

System Innovation for Sustainability 1

**PERSPECTIVES ON RADICAL CHANGES TO
SUSTAINABLE CONSUMPTION AND PRODUCTION**



EDITED BY ARNOLD TUKKER, MARTIN CHARTER,
CARLO VEZZOLI, EIVIND STØ AND MAJ MUNCH ANDERSEN

Contents

Preface	ix
Part 1: The context of this book	1
1 Introduction	2
<i>Arnold Tukker, Sophie Emmert, Martin Charter, Carlo Vezzoli, Eivind Stø, Maj Munch Andersen, Theo Geerken, Ursula Tischner and Saadi Lahlou</i>	
2 Sustainability: a multi-interpretable notion: the book's normative stance	14
<i>Arnold Tukker</i>	
Part 2: Business perspective	45
3 Review: the role of business in realising sustainable consumption and production	46
<i>Martin Charter, Casper Gray, Tom Clark and Tim Woolman</i>	
4 Business models for sustainable energy	70
<i>Rolf Wüstenhagen and Jasper Boehnke</i>	
5 Alternative business models for a sustainable automotive industry	80
<i>Peter Wells</i>	
6 Sustainability-related innovation and the Porter Hypothesis: how to innovate for energy-efficient consumption and production	99
<i>Marcus Wagner</i>	

7 Marketing in the age of sustainable development	116
<i>Frank-Martin Belz</i>	
Part 3: Design perspective	137
8 Review: design for sustainable consumption and production systems	138
<i>Carlo Vezzoli and Ezio Manzini</i>	
9 Design for (social) sustainability and radical change	159
<i>Ursula Tischner</i>	
10 Social innovation and design of promising solutions towards sustainability: emerging demand for sustainable solutions (EMUDE)	178
<i>François Jégou</i>	
11 Eco-Innovative Cities Australia: a pilot project for the ecodesign of services in eight local councils	197
<i>Chris Ryan</i>	
12 Is a radical systemic shift toward sustainability possible in China?	214
<i>Benny C.H. Leong</i>	
Part 4: Consumer perspective	233
13 Review: a multi-dimensional approach to the study of consumption in modern societies and the potential for radical sustainable changes	234
<i>Eivind Stø, Harald Throne-Holst, Pål Strandbakken and Gunnar Vittersø</i>	
14 Product-service systems: taking a functional and a symbolic perspective on usership	255
<i>Gerd Scholl</i>	
15 Social capital, lifestyles and consumption patterns	271
<i>Dario Padovan</i>	
16 Linking sustainable consumption to everyday life: a social-ecological approach to consumption research	288
<i>Irmgard Schultz and Immanuel Stieß</i>	
17 Emerging sustainable consumption patterns in Central Eastern Europe, with a specific focus on Hungary	301
<i>Edina Vadovics</i>	

Part 5: System innovation policy perspective	319
18 Review: system transition processes for realising sustainable consumption and production	320
<i>Maj Munch Andersen</i>	
19 System innovations in innovation systems: conceptual foundations and experiences with Adaptive Foresight in Austria	345
<i>K. Matthias Weber, Klaus Kubeczko and Harald Rohrer</i>	
20 Transition management for sustainable consumption and production	369
<i>René Kemp</i>	
21 Systemic changes and sustainable consumption and production: cases from product-service systems	391
<i>Oksana Mont and Tareq Emtairah</i>	
Part 6: Conclusions and integration	405
22 Conclusions: change management for sustainable consumption and production	406
<i>Arnold Tukker</i>	
Abbreviations	444
About the contributors	448
Index	455