

Data Cooperatives: A New Paradigm for Ethical Data Governance

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The rapid rise of financial technology (fintech) is reshaping the global financial landscape, breaking down barriers and providing essential financial services to populations that have traditionally been excluded from mainstream banking (Truong, 2016). According to Arslanian and Fischer (2019), fintech has enabled millions of people, particularly in underserved and remote regions, to access digital payments, loans, savings, insurance, and investment opportunities - services that were once out of reach due to geographic, economic, or social constraints. However, this digital transformation is not without its challenges (Suryono, Budi & Purwandari, 2020). As fintech platforms become increasingly data-driven, concerns surrounding user data privacy, consent, transparency, and ethical governance have

come to the forefront. These platforms rely on vast amounts of user data to personalize services, improve decision-making, and optimize business models, yet this reliance raises pressing questions about who owns this data, how it is used, and how well it is protected (Dorfleitner, Hornuf & Kreppmeier, 2023).

In many fintech ecosystems, data governance is centralized in the hands of large corporations, which often control and monetize user data without adequate transparency or clear user consent. This centralized model can lead to privacy breaches, unauthorized data sharing, and exploitative practices that undermine user trust (Viljoen, 2021). Moreover, the risk of data loss, such as through cyberattacks, technical failures, or negligent handling, is an ever-pres-

ent concern in the digital age. Such breaches not only compromise user privacy but also expose fintech platforms to severe legal and reputational risks (Javaheri, Fahmideh, Chizari, Lalbakhsh & Hur, 2024). Furthermore, a study by Kamuangu (2024) reveals that there is the potential for the misappropriation of data, where third parties or corporate entities misuse personal information for purposes beyond what was initially agreed upon by users. This can lead to unauthorized profiling, financial exploitation, or even identity theft, all of which exacerbate user skepticism and diminish trust in fintech platforms (S, Chaudhary, Manna, Khalane, & Muthukumar, 2024).

The erosion of trust in data governance and the heightened risk of data loss and misappropriation are significant challenges that could stymie the long-term growth of the fintech sector, particularly in emerging markets where user confidence is still fragile (Wang, 2022). As data security and ethical data handling become more scrutinized, fintech companies must rethink how they manage user data to mitigate these risks and maintain user loyalty (Ansari, Almunawar, Masri, & Hrdy, 2021).

This paper introduces the concept of data cooperatives as a potential solution to these ethical and governance challenges in fintech. In a data cooperative, users collectively own, manage, and benefit from their data,

shifting the power dynamics away from centralized corporate entities toward individuals and communities (Bühler, Calzada, Cane, Jelinek, Kapoor, Mannan, Mehta, Mookerje, Nübel, Pentland, Scholz, Siddarth, Tait, Vaitla, & Zhu, 2023). By giving users more control over their personal information, data cooperatives offer a model based on transparency, informed consent, and fair data usage (Blasimme, Vayena, & Hafen, 2018). This decentralized approach not only addresses privacy concerns but also promotes a sense of ownership and empowerment among users, which can enhance user engagement, foster trust, and contribute to the sustainable growth of fintech platforms. Through this model, fintech can align more closely with its promises of financial inclusion and empowerment while ensuring that ethical practices remain at the core of the industry's evolution.

This paper argues that data cooperatives can play a pivotal role in rebuilding trust in fintech, mitigating risks of data loss and misappropriation, and facilitating a more ethical, transparent, and sustainable future for the industry. It explores the theoretical foundations of data cooperatives, analyzes their potential benefits and challenges, and proposes policy recommendations to support the integration of this model within the fintech ecosystem. Ultimately, the paper advocates for the adoption of data cooperatives as a means to balance innovation with

ethical governance, ensuring that fintech can continue to expand access to financial services while safeguarding user rights and promoting long-term industry growth.

The Concept and Principles of Data Cooperatives

Data cooperatives are a novel approach to data governance in which users collectively own, manage, and control their personal data (Blasimme et al., 2018). Bühler et al. (2023) argue that these organizations are built on cooperative principles that emphasize collaboration, transparency, democratic governance, and equitable benefit-sharing. Unlike traditional data models, where control over user data is centralized in the hands of large corporations or third-party entities, data cooperatives place power directly in the hands of the users, allowing them to make decisions about how their data is handled, shared, and utilized (Wang, 2022). This decentralized approach fosters a more ethical, user-centric model of data management that aligns with principles of privacy, fairness, and collective empowerment (Dorfleitner et al., 2023).

