Platform Cooperativism Consortium

INSTITUTE FOR THE COOPERATIVE DIGITAL ECONOMY

# STATE AND LOCAL POLICY FOUNDATIONS FOR DATA COOPERATIVES IN THE SAN FRANCISCO BAY AREA

*A Report by*

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## About the Institute for Digital Cooperative Economy

The Institute for the Cooperative Digital Economy (ICDE) is the research division of the Platform Cooperativism Consortium. Established in 2019, its research covers the emerging cooperative digital economy, which is a relatively unexplored domain in fields like anthropology, political science, sociology, history, law, and economics. The cooperative digital economy is rapidly expanding and is closely linked to labor and cooperative studies. The ICDE's work also focuses on finance, entrepreneurship, and organizational studies in business schools, as well as governance and corporate structure, which are critical subjects in law schools.

At the ICDE, we recognize that scholars, technologists, artists, community organizers, and cooperators equally contribute valuable insights to the development of a more just and equitable digital economy. Therefore, the Institute's mission is to provide applied and theoretical knowledge, education, and policy analysis to bridge the research gaps in the emerging cooperative digital economy. Learn more at https://platform.coop



# 1. INTRODUCTION

What would it take for data cooperatives to thrive in cities? Data cooperatives at the local level could help cities empower their residents to reclaim control over access to their data from tech companies who increasingly provide essential urban services. Data cooperatives would allow their members to participate in collective processes to decide how their data is used, and by extension, how their community's data is used. But cooperative governance structures, despite being common enough across industries like housing, land, or labor, are still largely unexplored in the context of governing community data, especially in US cities. The US lags behind other national governments in passing personal data protection policies that set cultural expectations about the right ways to use personal data.[1] Federal data protection laws are important legal tools for nations to regulate the collection, use, and misuse of individuals' personal data. Without sufficient regulations in place, US federal, state, and local governments have lagged significantly behind the private sector in learning how to deal with personal data, and have let tech giants establish cultural precedents for how personal data should be used or governed. As a result, US residents have less understanding about what "data rights" are, and governments are less motivated to create opportunities for residents to exert control over the use of their data.

New privacy legislation passed in California in 2018 has led state and local governments across the US to begin exploring federated policies that incentivize alternatives to extractive data governance practices.[2] The California Consumer Privacy Act (CCPA) set a new cultural expectation that California will monitor appropriate uses of personal data in the private sector that was then bolstered by the passage of the California Privacy Rights Act (CPRA) in 2020. In San Francisco, which sits in a contentious region where many global tech giants are headquartered, state and local policy-makers have a unique opportunity to set precedents for local governments across the country about how they either enable or restrict extractive data practices in their communities. Companies that extract data from local residents and buy out their competition both pose a threat to personal data rights and lessen the potential for local communities to use their own data to address local challenges by closing it off to public use.[3] By and large, these companies are also institutions rooted in white supremacy and patriarchal structures, and stand to perpetuate legacies of oppression against Black people, Indigenous people, and people of color in any communities where they operate.[4][5] However, many state and local governments in the US have historically chosen to preserve relationships with tech companies built on extractive private platforms rather than regulating them or seeking alternatives.[6] California is a fascinating case study



of an ecosystem that contains both monopolistic tech companies that exploit personal data for profit and histories of radical organizing traditions and cooperative governance practices that could grow to fight back against these powers.

Data cooperatives are just one type of alternative data governance model that provide alternatives to the status quo in data governance across both the public and private sectors. Local data cooperatives, or data-collecting platforms that cooperatively govern both access to and use of community data, are essential at the local level because they can provide residents with the opportunity to collectively decide how their data is used to address local challenges. Community data, for the purposes of this research, is individual-level data concerning community development policy issues like housing, health, or transit, aggregated up to a community level to provide insights. Most local government initiatives to use community data to address local challenges are controlled by governments themselves, who decide when residents can access community data and how the data is ultimately used. Even when local governments invite residents to participate in deciding how data should be used, they do so on their own terms. At the same time, without local policy to regulate businesses that extract data from local residents, local governments turn a blind eye to the wealth of community data that is produced under their jurisdictions but extracted through private platforms and used to shape communities outside of the public eye.[7]

Some local governments build cross-sector data-sharing projects in the hopes of inviting outside stakeholders including community members to help them decide how community data should be used, sometimes using the language of collectives, cooperatives, coalitions, and trusts.[8] But many of these efforts have misfired or used these terms to describe projects that don't actually go beyond inter-organizational data-sharing agreements that regulate privacy on an ad hoc basis and fail to rebalance power over controlling access to or use of data. As a result, few local governments support data projects that put cooperative governance first.

