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Preface

The importance of innovative processes for design and engineering in ensuring business success is increasingly recognised in today's competitive environment. However, academia and management need to gain a more profound understanding of these processes and develop better management approaches to exploit such business potential.

The aim of this *Second International Workshop on the Modelling and Management of Engineering Processes* is to showcase recent trends in the modelling and management of engineering processes, explore potential synergies between different modelling approaches, gather and discuss future challenges for the management of engineering processes and identify future research directions.

This International Workshop on Modelling and Management of Engineering Processes (MMEP) is being organised by the Engineering Design Centre at the University of Cambridge, the Socio-Technical Centre at Leeds University Business School and the Chair for Information Technologies in Mechanical Engineering at the Otto-von-Guericke-Universität in Magdeburg on behalf of the Design Society's Special Interest Group of the same name.

This workshop aims to continue working along the research roadmap for the Modelling and Management of Engineering Processes. During March 2009 a series of industry workshops were held in the UK, Sweden and Germany in order to identify future research needs, assisted by representatives from 27 companies from within the manufacturing, service and healthcare sectors. A preliminary roadmap was presented to and discussed with the research community in August 2009 at the ICED Conference in the US, and a joint white paper drafted (Heisig *et al.* 2009)[1].

[1] Heisig P, Clarkson PJ, Hemphälä J, Wadell C, Norell-Bergendahl M, Roelofsen J, Kreimeyer M, Lindemann U (2009) Challenges and future fields of research for modelling and management of engineering processes, 2nd edn. Workshop Report CUED/C-EDC/TR 148, Cambridge Engineering Design Centre, Department of Engineering, University of Cambridge, UK

This first MMEP conference was launched in 2010 as a bi-annual series providing an international platform to highlight and discuss industry best practice alongside leading edge academic research.

The papers in the proceedings have been submitted and undergone a double-blind review and discussed at the Workshop. Based on this feedback, each author has revised their paper and contributed to this final edition of the workshop proceedings. They represent a sample of leading national and international research in the fields of engineering design, process modelling in engineering design and product development, and areas addressing the following topics:

Albers, Braun and Pinner describe the Integrated Product Engineering Model (iPeM) aimed to handle the complexity of engineering processes through modelling information based on a prototypic implementation.

Campean and Henshal present an integrated framework for systems engineering design based on a Failure Mode Avoidance (FMA) framework underpinned by a structured approach to function analysis of complex multi-disciplinary systems with an example from automotive systems design.

Capjon and Hjelseth describe an simulation solution called Plant of Collaborative Conceptualisation (PoCC) supporting human ideation and participative design using a 360 degree simulator applied to maritime design.

Da Silva Vieira explores the interrelations between ambiguity, risk and change and their influence towards the completion of design issues in design meetings.

Gericke and Moser provide a case study from a small engineering company on how the engineers adopt design methodologies to different projects as a contribution for tailoring of a branch specific design approach.

Helten and Lindemann report on the first results from developing an instrument to assess the success of the introduction process of Lean Development.

Meboldt, Matthiesen and Lohmeyer draw from their industry experience to review the dilemma of managing iterations in product development processes and suggest strategies to deal with iterations under time pressure.

Oehmen and Ben-Daya propose a taxonomy for risks in product design and development which are prioritised based on an industry survey.

Szélig, Schabacker and Vajna describe a Tri-Process Modeling Tool for process optimization in product development projects.

Tahera, Earl and Eckert study focuses on the integration of physical and virtual testing to support the testing and subsequent design phases of product development.

Yang, Benjamin and Roberts reports research findings of innovation management of small and medium sized enterprises in the home healthcare sector identifying opportunities for improvement by better understanding the needs of users and carers.

Finally, we would like to thank all those authors and reviewers who have contributed to the preparation of this book, and also Anna Walczyk and Mari Huhtala who transformed a disparate set of initial drafts into a coherent and attractive book.

Peter Heisig and John Clarkson
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