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## Data Cooperatives

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DEEP DIVE

# Data Cooperatives

## At-a-Glance

- **Communal pooling of personal data** for mutual economic, social, and cultural benefit.
- **Jointly owned and democratically controlled** autonomous association.
- Voluntary and open for everyone to join.
- Can help **align interests** of users and support equitable data sharing.
- Expects great levels of **participation in managing and shaping the data-sharing regime**.
- There is potential for developing data cooperatives by **using existing cooperative structures**.

**A data cooperative is the voluntary communal pooling by individuals of their personal data for mutual economic, social and cultural benefit, and aspirations of a group in a voluntary, united, jointly owned, and democratically controlled autonomous association.** The model works when stakeholders have a collective interest or homogenous needs and an equal opportunity in the management and governance. Data cooperatives grant users and farmers more control over their data, to manage, curate, and protect access, and offer an approach to foster direct engagement and representation.

**Data cooperatives empower their members to different degrees.** Co-ops come in many forms: They can exist in every country and in every sector, and they can be as small as 10 members or as large as 50 million members. They evolve out of the needs of members, organized by a type of member, like farmers or consumers. Many data cooperatives seek to repurpose data at the discretion of members to create new assets. They pursue a positive agenda that uses data as a resource. There are privacy-preserving cooperatives that avoid data processing, unless specifically requested from the subject. [Salus Coop](#) allows members to control the use of their health data, while opening up new opportunities for research. Unionizing initiatives, such as [Driver's Seat](#), use data to empower workers and enable optimizing their incomes and working practices.

Platform cooperatives use a website, app, or protocol to enable better market opportunities and economies of scale for goods and services. Cooperative structures can facilitate concepts like open data and personal data stores (see [Data Fiduciaries](#)). Data cooperatives can be noted as a subclass of platform co-ops, and primarily focus on data stores, whereas platform co-ops revolve around the business model of stakeholders, services, and products that comprise data. A study of agricultural cooperatives reveals that collected data tends to be non-personal and centrally stored, breaking down "data silos to gain aggregated insights, and eventually empowers the farmer members to make decisions about their agricultural production and sale."<sup>1</sup>

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1. Zhu, J. & Marjanovic, O., (2022) [A Taxonomy of Data Cooperatives](#). PACIS 2022 Proceedings. 257.

## Data collaboratives in agriculture

**Limited uptake of data cooperatives in the agriculture sector.** The most prominent ones are [GISC/AgHub](#) and the [Ag Data Coalition](#) (USA), [Artemis](#) (Canada), and [JoinData](#) (The Netherlands). While co-ops are key players from food production to marketing, the role of data cooperatives has not been explored, and the literature is very scarce.

**A model for management decisions.** The [Grower Information Services Cooperative](#) (GISC) is a farmer-owned and governed data co-op that promotes better management decisions. Farmers have the capacity and option to obtain business intelligence by partnering with tech companies. GISC distinctively engages in farm technology and storage of data for the benefit of farmers. It partners with IBM and Main Street Data to provide access to weather and data analytics, helping inform better agricultural management.

**Guide innovation via improved assessment tools and enhance operational management.** Corn farmers in the USA partnered with academic researchers and NASA to create the [Farmer Data Cooperative](#). It aims to tackle the inefficacy of practices in farm management, modify the latest markets, and enhance operations. The co-op provides a platform for farmers to voice their opinions on new products, services, and technologies developed in the partnership. What makes this co-op unique is that the farmers provide a payment to the cooperative via authorisation of data on farming for development, calibration, and validation of tools of technology.

## Why data collaboratives matter

**Data collaboratives provide for a number of benefits, including:**

- Mutual economic, social, or cultural benefits for members as a collective, and generally not monetization of data.
- Empowerment of members by managing data flows consensually, improved provision of information, and democratization of the management and distribution of collective data.
- Ownership and control of personal data by its individual (and collective) members.
- Opportunities to educate data subjects on the benefits of sharing their data and generate data at scale with and at higher value for service providers.
- Strong incentives to pool personal data by the need to share and analyze insights (on needs and well-being of members), otherwise siloed or inaccessible.
- More leverage to negotiate contracts as producers, data-sharing arrangements, and increased bargaining power in contractual agreements with service providers.

## Key components of success

- **Ownership and control of personal data.** The individual member gains definite legal data ownership and has the authority to make copies of the data manually or digitally.
- **Collectively agreed purpose.** The co-op owes a fiduciary obligation to its members. The collectively agreed upon purpose, with its bylaws, dictate the permissible data action.
- **Consent and privacy:** To tackle privacy and concerns of fair use of data, the cooperative can include the use of mechanisms, such as personal data stores. Consent-based architecture plays an important role in the functioning of the cooperative
- **Informed membership:** Establishing trust among the collective, and with service providers and other partners, requires farmers understanding their worth, the benefits, the threats, and how to navigate data programs and tools. Cooperatives demonstrate scale and can better demand and facilitate training.