Because there are so few data cooperatives operating in US cities, this research is largely an exploration of the policies and processes that create ecosystems where data cooperatives might thrive in the future. Taking San Francisco as a key example, the goal of this research is to explore and document the policy foundations in the region that might invite collaboration with data cooperatives and extrapolate a potential framework to assess the receptiveness of other cities to cooperative data

projects. Assessing the current environment in San Francisco could also guide the actions of other cities that invite tech founders by marketing themselves as the new _____ Valley. As such, this research is intended as a point-in-time snapshot of policies and practices in place now, and also a window into a potential future should state and local governments decide to change the status quo. Once data cooperatives begin to launch experiments in more cities across the US and document their findings, we will be able to learn which best practices for regulatory and social environments are definitively beneficial to data cooperatives. Future research might also explore how local governments can begin to use more innovative policy measures to localize control over access to and use of community data or decentralize ownership of data assets themselves, as has been proposed in some international contexts.[9]



# 2. BACKGROUND & METHODOLOGY

## A. Local Government Open Data & Innovation

In the last decade, local governments across the US have launched initiatives aimed at using community data to empower residents to participate in public decision-making, but many of these initiatives stop short of empowering communities to govern the use of their personal data to these ends.[10] Over 100 local governments have passed open data policies to enable more transparent, effective, and impactful uses of data for civic purposes inside and outside of government.[1112] But compared to international projects like the Cities Coalition for Digital Rights, whose only participating US city is the City of New York, these initiatives are rather limited to innovation projects that are internal to governments and that fail to take residents' personal data rights into account.

In the US, many local governments participate in national technical assistance programs that provide capacity-building efforts to modernize governments' internal uses of data for operational efficiency and more evidence-based policy outcomes. Since 2015, cross-city learning networks like the Civic Analytics Network and the What Works Cities Initiative have challenged cities to establish and empower Chief Data Officers at the local level, and achieve Certification in issue areas like data governance, open data, data leadership, and performance management.[13] Open government and open data programs that mandate the public's right to access public data or information are only part of these data modernization efforts, and are the closest that most local governments come to regulating access to community data by providing data through unbounded data commons. Through these programs focused on transparency and accountability, they attempt to publish data using Creative Commons licenses, which remove legal and financial barriers to reuse, and sometimes invite residents to help design and make use of these data offerings. But open data programs, which often emerge from "open by default" ideologies and focus on removing any and all restrictions to access or use of public data, tend to ignore the question of commons governance, which is required to give residents power in decision-making over the access to or use of their community data. As such, control over access to the data and over its use ultimately sits with city IT departments or open data owners, who usually sit in centralized roles within the city and may or may not be responsible for gathering public input to inform their work. In other words, these programs mandate broad access to public information with little opportunity for participatory governance, and therefore very little community control over the use of community data.

Because of the proliferation of technical assistance programs that focus on data modernization as a tool for operational efficiency, and at best, participatory co-design of public data functions, few local governments have sufficient knowledge or understanding of privacy or personal data rights issues. Instead, they rely on ad hoc commitments on a department-by-department basis to participatory design in the hopes that by soliciting input from residents on a regular basis, decisions about how community data is used will include insights from community members and give them an indirect sense of control.

Taking a broader look at local government data practices, shifting to a rights-based model for governing individual and community data would require addressing the existing cultural precedents that deprioritize data rights issues to instead focus on data use for operational efficiency and impactful outcomes. For example, most local governments in the US don't have channels for individuals to access personal data when it is held by their local government or companies partnering with that government. There are few learning resources in the field of local government innovation that address how to operationalize initiatives to improve personal data rights at the local level. As a result, few US cities have initiatives to incentivize projects that experiment with new ways to govern community data in ways that give people the right to control access to or use of their personal data, which could include data cooperatives. Those that are leading the way in regulating personal data privacy like the City of San Francisco are the closest to setting new cultural precedents that residents should have control over access to their personal data, and are most likely to move toward catalyzing projects that allow residents to govern the use of their personal data toward social good for their communities.

Some local governments do maintain initiatives to spur local innovation by supporting civic technology communities.[14] Civic technology communities are often made up of volunteers who convene through civic hacking brigades or who start their own businesses to solve civic challenges by partnering with local governments. But few civic tech projects have pursued data governance projects as pathways to empower residents, likely because governance-first approaches to building civic technology require different skill sets than most early-stage volunteer coding projects have. But civic technologists are an asset to any community in that they bring free tech skills and a desire to help communities solve long-standing challenges through the use of data and technology. With better regulations for personal data use and more targeted initiatives for data innovation, local governments could begin to support civic technologists to move toward solutions that leverage collective data governance as a way to create longer-lasting tech solutions that give residents control over the use of their data.

Most US cities have also engaged in some way or another with the "smart cities" movement, which is a big umbrella for urban tech projects involving privatization of public spaces, sensors, and surveillance.[1516] Some US cities that have passed data privacy policies at the local level have done so in response to the emergence of smart city ecosystems.[17] This variety of innovation programs intended to grow smart city projects indicates that local governments do have the regulatory and cultural capacity to catalyze shifts in the ways data and technology are used to shape communities. Smart cities programs have relied on support from local government executives who see promise in connected technologies for urban uses, and have mostly grown through a proliferation of public-private partnerships, which are custom agreements made behind closed doors between local government executives or department heads and private companies themselves. These smart city agreements do provide openings for local governments to influence how private companies govern community data or invite residents to govern access to or use of their data, but in most cases, tech companies leverage these agreements to extract data from communities and sell it for third-party use under the noses of local government officials and without public insight.