Principles of data cooperatives

In a data cooperative, governance is inherently democratic, meaning that every member has a say in how

their data is used. Instead of data being controlled by a centralized organization with unilateral decision-making power, users vote on key decisions such as data usage policies, data-sharing agreements, and the direction of the cooperative's overall strategy. This democratic structure helps ensure that the interests of users are central to all decision-making processes. Members may vote on issues such as whether their data can be shared with third parties, how data monetization profits are allocated, or the adoption of new technologies and services.

This model contrasts sharply with traditional data governance, where corporate entities, often motivated by profit, make decisions without user input, which can lead to a lack of transparency, biased data usage, and exploitation of user information (Bühler et al., 2023).

Transparency is a core value in data cooperatives (Blasimme et al., 2018). Members of the cooperative have full visibility into how their data is being used, who has access to it, and how it is being monetized. Data cooperatives are committed to clear communication about the data practices within the organization, which includes:

- i. Detailed explanations of data collection methods, purposes, and access controls.
- ii. Regular updates and reporting on how data is being utilized and whether any changes in

usage or sharing protocols are being considered.

- iii. Transparent processes for opting in or out of data-sharing agreements, ensuring that members always have control over their participation. This level of transparency ensures that users are fully informed about the value of their data and how it contributes to the cooperative's operations, which fosters trust and accountability.

One of the most important aspects of data cooperatives is the equitable sharing of the benefits derived from the use and monetization of data. In traditional data models, users often provide data without receiving any compensation, while corporations profit from this data through advertising, targeted marketing, and other revenue-generating activities. Data cooperatives aim to rectify this imbalance by ensuring that members receive a fair share of the financial or non-financial benefits generated by their data. These benefits might include:

- i. Financial returns: Members might receive direct payments or dividends based on the revenue generated from their data, similar to how cooperative members might share profits in other sectors.
- ii. Enhanced services: Members might access personalized services, improved products, or better user experiences, as their collective data is used to refine

and optimize offerings in a way that directly benefits them.

- iii. Improved privacy protections: The cooperative might reinvest in technology or services that enhance data privacy and security, ensuring that members' personal information is better protected and managed.

This equitable sharing ensures that the financial rewards of data usage are not concentrated solely in the hands of corporate entities but are instead distributed among those who generate the data. Furthermore, this model encourages more ethical data practices, as the cooperative's success depends on the trust and active participation of its members (Alam, 2021).

Data cooperatives empower users by giving them greater control over their own data. Members can choose to retain, share, or sell their data in a way that aligns with their personal preferences and privacy concerns. This control extends beyond simple consent management. It also includes the ability to revoke consent at any time and track how and where their data is being used. Users can set specific terms and conditions under which their data is shared, opting for granular control over which parties can access their information, for what purposes, and under what conditions.

This model fosters a sense of ownership, as users are not just pas-

sive data providers but active participants in how their data is used, ensuring that they are treated as stakeholders rather than commodities (Wang, 2022).

Key differences between data cooperatives and traditional data models

In traditional models, large corporations such as tech giants like Facebook and Google control and monetize user data, often without sufficient transparency or user involvement. In contrast, data cooperatives ensure that users retain ownership and control.

While traditional data models profit from user data without compensating users, data cooperatives provide a fair share of the revenue generated from data use back to the users themselves.

Traditional data models often prioritize profit, sometimes at the expense of user privacy and ethical considerations. Data cooperatives, on the other hand, emphasize transparency, privacy, and the ethical management of data.

Early successes in other sectors

Data cooperatives have proven to be an innovative and ethical solution for data management, allowing individuals and communities to control and monetize their personal information. These cooperatives are

particularly relevant in industries such as healthcare and transport, where sensitive data is collected in large volumes. The lessons learned from these sectors provide valuable insights into how similar models can be applied in the fintech space to foster user empowerment, data security, and ethical governance.

MIDATA is a health data cooperative based in Switzerland that allows individuals to control their health data securely (Riemer, Schellhammer, & Meinert, 2018). The cooperative is a powerful example of how data cooperatives can operate in sensitive industries such as healthcare. In MIDATA, users voluntarily share their health data in exchange for collective ownership, privacy protection, and autonomy in managing their information. The cooperative framework ensures that individuals have a say in how their data is used, giving them control over which parties can access their health records (Estermann et al., 2018).

