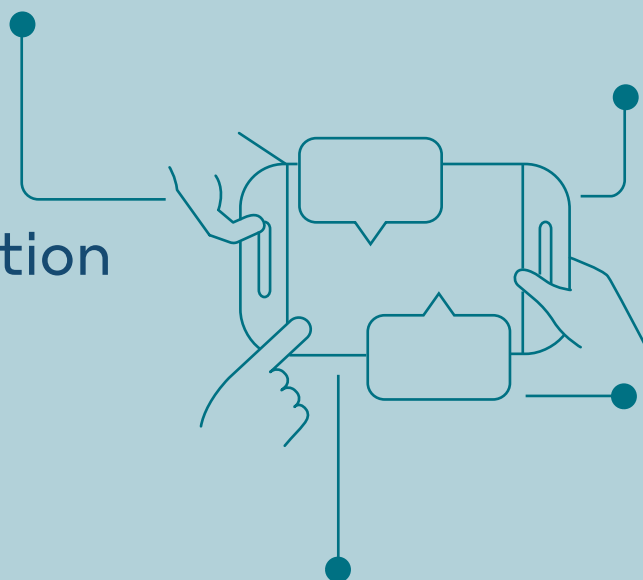


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# From Data to Action

## Socially Embedded and Inclusive Digitalization for Food Systems Transformation

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## Overview

Data have been called many things: the new gold, the new oil, the world's most valuable commodity. While it can be hard to tell hype from hard fact, data are undoubtedly an increasingly valuable resource that opens up exciting new opportunities but also introduces serious risks. The United Nations [Digital Economy Report 2021](#) drew attention to deepening power asymmetries in digital ecosystems, driven by private control over the global data value chain, and urged a new approach in which data are harnessed as a global public good.

The grand promise of digitalization to help solve the most pressing global challenges remains unfulfilled. The [2023 UN Secretary-General's report, Progress Towards the Sustainable Development Goals \(SDGs\)](#), paints a sobering picture: only about 12 % of the 169 SDG targets are on track, nearly half have seen progress, and some 30 % have either seen no improvement at all or have regressed since 2015. Progress on SDG 2 (Zero Hunger) is especially [elusive](#). Calls for more data to drive sustainable development and food systems transformation are widespread, but the specific role of Food Security and Nutrition (FSN) data and digitalization in maintaining unjust food systems remains a critical issue.

### The role of data and digitalization in realizing the Right to Food

The [Committee on World Food Security \(CFS\)](#), the foremost intergovernmental platform for global food governance, adopted [Policy Recommendations on Strengthening Collection and Use of Food Security and Nutrition \(FSN\) Data and Related Analysis Tools](#) in October 2023. This is one of the first comprehensive international efforts to address the implications of data use and digital technologies in food and agriculture. These policy recommendations represent the start of a dialogue about the pitfalls and potential of data and digital tools for food systems.

Though the Recommendations are voluntary and non-binding, their endorsement marks an important step forward, a springboard for further conversations on how governments can develop more equitable forms of digitalization, and how digital innovations can be employed to protect the rights and agency of people affected by hunger and malnutrition. This conversation is of particular relevance as we approach the [UN Summit of the Future 2024](#) where a [Global Digital Compact](#) is likely to be adopted.

The future will be shaped by how data and digital technologies are used and governed. Up to now, many debates around the accelerating impact of digitalization in food production and agriculture ignore both the risks of digital tools and data and the necessary enabling factors for them to help achieve the SDGs (e.g., [Albuquerque et al., 2021](#); [Rolandi et al., 2021](#); [Zscheischler et al., 2022](#)). In his recent [policy brief](#) on the creation of a Global Digital Compact at the Summit of the Future in 2024, the UN Secretary-General writes: “We need to act now, and with speed, if we are to recover the potential of digital technologies for the equitable and sustainable development that is slipping away from us and the planetary crisis that confronts us.”

While digitalization can be an asset in advancing food security and revealing patterns of inequity and discrimination, it is already being deployed in ways that [further entrench existing inequalities](#) and lock in unjust systems. This occurs, for example, through data and patent monopolies practised by multinational agricultural companies, by replacing low-skilled workers with technology, or by excluding poorer segments of society – particularly [women and the elderly in rural areas](#) – from digital participation. A paradigm shift is needed to ensure that digital tools empower communities to shape their own futures, protect their rights, and hold their governments accountable.

“As long as it is not a top-down extraction, but generated, interpreted, and used to empower smallholder farmers and communities, data can be good. What we cannot allow from a Right to Food perspective is for data to benefit big producers and companies and disempower local producers and communities.”

