143 Launch a Digital Data Cornucopia: A Global Food Systems Data Consortium

Note: *Annex 4 includes a summary of this idea, a list of contributors, example use cases, and the references cited herein.*

The Solution: This solution proposes a *Global Consortium for Accessible Food Systems Data* that convenes cross-sector organisations that have (1) subject matter expertise in food systems issues or (2) technical expertise on data platforms. This consortium aims to fully research user needs and then design and develop a single place for data owners, data analysts, and decision-makers that includes both (1) datasets and (2) the technical tools to work with the data. The first step is to deepen our collective understanding of stakeholders across action tracks on their data needs, building on the founding consortium's initially proposed efforts, which may serve as use cases for design and testing (Annex 4). The second step is to develop a set of common criteria for the operational policies and norms and the technical infrastructure, with the support of Johns Hopkins University (JHU) and Google. The third and fourth steps are to build the platform and enable configuration for these initial use cases, serving as examples for a well-governed scalable expansion for any other organisation.

This consortium is not the first to call for an integrated mechanism that enables data-driven decision-making and action in food systems.[1–9] In fact, a number of organisations have already begun to create pieces of this vision - their impact can be dramatically enhanced through this proposed coalition.[5,10,11] Learning from those endeavours and taking a systems approach, this game changer aims to overcome current challenges with user-centred data governance and technical infrastructure. These include:

- Acknowledging existing efforts: Aggregation, standardisation, and governance [3,5,12–16]
- Designing for the user: Understand both data owners and users, and design for their needs
- Identifying sentinel indicators: Agreeing on key indicators e.g., affordability, waste etc.
- Setting quality guidelines: For data collection and format e.g., disaggregation and frequency
- Developing intermediation and registration policies: Align to unique incentives of each sector
- Building on technology: Leverage cloud computing and indexing to enable discoverability of data

Source(s) of the Solution: Several successful efforts inspire this game-changer:

A. *Google Supported Platforms:* Google has precedence enabling development partners with technical infrastructure through the Global Fishing Watch and Global Forest Watch. The former has enabled 25% reduction in illegal fishing practices and the latter monitoring of forest loss in near real time.[21–23] These coalitions share common traits with food systems including common property resources, cross nation-state boundaries, sparse data, and complex regulatory environments. Both platforms now thrive on philanthropic dollars and earned revenues.

B. *Food Systems Dashboard:* A collaboration between JHU and the GAIN, this Dashboard is Version 1.0 of a 'Google Map for the Food System'. The current dashboard manually manages data and is not yet fully comprehensive of all aspects of food systems.

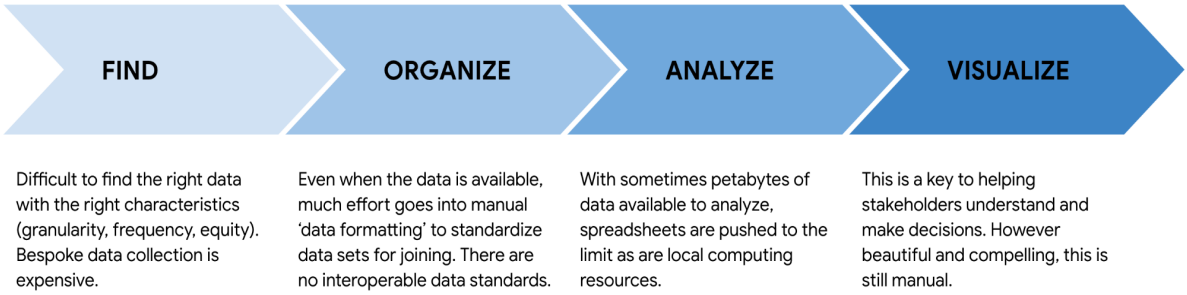
Combining Google's more purpose-built platforms with initial efforts in the Food Systems Dashboard inspires the question: Could there be a 'Global Food Systems Watch'?

Problem addressed within food systems: Better and more data coupled with improved data processing capabilities can catalyse food systems transformation by enabling rapid evaluation of solutions and associated trade-offs. Many resources exist, but none are inclusive of all aspects of food systems nor are they equipped to fully facilitate the use of data by researchers and decision-makers. Tackling the underlying problems of malnutrition in all its forms, food insecurity, and food waste require these capabilities. The Consortium can bring together individual repositories and repository networks to build capacity, align policies and practices, and act as a global accountability mechanism

for food systems action. Guided by a Steering Committee and inclusive processes, we will create the information infrastructure to drive financial and physical flows governing our food system towards food security and sustainable, healthy diets.

Numerous groups across the Summit, including through dialogues and the Science Group, have called for more and better data that are discoverable, accessible, and usable at relevant disaggregation for analysis and visualisation that can drive change. There is a mismatch with owners of proprietary data, for whom sharing requires incentives, aggregation, etc. The figure below summarises the challenge of the 'data journey' at present.

