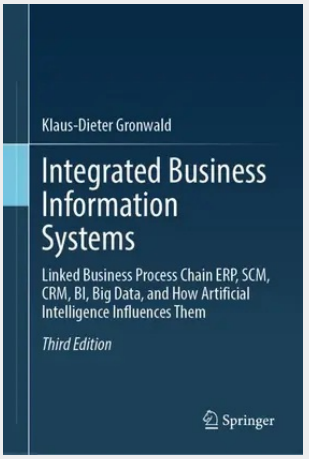
Gronwald

Integrated Business Information Systems

Linked Business Process Chain ERP, SCM, CRM, BI, Big Data, and How Artificial Intelligence Influences Them



Enterprise resource planning (ERP), supply chain management (SCM), customer relationship management (CRM), business intelligence (BI), and big data analytics are business tasks and processes that are implemented using standardized software solutions. Artificial intelligence methods such as machine learning and generative AI influence and support these processes. This textbook allows students to learn, from a business perspective, how these methods are interconnected, how they influence one another, and what their limitations are. It teaches management-oriented thinking and acting, which are essential for computer scientists who work with business-process-oriented IT solutions.

The third edition of this textbook introduces artificial intelligence methods for the ERP, SCM, CRM, BI, and Big Data process chain. These business tasks and processes, implemented with standardized software systems, are increasingly linked to artificial intelligence methods with varying degrees of success. Human cognitive abilities are identified as suitability criteria for evaluating and selecting AI methods for operational business areas such as procurement, production, sales, asset management, finance and accounting, human resources, etc. The fundamentals of machine learning and neural networks are supplemented by general topics related to AI. The chapters on ERP, SCM, CRM, BI, and Big Data have been largely taken from the second edition. Errors have been corrected, and additions or updates have been made to single chapters. Extensive and confusing derivations and theoretical sections have been moved to the Appendix, and a case study for a virtual company has been included to be used throughout the book. Each chapter finishes with an online true/false quiz. With at least 80% passed, it grants access to supplementary online exercises, including cognitive skill assessments, inventory management optimization, backpropagation, and supplemental online materials (videos, documents) on the author's Web page.

This book is aimed at business informatics students and industry professionals, who deal with business-oriented standardized software solutions.

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