

Digital Data Cornucopia: A Global Food Systems Data Consortium

Food systems transformation requires greater access to and use of data to guide decision-makers.

Food systems transformation is essential to achieving nearly all of the United Nations Sustainable Development Goals. Food systems are enormously complex; achieving transformation requires data-driven, integrated, and coherent decision-making and aligned action across all sectors. Making data-driven decisions about the whole of food systems requires data and analysis tools capable of revealing how various aspects of food systems are functioning and changing (or not), how different components interact across geographic scales and over time, and how different sub-populations (e.g., women, indigenous peoples, minoritized groups) fare in their transactions in food systems as farmers, workers, entrepreneurs, and consumers. Without such data and analytical capabilities, decision-makers at all levels (from local to national to global) – including policymakers, analysts, researchers, potential entrepreneurs, and private sector firms – are steering separate ships without any navigational gear when they could be managing a coordinated fleet. Several gaps in current information systems exist, many (but not all) of which can be addressed by a combination of technology and coordination around standards.

This solution cluster will bring together a Consortium of organizations to co-develop the vision of a resource-efficient data infrastructure to meet their common needs. The multi-sectoral Consortium will bring together organizations with (1) subject matter expertise in food systems issues and their related disciplines (e.g., agriculture, economics, nutrition) or (2) technical expertise on data platforms, to collectively identify and address common needs. Working together is much more cost-efficient and can enable greater data sharing. It can increase the quality of existing data (by formatting to standards), develop common norms for addressing common issues (e.g. missing data), provide visualization and other analysis tools, and collaboratively identify the most critical gaps that need to be filled by new data collection.

To develop the platform, the Consortium will engage in extensive consultation and research to understand all users' needs, including additional stakeholders such as member states, civil society organizations, and the private sector who may not have been involved in developing initial use case ideas. New partners may join the Consortium in this process. Importantly, the work will build off existing data platforms and bring existing food systems data into alignment with existing standards for open data and open science (e.g., FAIR, UN region codes, agriculture, and food vocabularies such as FoodEx2). These not only address technical challenges but also institutional issues (e.g., ownership, attribution) that preclude more effective sharing of existing data and where guidance can help new data efforts meet the standards from the outset.

Numerous game-changing solutions proposed for the Summit involved data because of the critical information gaps in managing food systems and measuring outcomes. The Consortium emerged as a collaboration among several institutions who initially proposed similar data and analytical efforts with commonalities that could be shared. These ideas will serve as the initial use cases in the design and testing, with the intent that the platform could serve many more users and use cases in the future. No resources exist that are inclusive of the breadth of food systems and equipped to fully facilitate the use of data by decision-makers. These capabilities are required to tackle the underlying problems such as malnutrition in all its forms, food insecurity, food safety, and food waste. The Consortium will work with existing information systems (e.g., AMIS, GEOGLAM, IPC) to align standards, develop a set of common criteria for the operational policies and norms (i.e., privacy, allowable use, citation), and the technical infrastructure.

A consortium approach can overcome certain challenges including (1) the variety of data types and analysis needed to understand them due to the complexity of food systems (no one structure works best for all aspects of food systems), (2) high building, maintenance, and dissemination costs (others have to know about it to use it), and (3) technical challenges ranging from the lack of data and/or data quality standards (e.g. poor or non-existent metadata), data not sufficiently interoperable, and platforms lack analytical capabilities for exploring relationships and drivers of change.

By developing technological (the ‘operating system’) and institutional (common ‘rules’) infrastructure the Consortium can directly address barriers to accessing and using data and facilitate greater data sharing. Focusing on only what needs to be standardized (e.g., base layers, adhering to FAIR standards, data processes such as describing privacy protections, publicizing legal rights and any barriers to use) will enable interoperability while allowing everyone who works with data to do so in a manner that suits their use case. Thoughtfully designed consortiums have worked in other industries (e.g., Open Handset Alliance, World Wide Web Consortium). Multiple standards already exist specifically for or that are relevant to food systems data ([Open Data Institute](#) and [GODAN VEST](#) summarize), however there are choices to be made from among the current options and only a Consortium approach can orchestrate inclusive consensus-building around such decisions.

The Consortium can bring together existing repositories, repository networks, and information systems to build capacity, align standards and policies, and enable a proliferation of insights. It will save every organization from building their own technology infrastructure and will allow for coordinated governance to optimize resources and align actions. The Consortium will aim to address technology needs including (1) removing friction and duplicative work in collecting or finding (discoverability), merging (interoperability), and analyzing data (2) increasing data recency and quality (resolution, granularity, accuracy) where it is possible to draw on routine sources such as remote sensing data, given the computing power available through Google and other technology firms, (3) reducing risk for data owners and sources (e.g. allowing private companies to register data assets and describe conditions under which they can be shared).

Facilitating collaboration and coordination adds value to ongoing initiatives and bolsters the potential to achieve the SDGs and related goals. Frictionless access to information and tools to use it could generate new policy solutions, jobs, lower costs, and spur ingenuity throughout food systems. Beyond Action Track 1 and its dozens of stakeholders, this solution cluster is applicable to Action Track 2 (food waste) and the Innovation Lever’s digital workstream. Over 40 stakeholders took part in the Summit Dialogue on Data Openness, numerous Member States have expressed interest in data, and the Innovation Lever has convened dozens of international institutions and Member States under the canopy of digital innovation for food systems. The demand for data and digital innovations to interrupt the status quo and jumpstart food systems transformation could not be clearer. Guided by a Steering Committee (initially founding organizations), which will co-design ongoing governance, openness, and inclusion processes, the Consortium will strengthen the information infrastructure to enable food systems transformation. This solution will promote cross-organization collaborations building on the existing information resources to create a global public good, increasing the utility of existing data and platforms, and enabling advanced analyses to plan for and evaluate the impacts of food systems actions.