Preface

Over the years, RFID has gone through many transformations, from traditionally being known as a contactless access card technology to connecting information and physical flows of objects (i.e., "Networked RFID"). Recent advances in communication technologies, middleware, and Web services are enabling the development and deployment of RFID technology which continues to evolve and has now become part of the so-called "Internet of Things". Indeed, this future Internet will provide an environment where everyday physical objects such as buildings, commodities, and in general all "things" are readable, recognizable, addressable, and even controllable using services via the Web. The capability of connecting and integrating information from both the physical world and the virtual one not only affects the way how we live, but also creates tremendous new RFID-enabled business opportunities such as the support of independent living of elderly persons, efficient supply chains, anti-counterfeiting and improved environmental monitoring. Many organisations are planning or have already exploited RFID in their main operations to take advantage of the potential for greater automation, efficient business processes, and inventory visibility.

RFID data management, scalable information systems, business process reengineering, and evaluating investments are emerging as significant technical challenges to applications underpinned by new developments in RFID technology. In this book, we present contributions from world leading experts on the latest developments and state-of-the-art results in the RFID field to address these challenges. The book offers a comprehensive and systematic description of technologies, architectures, and methodologies that are required to develop secure, scalable, and reliable RFID networks.

The book consists of five major parts. The first part presents a view into the future evolution of this technology and what might be possible in the near horizon while also taking a systematic look at privacy and security issues that cannot be ignored in the euphoria. The following four parts cover topics on RFID data management, global RFID information architectures and systems, innovative RFID-enabled applications and, business related issues.

This book serves well as a valuable reference point for researchers, educators, and engineers who are working in RFID data management, RFID application development, as well as graduate students who wish to understand, learn, and discover

opportunities in this emerging research and development area. Furthermore, it is also of general interest to anyone deploying RFID applications, particularly those working on the design, development, and deployment of large-scale or open-loop networked RFID systems. The comprehensive coverage of topics related to information systems will also be of benefit to IT managers working in the area of RFID systems or involved in managing and overseeing RFID deployments. It is our hope that the work presented in this book will stimulate new discussions and generate original ideas that will further develop this important area.

We thank the authors for their outstanding and timely contributions. We would also like to thank the reviewers for their expertise and support in reviewing all submissions and for providing valuable feedback to the contributing authors. It has indeed been a great pleasure to work with such a dedicated group of world leading researchers who have contributed to make this book possible. Moreover, we are grateful to Springer for the opportunity to publish this book. Our special thanks go to Hermann Engesser for his continued support and Dorothea Glaunsinger of Springer for her support and professionalism during the whole publication process of this book.

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