In the context of fintech, a similar model could be applied to user financial data. Individuals would have control over how their data was shared, with the option to monetize it in exchange for benefits such as financial products, services, or rewards. Just as MIDATA ensures ethical handling of health data, fintech data cooperatives could build trust by offering transparent data-sharing frameworks that prioritize user consent and privacy.

Another compelling example of data cooperatives in action is Driver's Seat, a cooperative for rideshare drivers in the US. In this model, drivers who participate in the cooperative can monetize and manage their driving data, empowering them to take control of their earnings and the information generated by their driving activities. The cooperative redistributes profits generated from data-sharing agreements between drivers, rideshare companies, and other stakeholders.

For fintech, a similar approach could be used with individuals' financial data. Users could have the option to contribute their transaction, spending, and saving data in exchange for financial rewards or lower interest rates on loans. The cooperative would redistribute profits among its members, creating an equitable system where users are fairly compensated for the data they provide. In this model, fintech companies could tap into a rich pool of data while ensuring users were treated fairly and transparently.

Ethical and social implications of data cooperatives in fintech

In traditional fintech models, the control over user data is often heavily centralized, with platform providers being the primary holders

of personal information (Viljoen, 2021). This has led to concerns over data privacy, security, and the ethical usage of information, particularly as users have little influence over how their data is managed. A significant issue arises from the lack of user autonomy, where individuals cannot easily control how their data is collected, stored, shared, or monetized (Kamuangu, 2024). In response, data cooperatives represent an alternative model that prioritizes user autonomy and informed consent, ensuring individuals have an active role in data governance (Bühler et al., 2023).

Data cooperatives empower users by giving them full control over their personal data. Users are not mere passive participants; they are active decision-makers, capable of determining how their data is used. At the core of this system is informed consent, where users are given clear and explicit choices about how their data is handled (Ennouri & Mezghani, 2021). Unlike traditional fintech models, where Puschmann (2017) asserts that consent is often a one-time, opaque agreement, data cooperatives ensure that consent is an ongoing process, with users able to approve or deny specific data practices at any time. This continuous control allows individuals to remain informed and engaged in how their data is utilized, ensuring that their rights are respected throughout the process.

This model aligns with global privacy standards such as the General Data Protection Regulation (GDPR), which emphasizes the right of individuals to be informed about how their data is being used, the right to access it, and the right to withdraw consent (Dorfleitner et al., 2023). In practice, data cooperatives extend these rights by making consent not only clear and explicit but also dynamic. Users are free to revoke consent whenever they choose, which enhances their sense of control and confidence in how their data is managed (Pathak, Pal, Maurya, Rishabh, Rahul, & Yadav, 2023).

Building transparency and trust

Trust is one of the most critical components of user adoption in the fintech sector (Hernández, Öztürk, Sittón, & Rodríguez, 2019). Many underserved and vulnerable populations, who may already be skeptical of digital financial systems, often feel disconnected from or even wary of how their data is being used. Traditional fintech platforms exacerbate this distrust by operating in ways that lack transparency, leaving users unaware of how their personal data is shared, stored, or monetized (Stojakovic-Celustka, 2022). Information asymmetry, where the user has little to no insight into the platform's data practices, often leads to a diminished sense of trust.

Data cooperatives aim to solve this issue by prioritizing transparen-

cy in all aspects of data governance (Bühler et al., 2023). Users are not merely the subjects of data collection, but are active participants in the decision-making process. Cooperatives offer clear communication, providing regular updates and reports on how data is being used, who is accessing it, and what financial or social value is being generated from it. This transparency ensures that users are well-informed and have the ability to track the flow of their data, fostering trust in the platform and in the organization managing it (Tian, He, & Han, 2021).

Moreover, cooperatives eliminate the power imbalance that typically exists between large corporations and users (Blasimme et al., 2018). Traditional platforms often control vast amounts of data with minimal input from the user. In contrast, data cooperatives empower members by making governance decisions accessible and participatory. By adopting open, transparent practices, cooperatives ensure that users can audit data usage and verify that it aligns with agreed-upon terms (Ennouri & Mezghani, 2021).

Equitable benefit-sharing

A defining principle of data cooperatives is equitable benefit-sharing (Blasimme et al., 2018). Traditional fintech models often leave users with little to no direct compensation for the economic value generated from their data (Truong, 2016). Large cor-

porations extract significant profit from users' personal information, while the users themselves rarely see a return on their contributions (Suryono et al., 2020). Data cooperatives address this inequality by ensuring that the economic value derived from user data is shared fairly among the individuals who provide it.