- **Trust mechanisms.** A cooperative can absorb risks around the trade of goods and provide for stable prices to its members. Cooperatives are more reliable than individuals.
- **Designing value-added products:** When data is pooled, cooperatives can deliver a higher surplus to members by processing the data and introducing products like analytical reports and decision-making tools.
- **Managing data flows:** Cooperatives can help manage data flows between entities, for example, via an individual to the cooperative (for internal use), intra-cooperatively (between individuals), externally (with other organizations), and via third parties.
- **Economies of scale:** Data coops enable the supply (collecting data cost-effectively) and demand-side (e.g., aggregation and processing costs). They can minimize the costs of development of digital applications. An agribusiness willing to develop an application that relies on farmers' data must negotiate access to data from farmers, incurring important transaction costs and other potential barriers for the development and supply of services.
- **Compensation and bargaining power:** Members can receive monetary compensation as opposed to in-kind services. Personal data of an individual farmer does not have much value. However, the larger the size of a cooperative, the higher its bargaining power is, and a higher compensation for members is possible.

### Challenges/pitfalls of the data cooperative approach

- **Co-ops expect great levels of active participation in data sharing and governance, and thus they are at risk of excluding those who may wish to participate but find the costs onerous.** Data donors may feel they lack the time or financial and social capital. It may very well be that potential members have a hard time understanding and trusting this model. Data cooperatives require some level of confidence and trust in other members as well. This means that these models are rarely appropriate for all potential beneficiaries. Especially in a context when not all farmers are data literate or hold equal power, this could be a challenge.
- **Co-ops may struggle to generate scale, equity, and participation from voluntary members.** Members must be literate enough to recognize the involvement of permissions to access and be prepared to provide time and effort to control the process. Effective participation is higher when all members are equally persuaded and have an inclination to consent to decisions.
- **Financial sustainability can pose a challenge.** There is limited financing available that absorbs the start-up costs associated with data cooperative models, especially where a data infrastructure needs to be built. Cooperatives cannot give equity to investors and require significant, external, financial support if they are to succeed. JoinData is successful by being able to acquire member patronage. Each member pays 50 euro per year as a contribution. Other co-ops have found different revenue streams, for example, by developing a marketplace.
- **Still in its early stages of experimentation.** While this study has highlighted some examples of data cooperatives or organizations that have features of data cooperatives, most are still in the early stages of their functioning. There is a small basis to draw lessons from.

## Crucial applications in low- to middle-income countries (LMICs)

- **There is potential in LMICs based on pre-existing organizational and cooperative structures.** Farmer cooperatives are governed by their members to support collective action, increase negotiating power, organize the supply, or arrange services. This provides a model for smallholders to create common data goods beneficial to their community. Co-ops have emerged that deal with farmers' concerns regarding the use of agtech and data management. [The Kenya Tea Development Agency](#) cooperative has an ownership structure wherein farmers are shareholders, with goals to improve the sector. It collects data for management and efficiency. It was suggested that it might implement farmer-centric data governance, but concrete evidence is still missing.
- **A model for mobilization.** While still a novel and uncommon approach, the culture and practices of farm cooperatives provide opportunities for mobilization. Cooperative models have been successful in fair trade markets as models for mobilization of producers for their collective good.
- **Co-ops in Western countries thrive better due to higher data maturity markets,** with financial backing and clear benefits of participation. The prevalence of clear data protection laws, prominence of data privacy movements, and other initiatives can play a huge role in building a culture of data cooperatives.
- **Enhance financial data information exchange.** [Myanmar Microfinance data portal](#) is a network that enables microfinance institutions with business credit intelligence inside an ethical, legal, and professional framework. While not full-fledged, this platform has crucial elements of a data co-op. Members are requested to abide by a membership agreement to ensure that the data continues to be owned by members themselves.
- **Enhance shared data and a tech ecosystem for strengthened community development.** The PescaData and Abalobi [case study](#) demonstrates the hybrid community based model, improving the livelihoods of fishing communities. The platforms were developed via a participatory co-design process. The initiatives created a suite of tools for the cold chain.
- **Build on and contribute to existing local governance cultures, communities and networks.** The model allows for the building of community values towards data, increased participation, and an important sense of belonging, as shown by PescaData and Abalobi.

## Business viability

A data cooperative must ensure that any revenue generated through the activities of the cooperative is distributed. The revenue could cover the administrative, legal, operational, and technological costs of running the cooperative. Given the extensive investment required to foster participation and develop collective purpose and processes, setting up a data cooperative can pose a financial challenge. Most data co-ops require a subscription fee from members to fund these costs. When there is a clear revenue model for the shared data, the cooperative can set clear rules for benefit sharing. The goal is not to monetize members' data, though financial reward is possible. Many initiatives have to rely on grant funding. Platform cooperatives tend to have more options: Abalobi and COBI developed a **marketplace** where a transaction fee for sales is earned.

Data cooperatives can exploit the advantages of their specific organizational form: (1) data privacy and fair use focus addresses concerns with existing business models, an opportunity for cooperatives to fill in; (2) value-added products and services impart a competitive edge; (3) micro-payment systems (like blockchain) can be used to process large numbers of small transactions with low fees versus traditional methods of payments; and (4) fair distribution of revenues among members influences data quality and quantity.<sup>2</sup>

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2.Mehta, S., Dawande, M., & Mookerjee, V. (2021). [Can data cooperatives sustain themselves?](#) LSE Business Review.

