—BIM and Integrated Design helps you learn: Effective learning strategies for fully understanding BIM software and its use Key points about integrated design to help you promote the process to owners and your team How BIM changes not only the technology, process, and delivery but also the leadership playing field How to become a more effective leader no matter where you find yourself in the organization or on the project team How the introduction of BIM into the workforce has significant education, recruitment, and training implications Covering all of the human issues brought about or exacerbated by the advent of BIM into the architecture workplace, profession, and industry, BIM and Integrated Design shows how to overcome real and perceived barriers to its use.

BIM in Small Building Information Modelling (BIM) framework features cutting-edge use cases and competencies for students and professionals pursuing BIM careers. Developing BIM Talent: A Guide to the BIM Body of Knowledge with Metrics, KSAs, and Learning Outcomes leads readers through the process of implementing a state-of-the-art BIM training and education program. Authored by a team of celebrated and highly qualified scholars and practitioners, this exciting new BIM education and workforce development guide offers a roadmap that navigates readers through the comprehensive BIM metrics and KSAs detailed in the BIM Body of Knowledge sponsored by the Academic Interoperability Coalition (AiC). Developing BIM Talent offers: A solid foundation and guidelines for educators and practitioners for starting or enhancing a BIM curriculum or training program Templates, expert interviews, and case studies that provide in-depth knowledge and lessons learned that can facilitate process changes and strategic action plans Strategies forstandardizing emerging BIM job tasks, descriptions, and methods for benchmarking performance This guide to contemporary and comprehensive metrics of BIM competency is an essential resource for corporate trainers and instructors teaching BIM, human resources professionals charged with recruiting BIM talent, as well as leadership interested in credentialing and BIM certification programs.

This internationally conducted study of the latest construction industry practices addresses a broad range of Information and Communication Technology applications. Drawing on research conducted in the US and UK, this book presents the state of the art of various ebusiness processes, and examines BIM, virtual environments and mobile technologies. Innovation is a theme that runs throughout this book, so in addition to the direct impact of these new technical achievements, it also considers the management styles that helped them to emerge. Examples from industry are illustrated with case studies and presented alongside research from some of the best known academics in this field. This book is essential reading for all advanced students and researchers interested in how ICT is changing construction management and the construction industry.


This book gathers the latest advances, innovations, and applications in the field of information technology in civil and building engineering, presented at the 18th International Conference on Computing in Civil and Building Engineering (ICCCBE), Sào Paulo, Brazil, August 18-20, 2020. It covers highly diverse topics such as BIM, construction information modeling, knowledge management, GIS, GPS, laser scanning, sensors, monitoring, VR/AR, computer-aided construction, product and process modeling, big data
and IoT, cooperative design, mobile computing, simulation, structural health monitoring, computer-aided structural control and analysis, ICT in geotechnical engineering, computational mechanics, asset management, maintenance, urban planning, facility management, and smart cities. Written by leading researchers and engineers, and selected by means of a rigorous international peer-review process, the contributions highlight numerous exciting ideas that will spur novel research directions and foster multidisciplinary collaborations.

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.

Building Information Modelling (BIM) is being debated, tested and implemented wherever you look across the built environment sector. This book is about Heritage Building Information Modelling (HBIM), which necessarily differs from the commonplace applications of BIM to new construction. Where BIM is being used, the focus is still very much on design and construction. However, its use as an operational and management tool for existing buildings, particularly heritage buildings, is lagging behind. The first of its kind, this book aims to clearly define the scope for HBIM and present cutting-edge research findings alongside international case studies, before outlining challenges for the future of HBIM research and practice. After an extensive introduction to HBIM, the core themes of the book are arranged into four parts: Restoration philosophies in practice Data capture and visualisation for maintenance and repair Building performance Stakeholder engagement This book will be a key reference for built environment practitioners, researchers, academics and students engaged in BIM, HBIM, building energy modelling, building surveying, facilities management and heritage conservation more widely.

