

Guest editorial

Massimo Ragnedda and Glenn Muschert

The decade of the 2020s has thus far been the age of digital transformation. At the same time, the decade will reveal whether humanity can reach a coherent set of sustainability goals, namely, the United Nations Sustainable Development Goals (UN SDGs). Often in the academic literature, one hears discussion of the role digital technologies, digital skills and digital society play in pursuing and maintaining a sustainable future.

This special issue provides a forum for that conversation to develop as a venue in which social scientists, STS scholars and other digital scholars explore the concept of digital sustainability. This conversation focuses on several intertwined issues related to digital sustainability. A first concern involves establishing conceptual frameworks and methodological guidelines undertaking analysis in the topic. A second concern consists of measuring and assessing digital sustainability. A third dimension consists of plotting out applied methodologies for implementing principles of digital sustainability in real, augmented and virtual spheres. Thus, this special issue on digital sustainability engages new scholarly and applied conversations regarding the intersection between digital aspects of human life and broader sustainability concerns for humanity and the planet.

The articles in this thematic issue connect contemporary digital sociology with sustainability scholarship, contributing to a nascent sub-field for digital sustainability. The special issue offers forward-looking perspectives in the form of suggestions for digital sustainability. These perspectives include examining how the concepts, associated methodologies, applications and principles of digital sustainability can be helpful in the pursuit of sustainability goals, including the SDGs.

The special issue opens with a conceptual article by Sergio Sparviero and Massimo Ragnedda, "Towards Digital Sustainability: The Long Journey to the Sustainable Development Goals 2030." The authors define digital sustainability as a hybrid of sustainability and sustainable development concepts, with the intersection between digital aspects of human life, and more comprehensive sustainability concerns for humanity and the planet. The authors point out how technologies and digital processes are functional catalysts for achieving the 2030 UN SDGs and are crucial for individuals' everyday lives, even though such notions involve various conflicting worldviews. The authors suggest that to build a sustainable digital society, core terminal and instrumental values of sustainability and sustainable development should be followed across different worldviews and formulate policies or other initiatives. Such values are normative, supporting stakeholder efforts and serving as guidelines for developing technologies in a sustainable society.

The second article draws attention to the role of information and communication technologies (ICTs) in the practical assessment of the SDGs related to sustainable and smart city initiatives. Daielly Melina Nassif Mantovani Ribeiro, Flavio Hourneaux Junior, Cristiana Lara Cunha, Patricia Taeko Kaetsi, Patricia Fernanda Dionizio-Leite and Celso Machado Junior, in of "Digital Sustainability: How Information and Communication Technologies (ICTs) Support Sustainable Development Goals (SDGs) Assessment in Municipalities" inventory several ways of assessing SDGs performance related to ICTs in sustainable, smart cities. However, the effectiveness of such assessments may be questionable. The intensive use of technology as the core of sustainable, smart cities does not imply an improvement in sustainability unless these technologies strategically underpin those objectives. Notably, not all SDGs have

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considered the use of ICTs in their targets. This study offers valuable contributions to the literature by providing a collection of insights regarding the sound assessment of the role of ICTs in sustainable development programs, specifically the integration of SDGs in metropolitan initiatives.

In “A Matter of Time? Sustainability and Digital Media Use,” Stephan Oliver Görland and Sigrid Kannengießer show how, within the last decade, the concepts of sustainability and time are increasingly relevant in media and communications research. The paper describes time as a core human resource for sustainability. The authors note a gap in the scholarly literature concerning the three-way intersection of time, sustainability and digital media concepts. This complex relationship remains understudied, requiring detailed analysis of digital media structures in everyday life and at the macro-level of societal transformation. Ultimately, the authors envision a shift in perspective from the individual to relational mediated communication, grounded in acknowledging the complex nexus of time, sustainability and digital media.

Next, in “A Framework for Building a Sustainable Digital Nation: Essential Elements and Challenges,” authors Murali Krishna Penmetsa and Sebastián Bruque-Camara focus on the challenges surrounding digital nations, providing direction to forward-thinking construction of theory. Based on a systematic literature review of 41 research papers selected from 12,624 in the field, this article proposes a digital nation framework. The authors identify several challenges associated with the elements of the digital nation concept and propose solutions to them. Ultimately, the article offers guidance to leaders and policymakers when building digital nations, just as it guides researchers active in this growing field of inquiry.

The special issue concludes with two case studies. First, in “Bridging the Gender Digital Divide: An Analysis of Existing Guidance for Gender Digital Inclusion Programmes’ Evaluations,” Alicja Pawluczuk, JeongHyun Lee and Attlee Munyaradzi Gamundani underline the need to address the existing gender digital divide in the global efforts to achieve SDGs. As the authors argue, despite recent progress toward gender equality, women’s access to, use of and benefits from digital technologies remain truncated because of gender-dependent economic and socio-cultural impediments. Although many research programs highlight the importance of gender-sensitive digital inclusion programs, there is a limited facility to evaluate their impact. This article fills this research gap, examining existing evaluations of gendered digital inclusion while proposing trajectories for future development of new evaluation modalities. The thematic analysis indicates three points of future focus for the evaluation:

1. context-specific understanding of gender digital inclusion programs;
2. transparency and accountability of the evaluation process and its results; and
3. tensions between evaluation targets and empowerment of evaluation participants.

In the final article of this special issue, Tamunonengiyeofori Abaku, Stefano Calzati and Anu Masso, in “Exploring Digital Sustainability of/through Estonia’s E-Residency: Africa’s Case and the Importance of Culture for Sustainability,” focus on the e-residency program launched by Estonia in 2015. The article locates digital sustainability at the intersection of SDG 9 (“build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”) and SDG 10 (reduce inequalities “among countries, including those related to migration and development assistance”). The authors argue that digital sustainability should not be seen as a means toward achieving more sustainable societies but as a conceptual framework for assessing the sustainability of digital services. To explore the digitally sustainable aspect of the e-residency program, the authors conducted in-depth interviews with African e-residents to explore the program’s design in the African context. The result is a thoughtful reflection on the conceptualization of digital sustainability in light of Estonia’s e-residency.

In conclusion, we have seen that digital technologies are vital in pursuing and maintaining a sustainable future. In one or more ways, each article appearing in this special issue contributes to the scholarship of digital sustainability, whether in conceptual, theoretical, methodological, evaluative or applied dimensions. As a whole, the articles in this thematic special issue affirm the importance of digital sustainability, especially in this crucial decade for humanity, as stakeholders worldwide work to achieve the UN SDGs by 2030. We are honored to have played an editorial role in bringing these studies and the thematic issue to print. It is a particular honor that the project appears in *Digital Policy, Regulation and Governance*, a core venue for the scholarship of all things digital.

Special Issue Editors

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