
Preface

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Biographical notes: Paulo Novais is a Professor of Computer Science at the Department of Informatics of the University of Minho, Braga, Portugal. He received his PhD in Computer Science from the same university in 2003. His current research directions span the fields of knowledge representation and reasoning, multi-agent systems, ambient intelligence, collaborative networks and AI and the law. He is supervising several MSc and PhD projects and has published more than 50 papers in international journals, conferences and workshops and has co-edited two books. He is the Vice President of the Portuguese Association for Artificial Intelligence (APPIA). His webpage is at <http://www.di.uminho.pt/~pjn>.

Dr. Ricardo José Rabelo took his PhD in Robotics and Computer Integrated Manufacturing at the New University of Lisbon, Portugal, in 1997. He has been an Associate Professor at the Department of Automation and Systems of the Federal University of Santa Catarina (UFSC) since 2000. His current areas of interest include collaborative networks, service-oriented architectures, knowledge management and decision support systems. He has been involved in many research projects and programme committees of international conferences.

Iris Karvonen received her MSc from the Helsinki University of Technology, Finland, in 1979. She is working as a Senior Research Scientist at VTT Industrial Systems in a research team focused on enterprise network management. Her main research areas are currently enterprise network management, extended products (including services), information systems and risk management in enterprise networks.

This issue was born out of the need to stress some of the latest achievements in knowledge modelling and management related to Collaborative Networks (CNs). CNs embrace a wide spectrum of manifestations, including Virtual Organisations (VOs), Virtual Enterprises (VEs), Virtual Organisations Breeding Environments (VBEs), dynamic supply chains, collaborative virtual laboratories and Professional Virtual Communities (PVCs). These manifestations correspond to the strategic alliances that are created – with variable durations and goals – to face the current and future business environments where adaptability, agility, heterogeneity and change become a routine and not an exceptional condition. All such requirements impact organisations at several levels and perspectives, covering organisation culture, business processes, business models, innovation as well as financial, social, environmental, human and information technology issues.

The usage of knowledge in CNs arises from this scenario. All the knowledge generated along entire alliances' life cycles should be properly managed to keep experiences, create histories, create best practices, better manage CNs and learn, among many other uses. This fundamentally aims to provide a basis for CNs' evolution and sustainability.

Therefore, knowledge modelling and management are cornerstone aspects of support, both to enhance quality and agility in decision making – both by humans and systems – and augment the richness and expressiveness of the knowledge to be stored for further access and reasoning.

Within this context, this issue brings cutting-edge research and best practices carried out by some leading worldwide researchers in the area of knowledge modelling and management. It gathers selected papers from two conferences: the *7th IFIP International Working Conference on Virtual Enterprises (PRO-VE'2007)*, held in Guimarães, Portugal, and the *8th IFIP International Conference on Information Technology for Balanced Automation Systems (BASYS'2008)*, held in Oporto, Portugal. This selection tried to comprise work on different types of CNs and different phases of its life cycle so that readers can have a more comprehensive vision about the area and their applications. The selection was based on a reviewing process carried out by some experts in the area and the seven selected papers were further revised and extended.

The first paper, 'Managing multiple ontologies in a virtual breeding environment context', focuses on VEs. It presents how a VE ontology can be built and its evolution managed as long as new ontologies are created when VEs are formed and dissolved. The second paper, 'The management of ontologies in the VO breeding environments domain', focuses on VBEs. It presents a comprehensive model and system to engineer and manage a VBE ontology along its entire life cycle. The third paper, 'Increasing

collaboration preparedness and performance through VO inheritance', focuses on VOs. It identifies the supporting elements, aspects and perspectives to be considered when dealing with learning in VOs. The fourth paper, 'A framework for learning collaborative networked organisations', focuses on CNs as a whole. It presents a comprehensive framework that allows CNs to learn and evolve as long as it operates. The fifth paper, 'A framework to create a virtual organisation breeding environment for small and medium enterprises', focuses on the VBEs of small companies. It presents a methodology to create a VBE and VEs, supported by knowledge management and benchmarking approaches. The sixth paper, 'Software agents and virtual organisations: consent and trust', focuses on VOs. It presents an approach on how trust and consent should be managed by agents to conceive electronic contracts. The seventh and last paper, 'Agile professional virtual community inheritance via the adaptation of social protocols', focuses on PVCs. It presents an adaptive collaborative social protocol to support the management of inheritance in PVCs.

This issue is of relevance to researchers, scholars, practitioners and managers who are interested in understanding how knowledge can be modelled and managed in the design and operation of CNs of diverse types, covering the activities of knowledge acquisition, creation, modelling, sharing, exchange, maintenance and reuse.

We would like to thank all the authors and referees for their contributions and work, making it possible to reach this high-quality compendium. As a result of this cooperative and distributed work, we hope that this issue will become a valuable material to all of those interested in the advances and challenges of knowledge modelling and management of CNs.