BIM (Building Information Modelling) is revolutionising architecture and construction, as more and more practices are realising the benefits it brings to design, sustainability, and construction. There is a perception that BIM is a process best left to large practices – requiring significant resources and the ability to invest heavily in IT. This book overturns that misconception: introducing a selection of inspirational BIM-enabled projects by small architectural practices. Full of practical tips and hard-won experience, BIM in Small Practices: Illustrated Case Studies includes pithy contributions from industry experts who identify and explore the important issues for small practices including how to get your practice started with BIM, and how it aligns to the new Plan of Work. This landmark publication will motivate small practices who are considering taking those first steps towards implementing BIM.

Provides a unique overview of supply chain management (SCM) concepts, illustrating how the methodology can help enhance construction industry project success This book provides a unique appraisal of supply chain management (SCM) concepts brought together with lessons from industry and analysis gathered from extensive research on how supply chains are managed in the construction industry. The research from leading international academics has been drawn together with the experience from some of the industry's foremost SCM practitioners to provide both the experienced researcher and the industry practitioner a thorough grounding in its principles, as well as an illustration of SCM as a methodology for enhancing construction industry project success. The new edition of Successful Construction Supply Chain Management: Concepts and Case Studies incorporate chapters dealing with Building Information Modelling, sustainability, the 'Demand Chain' in projects, the link between self-organizing networks and supply chains, decision-making, 'Lean,' and mega-projects. Other chapters cover risk transfer and allocation, behaviors, innovation, trust, supply chain design, alliances, and knowledge transfer. Supply Chain Management techniques have been used successfully in various industries, such as manufacturing and food processing, for decades Fully updated with new chapters dealing with key construction industry topics such as SCM, sustainability, the 'Demand Chain' in projects, 'Lean,' mega-projects, and more Includes contributions from well established academics and practitioners from Network Rail, mainstream construction, and consultancy Illustrates how SCM methodologies can be used to enhance construction industry project success Successful Construction Supply Chain Management: Concepts and Case Studies is an ideal book for postgraduate students at MSc and PhD level studying the topic and for all construction management practitioners.

Rapid urbanization has created an unprecedented pressure on the use of land in cities around the world, resulting in physical and legal complexities. This book explains the theoretical basis and practicality of connecting urban land administration practices with the 3D digital data environment of Building Information Modelling (BIM). The main focus is to adopt a BIM-based paradigm for enhancing communication and management of complex ownership rights in multi-story buildings, which are prevalent in urban built environments. This book first elaborates on a range of data elements required for managing legal information in current land administration practices pertaining to subdivision of legal interests within multi-story building developments. It then explains how an open data model in the BIM domain – Industry Foundation Classes (IFC) – can be extended with legal data elements to lay the foundation for adopting BIM in urban land administration. The book also highlights benefits and barriers of implementing BIM-enabled urban land administration. Features Explains the theoretical basis and practicality of connecting urban land administration practices with the 3D digital data environment of BIM. Highlights the existing challenges associated with current practice of urban land administration for multi-story buildings. Introduces the potential of 3D digital environment of BIM for the
purpose of mapping and registering legal interests. Describes how BIM-based data models can be extended for recording, managing, and representing legal ownership of properties over a building's lifecycle. Includes models of multi-story buildings as case studies to demonstrate the feasibility of extended BIM-based data models.

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.