## B. Community Data-Sharing Structures

Outside of government, there are some data governance projects that aim to empower data constituents to participate in decision-making around how community data is used. In 2021, data.org launched the RECoDE project to convene community organizations collecting data on social determinants of health to discuss frameworks for more community-centered data governance.[18] As the project's mission states, "Data systems built to track housing, health, education, and employment are largely rooted in racist systems and discriminatory assumptions. Platforms and solutions for data collection and distribution have rarely taken deliberate measures to counter those truths, and community voices are seldom at the center of decisions about how data creates value."[19] To address this, the project asked community organizations and representatives from public health institutions to map the challenges they face around data lifecycles, including by examining who is involved in deciding how community data creates value.

The ReCODE project is a nascent effort to engage those who collect community data at the local level to discuss how decisions should be made about the use of community data in often cross-sectoral contexts.



But some data systems that manage community data in cross-sectoral contexts already exist. For example, data systems like Homelessness Management Information Systems (HMIS) have been mandated into existence since 2001 by Congress and the US Department of Housing and Urban Development (HUD) to collect personal information on people who are experiencing homelessness and track them through the social service system to improve services.[20] HUD provides funds for local community organizations to maintain the HMIS data system, who in turn partner with local and regional government agencies to make use of the data and outsource IT maintenance to private contractors. In this scenario, community data is governed by a complex web of institutional decision-makers, ultimately culminating at the federal government. Governance structures like this one are the most common ways that local governments partner with non-governmental entities to collaboratively govern community data. This form of collaborative governance relies primarily on data-sharing agreements as the main structures protecting how shared data is used. Standard data-sharing agreements identify and protect sensitive data and appropriate uses between parties, in addition to establishing data licensing agreements for third party use.[21] But because of the US's minimal federal data protection laws, using a data-sharing agreement as the sole form of legal governance creates significant opportunities for the use of community data to be influenced by individuals. For example, the US's most stringent data protection laws are the Family Educational Rights and Privacy Act (FERPA) and the Health Insurance Portability and Accountability Act (HIPAA).[22] But both of these laws can be widely interpreted by city attorneys who have the final say on whether shared data falls under sensitive data categories when designing data-sharing agreements. As a result, HMIS systems don't often involve community participation in deciding how community data is used, including for individuals who are represented in the data. Instead these systems trap decision-making power within government agencies and government-funded institutions. Without proper community data governance or even basic public oversight, systems like HMIS can become discriminatory in practice and carry deep bias in how data about vulnerable populations is collected.[23]

### Data Trusts & Collaboratives

Collective data governance projects like data trusts or collaboratives exist in some cities and involve cross-sector collaboration, but it's difficult to see how data governance structures differ across these projects from a legal perspective. A data trust, broadly defined by the Open Data Institute

as a legal structure that provides independent stewardship of data, is a data governance model that puts control over access to and use of data into the hands of trusted intermediaries or fiduciaries. But in practice, some "data trusts" do not legally empower individuals who are represented in the data to consent to fiduciary data governance or to influence the use of their data.[24] These "data trusts" might, for example, involve a government partnering with a university holding data "on behalf of beneficiaries" or "to benefit the community at large".[25] In short, these projects apply the term loosely. Alternatively, data collaboratives and other informal data-sharing partnerships are more common but even less strictly defined structures for governing shared data. Looking at examples like the Civic Tech and Data Collaborative, which ran projects in three US cities from 2014 to 2018, data collaboratives included informal partnerships between collaborating organizations who decide how to use shared data on an ad hoc basis.[26] In each of these cases, data-sharing projects were intended to help governments use data more effectively to address their policy goals, and sometimes to ensure that the way data was used would benefit residents. Community engagement played a role in helping data collaborative owners ensure that their projects would positively impact residents, but input was collected and acted upon by decision-makers in power who could ultimately decide how they would use community data to address policy challenges. With community members always taking a backseat to institutional decision-makers, and with few to no legal instruments that ensure their rights to control how their data is used, these data-sharing projects drive toward outcomes that benefit governments and institutions but fail to challenge the status quo of extractive data governance practices.

