
Editorial

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Biographical notes: Benoît Eynard currently is Head of the Department of Mechanical Systems Engineering of the Université de Technologie de Compiègne – UTC (France). Previously, he was an Associate Professor of Mechanical Engineering and Information Technology in the Department of Mechanical Engineering at the Université de Technologie de Troyes – UTT (France). He received a PhD from the University of Bordeaux in 1999. Currently, his research interests include collaborative design, product data exchange, product lifecycle management, virtual prototyping and digital manufacturing. He has published over 100 papers in the international journals and conferences in the above-mentioned fields.

Xiu-Tian Yan, PhD, BEng, CEng, FIMechE, MIET(MIIE), FHEA, is a Senior Lecturer, Deputy Director of Teaching and Learning and Postgraduate Director, Department of Design, Manufacture and Engineering Management of Strathclyde University, UK. He received his PhD from Loughborough University of Technology in 1992. His research interests include computer support mechatronic product design, knowledge-intensive product modelling and simulation, design synthesis for lifecycle phases, and mechatronic systems design. He has published over 150 papers in international journals and conferences in these fields. He is Vice Chairman of the Mechatronics Forum, a Fellow of the Institution of Mechanical Engineers and a Chartered Engineer.

Lionel Roucoules is appointed as Full Professor at Arts et Métiers ParisTech Institute (France) since 2008. Previously, he was Associate Professor of Design and Manufacturing in the Department of Mechanical Engineering at the Université de Technologie de Troyes – UTT (France). He received his PhD in 1999 from the National Polytechnic Institute of Grenoble dealing with collaborative product modelling. The context of his research is integrated design and collaborative IT platform in a global PLM vision. His specific interests are product–process interface and he proposed a DFM-synthesis approach, which is now part of a larger DFX modelling for Virtual Prototyping by least commitment supported by MDE platform.

The globalisation of manufacturing industries leads to a thirst for rapid advancements in Information Technology (IT) development and expertise in the fields of integrated design and manufacture engineering. To meet this demand, both industry and the academia have an urgent need to advance technologies, develop new solutions, and generate new knowledge so that they can equip themselves with the latest knowledge of and solution to design and manufacture engineering. Such a challenge motivates the editors of the special issue to solicit both cutting-edge innovative research work and recent industrial applications with a goal towards bringing together design and manufacture practitioners from academics, government organisations and industry, so that a research community with focused research interests can be brought together to tackle these important research issues. At the same time, latest developments of IT can offer much enabling computer-support for design and manufacture knowledge elicitation, modelling, and knowledge management and sharing. A particular focus is given on the understanding of the impact of distributed-team-based design and manufacture on research and industrial practices for global companies. The necessary methods, models and means for industrial companies to design and manufacture sustainable products and services are discussed to improve the competitiveness of worldwide and globalised companies.

This special issue of *International Journal of Manufacturing Research* focuses on the latest research development and applications of computer support for integrated design and manufacture engineering. The issue presents an opportunity to promote a large survey and consistent synthesis on the recent research issues, results and tools. The special issue includes papers showing latest thinking as well as detailed view of the innovative framework and methodologies. In addition, new computer-based solutions are introduced to enable product lifecycle design, collaborative engineering, sustainable manufacturing, distributed team working and extended enterprise management.

From over 50 papers we received and selected for consideration, we finally selected six papers for the special issue. These six papers are divided into three groups, with each group focusing on each of the three important areas. The first group of papers considers the development and applications of Product Lifecycle Management (PLM) technology for product design, knowledge management and assembly process engineering. Spiteri and Borg propose a system architecture to support distributed, off-site product development based on mobile devices and knowledge management within product lifecycle design. A mobile device, such as a Personal Digital Assistant (PDA), is used as the hardware system and a mobile knowledge management

architecture was proposed for these devices to be used to support off-site design and lifecycle design analysis. The paper of Demoly et al. focuses on a PLM-based application with a particular focus on enabling design for assembly and integrated product-process engineering.

The second group of papers addresses the manufacturing process engineering and the management of product diversity and modularity. Qin et al. present an approach for fixture design and machining process engineering. This approach is based on a geometric and multi-criteria analysis and they present a reliable and accurate method to locate a workpiece correctly in order for the machine tool to produce component with a high quality. Yan and Stewart develop an innovative modular product design methodology aiming at identifying and specifying modular product families within an SME. This specification approach is based on requirements and generic product function structure and the modular product and component families and greatly promotes the reuse of product modules as well as improving the product quality.

Third group of papers concerns with framework and IT platforms enabling collaborative working in manufacturing network and industry clusters. The paper by Su focuses on the development of ASP-based platform for collaborative networked manufacturing service. Sureephong et al. propose a knowledge management system for collaboration within industry clusters. This system is based on an ontology approach to capture, model and share knowledge between SMEs.

Guest editors wish that readers will find in this special issue a significant survey and original contributions in the field of IT enabling integrated design and manufacture engineering. The authors have undertaken huge work in developing deep research contents for their papers. We hope those papers will be of great interest to readers and intensively stimulating the scientific investigation and discussions among the academics and practitioners working on integrated design, manufacture engineering and IT-based research and applications.

Last, we would like to thank all authors and reviewers who have contributed to the quality and success of the special issue. Special thanks go to the editor team of the *International Journal of Manufacturing Research* who share our view on the need and interest in the topics we proposed for a special issue and provided the necessary support for publishing these highly relevant and timely papers.