The selected papers in this book deal with Building Information Modelling (BIM) in Design, Construction and Operations. Application of BIM throughout the construction industry is progressing at an accelerated rate, with the development of new software tools. BIM has the potential to alter the way in which different specialities interact before, during and after the construction project. BIM carries the data set for a particular asset through its full life cycle which has important consequences for operations and maintenance as well as for infrastructure planning. BIM emergence has been the result of advanced surveying techniques, powerful computer systems, better visualisation tools and new communication infrastructures. The papers included in this book demonstrate the interdisciplinary character of BIM, bringing together contributions from experts in industry, practice and academia.

eWork and ebusiness in Architecture, Engineering and Construction 2021 collects the papers presented at the 13th European Conference on Product and Process Modelling (ECPPM 2021, Moscow, 5-7 May 2021). The contributions cover a wide spectrum of thematic areas that hold great promise towards the advancement of research and technological development targeted at the digitalization of the AEC/FM (Architecture, Engineering, Construction and Facilities Management) domains. High quality contributions are devoted to critically important problems that arise, including: Information and Knowledge Management Semantic Web and Linked Data Communication and Collaboration Technologies Software Interoperability BIM Servers and Product Lifecycle Management Systems Digital Twins and Cyber-Physical Systems Sensors and Internet of Things Big Data Artificial and Augmented Intelligence in AEC Construction Management Systems 5D/6D Modelling and Planning Building Performance Simulation Contract, Cost and Risk Management Safety and Quality Sustainable Buildings and Urban Environments Smart Buildings and Cities BIM Standardization, Implementation and Adoption Regulatory and Legal Aspects BIM Education and Training Industrialized Production, Smart Products and Services Over the past quarter century, the biennial ECPPM conference series, as the oldest BIM conference, has provided researchers and practitioners with a unique platform to present and discuss the latest developments regarding emerging BIM technologies and complementary issues for their adoption in the AEC/FM industry.

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 as downstream systems. There is also extensive discussion of open source software tools that can be used to facilitate this integration.

The book encodes a vision for the actively sustainable management and development of the built environment by referring to the application of timber-based construction systems as additive solutions for the multi-purpose improvement of existing buildings. It translates this vision into an innovative methodology for the management of the entire building process from design to production, operation, and maintenance - and the assessment of timber-based construction performances across the whole building life-cycle. This approach is based on a multi-dimensional analysis, which starts from the structure of the Active House (AH) protocol, improved through information-integrated digital environments and multi-criteria evaluation methods, such as BIM and Design Optioneering. During the design stage, indeed, it analyzes and compares different design choices, according to the DO method, until the definition and validation of the As-Built step, while in the operational phase, it refers to sensors-retrieved data to show the evolution of the building behaviour, accounting for real users interaction, building performances decay and needs of maintenance, defining the digital twin of the building: a real Cognitive Building. Finally, the application of this methodology identifies innovative models of processes, products, and design of wood-based construction technologies, suitable to satisfy the needs of the 2D/3D construction layering for the sustainable transformation of the built environment.

At present, the virtual reality has impact on information organization and management and even changes design principle of information systems, which will make it adapt to application requirements. The book aims to provide a broader perspective of virtual reality on development and application. First part of the book is named as "virtual reality visualization and vision" and includes new developments in virtual reality visualization of 3D scenarios, virtual reality and vision, high fidelity immersive virtual reality included tracking, rendering and display subsystems. The second part is named as "virtual reality in robot technology" brings forth applications of virtual reality in remote rehabilitation robot-based rehabilitation evaluation method and multi-legged robot adaptive walking in unstructured terrains. The third part, named as "industrial and construction applications" is about the product design, space industry, building information modeling, construction and maintenance by virtual reality, and so on. And the last part, which is named as "culture and life of human" describes applications of culture life and multimedia-technology.