The Data Journey Today



How this solution will address that problem: Each group working independently to build their own data dashboard from foundation to presentation will require a significantly higher total amount of investment than if we joined forces, built common elements together, and then built our applications on top. If we are successful, every dollar raised should go further. This consortium brings together academia, tech companies, agriculture, food and beverage companies, governments and multilateral organisations, the UN (e.g., FAO and WHO), and government agencies (e.g., NASA, OECD) to build, invest, and share data in *one consistent manner*, that serves all users' purposes. Such a consortium not only permits integrating existing data but more importantly can develop standards and protocols for interoperability.

The promise offered by this solution is underscored in the 2021 *World Development Report: Data for Better Lives*, which describes enabling the 'sharing and reuse' of data as a central pillar to unlocking the potential for data to improve lives.[24] We propose two key elements. The first is to make it frictionless for data owners to share the existence of their data sets, through automated processes that can transform the data into a form data owners are able to share without their having to undertake this low-reward activity each for themselves. The second is to provide data formatting, analysis, and visualisation tools to make it easy for any researchers, analysts, or decision-makers to generate visualisations and insights, set goals, and track progress. It will also strengthen the ability of civil society to hold decision makers accountable for their decisions related to food systems.

Solution's alignment to the 'game changing and systemic solution' criteria: This proposal provides a unique, so far non-existent solution, providing an overarching foundation for many potential game-changing solutions that could result from better information. The potential for impact at scale is as far-reaching as an internet connection and a smartphone. If governments around the world are to take responsibility for the whole of their food systems, they require easy-to-access and -use decision-making tools. The existence of such a platform magnifies the return on the investment made in data creation in the first place. This gamechanger is also in many ways low-hanging fruit; with the power of Google and its ability to intermediate with the private sector, the experience of JHU attempting to manually curate existing food systems data, and the expertise of the Consortium members with respect to gender, nutrition, and food systems transformation, this gamechanger is nearly immediately actionable. With the careful stakeholder engagement planned to design the system, the consortium is also well-placed to understand and mitigate any potential political risks, particularly with respect to technology, data privacy, and the agri-food industry. Finally, this will be a sustainable

solution because it will build automation and efficient processes in from the ground up, reducing the highly inefficient process required at present to find and integrate data from many sources or make data ready for public sharing. Funding and hosting are still to be determined. The likelihood is a consortium of key non-partisan organisations, including JHU and potentially World Wildlife Fund or World Resources Institute. Funding the technical aspects of the platform is not an issue, as Google will likely be able to arrange for this and funding for the content development is dependent on the respective partners for their areas of expertise. Once built and operating smoothly, the marginal cost for expansion is near zero; the ongoing costs are human, ensuring the system remains well-governed.

Existing evidence: Recent exponential growth in computing power and data storage has remarkably increased the use of data in decision making.[25] However, using data and evidence to drive change remains both a goal and a challenge, particularly for scholars and researchers aiming to influence policy with their work[26] and for decision makers in the public and private sectors looking to drive evidence-driven action.[27] Greater data availability and analytical tools can drive change, for example, by helping policymakers better understand the effectiveness of their policies.[28,29] Greater data availability and analytic tools have also enabled private-sector organisations to directly tie financial incentives e.g., credit facilities, to their sustainability goals, aligning all their financial shareholders appropriately; but these tools remain proprietary.

As an analogue, platforms for accessing and analysing health data have been successfully adopted and have influenced policy.[30–32] Many argue that Covid-19 will alter health policy and administration decision-making processes indefinitely and could even spur new action to address food insecurity [33,34] and climate change.[35] This proposed solution is a timely response at a moment of opportunity where the current crisis has spurred a greater understanding of science, scientific evidence, and the role of data in policymaking and commerce and greater awareness of threats to food systems.

Current/likely political support: Food systems are vital to nutrition, food security, livelihoods, and environmental sustainability. Despite this, the world's leaders are lacking easily accessible data, analysis and visualisation tools and thus, in effect, flying blind as they aim to change food systems for the better. This solution is meant to make it easier for governments, businesses, civil society, and international agencies to make more effective decisions to transform food systems to deliver on the SDGs. The founding members of this coalition (see Annex) represent all sectors including civil society, government institutions, academia, development partners, and business. The cross-sector support in and of itself is a proxy for the likely political support for this idea.

Contexts where this is well/not well suited: The solution we propose is intended to be especially flexible to different contexts and audiences. Serving the global level, it can inform the extent to which broad trends are moving in the right direction in terms of achieving the SDGs. With data at the country level, it is well-suited to inform national policies - the scale at which many of the policies that are key drivers of food systems (e.g., trade, agricultural policies, environmental regulations) are made. Sub-national data, where available, can help drive regional and municipal-level decisions. Where data are not of high enough quality to be included, or do not exist at all, the use of data and evidence in other places and the benefits accrued will hopefully spur action by data producers to improve, update, collect, and share additional data.