Foreword

This insightful new book, published by IGI Global, lays out the history and opportunities of how semantics can be applied to solve real-world enterprise problems, such as enterprise interoperability. It fills an important void in discussions about the extended enterprise of the future, and hence comes at a timely moment as the financial and economic crisis looming in the world places a major challenge on enterprises.

In the wake of the ruin of the international monetary system established at Bretton Woods in 1944 and gradually dismantled from 1968 onwards as the world shifted from the gold-exchange standard to a de facto dollar standard, the past decade was marked by three interacting phenomena that sew the seeds of the current financial and economic crisis—a surge of liquidity around the world, a pandemic residential real estate speculation, and widespread excess leverage in all sectors of the western economies. Besides the current public policy response to the crisis, which reflects the fact that today’s world leaders have learned the lessons of the Depression in the 1930’s and resolved to tackle energetically the dismal consequences of the Lehman failure, companies must understand that the longer term answer to the current crisis is, more than ever, innovation and entrepreneurship.

The way out of the “doom and gloom” is a new wave of technology innovation that spurs a generation of company formation, job creation, productivity gains, and wealth accumulation. We see the first expressions of this spur with the thrust towards green technologies, nano-electronics, virtualisation, Internet of things, cloud computing, software as a service, social networking, broadband for all, and so on. Only investors and entrepreneurs can really create a future that meets the needs and expectations of our generation and the next one. But in a world where all economies are interdependent and interconnected—a phenomenon that is as irresistible as the force of gravity—investment and entrepreneurship must be joined by a third element—collaboration. Today, companies find that they must integrate production across suppliers, partners, competitors, different industries, and different continents. This requires openness and, in particular, shared standards.

To adjust to this evolution, the first step is to encourage the adoption of efficient ICT by European enterprises. For those enterprises that are ICT-oriented, including SMEs, the sharing of knowledge, products or services, the involvement in joined processes or the implantation of common integrated systems is considerably increasing as they discover the advantages of online collaboration. Additionally, our study on the Value Proposition of Enterprise Interpretability research concluded that to compete effectively and build for the future, enterprises must continuously innovate and IT is the preferred vehicle towards that goal.

Interoperable enterprise collaboration tools are urgently required to support the pace of development observed. The spread and usage of today’s technologies is giving many advantages to those enterprises investing in ICT but also showing us some limitations. We need to have better concepts, techniques, methods, and tools that make interoperable and collaborative enterprises a reality. Semantic interoper-
ability, for instance, is a field that still presents various challenges and its study is absolutely essential to solve the existing problems and open the door to new possibilities.

In a very rapidly moving environment, enterprises involved in business networks and ecosystems need to align the meaning they attach to their information exchanges, ranging from fields in business documents to concepts related to process goals and activities. The semantic dimension is therefore a basis for mutual understanding and interoperability between collaborating enterprises, something happening below the layers of process interoperability and business interoperability. Essentially, semantic research tries to improve the understanding and handling of the meaning of concepts and terms used by the collaborating entities. Currently this activity is most of the time achieved manually, mainly using existing standards, and requires a painful adaptation of the processes and data exchange to the new, shared environment.

The European Commission supports the Enterprise Interoperability and Collaboration research domains since the 5th Research Framework Programme was approved. Under the “Networked Enterprise and Radio Frequency Identification (RFID)” unit, one cluster is dedicated to support the raise of Future Internet Enterprise Systems (FiNEs) and is driving the research to a future where European enterprises will become more competitive, efficient, and flexible. Within this cluster, various projects have proposed alternative paths to overcoming the semantic barrier using precise, computer-processable, meaning associated with each concept. They created ontology frameworks and developed various approaches, centralised or not, smoothly or highly integrated, to formalise the annotation of meaning linked to concepts. There are still many challenges to be accomplished, but the results so far are very promising.

This book has been created to put together the current knowledge on Semantics in the Enterprise Application Integration domain. The authors brought together major stakeholders in this area from Europe and other parts of the world, to develop a shared knowledge base and offer an integrated picture of the domain. It certainly represents an important contribution to this field of research and will undoubtedly be welcomed by a large community of ICT practitioners in Europe, and beyond the continent. The book provides compelling arguments, uses cases and practical solutions to one of the most important questions of our time: the relationship between technology, business, and society. It also addresses some of the most difficult issues in process and service management such as the choreography and orchestration in collaborative business processes. In this respect, it gives valuable perspectives and practical solutions towards a more sensible and responsive extended enterprise. The arguments presented are powerful and convincing for researchers, policy makers, business people, and scholars alike.

We’re very proud to support this important effort of dissemination and are convinced that the readers will enjoy the discovery of its fascinating contents.

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