### C. Defining Data Cooperatives

Data cooperatives govern the collection, sharing, and use of the personal data of their members.[27] Because they have a fiduciary obligation to protect members' data rights, and because members must play an active role in deciding how data is collected, shared, and used, data cooperatives have the potential to meaningfully rebalance power over the use of community data. Data cooperatives go further than data trusts or collaboratives in creating legal mechanisms for residents to have a say in deciding how their personal data or community data is used. In city contexts, data cooperatives have the potential to localize power over the control of the use of community data assets. Without localization of control over the use of community data, tech platforms that provide services in urban settings will continue to extract community data, hide it in proprietary systems, and use it to shape communities to their benefit.[28] While some companies operating in the housing space like Zillow or Airbnb have launched programs to share data with local governments, these companies still hold ultimate decision-making power over how community data is used.[29] In addition to controlling access to and use of community data, tech companies operating in the urban space profit by using or selling insights generated by analyzing large quantities of community data to understand trends like housing markets, for example. Because data cooperatives allow members to decide who has access to generate insights from their data and how those insights are shared, they could generate their own insights from member data that would put them in a stronger bargaining position to negotiate services and policy improvements.[30]

In practice, data cooperatives can resemble credit unions. Alex Pertland, a co-creator of the MIT Media Lab said, "It is practically possible to automatically record and organize all the data that citizens knowingly or unknowingly give to companies and the government, and to store the data in credit union vaults." Data cooperatives could bolster data rights by allowing people to contribute personal data to these so-called vaults and create rules for data protection and use that are approved by members.[31] Then, governments, civic institutions, and private platforms would need to enter into agreements with the cooperative to gain access to the data, and would have to adhere to cooperatives' rules over data use. Even without accessing data, partners could request analytics from the cooperative that describe community-level trends. The local data cooperative movement could grow into one that abolishes the current system of data feudalism where the value of data is captured by tech giants instead of by the people who produce it.[32] If successful, data cooperatives could champion a cultural shift away from data hoarding and profit for the few toward data as a tool for building collective power through data rights and community participation.

### D. Methodology

This research examines the policy, processes, partnerships, and funding streams that make up just one layer of local innovation ecosystems, as they relate to data and technology projects that grow within those ecosystems.[33] Specifically, this research is concerned with how state and local government policy affect projects that encourage data-sharing models that protect community residents' data rights, primarily through the control of decision-making over the use of data. This research also involves a case study of state and local legislation governing potential chan-

nels for collaboration between data cooperatives and the City of San Francisco, California. Policy analysis is based on desk research around existing policies and programs of the State of California and the consolidated City and County of San Francisco (CCSF) that capture governments' data innovation goals and funding streams available for local innovation. Analysis is also supplemented by semi-structured interviews with public officials from the state's Office of Data and Innovation and the city's DataSF team, as well as conversations with data cooperatives operating in the US and around the world. Based on this case study, I also propose a framework for mapping the receptiveness of local governments to collaboration with data cooperatives by assessing the robustness of these policy foundations.

The scope of this research was initially limited to exploring legislation that might affect data cooperatives that might interact with city-level built environments or engage with policy issues that fall under the jurisdiction of local governments. However, a preliminary scan showed that there are very few data cooperatives that meet these specifications operating in the US, so there are few concrete examples of how data cooperatives can navigate US local government policy to their benefit. As a result, there is not sufficient evidence to gain a more comprehensive understanding of what makes good legislation to support data cooperatives. Further research based on examples that emerge in the future might explore how state and local policy actively contribute to thriving ecosystems of social innovation that include and incentivize the creation of local data cooperatives.

Due to the lack of US-specific examples, this research also draws on a landscape scan conducted in collaboration with the Mozilla Foundation's Insights team of the ecosystem of builders and supporting entities in the alternative data governance space on a global scale.[34] Mozilla's research helps to extrapolate challenges and potential conditions that would be necessary for data cooperatives to thrive, and informs my framework for assessing the robustness of local policy for future collaborative potential; for example, identifying data sales, including to governments, as an essential pathway to revenue generation given that data cooperatives around the world struggle with designing sustainable business models.

I offer special thanks to Jason Lally, Deputy Director of Data Services and Engineering at the State of California's Office of Data and Innovation and former Chief Data Officer of the consolidated City and County of San Francisco, and Keith Porcaro, Director of the Digital Governance Design Studio at Duke University, for their support and insights informing this work. This report builds on existing research conducted at the Beeck Center for Social Impact and Innovation by the Intergovernmental Software Collaborative on collaborative data and technology projects, and research on alternative data governance conducted by the Mozilla Foundation's Insights Team and Data Futures Lab. By building on my personal practitioner experience in the fields of open government, civic technology, and open data, this scan of local policy foundations aims to bring understanding to the possible future role of local government in inspiring the creation of cooperative models for governing community data in the future.