H. E. Ambassador Gabriel Ferrero y de Loma-Osorio, then CFS Chairperson, Spain

This policy brief presents an emerging consensus on the conditions needed to ensure that digitalization shapes food systems transformation in a positive way. Drawing on the experiences of social movements, of TMG Research gGmbH (TMG) staff, their project partners, and other experts in co-designing programmes, this brief uses case studies to generate and present recommendations for maximizing the potential of digitalization to transform food systems. The people cited in this brief took part in the forum entitled “From Data to Action. Forum on Inclusive Digitalization for Food Systems Transformation & Progress towards the SDGs”, which was organized by TMG and took place from 18 to 20 October 2023 in Rome.

## Data – the new oil

The current promotion of digital tools for small-scale food producers has created a new marketplace for data extraction from the private sector. As Nachiket Udupa, a member of the Indian CSO Alliance for Sustainable and Holistic Agriculture, notes, “Data is the new oil.”

Robust data governance regimes must be in place to challenge the growing financial, commercial, technological and political power of global corporations, and to ensure that data and digitalization serve people over profit. Private

sector players have already amassed a vast repository of data, reflecting the broader trend of data extraction in every facet of life. The implications are alarming, with [corporations gaining ever greater ability](#) to shape individuals’ behaviour and government policies.

Without participatory, human rights-based governance structures in place, large-scale data extraction is likely to exacerbate existing inequities and biases.

# Digitalization in an unequal world

“It is in an unequal world that we are introducing digital tools. If digitalization is to work across these divides and inequalities, we need to be very conscious about the gaps we find when we design programs.”

K. J. Joy, Senior Fellow at the Society for Promoting Participative Ecosystem Management (SOPPECOM), India

The development and use of digital technologies does not occur in a vacuum; it is embedded in a specific socio-economic context shaped by existing power structures. Power asymmetries and inequalities affect the capacities of communities to generate, access, and use data. Digital technologies alone do not address the structural injustices underlying hunger and malnutrition and the inequitable power structures embedded in digital systems.

Often, control over digital technologies is marred by inequality, with private companies holding the keys to data and digital infrastructure. Corporate consolidation of power in food systems is a critical issue in the realm of FSN data and beyond. The implications are immense. While a small number of corporations with budgets greater than those of many states gather ever more data, thereby gaining ever more influence over politics and economic development, food systems are already changing in potentially devastating ways.

The structural causes of hunger and malnutrition must be addressed to ensure that digital tools empower communities and individuals. Inclusive digitalization requires effective representation of communities and individuals at different stages of the data life cycle. We must first recognize the socio-economic and political nature of data and digitalization before developing tools that empower communities rather than supporting patterns of exclusion, discrimination, and oppression.

## Key recommendations

- ▶ Data should not be viewed primarily as a commodity. Instead, it should be governed as a global commons while protecting privacy and indigenous data sovereignty. It is necessary to develop a legal framework firmly grounded in a human-rights approach, emphasizing a shift towards public ownership rather than private control.
- ▶ Data rights holders must have an effective voice in decision-making. It is essential to recognize and address how power asymmetries impact capacities to generate, access, collect, store, process, share, and use data and digital tools.
- ▶ Work on digitalization should promote accountability and increase the social capital of communities. It must draw on the legal environment at local and national levels if it is to be politically relevant and embedded in the local social context.

## Case study: Inclusive digitalization for equitable water management

In Maharashtra, India, the CSO SOPPECOM and TMG are working with social movements and local water users' associations to collect data on farmers' water demands. E-Pavas, an app for water users' associations, improves water security by tracking water allotments to ensure that all farmers have equitable access to water regardless of their caste or economic status. It also simplifies data collation and automatically calculates total water demand, empowering local stakeholders to make informed decisions about equitable water distribution and allocation. The initiative spans 60 villages, impacting approximately 140,000 residents grappling with drought and rural-to-urban migration.

## Data quality over quantity

“Digital technology is only a tool. It’s not going to solve the problems of food insecurity, or our political and social issues. It is those on the ground – farmers and food chain workers – that really can make change.”

Patti Naylor, Farmer and Coordinator of the CSIPM working group on data, La Via Campesina, USA

Data is often heralded as a silver bullet for sustainable food systems. The pervasive “data gap” narrative posits that the realization of the right to food can be achieved with more data. However, in a world inundated with data, the core issue is not the quantity but the quality of data. Of greatest interest is data representing what is often under-reported or unseen. This includes data on violence against women, on unequal access to basic resources, and data that enables communities to better manage their resources and protect their natural environments.

Public data infrastructure should ensure that people who are excluded from the data marketplace despite holding valuable information on food security and nutrition, can fully participate in an informed, voluntary, and autonomous manner. Central to this cause is promoting digital expertise while enabling non-digital (i.e., ‘analog’) social structures. Social-analog components are crucial for last-mile connectivity and overcoming the digital divide. Where people have limited digital skills and access to the internet, and mobile technology proves difficult, [community structures](#) can enable the pooling of resources, mutual support, and collective capacity building. Social-analog components are non-technological elements that make data and digital tools usable. They include organizations that enable capacity development as well as civil society actors advocating for better digital public infrastructure.

