Springer Series in Supply Chain Management

Yann Bouchery
Charles J. Corbett
Jan C. Fransoo
Tarkan Tan *Editors*

Sustainable Supply Chains

A Research-Based Textbook on Operations and Strategy

Springer

Springer Series in Supply Chain Management

Volume 4

Series Editor
Christopher S. Tang
University of California
Los Angeles, CA, USA

More information about this series at http://www.springer.com/series/13081

Yann Bouchery • Charles J. Corbett
Jan C. Fransoo • Tarkan Tan
Editors

Sustainable Supply Chains

A Research-Based Textbook on Operations and Strategy

Springer

Editors
Yann Bouchery
Axe Logistique Terre Mer Risque
Ecole de Management de Normandie
Le Havre, France

Charles J. Corbett
Anderson School of Management
University of California Los Angeles
Los Angeles, CA, USA

Jan C. Fransoo
School of Industrial Engineering
Eindhoven University of Technology
Eindhoven, The Netherlands

Tarkan Tan
School of Industrial Engineering
Eindhoven University of Technology
Eindhoven, The Netherlands

ISSN 2365-6395 ISSN 2365-6409 (electronic)
Springer Series in Supply Chain Management
ISBN 978-3-319-29789-7 ISBN 978-3-319-29791-0 (eBook)
DOI 10.1007/978-3-319-29791-0

Library of Congress Control Number: 2016933780

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer International Publishing AG Switzerland

Preface: About This Book

Objectives and Intended Audience

Who is this book for? In this Preface we give a quick introduction to the objectives and intended audience of the book, the guiding principles we adopted in assembling it, and its structure. In the Introduction (Chap. 1, by Bouchery et al. 2017), we offer some more broader perspectives on the current and future state of sustainability in supply chains.

Sustainability is increasingly seen as a supply chain issue, not something that a single firm can deal with effectively. Several authors have produced review articles on sustainable supply chains, as well as special issues of journals, including Linton et al. (2007), Srivastava (2007), and Seuring and Müller (2008). Reviews on sustainable operations, often including some discussion of supply chains, include Angell and Klassen (1999), Kleindorfer et al. (2005), and Corbett and Klassen (2006). Several books with similar titles have also appeared, each with their own focus. Some are aimed primarily at practitioners, such as *Greening the Supply Chain*, edited by Sarkis (2006); *Sustainable Supply Chains: Models, Methods, and Public Policy Implications*, edited by Boone et al. (2012); *Sustainable Supply Chain Management: Practical Ideas for Moving Towards Best Practice*, edited by Cetinkaya et al. (2010); *Green Supply Chains: An Action Manifesto* by Emmett and Sood (2010); and *Green Supply Chain Management: Product Life Cycle Approach* by Wang and Gupta (2011). The book on *Green Logistics: Improving the Environmental Sustainability of Logistics*, edited by McKinnon et al. (2010), focuses more in depth on logistics rather than on supply chains in the broader sense of the word.

Each of these reviews and books has their place, but none of them were produced with more technical graduate-level courses on sustainable supply chains in mind. That is our objective, to provide a textbook that can be used in M.Sc. or relatively technical M.B.A. courses (or advanced undergraduate courses) in this area. We have observed an increase in the number of such courses being offered, but without a corresponding increase in teaching materials. This book aims to draw on the latest

research to support courses on sustainable supply chains for graduate programs such as business, management, industrial engineering, and industrial ecology.

Rather than write a mediocre book ourselves, we turned to leading experts to provide overviews of their respective fields. We asked them to describe the current state of affairs, and to identify future needs and trends, rather than presenting new results not yet published elsewhere. Nevertheless, we anticipate that the book should also be of interest for researchers in the broader sustainable supply chain space, whether from the operations management and industrial engineering side or more from the industrial ecology and life-cycle assessment side, as a vehicle to learn from another community and to identify new research opportunities.

Philosophy Behind This Book

In assembling this book, we followed a few key principles (discussed at more length in the Introduction). First, we use the term "sustainable" in a loose sense, meaning that one considers the triple bottom line in making decisions, i.e., taking into account economic, environmental, and social aspects. Second, we emphasize that sustainability is multidimensional and that measurement is key, which is why the book starts with several chapters on measurement. Third, we recognize the need to address a wide range of aspects of "sustainability" in the book, but do not necessarily aim to cover them all in every chapter. Fourth, and most importantly, we decided to let the experts who contributed these chapters speak: it is more important for readers to be exposed to a wide view of experts than just to hear our opinions. As a result, some topics may be covered in multiple chapters, while other topics are not covered at all.

Structure of This Book

The structure of the book is straightforward. Part I starts with several chapters on measurement and reporting. Separate chapters provide introductions to LCA, carbon footprinting, water footprinting, nonrenewable materials management, and reporting. Part II covers core operational aspects of sustainable supply chains, with separate chapters devoted to green logistics, green inventory management, green facility location, operational implications of environmental regulation, responsible purchasing, green technology choice, and principles of eco-design. Part III revolves around issues related to business models and strategy in sustainable supply chains, with chapters on the stock market value implications of environmental initiatives and business implications of sustainability practices, moving from a product-based to a service-based economy, and a strategic overview of closed-loop supply chains, design of sustainable food supply chains, and managing risk and uncertainty in sustainable supply chains. Part IV focuses more on the social dimension of

sustainability, with chapters on how to improve social and environmental performance in global supply chains, perspectives on social responsibility in supply chains, and how to manage cross-sector partnerships with NGOs in sustainable supply chains. Inevitably, some chapters could have been arranged differently, and they can be read in any sequence. All chapters are also available from the publisher separately.

Le Havre, France — Yann Bouchery
Los Angeles, CA — Charles J. Corbett
Eindhoven, The Netherlands — Jan C. Fransoo
Eindhoven, The Netherlands — Tarkan Tan

Acknowledgments

We are deeply grateful to each and every author who contributed to this book, many of whom are leading authorities in their fields and none of whom were lacking in other opportunities. We worked closely with the authors, suggesting revisions here and there to enhance consistency between the chapters; despite their busy schedules, the authors were very gracious and patient with our requests. Without them, there would be no book. Naturally, it is difficult—no, impossible—to include in a single book every aspect of sustainable supply chains or to invite all the leading authorities in the field. Unsurprisingly, we failed on both fronts, and the resulting omission of some relevant topics and leading authorities can be chalked up to the space restrictions and time pressures we faced.

Between the four of us, we have too many parents, spouses, partners, children, colleagues, friends, and others to whom we are deeply indebted for their support (voluntary or involuntary, knowing, or otherwise) to name them all individually. We wish we could promise that with the completion of this book, we will have more time for all of you, but we cannot rule out that something else will come along to preoccupy us.