Foreword

Modern manufacturing is based on international supply chains. This is actually a rather new reality. Some 20 years ago, much of manufacturing was still very much a national, even a provincial, affair. When Henry Ford in the early 20th century optimised the logistics of car manufacturing, and when Taiichi Ohno, learning from Ford, since the 1950s created the Toyota Production System, international supply chains played no role.

One aspect figured prominently since the early days of the Toyota Production System: avoiding waste. Under the cramped conditions of ever more densely populated Japan, one of the principles of avoiding waste became the avoidance of space consuming storehouses, leading during the 1970s to the just-in-time delivery of parts into the assembly factory. This can be seen as the birth of supply chain management. At that time, however, the suppliers were mostly located in close vicinity of the assembly hall.

The idea of employing suppliers from far away, including from overseas, crept in during the 1980s when transport costs plummeted and the international coordination of supply chains became technically feasible. During the 1990s, cost trimming and outsourcing, for cost reasons, became the undisputed mainstream of the economies of the world, giving birth to the new term of “globalization.” Globalized capital markets and the rise of the Internet were additional driving forces for ever more globally integrated production chains.

During the euphoric 1990s, not much attention was given to potential downsides of this new kind of an international division of labour. The most important downside, it can be argued, has been the neglect of the environment. World-wide manufacturing systems involve enormous transportation, often by air cargo. World-wide distribution of goods makes recycling rather complicated. And generally, the rampant growth of mass manufacturing of all kinds of goods entailed swelling avalanches of waste. In parallel, gigantic mining schemes became ever more threatening to some of the last remaining natural habitats.

As environmental consciousness began spreading, the supply chains came under scrutiny by necessity. Environmentally minded consumers in the prosperous countries demanded increasing transparency on the part of the retailers, and soon a new kind of consultancy profession emerged: the ecological analysts of the supply chains.

Pressure is increasing on all countries that participate in the global supply chains to abide by ecological standards negotiated and agreed between manufacturers and governments or advocacy groups. Green life cycle certificates become strong sales arguments in some of the prosperous countries.

The Internet works in two important directions in this situation. On one hand, it allows advocacy groups to swiftly coordinate their research and their actions. On the other hand, it allows firms in all countries to optimize the use of resources and thereby to reduce their ecological footprints.

The National Tsing Hua University has taken the lead in addressing the challenges of the greening of the supply chains using modern communication technologies and the Web. I was proud to be invited
to one of their pivotal conferences organized in Hsinchu by Professor Hsiao-Fan Wang, who also serves as editor of this volume.

The contributions to this book show an impressive and dynamic picture of what is going on worldwide in green supply chain management in general and in web-based improvements in particular. It is to be wished that this highly relevant new field of scientific inquiry and technological progress receives widest attention both in academia and in the globalized business world.

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Ernst Ulrich von Weizsäcker received his physics diploma from the University of Hamburg, and his PhD in zoology from the University of Freiburg. He has numerous experience as a professor of biology at the University of Essen, president of the University of Kassel, director at the UN Centre for Science and Technology for Development in New York, director of the Institute for European Environmental Policy, Bonn-London-Paris, and president of the Wuppertal Institute for Climate, Environment, and Energy. From 1998-2005, he was a member of the German Parliament, chairman, Select Committee on Globalization, and later on the Environment Committee from 2002-2004. He was also a member of the World Commission on the Social Dimensions of Globalisation, dean of the Bren School for Environmental Science and Management, UCSB, Santa Barbara, California, USA, and co-chair of the UNEP International Panel on Resources. He has received many honors, including the Pfaff Prize in 1977 and Premio de Naturain in 1989, as well as becoming an honorary professor at the University of Valparaiso, Chile, in 1991. 1996. He received the Duke of Edinburgh Gold Medal in 1996, an honorary degree from Soka University, Tokyo, in 2000, and the Takeda Award in 2001. He is also listed in Who’s Who in the World.