### **The ecosystem can help reduce the administrative and operational costs of the cooperative.**

This is aligned with the cooperative principle of “cooperation among cooperatives,” by “working together through local, national, regional, and international structures,” to “improve services, bolster local economies, and deal more effectively with social and community needs.” Credit unions in the US can provide a model for this, where credit unions band together to contract a common provider for information technology services, including a computing platform, shared applications, etc., bringing down the operating cost. Where there is a sufficient network of cooperatives, such a model could be explored.

## **How can stakeholders create an enabling ecosystem for data cooperatives?**

### **Role for the government**

- Provide funding for creation and maintenance of farmer-led data cooperatives, as done for farmer cooperatives. These can be leveraged for data cooperatives too.
- Encourage financial institutions to extend cheap lines of credit to data cooperatives.
- Provide technical assistance to help co-ops devise internal agreements regarding collective purpose and data sharing.
- Develop and promote a data literacy module for all farmer cooperatives.
- Governments can ensure laws and regulations are enabling these types of co-ops to register, pay taxes, etc.
- organizations.

### **Role for the private sector**

- Engage in a fair manner with cooperatives when using their data.
- Create transparent, collaborative mechanisms in contracts with farmer cooperatives.
- Provide clarity on potential economic benefits of data-sharing and revenue-sharing models.
- Provide clarity on revenue models and potential economic benefits of data sharing.

### **Role for the development sector**

- Develop and promote a data literacy module for cooperatives. Programs could encourage existing cooperatives to explore revenue models that can be unlocked via their shared data.
- Provide technical support to cooperatives to improve understanding of data cooperatives. If there is interest, provide technical support in operationalizing data cooperatives, including provision of technical infrastructure.
- Provide guidance on engagement of the private sector with data cooperatives.

**Salus Coop** is a non-profit data cooperative for health-related research. It is a citizen-led data co-op that provides a platform for citizens to have control over their data, facilitates data sharing, and acts as a catalyst for research and innovations. With members’ insights, Salus has started a “common good data license,” a health data-sharing license that applies to members who donate data. It emphasizes specifications for use of members’ data for any research. Data may only be used for health-related, non-commercial projects. All findings must be available freely and maintain privacy of members. Salus provides clear and specified benefits for the members. Data donors do not receive personal financial compensation for the use of their data. The surplus is used to finance research projects and services for members.

**AgHub**, established by [GISC](#) and the Agricultural Data Coalition, is an open, central point of access for farm data, dedicated to creating, as they claim, agriculture's first cloud-based platform controlled by growers and open to all service and tech providers. AgHub is working to find ways to stop the data grab and reflects the deep concern among farmers that agtech providers misuse farm data. Data sovereignty here entails developing initiatives along similar lines. There is a strong case to be made for farmers and associations examining how initiatives like AgHub operate and evaluate what they achieve.



Case study: [\*\*An humanity-centric journey towards digitally empowered fisheries.\*\*](#)

Abalobi and COBI are nonprofits that provide a suite of tools for smallholder fisheries in South Africa, Mexico, and beyond. They enable sustainable marine resource management with the intent to transition fisheries into a more ecologically fair and transparent system. Both apply a participatory action research and social learning approach with a strong community component. They also provide fishers with better access to markets and cold chain transparency. Through the platform, fishers or cooperatives can report to the fisheries authority on their quota allocation. Both strengthen existing community-based institutions and seek to promote new partnerships among them. Abalobi functions much like a data cooperative, even though it does not consider itself as such yet. While aspirations are high, some elements need to be in place for it to consider itself a “genuine data cooperative,” as Abalobi founder and director Serge Raemaekers explained. It takes a lot of time and effort to understand and organize common resources and understand the legal pluralisms in the fisheries realm and its stakeholders, as well as to find a suitable working business model. The theory of change is centered on unlocking socio-economic benefits while activating stewardship and robust data collection and formalizing rebuilding strategies from the bottom up. This includes enabling fishers to be co-producers of knowledge and owners of their data.



Case study: [\*\*An Agricultural Data Cooperative for Cooperatives and Farmers\*\*](#)

JoinData began in 2017 as the first data cooperative dedicated to Dutch farmers, with the aim ensure that any farmer can pool, control, connect and share data in a safe, secure, and fair way with agribusiness and innovation partners and (2) make sure the data and benefits flow back to the farmer. The data cooperative facilitates the exchange of data in a safe and transparent way. JoinData has created an independent platform where farmers are able to take full advantage of digital innovations in agriculture, sharing data safely, fairly and above all, with the farmers themselves at the helm. The case study provides insights into data cooperativism and its governance structure, data fragmentation, and value chain development, as well as transparency and control over data.

=> See Case study: [\*\*An Agricultural Data Cooperative for Cooperatives and Farmers\*\*](#)