# 3.

# POLICY FOUNDATIONS IN THE SAN FRANCISCO BAY AREA

The San Francisco Bay Area region has been home to some of the US's most innovative tech companies in the private sector, and its local governments have led the country in foundational data and technology modernization efforts that have improved the quality of digital services and raised the bar for data governance practices in the public sphere. In August 2009, San Francisco then-Mayor Gavin Newsom announced the launch of DataSF.org, a data repository for over 100 datasets that officials hoped would catalyze the development of new apps and public-facing tools making use of essential public data.[35] Thanks to the city's ever-growing community of technologists, volunteer coders or "civic hackers" developed tools like Routesy, a transit-planning tool, and EcoFinder, a custom map for finding recycling sites within the platform's first few months.[3637]

The launch of DataSF came shortly after the launch of the federal government's data repository, Data.gov, which launched in May of the same year, positioning California and the consolidated City and County of San Francisco (CCSF) in particular as early leaders in the local data innovation space. Since then, DataSF merged with city internal data science teams and has grown into the city's go-to source for CCSF government data from across agencies. DataSF is currently situated within the Office of the Chief Data Officer. Over the years, DataSF has become a frequent collaborator with visiting students and externs from private sector partners who have helped build out data governance infrastructure and open data programs that have brought the office into closer collaboration with cross-sector opportunities for data innovation.[38]

Statewide, California was home to some of the first city chief data officers in the nation, and its state, regional, and local governments have continuously participated in national learning networks geared toward data-driven government innovation and American renewal.[39] Politically, the Bay Area has been a proving ground for radical political ideology since at least the 1960s, when the University of Santa Cruz was founded and the Black Panther Party established its headquarters in Oakland, California. Today, California is currently home to 105 elected officials who identify as members of the Democratic Socialists of America — at least three times more members in office than in any other state.[40] Culturally, cooperatives have been a part of California's history across labor contexts, particularly in the agriculture and food industries.[41] Today, there are multiple nonprofits operating in Northern California that exist to help worker-owned cooperatives thrive and grow.[42] This makes the Bay Area region a perfect case study for examining the policy foundations that would allow data cooperatives to thrive in the future. While political dynamics in the San Francisco

Bay Area have changed over time due to rapid gentrification and economic inequality resulting from the booming tech industry, there is still hope for this region to seed cooperative data projects that rise up in opposition to these trends.

### E. State-Level Policies and Programs

While California is one of the leading states in data innovation, there are no statewide policies or programs that specifically aim to support data cooperatives or alternative models of data governance in the market. However, evaluating the state's consumer privacy laws can provide a helpful framing for understanding the current status of legislative opportunities pertaining to better governance and rules around the sharing of community data. While these laws primarily regulate the private sector's sharing and use of personal information, they also set a cultural precedent for the use of personal information that could inform how government agencies, including DataSF, partner with external third parties to procure data that includes personally identifying information. By creating definitions and expectations around individuals' rights to control access to and use of their personal information, consumer privacy laws can help government stakeholders across agencies begin to create regulations and incentives to shift data markets toward more responsible and participatory forms of governance. Understanding the history and implementation of these policies can also inform innovators hoping to launch data cooperatives on how to find the right stakeholders and understand the policy opportunities that might help them get their initiatives off the ground.

The California Consumer Privacy Act (CCPA), California's landmark privacy legislation, is an essential policy foundation that California governments could use to justify support for data governance projects that protect individuals' data rights, just as the EU has leveraged GDPR as a policy foundation for experimentation around ethical data governance.[43] CCPA specifically regulates the activities of companies collecting personal data and empowers consumers to see whether their data is being sold to third parties and have the opportunity to opt out. CCPA exists on top of federal privacy regulations already in place at the US national level that specifically protect student information and personal health information, but these are fairly limited in reach and primarily affect educational institutions and health providers.[44] After the passage of CCPA, California's voters chose to go even further to protect residents' data rights with the passage of the California Privacy Rights Act (CPRA), which passed by ballot initiative in



2020 to upgrade specific text in the CCPA that puts the onus on data collecting companies to ensure that company employees and consumers are aware of their privacy rights. CPRA will be fully enacted starting in 2023, meaning that any companies doing business in California or collecting personal data from California residents will need to be in full compliance.

Within government, the state's Office of Data and Innovation (ODI) governs state agencies' internal uses of data and technology. Although ODI's work currently is not directly informed by CPRA, there could be opportunities for the office to play a larger role in launching data governance projects that are in line with new privacy legislation. Currently, ODI has plans to launch a data acquisition program to provide guidance to agencies about how to acquire third party data from ethical sources, which could involve deeper dives into private sector data governance.[45] ODI is also in the process of standing up a new Data Program & Policy Group that will be responsible for advising on data policy issues at the legislative level, which are currently covered on an ad hoc basis by the state's Chief Data Officer. Currently, ODI has no plans to directly work with the private sector or with civic projects outside of government to support alternative data governance projects, and there are no state funds specifically allocated toward these projects. But by fostering the state's internal data capacity expansion alongside privacy legislation that regulates data governance practices in the private sector, the state is moving toward a more inclusive ecosystem for projects like data cooperatives that experiment with alternative models of data governance to potentially grow.

