

Preface

The book is a result of collaborative efforts uniting various disciplines—from technology studies to philosophy. Relations and interactions between society and technology are scrutinized in a context of sustainability problematique. Including experts from various countries and across different generations makes an interesting contribution to the debate on sustainability. International and intercultural perspectives presented by the authors help to clarify the variety of approaches and contexts in which technologies develop and interact with society and the environment. Better insights into promises and chances, of risks and dangers, especially in the long term, make a shift in consciousness necessary to cope with existing and emerging challenges to individuals, society, and humanity. The authors have tried to present and discuss some of them showing their multidisciplinary and multicultural.

The collection consists of eight parts. In Parts I–III devoted to *innovation and technology emerging in and for society*, the authors bring together various technological innovations, not only ICTs, but also their social applications and impacts. It is shown that various technological advances, some of a breakthrough type, create a totally new surrounding for people's activities and lives. Furthermore, they stimulate—via strategies policies, networking, and market-growth and overwhelming technology applications. They are growth- and profit-oriented. Producing many positive impacts, they also create new risks and challenges (e.g., concerning social order, freedom, social justice, legal issues, moral dilemmas of military technologies, technologization of culture, as well as environmental problems). Traditional concerns about social needs, often created by technology and market in the name of progress, should be contested and enriched by sustainability criteria.

In Parts IV–VIII devoted to the relations of *technology, economy, and sustainability*, the authors present TA methods and numerous cases of sustainability-oriented activities and undertakings. Sustainable development is discussed in many areas and contexts (e.g., city development, technology production and applications, organization, business, public finance, consumption, and human life). The road to sustainability is context-dependent; however, strategies, policies, and

human behavior changes may in the long run facilitate a timely needed transition. The efforts should be multidimensional and multilevel, local and global, theoretical and practical, and coping both with complexity and diversity of world societies and economies. The authors, presenting multiple ideas, concepts, and real cases (from several countries), have tried to provide inspiring perspectives on sustainable development and to contribute to theoretical backgrounds and transition pathways toward a sustainable future.

The collection is a multidisciplinary and multicultural contribution to the present sustainability discourse. It is focused on two main dimensions of our world: *complexity* and *diversity*. Desirable and urgent transition of socio-technological systems toward a sustainability trajectory of development requires a better understanding of technological trends and social transformations. General advancement of technology does not produce identical changes in various societies, differentiated economically and culturally. Moreover, the abilities to approach sustainable development change over time and space. So there is a constant need for continuing research, analyses, and discussions concerning changing contexts and adequacy of strategies and policies. The authors from 12 countries, of different academic and cultural settings, present their insights, analyses, and recommendations. The collection is focused both on contexts and on activities leading to sustainable trajectories in various domains of economy and social life.

The collection consists of the eight complementing parts. In Part I, there are four papers presenting different dimensions of socio-technological change.

K.I. Pelc constructs a model of innovation diffusion process for a new context—social networking. Broader civilizational aspects of enterprise information infrastructure are discussed by A. Targowski in a perspective of a sustainable future. L.W. Zacher underlines a performative power of technologization of people and their activities. This megatrend is supported by commercialization and marketization, greatly impacting human life and human culture. Technologically pioneering countries are not passive; they conduct policies co-shaping their futures. Information revolution and its overwhelming impacts require such policies. D. Anagnostopoulou describes the digital policies of two important world actors—the European Union and the USA.

In Part II, the authors introduce the issue of technology use in various domains and contexts. A.K. Srivastava and S. Sharma present how social justice can be facilitated by e-policy initiative (in India—the second most populous country in the world). Technology supports politics. ICTs essentially transform our cultural sphere, and media in particular. T. Miczka interestingly reveals the so-called audiovisuality of the third degree, allowing people to move from real space to virtual space. The progression of societies into the future can be accompanied by a concurrent digital preservation of the cultural heritage. So a continuity of culture can be protected (N. Peters, D. Marinova, M. van Faassen, and G. Stasiuk). The innovative services of technology seem countless.

Part III includes in-depth observations—some general, some particular. A. Betlej investigates how the Internet technology makes possible to construct—via an interactive network-based system of virtually embedded relations—an

alternative social order in the future. The author tries to answer some crucial questions about the peril and the promise of this technology. J. Miksa continues this discussion, calling for responsibility in the Net. Citizens should feel not only free but also safe (the case of pedophilia is quoted). Threats to civil liberties generated or accompanied by scientific and technological advancements are topics of E. Polak's essay. The balance between citizens' freedom and security is an old challenge in a new technological reality. Legal standards are inevitable to preserve both values, proves M. Skórzewska-Amberg in her paper. W. Lamentowicz focuses on military technologies, on drones in particular. He critically evaluates the legal and moral legitimacy of targeted killing by drones.

