Sustainability Science

Special Feature: Call for Papers

Sustainability and Digitalization: A Game-Changer?
Possibilities, Perils, Pathways

Aims and Scope

In this special feature we aim to cover two megatrends and their interaction: Sustainability and Digitalization.

The well-established concept of sustainability is confronted with a technological leap referred to as a 'digital revolution' that opens the chapter of the digital age we live in. The overconsumption of natural resources and its harmful consequences threaten the basis of our existence and that of future generations (WCED, 1987). However, the discourse and research have not achieved more sustainability and humans are still systematically failing to meet the conditions for sustainability that relate to the biosphere as well as human society (Johnston et al., 2007). Hence, scholars rightly observe a fundamental "sustainability gap" (Lubin & Esty, 2014). Indeed, corporations, organizations, and individuals globally continue to add unsustainable activities to their behaviors.

Given the stagnation of sustainable development, the overall "sustainability gap" continues to be a major issue. Parallel to this development stands the increasing spread of digital technology in all areas of life. Information and communication (ICT) technology constitute our new "digital age" (Schmidt & Cohen, 2013), encompassing a richness of soft- and hardware and linked processes. Such ICT and Big Data can help promote sustainability (Gijzen 2013, Hampton et al 2013), because the societal complexity of the planetary nervous system is strongly connected and these systems may lead to cascading effects that increase vulnerability (Helbing, 2012). Via a big data driven "*transnational sustainability agency*" (Seele 2015) or a digital "*global participatory platform",* for instance, digitalization can help to increase (strong) sustainability in the environmental, social and economic sphere (Helbing, 2012).
The reporting of sustainability activities of corporations serves as one of many examples of how digitalization can promote sustainability. In their reporting on sustainability activities, corporations rely on digital technology to communicate their agendas to the out- and inside. Through new software solutions such as the unified digital data repository XBRL, information is spread in a comparable, consistent, and

reliable way (Seele 2014, Tschopp & Huefner, 2014). That way, this technological development provides an accurate and credible picture of a company's contribution to sustainability, as it mirrors the company's sustainability actions. More transparency in reporting through technology helps stakeholders track developments in sustainability and aids govern corporate activities over the long run.

Digitalization, as in the example of Big Data, offers new possibilities and pathways of how to shape the future and research (Shah et al., 2015). The stored information enable the monitoring of how infectious diseases spread globally (Hay et al., 2013). Algorithmic capacities such as Xbrl allow for data processing and analysis that open up unseen predictive capabilities and thus a "time-ontological shift" (Seele 2014). Hence, digitalization bears consequences for transparency and accountability which opens up entirely new ways to shape, monitor, and govern sustainability. In conclusion, both megatrends, sustainability and digitalization, impose major transitions on our world and how we picture it.

In this regard, sustainability science is the scientific way of gathering data to analyze pathways towards a (more) sustainable world, taking into account future generations. Given its transformative nature, sustainability is expected to adapt to the new possibilities and perils of the digital age. Whether and in how far this transformation through digitalization facilitates or impedes the development of a more sustainable world, however, is still unknown.

The proposed special feature – for the first time – sheds light on the different possibilities, perils, and pathways the digital revolution might bring for sustainability and sustainability science. It intends to address the overall question:
Is digitalization a game changer for sustainability and if so, in what ways?

The aim of the special feature is to become the primary reference that provides research agendas, theoretical advancements, rigorous case studies, methodological implications and empirical evidence concentrated on how digitalization transforms sustainability. Meanwhile, limitations and threats also need to be considered. This special feature aims to address these two megatrends broadly and invites publications from the array of disciplines covered in sustainability science.

Targeted Articles

Little has been published so far on the game-changing potential of digitalization and sustainability.
This special feature welcomes theoretical, conceptual as well as rigorous empirical contributions that address implications for sustainability science. Potential topics include, but are by no means limited to:

- Empirical case studies where digitalization plays a major role for sustainability
- Experimental studies of digital sustainability settings
- Research addressing the link between digital media & sustainability
- Digitalization, sustainability, and different actors
- Theory advancement and conceptual models of digitalization and sustainability
- Digitalization's role for sustainable development in a global governance perspective

- Climate change, renewable energy, and the role of digitalization
- Ecosystem and digitalization
- The potential or impact of digitalization on sustainable landscapes
- Eco-innovations and the role of digitalization

Important Dates

- 30. October 2015: Submission of Abstracts to(both) Guest Editors (500 words excl. references)
- 15. November 2015: Communication about Accepted Abstracts
- 29. February 2016: Submission of Full Manuscripts to Guest Editors
- 30. June 2016: Communication of in---or---out Decision of Guest Editors to Authors
- 30. August 2016: Submission of Revised Full Manuscripts to Sustainability Science Journal
- End 2016 – Early 2017: Planned Publication of Special Feature

Guest Editors

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