Preface to "Sustainable Mobility and Transport"

Understanding Sustainable Mobility and Transport in the Light of Technological Advancements

This Special Issue is dedicated to sustainable mobility and transport, with a special focus on technological advancements. Global transport systems are significant sources of air, land, and water emissions. A key motivator for this Special Issue was the diversity and complexity of mitigating transport emissions and industry adaptions towards increasingly stricter regulation. Originally, the Special Issue called for papers devoted to all forms of mobility and transports. The papers published in this Special Issue cover a wide range of topics, aiming to increase understanding of the impacts and effects of mobility and transport in working towards sustainability, where most studies place technological innovations at the heart of the matter. The goal of the Special Issue is to present research that focuses, on the one hand, on the challenges and obstacles on a system-level decision making of clean mobility, and on the other, on indirect effects caused by these changes.

All published papers have an international context and contribute to the contemporary debate of sustainable mobility and transport. Papers included in this Special Issue deal with transport studies, logistics, environmental research, transport technologies, and social scientific transport and technology studies. They provide theoretical views as well as empirical cases of the contemporary and future possibilities in clean transport and mobility.

In terms of content, the paper by Moeletsi (2021) explores electric vehicles through resident surveys conducted in South Africa. The results confirm several problems related to electric vehicle adoption, mainly due to their current high prices and availability. The paper proposes several tax and fiscal subsidies policy alternatives in order to make electric cars more feasible. The paper stresses stakeholder collaboration and future initiatives in the development of charging infrastructure. Likewise, the paper by Pipitone et al. (2021) continues electric vehicle studies. This paper points out energy source sustainability as well as environmental stress from the manufacturing process to provide a life cycle assessment. The results indicate a need for systematic scenario building as well as the importance of the vehicle life cycle in the calculation of environmental stress.

The Special Issue includes two papers on computer simulation, modelling, and data driven research. The first one, by Mikušová et al. (2021), explores solutions for transport and mobility sustainability through discrete computer simulation and moves the Special Issue towards simulation models. This paper also applies a selected decision-making methodology and provides insights specifically to meet the needs of sustainable transport. The paper addresses practical problems of urban congestion with applications. The second paper by, Ahmad et al. (2022), considers data-driven deep learning in journals with a specific focus on transport. The paper deals with decision support and governance by applying data resources from newspapers, technology magazines, and science articles from Web of Science. The results stress the importance of sectoral collaboration and the identification of knowledge gaps in reporting on environmental sustainability.

Ruiz-Pérez and Seguí-Pons (2020) move the Special Issue's content to tourism studies and residents transport choices in popular tourism destinations. Their paper addresses the understudied topic of local resident's mobility, and they performed an empirical survey. The results verify the most

important variables affecting mobility decisions and transport modes. This is interlinked with the general functionality of public transport. The paper reflects on public transport development plans and highlights the importance of strategic planning in the pursuit of sustainable mobility.

The focus of the Special Issue then moves to concern rail transportation in China (Li et al. 2020). This paper addresses the important topic of regional economic prosperity, and particularly the distinction between cities and rural areas. The authors take the construction of high-speed train networks and their spatial–economic impacts as the focal point. The study utilised statistical nonlinear methods and logit regression models to empirically verify that the convergence effect between Chinese regional types is still relatively weak. Thematically, Lähdeaho and Hilmola (2020) provide a case study of European transport business. The authors looked at the regulation changes that have an impact on international trade and business, focusing on logistics and manufacturing companies. The authors used survey and interview methods to identify and fine-tune three business models that were integrated with circular and sustainable economy goals. The study explains that the majority of companies are not well prepared for rapid external changes, hindering the emergence of optimal business conditions.

A connection between smart cities and sustainable mobility is drawn by Jettanasen et al. (2020); their study looks towards alternative energy sources, particularly piezoelectric material, converting mechanical energy into electricity. This paper presents a pilot device integrated into a bicycle. The paper illustrates that the applied energy harvesting system has the potential to meet the requirements of mobility equipment requiring low power inputs. Cities and urban deliveries are essential in sustainable transport, particularly for the final short-leg deliveries (i.e., door to door). Inkinen and Hämäläinen (2020) continue this in their literature review, and identified a block of studies focusing on sustainable solutions for truck transport. The authors paid particular attention to finding research looking at mitigating emissions from various angles. The review considered different solutions for engines and fuels, resulting into different types of emissions.

