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Nota di contenuto	Introduction 1. -- 1.1. Background, rationale and motivations -- 1.2. Core challenge -- 1.3. The motivation behind this book -- 1.4. The scope of this book -- 1.5. Book structure -- 2. Our lens and approach -- 2.1. Introduction -- 2.2. Our philosophy - critical realism -- 2.3. Research methodology -- 2.4. DSR [1]: Awareness of problem -- 2.5. DSR [2]: Suggestion -- 2.6. DSR [3]: Development -- 2.7. DSR [4]: Evaluation -- 2.8. DSR [5]: Conclusion -- 3. Navigating the landscape -- 3.1. Introduction -- 3.2. Systems thinking -- 3.3. Urban management -- 3.4. Digital twin -- 3.5. Systematic literature review -- 3.6. Q1 - Synthesis of results -- 3.7. Q2 - Synthesis of results -- 3.8. Q3 and Q4 - Synthesis of results -- 3.9. Summary -- 4. Designed amalgam of twinning for urban -- management (DATUM): the way forward -- 4.1. Introduction -- 4.2. Three-layered perspective -- 4.3. Layer 2: The morphogenetic/morphostatic framework -- 4.4. Layer 3: The structure of scientific revolution -- 4.5. The evolution of urban management -- 4.6. Designed amalgam of twinning for urban --

management [DATUM] -- 4.7. Summary -- 5. Methods: digital twin uses classification -- system (DTUCS) -- 5.1. Introduction -- 5.2. Digital twin uses classification system -- 5.3. The gemini framework: reference architecture -- 6. Philosophical foundations: critical realism -- 6.1. Introduction -- 6.2. Way forward - three theoretical propositions -- 7. Methodology: Data-driven multimethod -- methodology [DM2] -- 7.1. Introduction -- 7.2. Existing CR-informed methodologies -- 7.3. Data-driven multi-method methodology [DM2] -- 7.4. Summary -- 8. Putting DATUM to the test -- 8.1. Introduction -- 8.2. Evaluation of philosophical element -- 8.3. Evaluation of methodical element -- 8.4. Evaluation of DATUM -- 8.5 Summary -- 9. Reflections and future prospects -- 9.1. Introduction -- 9.2. Contributions of this book -- 9.3. Recommendations -- 9.4. Future work -- Index.

Sommario/riassunto

Unifying the Field of Digital Twins for Urban Management presents a holistic and integrated approach to the rapidly evolving field of digital twins for urban management. The framework offers a structured approach that encompasses both theoretical underpinnings and practical applications. It aims to provide a foundation to support enhanced decision-making, optimised resource utilisation, and improved urban resilience and sustainability. The book aims to address a lack of consistency, coherence and uniformity within current approaches, and offers a unified framework to facilitate collaboration and knowledge exchange across diverse areas, such as urban management, systems thinking, data science and social science. Key features include a systematic framework (DATUM) to unify the field of digital twins for urban management coverage of theoretical foundations and a step-by-step methodology to guide digital twin-based interventions a standardised language to facilitate classification, documentation and communication of digital twin use cases validation of the DATUM framework through a combination of focus group research, case studies and action research, ensuring applicability and effectiveness. Unifying the Field of Digital Twins for Urban Management is designed for a wide audience, including digital twin practitioners, researchers, urban managers and policy makers interested in harnessing the potential of digital twins to improve urban environments.
