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Descrizione fisica	1 online resource (1226 pages)
Disciplina	260 003.3
Soggetti	Cooperating objects (Computer systems) Computer science—Mathematics Engineering mathematics Engineering—Data processing Internet of things Business information services Cyber-Physical Systems Mathematical Applications in Computer Science Mathematical and Computational Engineering Applications Internet of Things IT in Business
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part I. The Landscape, Implications, and Assumptions -- Chap 1. The Digital Twin: Why and What? -- Chap 2. DT and Digital Revolution -- Chap 3. Business models design for the Digital Twin -- Chap 4. The evolution and history of the Digital Twin -- Part II. Technologies -- Chap 5. Representing the DT: New devices, new interfaces -- Chap 6. Where the data come from? Relation between IoT and DT -- Chap 7. AI for DT: from data to knowledge -- Chap 8. Simulation -- Chap 9. Architectures and Implementations -- Chap 10. Network for Digital Twin -- Chap 11. Managing the unmanageable -- Chap 12. Security and DT -- Section III The Digital Twin in Operation -- Chap 13. Making

the DT Operational in Enterprise Processes -- Chap 14. Making the DT Operational in a Large Ecosystem -- Section IV Vertical Domains for Digital Twin Applications -- Chap 15. The Digital Twin in Manufacturing -- Chap 16. The Digital Twin for Operations, Maintenance, Repair, and Overhaul -- Chap 17. The Digital Twin for Display, Education, and Curation -- Chap 18. Prognostication and Prediction, Prevention, and Prescription -- Chap 19. The Digital Twin in Human Activities and Nature: the eHealth example -- Chap 20. The Digital Twin in Complex Systems -- Section V Conclusion -- Chap 21. Future Evolution of the Digital Twin -- Chap 22. DT in Action and lesson learnt.

Sommario/riassunto

The Digital Twin book is about harnessing the power of technology, business practices, and the digital infrastructure to make revolutionary improvements for the benefit of society. Ninety experts from around the world contributed to summarize four decades of digital advances and successes, and to define the Digital Twin's potential for the decades ahead. The book describes how Digital Twins will play a key role in specific applications and across important sectors of the global economy, making it a must-read for executives, policymakers, technical leaders, researchers, and students alike. The book consists of thirty-eight chapters that cover Digital Twin concepts, supporting technologies, practices, and specific implementation strategies for various production and service sectors. Digital Twins are about creating faster, less expensive, and error-free manufacturing, products, processes, and services. This includes engineering of systems for energy, communications, construction, transportation, and food processing. It also covers solutions for making human existence better and more enjoyable through the life sciences, smart cities, and artistic creations. The Digital Twin's functionality addresses the entire lifecycle of products and services. Importantly, the book describes the journey required for businesses and public organizations to embrace Digital Twins as part of their tool kit. The Digital Twin is the ideal starting point for teaching and research in all application domains.