The concluding perspective paper by Vilathgamuwa et al. (2022) provides an extensive overview of electric vehicles and its supportive technologies (e.g., infrastructure and power systems). The paper establishes a linkage between urban power systems and system-level problems. The paper presents an integrative novel concept of Mobile-Energy-as-a-Service (MEaaS) for the systemic development and management of urban mobile energy production and consumption for electric vehicles. The concept combines various elements, ranging from measurements to public acceptability and pricing mechanisms.

All ten contributions of this Special Issue study and analyse the extent and diversity of great changes that are needed to support sustainable mobility and transport. All of these papers provide academic as well as practical interpretations of emission control and mitigation, and technological offerings of our time. We hope that the Special Issue provides stimulating ideas and new knowledge of sustainability in transport, with special twist on logistics in general. Based on the published set of papers, we consider that future studies are still needed, particularly on comparative aspects around the world, in order to elaborate the complexity of environmentally friendly and economically sustainable development. As Guest Editors, we thank all of the contributors for their diligent work in revising original drafts. We also thank the large number of reviewers who have dedicated their

time and competence to comment on and discuss the drafts in order to improve them. This has increased the overall quality and robustness of this Special Issue. We also thank the editorial staff of *Sustainability* for their smooth and effortless collaboration, resulting in this final product.

References

Ahmad, Istiak, Fahad Alqurashi, Ehab Abozinadah, and Rashid Mehmood. 2022. "Deep Journalism and DeepJournal V1.0: A Data-Driven Deep Learning Approach to Discover Parameters for Transportation"Sustainability 14, no. 9: 5711. https://doi.org/10.3390/su14095711

Inkinen, Tommi, and Esa Hämäläinen. 2020. "Reviewing Truck Logistics: Solutions for Achieving Low Emission Road Freight Transport"Sustainability 12, no. 17: 6714. https://doi.org/10.3390/su12176714

Jettanasen, Chaiyan, Panapong Songsukthawan, and Atthapol Ngaopitakkul. 2020. "Development of Micro-Mobility Based on Piezoelectric Energy Harvesting for Smart City Applications"Sustainability 12, no. 7: 2933. https://doi.org/10.3390/su12072933

Li, Weidong, Xuefang Wang, and Olli-Pekka Hilmola. 2020. "Does High-Speed Railway Influence Convergence of Urban-Rural Income Gap in China?"Sustainability 12, no. 10: 4236. https://doi.org/10.3390/su12104236

Lähdeaho, Oskari, and Olli-Pekka Hilmola. 2020. "Business Models Amid Changes in Regulation and Environment: The Case of Finland–Russia"Sustainability 12, no. 8: 3393. https://doi.org/10.3390/su12083393

Mikušová, Nikoleta, Gabriel Fedorko, Vieroslav Molnár, Martina Hlatká, Rudolf Kampf, and Veronika Sirková. 2021. "Possibility of a Solution of the Sustainability of Transport and Mobility with the Application of Discrete Computer Simulation—A Case Study"Sustainability 13, no. 17: 9816. https://doi.org/10.3390/su13179816

Moeletsi, Mokhele E. 2021. "Future Policy and Technological Advancement Recommendations for Enhanced Adoption of Electric Vehicles in South Africa: A Survey and Review"Sustainability 13, no. 22: 12535. https://doi.org/10.3390/su132212535

Pipitone, Emiliano, Salvatore Caltabellotta, and Leonardo Occhipinti. 2021. "A Life Cycle Environmental Impact Comparison between Traditional, Hybrid, and Electric Vehicles in the European Context"Sustainability 13, no. 19: 10992. https://doi.org/10.3390/su131910992

Ruiz-Pérez, Maurici, and Joana M. Seguí-Pons. 2020. "Transport Mode Choice for Residents in a Tourist Destination: The Long Road to Sustainability (the Case of Mallorca, Spain)"Sustainability 12, no. 22: 9480. https://doi.org/10.3390/su12229480

Vilathgamuwa, Mahinda, Yateendra Mishra, Tan Yigitcanlar, Ashish Bhaskar, and Clevo Wilson. 2022. "Mobile-Energy-as-a-Service (MEaaS): Sustainable Electromobility via Integrated Energy–Transport–Urban Infrastructure"Sustainability 14, no. 5: 2796. https://doi.org/10.3390/su14052796

Tommi Inkinen, Tan Yigitcanlar, and Mark Wilson
Editors