

# Preface

Life Cycle Assessment (LCA) is a science-based technique to assess resource consumption and potential environmental impacts associated with a product or service throughout its whole life cycle, from extraction via manufacturing and use to end-of-life by compiling an inventory of relevant energy, material, water and land inputs, and releases to the environment.

Life Cycle Management (LCM) is a management concept applied in industrial and service sectors to improve products and services while enhancing the overall sustainability performance of business and its value chains. In this regard, Life Cycle Management is an opportunity to differentiate through sustainability performance on the market place, working with all departments of a company such as research and development, procurement, and marketing, and enhance the collaboration with stakeholders along a company's value chain. LCM is used beyond short-term business success and aims at long-term achievements minimizing environmental and socioeconomic burden while maximizing economic and social value.

What was our reason to prepare this LCM book? We believe that Life Cycle Management is a key concept within the life cycle community that allows operationalizing sustainability within organizations by putting life cycle thinking into business practice. In the LCM context, Life Cycle Assessment is one important technique among others, hence, the need for providing with this book a space for further explaining what LCM is about and its relationship to Life Cycle Assessment.

Moreover, there is confusion with different similar terms such as product life cycle management and application life cycle management, which are not linked to sustainability, so that we identified a need for clarification. Finally, there is progress in implementing LCM, and there are challenges in mainstreaming LCM in business practice and beyond in public policy, which we felt was worth reporting on.

This volume of the *LCA Compendium* aims to give the reader a thorough insight into Life Cycle Management presenting its origin, evolution, and the state of practice, including progress made, current challenges, the way forward to its operationalization in more and more organizations, and its linkage to business value creation.

With this open-access book, which we were able to prepare thanks to our role as cochairs of the LCM 2015 Conference, we target not only the scientific community but in particular also the life cycle professionals in business and industry as well as administration. We expect the readers to find inspiration on how to implement Life Cycle Management in organizations throughout multiple value chains.

The book is structured in five parts:

Part I Introducing Life Cycle Management)

The first part defines what Life Cycle Management is within the realm of sustainability and what are the opportunities and challenges to implement it into business practice.

Part II Advancing the Implementation of Life Cycle Management in Business Practice

The second part continues focusing on progress made with regard to implementation processes of life cycle approaches and its linkage to business value creation.

Part III Life Cycle Management as Part of Sustainable Consumption and Production Strategies and Policies

The third part broadens the scope of Life Cycle Management and presents it as part of sustainable consumption and production discussing strategic opportunities for policy action and related responsibilities of consumers and policy makers, among other stakeholders, along the value chain.

Part IV Mainstreaming and Capacity Building on Life Cycle Management

The fourth part provides a series of chapters addressing the challenges of mainstreaming Life Cycle Management. It discusses opportunities to build operational capability and the potential for mainstreaming LCM in emerging economies through capacity building, concluding on the need to enhance communication and collaboration within the global LCA community.

Part V Implementation and Case Studies of Life Cycle Management in Different Business and Industry Sectors

Finally this book concludes by providing a few practice examples of Life Cycle Management in different economic sectors.

All the chapters of this book have been elaborated by recognized and experienced experts in the LCM domain to provide the reader a qualified and comprehensive insight into the dynamic and increasingly relevant field of Life Cycle Management. Each chapter functions as a self-containing unit within each part of the book, simultaneously playing its individual role in the overall concept of this volume of the *LCA Compendium*.

Our vision is a sustainable global society where Life Cycle Management approaches are well established and fully integrated into regular decision-making processes. We will be grateful if this book helps the reader to make a step forward in this direction.

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