Advances in Engineering Materials, Structures and Systems: Innovations, Mechanics and Applications comprises 411 papers that were presented at SEMC 2019, the Seventh International Conference on Structural Engineering, Mechanics and Computation, held in Cape Town, South Africa, from 2 to 4 September 2019. The subject matter reflects the broad scope of SEMC conferences, and covers a wide
variety of engineering materials (both traditional and innovative) and many types of structures. The many topics featured in these Proceedings can be classified into six broad categories that deal with: (i) the mechanics of materials and fluids (elasticity, plasticity, flow through porous media, fluid dynamics, fracture, fatigue, damage, delamination, corrosion, bond, creep, shrinkage, etc); (ii) the mechanics of structures and systems (structural dynamics, vibration, seismic response, soil-structure interaction, fluid-structure interaction, response to blast and impact, response to fire, structural stability, buckling, collapse behaviour); (iii) the numerical and experimental testing of materials and experimental structures and systems (numerical methods, simulation techniques, multi-scale modelling, computational modelling, laboratory testing, field testing, experimental measurements); (iv) innovations and special structures (nanostructures, adaptive structures, smart structures, composite structures, bio-inspired structures, shell structures, membranes, space structures, lightweight structures, long-span structures, tall buildings, wind turbines, etc); (v) design in traditional engineering materials (steel, concrete, steel-concrete composite, aluminium, masonry, timber, glass); (vi) the process of structural engineering (conceptualization, planning, analysis, design, optimization, construction, assembly, manufacture, testing, maintenance, monitoring, assessment, repair, strengthening, retrofitting, decommissioning). The SEMC 2019 Proceedings will be of interest to civil, structural, mechanical, marine and aerospace engineers. Researchers, developers, practitioners and academics in these disciplines will find them useful. Two versions of the papers are available. Short versions, intended to be concise but self-contained summaries of the full papers, are in this printed book. The full versions of the papers are in the e-book.

"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." —AEChubr bytes book review, August 2015

"This book provides a comprehensive guide to BIM for AEC professionals. It is authored by leading experts in the field and offers a wealth of practical advice on how to implement BIM in real-world projects. The book is well-organized and easy to read, with clear and concise explanations of key concepts. It includes numerous case studies and examples from around the world, which help to illustrate the benefits of BIM in practice.

