Preface

Ontologies, as formal representations of knowledge, are currently widely in use in many fields including information systems, computer science, software engineering, and Knowledge Management (KM). Our approach in looking at the subject of ontology and knowledge management is influenced by the “processes-oriented” perspective. In this perspective, KM comprises a range of KM processes (e.g., create, apply, integrate, share, etc.) used in an organization to identify, create, represent, distribute, and enable adoption of insights and experiences. Such insights and experiences comprise knowledge, either embodied in individuals or embedded in organizations, and ontology is seen as a methodology for supporting the KM processes.

Knowledge management is recognized as a prominent mechanism for managing knowledge; concomitantly, at the same time, ontologies are becoming an increasingly important methodology to support a diversity of knowledge management processes. In this book, KM processes are referred to as mechanisms for managing knowledge such as knowledge transfer, creation, dissemination, and storage. We use the term ontology-based KM here to refer to the use of ontologies for supporting KM processes. Ontology-based KM is employed as a method solution to overcome the problems arising in many application areas.

With this approach, the book presents the role of ontology-based KM in the context of Enterprise Systems (ES) and in the general context of KM employed to any application areas (e.g., bioinformatics, compliance management, knowledge management systems, disaster management). Within the context of ES, this book is a first attempt to initiate the focusing of serious attention on the use of ontologies as a prominent tool for facilitating the KM process of structuring, sharing, and managing ES-related knowledge within the context of the ES lifecycle. In this regard, the book confirms that the current uses of ontologies throughout the ES lifecycle are still at the infancy stage. Although the usage is still immature, this book presents concrete examples to demonstrate the utility of ontologies for ES. The self-contained Chapters 1 to 6, constituting Section 1 of the book, present the role of ontology-based KM for ES. Chapter 3, for example, written by Guo Chao Peng and Miguel Baptista Nunes, shows how the sharing and capture of risk knowledge for ES can be done by establishing and verifying a risk ontology. In another example, in Chapter 4, the central issue of capturing and representing action-centric knowledge in ontology development for interoperating information systems is highlighted by author Robert M. Colomb.

In Section 2 of the book, we move our focus from ES to the general application of KM. Our interests in the role of ontology-based KM remain the same, but we expand the scope to any application areas in which KM processes are used as key mechanisms and where an ontology is applied to support them. In Section 2 (Chapters 7 to 19), we can see that the role of ontology-based KM is widely accepted and proven. For example, in Chapter 16, Syed Norris Syed Abdullah, Shazia Sadiq, and Marta Indulska
address the construction of compliance management ontology for facilitating knowledge sharing. In
Chapter 9, Maryam Fazel-Zarandi, Mark S. Fox, and Eric Yu present the use of ontologies for repre-
senting expertise knowledge in the development of a special kind of knowledge management system,
namely, expertise finding systems.

This book is organized in self-contained chapters to provide the greatest reading flexibility. We
received 35 chapters from researchers in various disciplines. All submitted chapters were reviewed on
a double-blind review basis. After an evaluation process, 19 chapters were selected. Acceptance was
based on relevance, technical soundness, originality, and clarity of presentation.

The audience for this book is extensive and will include a variety of interests. In fact, this book will
be of benefit to academic and professional organizations and will be instrumental in providing access
for researchers, scientists, academics, postgraduate students, practitioners, and professionals to the latest
knowledge related to ontology-based KM for ES, in particular, and for the general area of KM application.