Part IV, focused on *technology evaluations and policies*, provides a better understanding of technology's impacts and methods of their evaluation. P. Sienkiewicz and H. Świeboda present a methodological approach for linking TA and systems analysis, while A. Grunwald investigates TA methods and practices (i.e., in German TAB) in the context of sustainable development challenges. Effective translocal TA requires international cooperation. Its empirical case related to Middle and Eastern European countries is developed by G. Banse.

Part V devoted to the *approaches to sustainability* shows that the concept of sustainability and its use may raise controversies. Z. Bisk and P. Boltuc discuss sustainability from a perspective of growth and its limits. Finally, the authors conclude that sustainability can best be attained by technological growth.

The next author, L. Xu, considers sustainability in the context of an uncertain future. Xu introduces a notion of resilience thinking into sustainability discourse. Water resource management is given as an example enhancing socio-ecological resilience.

Sustainability at least as a trajectory is globally crucial in the case of new emerging powers. How to reconcile economic prosperity with sustainability in China?—seek X. Guo, S. Kreml and D. Marinova. Can Confucianism and Taoism help?

Threats to sustainable development in world societies are numerous, tough, and diverse, claims A.P. Wierzbicki. His analysis, based on the project "Poland 2050," evaluates global risks and threats endangering the future of sustainable development worldwide. Part V ends with the chapter by W. Sztumski, who underlines the role of the individual, often underestimated or ignored in sustainability discourse. So he opts for connecting the idea of sustainable development with a concept of "sustainable man" (understood as *Homo sapiens*). Only sustainable people can fully realize a vision of sustainable development, claims the author.

In Part VI devoted to *sustainability and its dimensions and issues*.

E. Stoyanova tries to highlight the relation of corporate social responsibility and practices toward sustainable development. She presents a conceptual framework of embedding sustainable development in organizations through leadership. Many cases are quoted.

Part VII is devoted to practical challenges leading to sustainability. J. Kielin–Maziarz describes the EU Sustainable Consumption and Production

Action Plan in the context of the sustainable development principles. There are more powerful world actors influencing international sustainability. The authors from China (J. Hong and W. Yu) and Australia (D. Marinova, X. Guo, and M. Gollagher) analyze implications for China's resource demand on sustainability in Australia.

Emerging powers like China have their own internal problems due to the ever-expanding cities and their inundation with water. B. Zhao, D. Marinova, and X. Guo outline a sustainability strategy model for urban water management. The next paper by L. Xu and D. Marinova on nano-biotechnology for water sustainability is a good supplement.

Finally, Part VIII, devoted to *sustainability and business*, is oriented toward economic issues. A. Czarczyńska discusses the sustainability challenges in the posttransition countries (like Poland), while analyzing interdependencies of main stakeholders in the sustainable development process worldwide. Stakeholders' strategic thinking is crucial for sustainable development. M. Monaci and M. Magatti postulate a reorientation of companies' engagement in corporate social responsibility (CSR) from mainly adaptive-reactive strategies for legitimization in relation to stakeholders toward a model based on the valorization of social resources and needs. The most desirable will be creating "integrated value"—economic, social, and environmental (some findings of research conducted on a sample of Italian organizations are discussed).

Sustainability characteristics may become the important measures of companies' performance in the present competitive world. They are evaluated by stakeholders as well. L. Soares and C. Chaves propose a concept and methodology suitable to calculate a value of corporate ecological footprint (CEF). To support such an approach, some case studies for the Iberian Peninsula were reported and analyzed.

Sustainability of public finances gains a supranational significance in the time of crisis. Sustainability in this understanding relates not only to finances as such but also to broader issues of economic and social development. N. Gomes investigates in his article the efforts to repair public finances within the EU legal frameworks and programs (the case of Portugal is quoted as an empirical example of a country at financial risk). Needless to prove that social and environmental viability absolutely needs sustainability of public finances.

The collection is a contribution to the present discussion on sustainable development and its challenges for humanity and its organizations. Continuing research and discussion is needed to better understand these challenges and to prepare the appropriate strategies and solutions. Development of socio-technological systems is nowadays very complex; moreover, the world we live in is extremely diverse. Therefore, sustainability discourse must be ongoing, introducing new ideas, concepts, theories, evidence, and experience by various parties—academics, professionals, and practitioners.

The composition of the book and the set of authors emphasize the importance of multi and interdisciplinary and diverse approaches and evaluations, as well as multiculturality. For the purpose of better understanding of present and future

challenges, many theoretical and policy-oriented issues are discussed. The borders among them are often fuzzy, some overlap, and some others need further research or action. The authors try to help identify, based on their differentiated knowledge and experience, what is necessary to achieve sustainability in various domains and in various contexts. The technological civilization we live in produces streams (and waves) of innovations. They are generated in societies and should serve them. However, in practice it is neither so simple nor so smooth. The production of innovations and their vast applications are connected with numerous effects and impacts, including negative ones.

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Technology, Society and Sustainability

Selected Concepts, Issues and Cases

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