Record Nr. UNINA9911015686703321 Autore Kulkarni Vinay **Titolo** Digital Twins for Simulation-Based Decision-Making / / edited by Vinay Kulkarni, Tony Clark, Balbir S. Barn Cham:,: Springer Nature Switzerland:,: Imprint: Springer,, 2025 Pubbl/distr/stampa **ISBN** 3-031-89654-8 [1st ed. 2025.] Edizione 1 online resource (275 pages) Descrizione fisica Altri autori (Persone) ClarkTony BarnBalbir S Disciplina 003.3 Soggetti Computer simulation Operations research Application software Computer Modelling Operations Research and Decision Theory Computer and Information Systems Applications Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia 1. An Introduction to Digital Twins -- 2. Control and Optimisation Nota di contenuto using Digital Twins: Principles and Case Studies -- 3. Role of Enterprise Digital Twin in Enhancing Business Agility. 4. Improving Operational Efficiency of Sorting Terminals in Logistics Industry -- 5. Digital Twins for Process Optimization and Predictive Maintenance in Manufacturing Industries -- 6. Development of Digital Twins for Chemical Reactors to Predict the Catalysis Conversion Efficiency -- 7. Harnessing Digital Twins for Building Resilient Food Supply Chains -- 8. Digital Twin of Fuel Cell -- 9. Building Resilient Public Healthcare Systems Using Digital Twins -- 10. Knowledge Orchestrated Digital Twin Suite for Smart Refinery Operations -- 11. Digital Twin based Enterprise Ecosystems. Sommario/riassunto This book introduces the concept of digital twins and their purposive usage, including the technology infrastructure and the method support necessary for their construction. The landscape of digital twins is

illustrated through a range of use cases spread across different application domains such as strategy and business assessment in

enterprises, logistics networks, manufacturing industries, chemical and refinery systems, sustainable food ecosystems, and public healthcare. All these examples show how digital twins are exploited to simulate complex scenarios depending on various external factors – all of which would not be feasible as real-world simulations because of their high costs, potential fatal damages, and unpredictable side effects. The book is written for professionals in industry who would like to learn about the application of these powerful methodologies and tools in various areas as well as for researchers in computer science who would like to draw inspirations for further development of this technology from real-world applications.