1. Record Nr. UNINA9910556889403321 Innovation in construction: a practical guide to transforming the **Titolo** construction industry / / Seved Hamidreza Ghaffar [and three others]. editors Cham, Switzerland: ,: Springer, , [2022] Pubbl/distr/stampa ©2022 **ISBN** 3-030-95798-5 Descrizione fisica 1 online resource (466 pages) Disciplina 624.0285 Soggetti Construction industry - Technological innovations Construction industry **Building materials** Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di bibliografia Includes bibliographical references (pages 453-454). Nota di contenuto Intro -- Preface -- About This Book -- Contents -- Editors and Contributors -- Part I Industry 4.0 and Drivers for Change -- 1 What Is Industry 4.0? -- 1 Additive Manufacturing -- 2 Data and Analytics -- 2.1 Construction's Historic Data Problems -- 2.2 The Development of Analysis -- 2.3 Data Use by Contractors -- 2.4 Data Use by Asset Owners -- 2.5 Data and Analytics Now-A Platform for Industry 4.0? -- 3 Artificial Intelligence -- 4 Robotics and Automation -- 5 Virtual, Augmented, Mixed, and Extended Reality -- 6 IoT and 5G -- 7 Digital Twins -- 8 Nanotechnology -- 9 Conclusions -- References -- 2 The Global Environmental Imperative -- 1 Climate Emergency -- 2 Overview of Construction industry's Contribution to Global Carbon -- 3 Carbon Mitigation Initiatives and Sustainable Development -- 4 Conclusions -- References -- 3 Industry 4.0 and Drivers for Socioeconomic Sustainability in the Construction Sector -- 1 Introduction -- 2 Population Forecasts and Urbanization Challenges Under Industry 4.0 -- 3 Construction 4.0 and Sustainable Development -- 4 Future-Proof Construction Industry: The Need for Crisis Resilience -- 5 Conclusions -- References -- 4 The

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