### F. State-Level Data Collaboratives

Despite the lack of policy or programs specifically providing opportunity to data cooperatives, there are a number of state projects that attempt to leverage collaborative data governance to improve outcomes in specific policy areas that could serve as a model for future cooperative projects. To begin with, California's Government Operations Agency sponsors an open data portal maintained in collaboration with the Office of Data and Innovation which supports the CalData initiative and the state's data strategy. Outside of the open data portal, California agencies use data-sharing projects with community partners and institutions to affect policy outcomes in specific issue areas like education and public health. These projects show the state's willingness to experiment with collaborative data-sharing structures which could include more data cooperatives in the future.

For example, California's new Cradle to Career Data System was established by legislation passed in 2021 by state assembly. The system will give policy-makers, educators, and the public the tools and data to improve educational outcomes and address disparities.[46] The data system will primarily draw from the state's longitudinal data system to track education data, the California Longitudinal Pupil Achievement Data System (CALPADS), which unifies data from across early childhood programs, schools, community colleges, and universities. CALPADS exists to track student information from early childhood through higher education while aggregating individual-level data up to community and statewide levels to understand educational outcomes. This data qualifies as community data, but the only opportunities for community input in deciding how the data is used are determined by CALPADS' governing bodies, including state government agencies and educational institutions. On the public health front, California is also undertaking a statewide effort to centralize health information data that is currently being managed by a series of regional health information exchanges (HIEs). HIEs receive funding from state and regional agencies to gather, store, and manage data collected from various health providers and community health institutions. But HIEs often lack legal governance mechanisms that determine how partners of the HIE enact decisions around the data's use, instead relying on federal HIPAA regulations to guide questions around control over access to personal information. To comply with HIPAA, entities sharing data through HIEs usually rely on ad hoc data-sharing agreements to establish data privacy, and decision-making processes involve complex institutional webs that draw their governance structures directly from the funding streams that mandate their regional health efforts rather than leveraging more participatory methods that would allow those represented in the data systems to control access to or use of their own data. In 2022, California's Department of Health and Human Services (CalHHS) allocated $2.5 million allotted in AB 133 to unify the regional HIEs into one system that will be governed by CalHHS.

Ultimately, both of these types of data-sharing projects take tech-first or funding-first approaches to establishing governance (i.e. the platform they build on determines how decisions are made about governing data or the way the funding is distributed determines who is in charge regarding data governance decisions). Moving forward, administrators of these projects might draw from expectations set by CPRA around personal data rights to create pathways for residents to participate in the governance of these systems, particularly by helping people access their personal data in these systems or by helping them participate in deciding how data



is used. Data cooperatives seeking to work with local governments would benefit from understanding the statewide policies that require companies to enact personal data protections, but also might find opportunities to participate in state-supported data-sharing efforts by learning about how projects like the Cradle to Career Data System or statewide HIEs involve organizations at the regional, local, and community levels. Many of these projects contract tech support out to third parties which allows partnering tech providers to play a role in developing data governance structures that invite more transparency, accountability, and participation by people who are represented in public data systems to control access to or use of their own data.

## G. Local-Level Policies and Programs

In 2018, San Francisco voters approved a ballot measure that requires companies to disclose their data collection practices and third party data-sharing practices in order to win government contracts. The Privacy First initiative establishes residents' rights to know how their personal information is used and to opt out of their data being collected or sold.[47][48] In practice, the Privacy First initiative means that in order for local government agencies to acquire data, the consolidated CCSF Board of Supervisors must approve procurements that deal with third parties collecting personal data. Previous to this policy measure, federated city departments made ad hoc decisions to acquire data from third parties without central oversight. Oversight for other internal data governance practices comes from DataSF, which governs the city's open data portal. Residents can use the portal to request access to their personal data pursuant to the city's open data policy, which requires San Francisco departments and agencies to identify which personal data they hold and ensure residents can have access to their data, separate from the city's new privacy legislation.[49]

Despite the Privacy First policy providing new central oversight, its language leaves significant room for interpretation. Opponents to the policy noted that its breadth would allow for the Board of Supervisors to consider certain data sensitive or private that otherwise would be subject to the city's existing open government laws, which contain specific definitions for what qualifies as "sensitive information."[50][51] In general, when privacy legislation is too broad to enforce, it can create a cooling effect on public policy-makers who then limit data-sharing for potential civic uses for fear of being out of compliance with existing umbrella policies. However, teams like DataSF exist to help CCSF departments and agencies

improve their capacity to use data for civic projects inside and outside of government. When departments or agencies have an idea to acquire data or partner with an organization to leverage data for a specific project, they can approach the DataSF team to navigate these relationships or support their procurement efforts. Data cooperatives seeking to work with the city would benefit from understanding the complexity of the interaction between open government and privacy policies and identifying the key stakeholders who influence the implementation of these policies. For example, they might start by attending open meetings of the city's Committee on Information Technology to learn about upcoming plans the city has to procure technology or launch data or technology initiatives.

