

Future of Food: From Traditional Knowledge to Digital Solutions in Agriculture and Beyond

Call for Chapters for an Edited Open Access Volume Published by Springer

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Digital and artificial intelligence (AI)-based technologies are increasingly integrated into agri-food systems, reshaping production processes, decision-making, resource management, logistics, and governance structures. Recent research highlights the growing importance of data flows and digital infrastructures across agricultural value chains as well as the adoption of emerging technologies such as autonomous systems (e.g., Besieda et al., 2026; Halberstadt et al., 2022; Uehleke et al., 2024). At the same time, these developments unfold against the backdrop of an urgent sustainability transition in food systems, addressing fundamental challenges related to intensive livestock production, environmental impacts, and climate change (e.g., Blaha et al., 2025). Digital and AI-based innovations are often seen as enablers for such a sustainability transition (e.g., Grabkowsky, 2026; Herrero et al., 2020).

Viewing digitalization beyond a purely technological development, this volume is grounded in a systemic perspective. Agri-food systems are deeply interconnected with land, water, and energy use, climate and biodiversity, manufacturing and transport, public health, consumption patterns, and labor relations. They can thus be understood as complex socio-ecological systems shaped by environmental dynamics and land-use patterns (e.g., Ferro et al., 2025; Wolff et al., 2021). Digital and sustainability transformations must therefore be understood as part of broader socio-ecological transition processes (e.g., Chaudhary et al., 2023; Halberstadt & Kollhoff, 2025).

A central concern is the relationship between innovation, sustainability, and responsibility. Digital and AI-based solutions can only contribute meaningfully to sustainable food systems if accompanied by critical reflection on ethical implications, data governance, environmental trade-offs, labor conditions, and social inequalities. Questions of value creation and societal impact are therefore closely linked to debates in sustainable and social entrepreneurship (e.g., Halberstadt et al., 2021; Halberstadt & Hölzner, 2020).

At the same time, the transformation of agri-food systems requires new competencies at individual, organizational, and systemic levels, including data literacy, systems thinking, ethical reasoning, and the ability to navigate complex socio-technical environments. These competencies are closely linked to questions of education, training, and capacity-building, as innovative and experiential learning approaches are increasingly seen as key enablers of

sustainable transformation processes (e.g., Bohlayer et al., 2025; Brundiars et al., 2021; Grabkowsky & Blaha, 2026; Halberstadt et al., 2019; Rieckmann, 2025).

The aim of this edited volume is to provide a comprehensive and critical account of how digitalization interacts with sustainability, justice, resilience, and responsibility in agri-food systems. The volume emphasizes transformative innovation that is driven by rapid digitalization while taking into account the relevance of traditional knowledge and local practices, arguing that digital innovation should be understood as a complementary enhancement of existing systems rather than their automatic replacement. We seek contributions that explore both the opportunities and limitations of digital and AI-based solutions, as well as the conditions under which they may be insufficient, inappropriate, or even counterproductive.

Possible Research Questions

Contributors may wish to address, among others, the following questions:

- What are enabling and limiting conditions for the adoption of digital solutions, including AI-based technologies, in agri-food systems?
- How do digital technologies influence environmental outcomes in agri-food systems, and what opportunities and trade-offs do they create?
- How do digital technologies interact with the broader interdependencies of agri-food systems, including land, water, energy, manufacturing, and transport?
- What role do digital technologies play in enhancing resilience in agri-food systems under future uncertainty?
- How do data- and platform-based governance regimes reshape coordination and value distribution in agri-food systems?
- How do data ownership and trends of market concentration influence power relations and the sustainability transition of the food system?
- What ethical challenges arise in the use of digital technologies, including AI-based applications, in agri-food systems, and how can these be addressed responsibly?
- How can digital technologies support or undermine traditional knowledge systems in agri-food contexts?
- How does digitalization affect labor relations, working conditions, and social inequalities across agri-food systems?
- How do digital transformations in agri-food systems relate to public health, including food quality, food safety, and nutrition?
- Under what conditions may digital solutions in agri-food systems be insufficient, inappropriate, or even counterproductive?
- What leadership, governance, and educational approaches are needed to support responsible and inclusive transformation in agri-food systems?

These questions are indicative rather than exhaustive. We welcome disciplinary, interdisciplinary, and transdisciplinary contributions in the form of conceptual, empirical, methodological, review, or synthesis chapters. Submissions should clearly articulate their management, policy, and practical implications, and methodological diversity is encouraged.

Submission Guidelines and Review Process

- Submissions should be prepared in accordance with the Springer Nature submission guidelines available at: Springer Nature
- Please note that chapters should not exceed 5,000 words (including references, tables, and figures) and should follow APA 7 citation style
- Manuscripts should be anonymized for double-blind review. Author information should therefore be submitted separately in a title page document
- Authors may use generative AI or similar tools to aid their writing. However, the use of AI tools in the production of the chapter must be fully acknowledged in the submission, either in the methodology or in a note at the end of the chapter. Authors are fully responsible for ensuring that AI-generated content is accurate, that other scholars' work is appropriately cited and referenced, and that no plagiarism is present
- All submissions will undergo editorial and double-blind peer review. Authors of accepted chapters will be expected to review a peer's chapter submission as part of the volume's collaborative review process
- Submit your manuscript via email to: FutureofFood@uni-vechta.de

Timeline

- Submission deadline: 7 July 2026 7:00 AM (CEST)
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For any questions regarding the volume, please contact us via FutureofFood@uni-vechta.de

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