"Managing Design: Conversations, Project Controls and Best Practices for Commercial Design and Construction Projects is a self-help book for design and construction that provides an insider’s look at the mysteries of managing design for yourself, team, firm and future. It tackles client empathy; firm culture; owner leadership; design and budgets; dealing with engineers, consultants, and contractors; contracts; team assembly; and much more. Features eye-opening interviews with 40 industry luminaries Exposes issues and poses solutions to longstanding industry ills Offers a project design controls framework and toolset for immediate application and action Includes best practice tips, process diagrams, and comparative analytical tables to support the text Written in a relatable style, Managing Design: Conversations, Project Controls and Best Practices for Commercial Design and Construction Projects is a self-help book for design and construction that provides an insider’s look at the mysteries of managing design for yourself, team, firm and future. It tackles client empathy; firm culture; owner leadership; design and budgets; dealing with engineers, consultants, and contractors; contracts; team assembly; and much more. Features eye-opening interviews with 40 industry luminaries Exposes issues and poses solutions to longstanding industry ills Offers a project design controls framework and toolset for immediate application and action Includes best practice tips, process diagrams, and comparative analytical tables to support the text Written in a relatable style, Managing Design: Conversations, Project Controls and Best Practices for Commercial Design and Construction Projects is a self-help book for design and construction that provides an insider’s look at the mysteries of managing design for yourself, team, firm and future. It tackles client empathy; firm culture; owner leadership; design and budgets; dealing with engineers, consultants, and contractors; contracts; team assembly; and much more. Features eye-opening interviews with 40 industry luminaries Exposes issues and poses solutions to longstanding industry ills Offers a project design controls framework and toolset for immediate application and action Includes best practice tips, process diagrams, and comparative analytical tables to support the text Written in a relatable style, Managing Design: Conversations, Project Controls and Best Practices for Commercial Design and Construction Projects is a self-help book for design and construction that provides an insider’s look at the mysteries of managing design for yourself, team, firm and future. It tackles client empathy; firm culture; owner leadership; design and budgets; dealing with engineers, consultants, and contractors; contracts; team assembly; and much more. Features eye-opening interviews with 40 industry luminaries Exposes issues and poses solutions to longstanding industry ills Offers a project design controls framework and toolset for immediate application and action Includes best practice tips, process diagrams, and comparative analytical tables to support the text Written in a relatable style, Managing Design: Conversations, Project Controls and Best Practices for Commercial Design and Construction Projects is a self-help book for design and construction that provides an insider’s look at the mysteries of managing design for yourself, team, firm and future. It tackles client empathy; firm culture; owner leadership; design and budgets; dealing with engineers, consultants, and contractors; contracts; team assembly; and much more. Features eye-opening interviews with 40 industry luminaries Exposes issues and poses solutions to longstanding industry ills Offers a project design controls framework and toolset for immediate application and action Includes best practice tips, process diagrams, and comparative analytical tables to support the text Written in a relatable style, Managing Design: Conversations, Project Controls and Best Practices for Commercial Design and Construction Projects is a self-help book for design and construction that provides an insider’s look at the mysteries of managing design for yourse..."
case studies from technology-enhanced learning projects over the past six years.
First Published in 1997. Routledge is an imprint of Taylor & Francis, an informa company.
eWork and eBusiness in Architecture, Engineering and Construction 2016 collects the papers presented at the 11th European Conference on Product & Process Modelling (ECPPM 2016, Cyprus, 7-9 September 2016), The contributions cover complementary thematic areas that hold great promise for the advancement of research and technological development in the modelling of complex engineering systems, encompassing a substantial number of high quality contributions on a large spectrum of topics pertaining to ICT deployment instances in AEC/FM, including: • Information and Knowledge Management • Construction Management • Description Logics and Ontology Application in AEC • Risk Management • 5D/inD Modelling, Simulation and Augmented Reality • Infrastructure Condition Assessment • Standardization of Data Structures • Regulatory and Legal Aspects • Multi-Model and distributed Data Management • System Identification • Industrialized Production, Smart Products and Services • Interoperability • Smart Cities • Sustainable Buildings and Urban Environments • Collaboration and Teamwork • BIM Implementation and Deployment • Building Performance Simulation • Intelligent Catalogues and Services
It is generally accepted that building information modeling (BIM) related technologies offer considerable advantages to many participants in the construction sector. Currently, there exists a whole range of commercially available BIM software platforms that are specialized to suit the functional needs of their main users. Contemporary Strategies and Approaches in 3-D Information Modeling is a critical scholarly resource that examines building information modeling and the integration of 3-D information in the urban built environments. Featuring coverage on a broad range of topics such as integrated project delivery, design collaboration, and 3-D model visualization, this book is geared towards engineers, architects, contractors, consultants, and facility managers seeking current research on methodologies, concepts, and instruments being used in the field of 3-D information modeling.
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 those preparing to enter the industry.