Implementing data cooperatives in fintech

The implementation of data cooperatives in the fintech sector involves developing key components, utilizing appropriate technology, and establishing a clear operational framework to ensure ethical governance and sustainable growth. This section outlines the essential elements necessary for operationalizing data cooperatives within the context of fintech, discusses how technology can support these initiatives, and presents strategies for successful implementation.

Key components of a fintech data cooperative

To build an effective data cooperative within fintech, several foundational components must be in place. These components are designed to ensure that the cooperative operates in an ethical, transparent, and user-centric manner. The following are the key components that make a fintech data cooperative both functional and beneficial for users.

A data cooperative functions by involving users as active stakeholders. Membership in the cooperative means that users contribute their data in exchange for collective ownership and control. The cooperative model allows members to have a direct say in how their data is used, and they share in the financial benefits generated (Dorfleitner & Hornuf, 2019). The membership structure should be flexible, accommodating varying levels of engagement, allowing users to choose how involved they wish to be in governance and decision-making processes. For example, some members may choose to participate in decision-making regarding data-sharing agreements, while others may opt for a more passive role but still receive financial benefits from their data usage.

One of the primary differentiators of data cooperatives from traditional data models is the democratic governance structure. In a cooperative, each member has an equal vote in decisions related to the use of data, revenue distribution, and the selection of partnerships. This form of governance ensures that all members have a say in the operations and policies of the cooperative, preventing the concentration of power in the hands of a few entities. Governance models can be tailored to the size and needs of the cooperative, ensuring efficiency even in large-scale cooperatives with thousands or even millions of members (White, 2023).

Revenue generated from the data-sharing agreements, partnerships, or any data-driven services must be shared equitably among the cooperative members. This ensures that the value of the data generated by users is fairly compensated. There are several ways to distribute the revenues. In some cases, users might receive direct financial compensation, while in others, the funds might be reinvested into cooperative activities, such as improving user privacy protections or enhancing the platform's security. The cooperative's revenue-sharing framework should prioritize fairness and transparency, ensuring that all members benefit from their data contributions (Ennouri & Mezghani, 2021).

Technology for data cooperatives

The efficient management and scaling of data cooperatives require the use of advanced technologies that align with ethical data governance principles. The following technologies are essential in ensuring that data cooperatives can operate securely, transparently, and at scale.

Blockchain provides a secure and decentralized way to record transactions and data exchanges. By using blockchain, data cooperatives can ensure that every transaction or data-sharing agreement is recorded in an immutable ledger, making the process fully transparent and auditable (Raikwar, Gligoroski, & Velinov, 2020). This decentralized approach

reduces the risks of centralization and single points of failure, which can compromise data integrity and security (Chowdhury, Colman, Kabir, Han, & Sarda, 2018).

Smart contracts are self-executing contracts with predefined rules written in code that automatically execute when certain conditions are met (Taherdoost, 2023). In a data cooperative, smart contracts can be used to automate data-sharing agreements and revenue distribution processes. By doing so, these contracts reduce the need for administrative intervention, ensuring that decisions are implemented quickly and fairly. Additionally, smart contracts help ensure that users receive their fair share of any revenues generated from the use of their data.

Traditional fintech platforms rely on centralized data storage, which creates a single point of vulnerability in case of a data breach. Data cooperatives, on the other hand, can use decentralized storage solutions to distribute user data across multiple nodes or servers. This decentralized approach significantly enhances the security of user data and reduces the risk of large-scale breaches. By utilizing decentralized storage, cooperatives can ensure better privacy protections and user confidence.

Implementing data cooperatives in fintech requires a structured and phased approach to ensure that the model is feasible, scalable, and legal-

ly sound. The following strategies should be implemented to operationalize data cooperatives effectively.

Operational framework for fintech data cooperatives

Before rolling out data cooperatives on a large scale, fintech companies should consider launching pilot programs in specific sectors, such as microfinance, remittances, or digital wallets. These pilots can test the feasibility of the cooperative model, address any operational challenges, and help refine governance structures. By implementing smaller-scale pilot programs, fintech companies can gain insights into the real-world application of data cooperatives and identify potential challenges before scaling up.

