

# Preface

Progressive competition, increasing customer demand, growing production and consumption scale, as well as environment degradation cause a lot of social, environmental, and economic problems. It requires a change in managements' attitudes toward their enterprises' operation and acceptance of responsibility not only for shareholders and employees, but also for the society, environment, or suppliers. Moreover, there is a need to create new solutions that might be successfully applied to improve supply chain management in the highly volatile environment of today's global network economy.

Innovative instruments provide opportunities for making manufacturing and logistics operations cleaner and more resource-efficient. New technologies and methods focus on life-cycle engineering and life-cycle management.

The aim of this monograph is to present technology management for sustainable production and logistics within supply chains.

This monograph is valuable to both academics and practitioners wishing to deepen their knowledge in the field of sustainable management. The book covers technical, organizational, financial, and social issues connected to the implementation of various technologies. It includes:

1. Case studies from different sectors.
2. Tips on the technical and non-technical aspects of new sustainable technology implementation.
3. Main problems and challenges of new technologies introduction.

The scope of the book takes into consideration how the environmental issues emerging in management might be transformed into business practices. Therefore, the authors present, in individual chapters, innovative approaches to organization and coordination of various processes in supply chains.

In the book, emphasis is placed on three main areas:

1. Supply chain sustainability—green supplier selection; service center location; drivers, inhibitors and solutions of supply chain sustainability, and role of logistics service providers in sustainable supply chains.

2. Technologies for transportation and sustainability—smart cities; reducing truck emissions and energy efficiency of passenger transport.
3. Sustainable production—eco-innovation; ergonomics; information technologies supporting production processes.

The first chapter contains an applicable methodology for green supplier selection in the food industry. The methodology consists of criteria classification, ranking, and a supplier selection phase.

The second chapter aims to present a solution for the agricultural service center location problem using the TOPSIS, DEA, and SAW techniques. The main contribution is to consider more comprehensively the attributes in solving service facility location problems such as: technical potential of candidate locations, demand, and market location.

In the next chapter, the author describes drivers, inhibitors, solutions of supply chain sustainability. This chapter describes the process of change of attitudes toward sustainability and its consequences for manufacturing and logistics industries.

The aim of the subsequent chapter is to draw attention to the growing importance of supply chain sustainability and to present practical solutions in this field on the example of the logistics industry. In the research, literature studies, surveys, and case studies have been used.

The final chapter in this part focuses on showing the way in which the CSR (corporate social responsibility) concept is put into practice by Polish brewing enterprises and how it influences their functioning on the example of the two largest beer producers in Poland.

The second part of the book presents technologies for transportation and sustainability. The aim of the first chapter of this part is to look more closely at the subject of smart cities in view of sustainable development.

The next chapter shows the problem of truck emissions in import operations at a container terminal in a Singaporean port. The goal of this study is to develop a methodology for reducing emissions generated by trucks idling at import yards.

The aim of the final chapter in this part is to estimate the level of energy-intensity of passenger transport in the Poznan (Poland) agglomeration and the dominating individual transport. It also indicates organizational and technological activities that would contribute to lowering energy intensity and increasing the sustainability of transport.

The third part of the book focuses on sustainable production. The author in the chapter “Identifying relationships between eco-innovation and success of a product” studies the success factors identification in eco-innovation. The critical success factors are identified on the basis of the ERP database and questionnaires concerning implementation of an eco-innovation. The proposed methodology enables a merger of objective indices and subjective judgments with the use of fuzzy logic.

The next chapter shows the significance of ergonomics in sustainable production. That aspect which also relates to social responsibility is limited not only to protection of precious virtues of the natural environment, but also refers to care

about employees and awareness of the fact that they are a significant part of the company.

The last chapter presents a study of the available information technology tools which support the analysis of production process efficiency in the ecological context.

We would like to thank all authors who responded to the call for chapters and submitted manuscripts to this volume. Although not all of the received chapters appear in this book, the efforts spent and the work done for this book are very much appreciated.

We would like to thank all reviewers whose names are not listed in the volume due to the confidentiality of the process. Their voluntary service and comments helped the authors to improve the quality of the manuscripts.

Paulina Golińska  
Arkadiusz Kawa

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