The main aim of this book is to develop and explore the value of new innovative digital content to help satisfy UNESCO's World Heritage nomination file requirements. Through a detailed exploration of two BIM case studies from Jeddah, Saudi Arabia, the book uniquely connects the use of Heritage BIM to the documentation methods used by UNESCO and demonstrates how this provides a contribution to both countries with heritage sites and UNESCO as an organisation. The research and practical examples in the book seek to address both the lack of a comprehensive method of submitting a nomination file to UNESCO and the lack of authentic engineering information in countries where extensive heritage sites exist. It looks at answering the following questions: How can Heritage Building Information Modelling (HBIM) be used to better maintain, protect, and record the updated information of historical buildings? How can HBIM provide innovation in creating the missing information for the assignment of UNESCO's World Heritage status? What additional value can a sustainable update of HBIM data provide for such sites? How can HBIM improve the cultural value of heritage buildings in the short, medium, and long term, as well as provide a better future for historical buildings? This book will be useful reading for researchers and practitioners in the areas of heritage conservation, archaeology, World Heritage nomination, HBIM, digital technology and engineering, remote sensing, laser scanning, and architectural technology.
In recent years, building information modeling has become a very active research area of construction informatics with investigations of ICT use within construction industry processes and organizations. The Handbook of Research on Building Information Modeling and Construction Informatics: Concepts and Technologies addresses the problems related to information integration and interoperability throughout the lifecycle of a building, from feasibility and conceptual design through to demolition and recycling stages. Containing research from leading international experts, this Handbook of Research provides comprehensive coverage and definitions of the most important issues, concepts, trends, and technologies within the field.
Decisions of the Board of Land Appeals, Office of Hearings and Appeals, Dept. of the Interior.
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. The human genome encompasses ~ 860 G protein-coupled receptors (GPCRs) including 374 non-chemosensory GPCRs. Half of these latter GPCRs recognize (neuro)peptides as natural ligands. GPCRs thus play a pivotal role in neuroendocrine communication. In particular, GPCRs are involved in the neuroendocrine control of feeding behavior, reproduction, growth, hydromineral homeostasis and stress response. GPCRs are also major drug targets and hence possess a strong potential for the development of innovative pharmaceuticals. The aim of this Research Topic was to assemble a series of review articles and original research papers on neuropeptide GPCRs and their ligands that would illustrate the different facets of the studies currently conducted in this domain.
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. This 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. Measurement Theory in Action, Third Edition, helps readers apply testing and measurement theories and features 22 self-contained modules which instructors can match to their courses. Each module features an overview of a measurement issue and a step-by-step application of that theory. Best Practices provide recommendations for ensuring the appropriate application of the theory. Practical Questions
help students assess their understanding of the topic. Students can apply the material using real data in the Exercises, some of which require no computer access, while others involve the use of statistical software to solve the problem. Case Studies in each module depict typical dilemmas faced when applying measurement theory followed by Questions to Ponder to encourage critical examination of the issues noted in the cases. The book’s website houses the data sets, additional exercises, PowerPoints, and more. Other features include suggested readings to further one’s understanding of the topics, a glossary, and a comprehensive exercise in Appendix A that incorporates many of the steps in the development of a measure of typical performance. Updated throughout to reflect recent changes in the field, the new edition also features: Recent changes in understanding measurement, with over 50 new and updated references Explanations of why each chapter, article, or book in each module’s Further Readings section is recommended Instructors will find suggested answers to the book’s questions and exercises; detailed solutions to the exercises; test bank with 10 multiple choice and 5 short answer questions for each module; and PowerPoint slides. Students and instructors can access SPSS data sets; additional exercises; the glossary; and additional information helpful in understanding psychometric concepts. It is ideal as a text for any psychometrics or testing and measurement course taught in psychology, education, marketing, and management. It is also an invaluable reference for professional researchers in need of a quick refresher on applying measurement theory.

The ten-volume set LNCS 12949 – 12958 constitutes the proceedings of the 21st International Conference on Computational Science and Its Applications, ICCSA 2021, which was held in Cagliari, Italy, during September 13 – 16, 2021. The event was organized in a hybrid mode due to the Covid-19 pandemic. The 466 full and 18 short papers presented in these books were carefully reviewed and selected from 1588 submissions. Part X of the set includes the proceedings of the following workshops:

- International Workshop on Smart and Sustainable Island Communities (SSIC 2021);
- International Workshop on Sustainable Urban Energy Systems (SUREN-SYS 2021);
- International Workshop on Ports of the future - smartness and sustainability (SmartPorts 2021);
- International Workshop on Smart Tourism (SmartTourism 2021);
- International Workshop on Space Syntax for Cities in Theory and Practice (Syntax_City 2021);
- International Workshop on Theoretical and Computational Chemistry and its Applications (TCCMA 2021);
- International Workshop on Urban Form Studies (UForm 2021);
- International Workshop on Urban Space Accessibility and Safety (USAS2021);
- International Workshop on Virtual and Augmented Reality and Applications (VRA 2021);

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, engineer, 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.