
Editorial

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Biographical notes: Abdelaziz Bouras is currently Professor at Lumière University of Lyon, where he is leading the Supply Chain and PLM group of PRISMa Laboratory and the CERRAL Development Center of Lumière Technology Institute. Abdelaziz is currently a Guest Researcher at the National Institute of Standards and Technology, USA, working on the issues of integrating product lifecycle and supply chain management information. Abdelaziz holds a PhD and a Habilitation Diploma in Industrial Engineering from Claude Bernard University of Lyon. His current research works cover information and data sharing, exchange standards and architectures, and collaboration strategies with a focus on supply chain and PLM applications. He actively participates in international research projects in the area of PLM, SCM, and product development.

Sudarsan Rachuri is a Research Professor with the Department of Engineering Management and Systems Engineering at George Washington University. He is a Guest Researcher in the Manufacturing Systems Integration Division, National Institute of Science and Technology. Presently, his work at NIST includes Development of Information Models for Product Lifecycle Management, Assembly Level Tolerancing, Product Ontology and Transfer of Knowledge and Technology to Industry. He is the Regional Editor (North America) for the *International Journal of Product Development*, and Associate Editor for *International Journal of Product Lifecycle Management*. He received the BS (Mathematics, Madras University), MSc (Applied Mathematics, College of Engineering Guindy), MS and PhD degrees from the Indian Institute of Science, Bangalore.

Balan Gurumoorthy is currently a Professor in the Centre for Product Design and Manufacturing and the Department of Mechanical Engineering at the Indian Institute of Science in Bangalore, India. He received his BTech in Mechanical Engineering from the Indian Institute of Technology, Madras in 1982. He received his ME and PhD in Mechanical Engineering from Carnegie Mellon University, Pittsburgh, USA in 1984 and 1987, respectively. His current research interests are in the areas of geometric modelling, features technology, reverse engineering and rapid prototyping.

Alain Bernard works in the Ecole Centrale de Nantes, and manages research at the IRCCyN (Virtual Engineering for Industry). He was a Vice-President of AFPR (French Rapid Prototyping Association) and its representative in GARPA (Global Alliance of Rapid Prototyping Associations). From 1996 to 2001, he was Professor in the CRAN laboratory (Research Center for Automatic Control of Nancy) in Nancy, where he managed a research group (ICF) on mechanical and production engineering. His main research topics are related to reverse engineering, knowledge-based systems for Computer-Aided process planning (applied to machining, rapid prototyping and laser digitizing), and product and process modelling. He obtained his PhD in 1989, on 3D feature-based manufacturing of forging dies.

Product development, over the years, has evolved from serving local to global markets, from sequential to distributed engineering and from being vertical to networked organisations. These trends, along with mass customisation, environmental concerns, regulations and decreasing margins is forcing many organisations to focus more attention on effective creation and management of information for the entire lifecycle of products. The consequence of this focus on product lifecycle requires collaboration across various disciplines, cultural boundaries and stakeholders.

PLM supports the extended enterprise by integrating people, processes, business systems, and information. Some of its key challenges (facing industry in 21st century) are related to the requirements for developing sustainable products and services; maintaining the integrity of product definition and related information throughout the life of these products; and maintaining business processes used to create, manage, disseminate, share and use the information.

This new journal is devoted to the cross disciplinary efforts in the development, promotion and coordination of the science and practice of Product Lifecycle Management (PLM).

To draw up the prospects for research in this field, the *International Journal of Product Lifecycle Management (IJPLM)* aims to help its readers understand and address PLM issues, identify appropriate visions and strategies, and then successfully plan, implement and use the corresponding systems and practices. *IJPLM* aims to contribute to a wide scale dissemination of PLM knowledge and work that seek to develop and apply pragmatic and advanced solutions for deploying collaborative processes of value creation and delivery. It also establishes channels of communication between experts in academic and research institutions, practitioners and professionals working in industry and related business, and policy makers.

IJPLM publishes original research and development papers related to the PLM field, and also reviews and educational papers, case studies, conference reports, relevant reports and news, book reviews and briefs.

This first issue provides fundamental theories and practical approaches to organise, manage, and reuse PLM information and knowledge effectively.

The first paper, written by Subrahmanian et al. identifies supporting Product Lifecycle Management as the challenge for the 21st century product development. In this paper, a history of product development and technology is set as the background for the role of information technology in PLM. The paper suggests a typology of standards that attempt to cover all aspects of the product lifecycle. Finally, it calls for open standards as a mechanism for these developments and their implementation.

The second paper by C. McMahon et al. discusses Information Management for Lifecycle Product Support. It addresses issues of engineering model representation including the storage and organisation of data for long term access, the capture of design rationale, decision outcomes and design process. Systems issues such as storage media are also considered.

In the third paper Terzi et al. consider the organisational changes and knowledge management in the implementation of PLM supporting systems, and discuss successful change management strategies such as 'niche project and follow up' and 'overall and step by step' approaches.

Mevellec and Perry analyse the challenge in designing new costing approaches and the integration of their usage in the early phases of product design development and in the decision making toolboxes for engineers and managers.

Eynard et al. report on the results of an exploratory study based on the comparison of two PDM systems. The study highlights the need for more flexible tools for the workflow design and instantiation. UML based approaches are used to formalise the specifications and the functionalities of PDM systems throughout a turboprop aircraft case study.

Srinivasan explores the role of unified mathematical theories in forming the basis for dimensioning and parameterising families of product models. His paper presents some results that are getting incorporated into national and international standards that deal with product lifecycle management.

In a short paper, Pratt gives an overview of the current status of ISO 10303, the STEP standard, concentrating on the most widely used parts of the standard and on new developments in the PLM area.

Altogether, the papers of this first issue describe interesting solutions to important problems in the Product Lifecycle Management field, as well as innovative directions for future research in this area.