Regardless of these opportunities to learn from and take advantage of the city's long-standing data innovation efforts, there are no local policies or programs specifically geared at building the social innovation ecosystem to support businesses that champion alternative models of data governance. Legislation like the Privacy First initiative and resources like the DataSF team can help open doors for innovative data cooperatives to begin partnering with CCSF to provide more ethical sources of data to local agencies, but achieving these partnerships would require building relationships and participating in public decision-making around the future of the city's data innovation practices writ large. Despite the lack of policies or initiatives specifically aimed at supporting data cooperatives' growth or incentivizing partnerships, learning about pathways to partnership and leveraging available support from public officials or data leaders can help data cooperatives start building the relationships that will help them make the case for their work in the public sector.

### H. Local-Level Data Collaboratives

While it is difficult to catalog the breadth of collaborative data-sharing projects taking place at a local level in San Francisco, the success and comprehensive data management approach of the DataSF platform has ensured that a large share of public data that are available from CCSF agencies are either published on the platform or captured in regular data inventorying processes. According to DataSF's published progress metrics as of this report's date of publication, 52 CCSF departments are represented on the data portal, and 36 have completed data inventories, and 27 have completed their publishing plans. The open data platform hosts 613 datasets that are available to the public for reuse and to a range of internal and external stakeholders, and has logged 1,091 inventoried datasets



that are available only to internal stakeholders. A majority of these datasets cover subjects like city management, geography, and transportation, while other categories include health, energy, COVID-19, housing, culture, and public safety.[52]

As previously mentioned, open data is just one type of data-sharing that prioritizes open access to information and limiting barriers to reuse. However, by running a robust open data program, DataSF is able to support a number of cross-jurisdictional partnerships that use data from local agencies. For example, in 2016, the US Department of Transportation (DOT) challenged mid-sized cities to find equitable and effective ways to further the adoption of connected and autonomous vehicles as part of a Smart City Challenge. The city received an $11 million grant from the DOT to pursue a Smart Carpool Pilot, Smart Traffic Signals Pilot and other related projects. According to a report published by the San Francisco Municipal Transportation Authority (MTA) to execute this grant, the approach focused on improving customer experience through human-centered design, and taking a community and data-driven process toward becoming a smart city overall. This would involve designing "a customer-focused framework to virtually and physically integrate all mobility providers through a 'data commons' that provides routing, booking and payment and through street operations and prioritization to create a seamless travel experience."[53] The report also states plans to work with DataSF on developing open data standards for data on autonomous vehicles, on integrating their smart cities data with existing data from urban sensors across San Francisco being hosted on the DataSF open data portal, and on using the open data portal as their own integrated data clearinghouse where the data would be accessible to residents without barriers to reuse. Today, there is no dataset on the DataSF open data portal representing the use of autonomous vehicles, but the MTA does publish a range of datasets pertaining to traffic safety and other transportation issues. The MTA also publishes traffic fatalities including whether they were caused by autonomous vehicles as part of the city's Vision Zero Fatality Protocol maintained by the San Francisco Department of Public Health (SFDPH), San Francisco Police Department (SFPD), and MTA.[54]

Because the city's local open data program is so robust and well-connected across jurisdictions, data collaboratives have the benefit of leveraging public infrastructure to conduct data-sharing projects. As is previously explained, by publishing data through open data programs, local governments make data available through data commons, but often stop short of introducing robust data governance practices that might

invite residents to actively participate in the governance of public datasets. As such, the city's work showcases how data collaboratives supported by open data portals can stimulate local social innovation ecosystems around data-sharing without necessarily giving civic actors the tools to build co-operative data governance structures that would empower residents to control access to and use of their own data.

## I. Barriers to Data Cooperative Development

The lack of intentional policy to incentivize the development of data cooperatives is a clear initial barrier to data cooperative growth in the San Francisco Bay Area and the state of California. While data cooperatives might demonstrate clear value to state and local governments concerned with data privacy issues by empowering cooperative members to make their own decisions about the use of personal data, they will still need to seek support like any other business enterprises to partner work with government agencies.

Procurement is the most common pathway for data providers to collaborate with local governments, including in San Francisco. Data cooperatives that might be interested in sharing data with local governments would have to enter the procurement process as vendors and compete against other companies selling data to local governments. Thanks to digital innovation efforts, CCSF's websites are easier than ever for new local businesses to navigate, including links for entrepreneurs to "Become a City Supplier." However, US local governments tend to be highly risk averse and prefer to buy from larger companies that can pay to insure themselves against potential risks, including in the data acquisition space.[55] In order to succeed in procurement processes, data cooperatives can leverage certifications like CCSF's Small Business Administration certification for local businesses which attempt to counteract these biases. These certifications are often hard to obtain and require working through application processes run by the city's Contract Compliance Office. As of today, no companies with the word "cooperative" or "coop" in the name are registered with CCSF as certified local business suppliers.[56]

Although navigating procurement processes or finding ways to get support as a small or local business can be difficult, data cooperatives might also benefit from ingratiating themselves with existing data-sharing projects that involve cross-sector collaborations to manage complex data systems aimed at specific policy outcomes. Focusing on specific policy areas like public health, education, housing, or environmental management might help open doors to potential government-funded data projects, but may also limit data cooperatives abilities to fully control access to or use of community data. In these contexts, data cooperatives would be subject to participating in complex institutional decision-making processes that could undermine goals to establish true cooperative data governance.

