EDITORIAL

Information Technologies for Manufacturing Networks

This special issue presents a selection of papers presented at the 9th IFIP International Conference on Information Technology for **Balanced Automation Systems** (BASYS'10) held 21-23 June 2010 in Valencia, Spain. BASYS is a conference dedicated and organized as a forum in which to share visions and research findings for innovative, sustainable and knowledge-based products-services and manufacturing models. The objective of BASYS conference is to discuss how human actors, emergent technologies and even organizations are integrated in order to redefine the way in which the value-creation process must be conceived and carried out.

Manufacturing and operations management paradigms are evolving toward more open and resilient spaces where innovation is driven not only by ever-changing customer needs but also by agile and fast-reacting networked structures. Flexibility, adaptability and responsiveness are properties that the next generation of systems must have in order to successfully support such new emerging trends. These characteristics are supported and boosted by information technologies.

The first BASYS conference was held in Victoria (Brazil) in 1995. It has been integrated in the 5.5 WG of International Federation for Information Processing (IFIP).

This special issue presents a collection of six extended papers presented at the BASYS'10 conference. These papers have been selected based on their quality and taking into account the scope of *Studies in Informatics and Control* (SIC) journal. SIC covers innovative research and practice in Information Technology: integration of IT with control; IT use in control and management systems; advanced automatic control; application of IT in socio-economic systems and manufacturing processes.

This special issue contains six papers covering research and applications in information technologies applied to innovative sustainable and knowledge-based products and services.

Cuenca, Boza and Ortiz present a framework to define and model information systems and information technology (IS/IT) components and to support the strategic alignment with the business strategy of Extended Enterprises. IS/IT conceptualization, strategic dependencies, alignment heuristics, maturity model and application portfolio is presented. The proposal is applied in the collaborative order management process of a ceramic tile company with its suppliers and consumers.

Osorio, Afsarmanesh and Camarinha-Matos present an interesting approach based of cooperation. Starting from the idea that Integrated manufacturing constitutes a complex system made of heterogeneous information and control subsystems don't designed to the cooperation. They propose a service-oriented framework aiming to support virtual organizations breeding environment to cope with cooperation aspects.

Brusaferri, Ballarino and Carpanzano face the problem to manage complexity in products and processes. They describe a self-adaptive control architecture based on a modular distributed approach for agile factory integration and reconfiguration. The proposal has been implemented in a shoes manufacturing plant.

Hernández, Poler, Mula and Pavón present a novel collaborative planning model in multi-level supply chains. Authors follow the approach that a decentralized supply chain configuration process can be easily modeled as information sharing processes. Each node of the supply chain is considered as an agent and a multi-agent system has been implemented to support the decision process.

Fuentes-Fernández, Galán, Hassan, Pavón and Villafañez propose the use of metamodels for Agent-based models in order to define explicitly the core concepts of a continuous double auction application.

Gómez-Gasquet, Lario, Franco and Anaya propose an architecture that is based on software agents designed with INGENIAS methodology to address the production planning-scheduling process.

We invite you to read this special issue to learn how information and manufacturing technologies can be a driver to improve competitiveness.

Ángel Ortiz
Rubén Darío Franco
Pedro Gómez Gasquet

Valencia, 31 January 2011