
Preface

It is our great pleasure to welcome you to go through the Proceedings book of the 14th ISPE International Conference on Concurrent Engineering, CE2007 held at an impressive facility of complex systems development, the Laboratory of Integration and Testing (LIT, <http://www.lit.inpe.br>) of the Brazilian Institute for Space Research (INPE, <http://www.inpe.br>) in São José dos Campos, SP, Brazil. The previous events were held in Antibes-Juan les Pins, France (CE2006), Dallas, Texas, USA (CE2005), Beijing, China (CE2004), Madeira Island, Portugal (CE2003), Cranfield, UK (CE2002), Anaheim, USA (CE2001), Lyon, France (CE2000), Bath, UK (CE99), Tokyo, Japan (CE98), Rochester, USA (CE97), Toronto, Canada (CE96), McLean, USA (CE95), Pittsburgh, USA (CE94). CE2008 and CE2009 are planned for Northern Ireland, UK and Taiwan, respectively.

The CEXX conference series were launched by the International Society for Productivity Enhancement (<http://www.ispe-org.net>) and have constituted an important forum for international scientific exchange on concurrent engineering. These international conferences attract a significant number of researchers, industrialists and students, as well as government representatives, who are interested in the recent advances in concurrent engineering research and applications. Concurrent engineering is a well recognized engineering approach for productivity enhancement that anticipates all product life cycle process requirements at an early stage in the product development and seeks to architect product and processes in as simultaneous a manner as possible. It works via multi-functional, multi-discipline and multi-organization team collaboration.

The theme of this CE2007 proceedings book is complex systems development focusing on innovative product and process solutions that requires collaboration for architecture, design, implementation and build in order to deliver sustainable value to stakeholders. Concurrent engineering methods, technologies and tools are well established for the development of parts and for enhancing the productivity of isolated product life cycle processes (e.g., manufacturing or assembly). However, there is nothing that prevents us from exploiting the potential to use the concept of concurrent engineering for complex systems development.

Complex systems (e.g. automobiles, aeroplanes, spacecrafts, space vehicles and launchers) development requires the collaboration of many organizations around the globe. So it is necessary to expand current collaborative engineering and management concepts from already traditional multidisciplinary collaboration to multi-cultural through to multi-organizational collaborations. The CE2007 proceedings book offers you the opportunity to keep track of the latest trends on knowledge and collaboration engineering and management.

Concurrent engineering used together with systems engineering provides the necessary framework for not only product innovation but also for process and organization innovation. With particular reference to complex products, the product, its life cycle processes and their performance must be developed in an integrated manner from the outset otherwise complexity escalates. Concurrent engineering provides the right conceptual framework for that. The CE2007 proceedings book shows you state of the art for concurrent systems and software engineering, systems architecting, product development process, concurrent methods and tools and the anticipation of manufacturing and environmental requirements for sustainability.

Complex systems development affects the interests of a multitude of stakeholders. Nowadays, environmental requirements are of increasing importance in product development. Concurrent engineering has already been an approach for anticipating such requirements. This is the so called sustainable product development. The CE2007 proceedings book intends to expand this concept of sustainability towards sustainability of value delivered to all stakeholders; including stakeholder value sustainability, enterprise architecture for innovation, product development management, and supply chain collaboration.

Contributions that compose this proceedings book can be arranged around 5 main tracks identified for the CE2007 conference:

- 1) Systems engineering, architecting, analysis, modelling, simulation and optimization;
- 2) Product realization process, methods, technologies and techniques;
- 3) Information modelling, technology and systems;
- 4) Knowledge and collaboration engineering and management;
- 5) Business, organizational and managerial issues.

We would like to take this opportunity to thank to all of the contributors of this book for the high quality of their papers. We would like also to acknowledge the contribution of the track chairs, session chairs and of the International Program Committee for ensuring the high quality of the work compiled into this book. We thank sincerely the members of the executive and organizing committees who helped in all aspects of organizing CE2007. Finally, we would like to gratefully acknowledge the institutional support and encouragement that we have received from our sponsors (ISPE, INPE/LIT, FUNCATE, EMBRAER) and the funding received from the Brazilian science, technology and innovation funding agencies FINEP, FAPESP, CAPES and CNPq.

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