The transformative success of data-driven technologies and digital tools hinges on how well they are adapted to the rights holders’ socio-economic and cultural contexts. This process must recognize and be informed by different types of qualitative and quantitative data, valorizing the diverse knowledge, innovations and cosmologies held by communities.

### Key recommendations

- ▶ Investments in public data infrastructure are required to bridge the digital divide and facilitate full participation by marginalized communities.
- ▶ Social-analog components should be strengthened and systematically integrated into digitalization efforts.
- ▶ Capacity-building efforts should empower community members to co-design digital tools through direct consultation, with an inclusive framework that empowers their essential role in conceiving and deploying digital tools for the collection and use of FSN data.

### Case study: Better data in times of multiple crises

TMG and [Food Agency Cape Town \(FACT\)](#) have crowdsourced targeted, purpose-driven data from 2,200 households to evaluate food insecurity and identify coping mechanisms, thereby generating valuable data on the impacts of multiple crises on food access among low-income and informal settlements in Cape Town, South Africa. Community dialogues led by FACT destigmatize hunger and elevated marginalized voices that often go unheard, especially in policy spaces. This work helps to build an evidence base for better policy implementation and strengthens community-based support structures such as community kitchens. Read more [here](#) (p. 105 ff)

## Data for accountability

“In many discussions, people don’t believe in the power of organizing communities. We must start investing in championing communities, starting with how they are already organizing and holding duty-bearers accountable.”

Violet Shivutse, Founder and Director, Shibuye Community Health Workers, Kenya

Democratic accountability in food systems requires that communities be equipped with their own digital tools. Communities are key generators, stewards, and users of data-based technologies. They must have agency and ownership over what and how data is collected, analyzed, and translated into interventions and policy outcomes, with established mechanisms for data governance.

Truly transformative digital tools adapt to the demands and visions of marginalized, resource-poor communities. This requires bottom-up processes that build on collective forms of knowledge and the sharing of experience. Social movements and CSOs can facilitate input by grassroots movements to ensure the right questions are asked.

Empowering communities with access to their own data can contribute to more effective advocacy strategies and accountability mechanisms. When equipped with their own data, communities are better able to engage in dialogue and debate at local and global levels, hold duty-bearers accountable, and push state actors to establish new benchmarks based on changing realities.

### Key recommendations

- ▶ Accountability is best achieved when linked to clear benchmarks. Political manifestos and budget information should be transparent and available to enable communities to hold duty-bearers accountable.
- ▶ The use and benefits of data must be transparent to foster trust and social legitimacy.
- ▶ Grassroots organizations, social movements, and CSOs are key actors in the design, collection, interpretation and use of FSN Data. Their role in building inclusive digitalization should be fostered and protected.

### Case study: Deconstructing a patriarchal narrative

The *Haki Ardhi* women’s rights reporting tool, developed by the *Kenya Land Alliance*, *Shibuye Community Health Workers*, *TMG*, and *Rainforest Foundation UK*, helps rural Kenyan women claim and protect their rights. The initiative helps sensitize communities to the power of their own data and resources, allowing women and CSOs to better negotiate in interactions with power-holders using data generated by local communities, thereby strengthening institutions and policies. The *Haki Ardhi* app and community-led capacity building around the use of digital technologies facilitates claims of land violations. Eighty-five conflict cases were opened in the first three months after the launch of the app. *Haki Ardhi* helps women report infringements of their rights, receive support, and self-organize to exert greater policy influence, centred on women’s key roles as food producers, food provisioners, caretakers and agents of change.

### Case study: No data without representation

The social movement network *Ekta Parishad*, India’s largest popular movement for land rights, has collected data from more than 50,000 households. They advocate for local data governance and community-led, two-way engagement to reshape data systems and management. With help from *TMG*, 60 field activists from local, tribal communities have received training in the use of data to support the implementation of the *Forest Rights Act 2006 (FRA)*. The goal is to develop advocacy strategies and make local-level corrections by focusing on areas where compliance is lacking, and using household data to demonstrate ways to improve implementation of the *FRA*. This project shifts policy implementation from a top-down approach to a collaborative effort, enhancing the capacity of landless and Indigenous communities to safeguard their land rights.

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## About TMG

TMG Research gGmbH is a research organisation based in Berlin with a permanent team in Nairobi, Kenya. We conduct research programmes in Benin, India, Kenya, Madagascar, Malawi, and South Africa. Our mission is to promote and support a just transition to sustainability, operating at the interface of global policy processes and local social innovation. TMG adopts a rights-based approach to the sustainable management of land and other natural resources, to food system transformation, and to climate change adaptation. We develop, conduct and evaluate our research projects together with actors from the fields of science, politics, the private sector, and civil society.

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