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Nota di contenuto	Part I - Digital Representation: Engineering Digital Twins and Digital Shadows as Key Enablers for Industry 4.0 -- Designing Strongly-decoupled Industry 4.0 applications across the stack: a use case -- Variability in Products and Production -- Part II - Digital Infrastructures: Reference Architectures for closing the IT/OT gap -- Edge Computing: Use Cases and Research Challenges -- Dynamic Access Control in Industry 4.0 Systems -- Challenges in OT-Security and their Impacts on Safety-related Cyber-Physical Production Systems -- Runtime Monitoring for Systems of System -- Blockchain technologies in the design and operation of cyber-physical systems -- Part III - Data Management: Big Data Integration for Industry 4.0 -- Tons of data - is data quality still an issue? -- Coupling of Top Floor Internal and External Data Exchange Matters -- Part IV - Data Analytics: Conceptualizing Analytics: An Overview of Business Intelligence and Analytics from a Conceptual Modeling Perspective -- Discovering Actionable Knowledge for Industry 4.0: From Data Mining to Predictive and Prescriptive Analytics -- Process Mining - Discovery, Conformance, and Enhancement of Manufacturing Processes -- Symbolic artificial intelligence methods for prescriptive analytics -- Machine Learning for Cyber-Physical Systems -- Visual Data Science for Industrial Applications -- Part V - Digital Transformation towards Industry 5.0:

Self-Adaptive Digital Assistance Systems for Work 4.0 -- Digital Transformation - Towards flexible human-centric enterprises.

Sommario/riassunto

Digital Transformation in Industry 4.0/5.0 requires the effective and efficient application of digitalization technologies in the area of production systems. This book elaborates on concepts, techniques, and technologies from computer science in the context of Industry 4.0/5.0 and demonstrates their possible applications. Thus, the book serves as an orientation but also as a reference work for experts in the field of Industry 4.0/5.0 to successfully advance digitization in their companies. The editors Professor Dr.-Ing. Birgit Vogel-Heuser is head of the Department of Automation and Information Systems at the Technical University of Munich. Professor Dr. Manuel Wimmer is head of the Institute of Business Informatics - Software Engineering at the Johannes Kepler University Linz.
