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## Preface

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### Sudarsan Rachuri\*

Department of Engineering Management and  
Systems Engineering,  
George Washington University,  
Washington, DC 20052, USA  
Email: sudarsan@cme.nist.gov  
\*Corresponding author

### Madhusudan Therani

San Jose, CA 95136, USA

### Kincho H. Law

Professor of Civil and Environmental Engineering,  
Structural Engineering and Computer Aided Engineering,  
Stanford University,  
Stanford, CA 94305-4020, USA

**Biographical notes:** Sudarsan Rachuri is a Research Professor with the Department of Engineering Management, George Washington University, Washington DC. He is a Guest Researcher in the Design and Process Group, Manufacturing Systems Integration Division, National Institute of Science and Technology (NIST), Gaithersburg, MD. Presently, his work at NIST includes development of information models for product lifecycle management, assembly models and system level tolerancing, and interoperability standards development. He coordinates research projects with industry and academia. He is the Regional Editor (North America) for the *Int. J. Product Development*, and an Associate Editor for *Int. J. Product Lifecycle Management*. His areas of interest include scientific computing, mathematical modelling, product lifecycle management, ontology modelling, system level tolerancing, quality, object-oriented modelling and sustainable manufacturing. Rachuri Sudarsan received the MS and PhD degrees from the Indian Institute of Science, Bangalore.

Therani Madhusudan is currently a Software Architect at Autonomy Inc., Santa Clara, CA, developing advanced knowledge management systems with a focus on information extraction, semantic analysis and machine learning techniques for NLP. Prior to this, he was on the Faculty of the MIS department at the University of Arizona and a Systems Architect in the Knowledge-based Engineering team at Honeywell International at South Bend, IN. He graduated with a PhD from Carnegie-Mellon University, Pittsburgh in 1998 with an interdisciplinary PhD thesis on enabling technologies for engineering design and automation. His areas of interest include model-driven design of both software and hardware systems with a focus on process modelling, automated software engineering and business process management.

Kincho H. Law is currently Professor of Civil and Environmental Engineering at Stanford University. He obtained his BS in Civil Engineering and BA in Mathematics from University of Hawaii in 1976, and his MS and PhD in Civil Engineering, in 1979 and 1981, respectively, from the Carnegie Mellon University. His professional interest has dealt with computer aided design, engineering and legal information management, e-government services, engineering enterprise integration and high performance computing. He is a frequent Keynote Speaker in international conferences and industrial forums on ICT in engineering and has published over 300 technical articles in journals and conference proceedings.

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In this special section, we highlight some of the key research issues at the interplay of Knowledge Management (KM) and Product Lifecycle Management (PLM), two highly active areas of technological investment and process improvement in modern manufacturing and service enterprises. The vision of PLM is usually initiated from the product development and/or operations management group within an organisation. However, many such organisations usually have (or are planning) large-scale KM efforts underway from a strategic perspective, wherein the focus is to understand all the business processes within an organisation, their information management requirements, tools to support the execution and finally, deploy information technologies to secure, archive, enable organisational knowledge workers, and utilise the intellectual assets of the organisation. This special section aims to define and delineate some of the emerging research issues and potential approaches at the interface of PLM and KM. The interdisciplinary nature and overlap between KM and PLM activities highlights a number of practical research topics of interest to practitioners and academics alike. In this section, we present three articles from a researcher's viewpoint and an invited article from a practitioner discussing the potential industrial vision in merging these technologies. 'Practitioner requirements for integrated Knowledge Based Engineering in PLM' explores the role of conventional KBE technology in the context of PLM based on a survey study. The article, 'Discontinuity in organisations: identifying business environments affecting efficiency of knowledge flows in PLM', illustrates the potential complexities of enabling KM in complex product/service development organisations. It describes an ethnographic study in the construction industry and illustrates the contextual complexities of enabling KM in complex business processes. In the article, 'PLM, process, practice, and provenance: knowledge provenance in support of business practices in Product Lifecycle Management', the authors discuss the role of tacit knowledge captured as practices and outline a framework and criteria to acquire such knowledge. The last invited article, 'How closed-loop PLM improves Knowledge Management over the complete product lifecycle and enables the factory of the future' outlines the vision of the interplay between KM and PLM from a practitioners' viewpoint.

The editors of this special section thank all the authors for their contribution and hope this section will create enough interest in the research issues related to the interplay between KM and PLM.