

# Preface

The present book is intended to give an overview of the existing methods for product/process design and development and provoke discussion on the achievements and new trends for the twenty-first century including in the new proposed processes the relevant concept of innovation.

Innovation is a critical factor in the success of industrial companies, and just as important is the need to get innovative products to the market quickly. Therefore, it is important to talk about “management of product development time” because, under this new paradigm, companies capable of “mastering” the development time will launch the product into the market just spending the planned time and resources and at the moment when it will achieve higher acceptance ratios in the market. This will give back to the company a higher market share and faster market penetration.

The main objective should be to provide the means for stimulating the creation of innovative ideas in general, and specifically on potential product/process improvements and problem solving. These ideas have necessarily to be collected throughout the extended enterprise from people involved with the products and processes and should be developed into innovations in a project basis process. This in turn requires effective utilization of information and communication technologies (ICT).

The baseline of the book is product/process development and innovation in manufacturing industry, but most of the presented methods are applicable in a wide variety of industrial companies in different sectors. The concept of a product is considered in a broader sense, *i.e.*, it includes material products but also ICT products and services in general.

The book explores different aspects related to innovation processes in industry acting in the global economy in the twenty-first century and presents in detail several approaches to support this processes by ICT based knowledge management systems and collaborative working environments.

It has resulted from the authors working experience mainly in advanced research projects and has been conceived as a text book that may support students, practitioners, design engineers, and scientific people in general in their efforts to improve conjoint product/process designs and development with the overall objectives of achieving better innovative and sustainable products in shorter times. The book includes descriptions of many practical applications of the presented ap-

proaches which have been investigated within these projects. Since one of the focuses of the book is ICT support of the innovation process in industry, it also includes many references to advanced and commercially available ICT tools. However, the objective of the book is not to recommend specific tools and, therefore, the references to different ICT tools have only the purpose to provide an insight into some characteristic (but not necessarily the best available) examples of such ICT solutions.

The book is structured in six chapters: Chaps. 1 to 3 deal with methodological and conceptual aspects of design and development (historical background, innovation and new proposed methods); Chaps. 4 and 5 analyze ICT tools related to the subject (ICT tools supporting the development process and collaborative work); Chap. 6 discusses the new trends and emerging disciplines.

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