Editorial

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Biographical notes: Alain Bernard was an Associate Professor from 1990 to 1996 in Centrale Paris. From September 1996 to October 2001, he was a Professor in CRAN, Nancy I, in the 'Integrated Design and Manufacturing' team. Since October 2001, he has been a Professor at Centrale Nantes and the Dean for Research from 07 to 12. He is researcher in IRCCyN laboratory (UMR CNRS 6597) in the 'Systems Engineering – Products-Performances-Perceptions' team. His research topics are KM, PLM, information system modeling, interoperability, human safety modeling and evaluation, enterprise modeling, systems performance evaluation, virtual engineering, additive manufacturing, and reverse engineering. He supervised 25 PhD students, recently on extended enterprise modelling, simulation and performance evaluation. He published more than 250 papers in refereed international journals, books and conferences. He is the Vice-Chairman of WG5.1 of IFIP (Global Product Development for the Whole Product Lifecycle) and Chairman of CIRP STC Design.

PLM is generating both needs and solutions. In many sectors, PLM gives solutions but mostly on a very classical approach, with a standard configuration of tools.

This issue of *IJPLM* proposes different viewpoints that allow coming back to basics, close to concepts and to ontologies. These approaches are very much investigated in different domains because multi-physics, multi-domain, multi-view, and multi-level models are necessary inputs for the extension of PLM in many domains such as healthcare and safety, and museums.

PLM should not be efficient without a strong methodological approach, mostly based on enterprise modelling, with several steps that allow taking into account all the viewpoints of all actors concerned by PLM in the company.

In this issue, four papers are proposed. We hope that each of them will give you valuable elements to improve your own solutions, applications or researches on PLM.

The first paper relates to flexible PLM architecture. This paper presents three case studies conducted at three independent automotive OEMs in Sweden: their purpose was to investigate the need for multidisciplinary integration in the product development process as well as the resulting engineering requirements on the PLM architecture. It is concluded on the basis of the three cases analysed that a flexible PLM architecture has the potential to fulfil the engineering need for flexibility and specialised tool support while maintaining well-documented data integration across companies. It also has the

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best potential to offer support over time, as local systems can be upgraded and replaced independently.

The second paper concerns a global product development strategy assessment tool.

The article describes the construction of a new GPD strategy assessment tool. To better comprehend the current state of knowledge on GPD, a wide state-of-the-art analysis was implemented. Starting from the evidenced lacks, a specific questionnaire was structured, trying to recover information from the field. This allowed assessing the current Italian situation on a sample of 20 companies, equally distributed among SMEs and MNCs. Data were inserted into a database and classified both with cluster and qualitative analyses. Results were used to define the triad of classification axes constituting the final GPD strategy assessment tool. This new tool is able to acquire technical, geographical and strategic information. Furthermore, it can map the suitability of organisational structures, IT infrastructures and GPD strategies evolution. The assessment is virtually supported by a 3D representation and it could be useful both to evaluate the 'as is' and 'to be' states.

The third paper relates to the ship design domain and proposes features of data management in PLM. Appropriate PLM system should be implemented with consideration of the design and manufacturing features of the industry. Data management of PLM system for ship design is discussed to reflect the characteristics of product design as well as the manufacturing strategy adopted by shipbuilding. Assuming shipbuilding industries adopt an ETO strategy significantly different from ATO, requirements for the functional applications, product structures, and architectures of shipbuilding PLM are discussed in order to appropriately implement the PLM for shipbuilding industry. Present paper suggests the functional applications and architecture of PLM for ship design process after the features of PLM for both the automotive and shipbuilding industry are compared. Thereafter, PLM architecture that considers the differences between ATO and ETO industries is discussed by the perspective view of data management in begin of life.

The fourth and last paper of this issue focuses on simulation and open loops in CAE data management. Product lifecycle management and simulation-based design have been regarded as necessities for an enterprise's competitiveness for more than a decade. The aim of this paper is to analyse the current practices and challenges in CAE data management and simulation-based design in mechanical engineering companies. Special attention is paid to so-called open loops and how those loops could be closed to enable the re-use of data. To reach the goal, they conducted interviews in enterprises. They found that management and re-use of simulation data in companies were challenging as due to the complex relations, limited documentation and reporting, use of numerous software applications and application-dependant data. Moreover, simulations are not well specified in product development process models. Thus, it is necessary to first map the performed simulations, simulation tools, simulation processes and related data before other steps can be taken. The goal should be to capture, share and reuse design knowledge.

This fourth issue of this year is very interesting and very much open when considering the topics addressed. What is important is to continue providing papers of different topics, both theoretical and practical, in order to help the community exchange experience and results.

IJPLM needs you, both for your papers and globally for your support. Any feedback is welcome.