Data cooperatives must comply with existing regulatory frameworks to ensure legal recognition and protect user rights. Fintech companies should actively engage with regulators and policymakers to advocate for laws and regulations that support the implementation of data cooperatives. Collaboration with regulatory bodies is crucial in ensuring that the cooperative model adheres to privacy laws and other relevant standards, such as the General Data Protection Regulation (GDPR) in the EU or the California Consumer Privacy Act (CCPA) in California. Partnerships with regulators can help establish a legal foundation for data cooperatives, ensuring that they operate within legal parameters and gain public trust.

Educating users about the benefits of data cooperatives is essential to ensuring active participation and widespread adoption. Many fintech users may be unfamiliar with cooperative models or may be hesitant to share their data due to privacy concerns. To overcome these barriers, fintech companies should develop educational campaigns and user-friendly interfaces that clearly explain how data cooperatives work, how users can participate in governance, and what benefits they can expect to receive. By promoting transparency and offering incentives for participation, fintech firms can encourage users to become active members of data cooperatives.

Impact on financial inclusion and sustainability

The adoption of data cooperatives has the potential to significantly impact financial inclusion and sustainability within the fintech ecosystem. These cooperatives can help address several key challenges in the fintech industry while promoting ethical and inclusive practices.

Data cooperatives are particularly valuable for underserved populations, including individuals in rural areas or low-income communities which may have limited access to traditional banking services. In many cases, privacy concerns are a significant barrier to the adoption

of fintech services in these populations. Data cooperatives help to address these concerns by giving users control over their own data and providing transparency regarding how their information is used. By creating a more transparent and secure environment, data cooperatives build trust among users, encouraging them to participate in fintech services. This approach fosters greater financial inclusion, especially in regions where users are more wary of centralized data control.

Data cooperatives promote sustainable revenue models by aligning fintech companies' interests with those of their users. By ensuring that users benefit financially, socially, or both from their participation, data cooperatives create a more equitable ecosystem. Users are more likely to remain loyal to platforms that respect their privacy, share the economic benefits of their data, and provide greater transparency in their operations. This user-centric approach fosters long-term relationships between fintech firms and their customers, contributing to business sustainability.

Centralized data models are vulnerable to large-scale breaches, which can compromise user trust and create significant financial and reputational damage for fintech companies. In contrast, decentralized data governance models such as data cooperatives reduce the risk of data breaches by distributing data

storage across multiple nodes. This decentralized approach makes it more difficult for hackers to access large volumes of user data and reduces the systemic risks associated with data security. By lowering the risk of breaches, data cooperatives enhance resilience within the fintech ecosystem.

Challenges and mitigation strategies

While data cooperatives offer promising solutions for ethical data governance in fintech, there are several challenges that need to be addressed. Here are some of the challenges and how to address them.

One of the main challenges is ensuring that users are aware of data cooperatives and understand how to engage with them. Many fintech users may not fully grasp the cooperative model or may be hesitant to trust it.

Solution: Fintech companies should implement robust educational campaigns and create user-friendly platforms that simplify participation. Offering incentives such as discounts or bonuses for early adopters could also encourage users to engage with the cooperative.

Data cooperatives may face legal challenges, particularly in jurisdictions that do not have clear legal fra-

meworks for cooperative models or data governance.

Solution: Engaging with regulators early in the process and advocating for policies that support data cooperatives is crucial. Collaborative efforts between fintech firms and regulators can help bridge any legal gaps and ensure that data cooperatives are recognized under existing laws.

As cooperatives grow in size, managing the increasing volume of data and decision-making processes can become challenging.

Solution: Leveraging technologies such as AI, machine learning, and blockchain can help automate many aspects of cooperative governance, from data transactions to revenue distribution. These technologies can help streamline processes and ensure scalability without sacrificing transparency or fairness.

Conclusion and recommendations

For data cooperatives to succeed in fintech, policymakers must proactively create an enabling environment that bridges ethics, trust, and inclusivity with technological innovation. This requires developing cooperative-friendly regulations to formalize and support these models, offering incentives such as tax benefits or grants to fintech firms adopting cooperative structures, and establishing global data ethics standards to ensure transparency and fairness. Multistakeholder collaboration should be encouraged to foster partnerships and resource sharing, while digital literacy campaigns empower individuals to participate in these systems effectively. Finally, real-world pilot projects and case studies are essential to demonstrate the viability of data cooperatives and provide scalable insights, driving inclusive financial innovation rooted in trust and ethics.

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