

1. Record Nr.	UNINA9910366613903321
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Titolo	Digital Transformation of the Design, Construction and Management Processes of the Built Environment [[electronic resource] /] / edited by Bruno Daniotti, Marco Gianinetto, Stefano Della Torre
Pubbl/distr/stampa	Cham, : Springer Nature, 2020 Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-33570-4
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (XVI, 400 p. 151 illus., 81 illus. in color.)
Collana	Research for Development, , 2198-7300
Disciplina	690
Soggetti	Buildings—Design and construction Building Construction Engineering, Architectural Computer-aided engineering Building—Superintendence Construction industry—Management Construction superintendence Remote sensing Building Construction and Design Computer-Aided Engineering (CAD, CAE) and Design Construction Management Remote Sensing/Photogrammetry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	PART I: INTEROPERABLE MANAGEMENT OF THE PROCESS, National BIM digital platform for construction (INNOVance project) -- From cloud to BIM model of the built environment: the digitized process for competitive tender, project, construction and management -- The construction contract execution through the integration of Blockchain technology -- The BIMReL Project, the BIM interoperable library in the Lombardy Region -- Life cycle BIM-oriented data collection: a

framework for supporting practitioners -- Decision-making BIM platform for chemical building products -- BIM electrical objects plug-in for industry 4.0 -- Da.Ma.Tra: Material Traceability Database -- Natural language processing for information and project management -- Structure of a general Exchange Information Requirements (EIR) for tenders according to the UNI 11337:2017 standard -- PART II: DESIGN STAGE, Clash detection and code checking BIM platform for the Italian market -- Digital tool for optimization -- Performance-based design approach for tailored acoustic surfaces -- Do Smart City policies work? -- Digital design and wooden architectures for Arte Sella Land Art Park -- The impact of digitalization on processes and organizational structures of architecture and engineering firms -- PART III: EXECUTION STAGE, BIM management guidelines of the construction process for general contractors -- BIM methodology and tools implementation for the construction companies -- Adaptive skins: towards new material systems -- Development of a system for the production of disposable carbon fiber formworks -- PART IV: MANAGEMENT STAGE, Built Heritage Information Modelling/Management. Research Perspectives -- Digital asset management -- Building and district data organization to improve facility and property management -- Digital transformation in Facility Management (FM). IoT and Big Data for service innovation -- BIM digital platform for first aid: firefighters, police, red cross -- The effect of real-time sensing of a window on energy efficiency, comfort, health and user behavior -- Digital 3D control room for Healthcare -- Guidelines to integrate BIM for asset and facility management of a public university -- BIM and Post-occupancy evaluations for building management system: weaknesses and opportunities -- PART V: DIGITAL TECHNOLOGIES FOR MULTI-SCALE SURVEY AND ANALYSIS, From a traditional to a digital site: 2008-2019 the history of Milan Cathedral surveys -- The 3D model of St. Mark's Basilica in Venice -- Automatic processing of many images for 2D/3D modelling -- Geo-referenced procedure to estimate the urban energy demand profiles towards Smart Energy District scenarios -- Advanced digital technologies for the conservation and valorisation of the UNESCO Sacri Monti -- Survey and scan – to BIM model for the knowledge of built heritage and the management of conservation activities.

Sommario/riassunto

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.