When entering the market, even at a local level, data cooperatives might find that monopolistic forces from tech giants will create challenges in generating sufficient user adoption to build sustainable business models.[57] Platform companies operating at the local level continually overpower state and local governments, including by subverting regulatory policies, to achieve ends that serve their profit motives.[58] So without stronger policy interventions from state and local governments to regulate data acquisitions from platform companies that extract data through unethical means, or to incentivize the development of alternatives, data cooperatives will be on their own to compete in the market. Data cooperatives might have some opportunities to leverage public-private partnerships to experiment with data-sharing projects that could improve on cities' existing informal collaboratives or coalitions. But navigating these projects requires understanding stakeholders' motivations and navigating spheres of influence within government departments and agencies and finding champions to facilitate the development of these efforts.

# 4.

# CASE STUDY: BAY AREA SPATIAL INFORMATION SYSTEM (BASIS)

The Bay Area Spatial Information System (BASIS) is a Data as a Service (DaaS) initiative operated by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) in collaboration with local governments and organizational stakeholders across the region. The system is one of the key data tools provided by ABAG for regional stakeholders and includes data on the region's Land and People, Policy, Transportation, Environment, and Administrative Boundaries, with key data topics including land use, zoning, pollution, species habitats, geopolitical boundaries, transit, and more.[59] The conceptual architecture for this system is tied directly to the region's comprehensive plan Plan Bay Area 2050. Plan Bay Area 2050 is the Bay Area's "long-range plan for housing, the economy, transportation, and the environment."[60] The data contained in BASIS is primarily non-sensitive information, meaning it does not contain personally identifying information. This means that BASIS data is a prime example of community data that doesn't require stakeholders to address privacy concerns, and provides public agencies with the opportunity to pool and leverage data about communities that could improve the quality of life of residents.

According to research conducted by the Intergovernmental Software Collaborative, which documents open source technology collaboratives across state, local, tribal, and territorial governments, BASIS qualifies as a collaborative organizational project rather than a true software collaborative.[61] Its stakeholders are primarily public agencies and organizations tasked with regional planning initiatives. However, the MTC Data Services team, which operates technical elements of the project, publishes all of its code including its master data management lists and documentation covering key data processes, attribution definitions, and relationships with other key datasets on GitHub. This makes the BASIS initiative transparent and accessible to a wider community of stakeholders who can participate in the governance and use of BASIS data. As the master data management readme states, "Through the BASIS initiative, MTC has begun the early work of building a regional data repository that is both well sourced, documented and accessible to internal staff and external stakeholders alike."[62]

According to the project's homepage, users internal and external to ABAG/MTC can download data from the BASIS system, or access it via API for analysis and modeling purposes. The BASIS system is managed by the Data and Visualization Team, a unit within the Regional Planning Program, a department of the MTC. The website describes the means by which participating agencies and stakeholders govern data collaboratively and derive value from data processing and analytics tools that result from the

collective effort:[63]

> "A key component of BASIS will include a robust Review and Feedback System that will collect invaluable feedback from local jurisdictions, key regional stakeholders and staff within ABAG/MTC. BASIS will present the data for review by local jurisdictions in an inventory format that allows local jurisdictions to select a location and retrieve a summary of the data available at that location. The summary will be associated with a count of parcels that contain any one or more of the land use, transportation or development characteristics that we track as part of Housing Development Tracking, Transportation and Land Use Modeling (UrbanSim)...
>
> BASIS is comprised of three distinct tiers. The first tier is arguably the most important. This is where we identify and inventory the various datasets that we intend to collect. We fully expect these data sources will be in several different formats which will require us to develop several data processing tools that we can use to collect, clean, and wrangle the data to fit a common format that is easy to store and use in the second tier of the architecture, the Data System.
>
> The data system is being designed as a structured, well documented and authoritative source for all data collected and stored in BASIS. This system will follow a set of prescribed processes that will be governed by clearly defined standards and practices for data management, documentation and quality assurance. This tier also will conform to standard security, accessibility and modeling best practices that turn our current ad hoc inefficient methods into a organized and efficiently streamlined data library that adequately support our section's aspirational goals and objectives.
>
> The third tier of the BASIS system employs various applications and tools that make use of the data. Here is where the real work begins for many of you. Data will be made available through a Data Discovery Tool or Website that empowers each of you to find and use the data you need for your work."

The BASIS system's collaborative data governance practices center around issues of Data Management, Documentation and Quality Assurance, Data Security, Data Access, and Data Modeling. These issues of data governance and integration are common areas of interest for data cooperatives at the local level and should be taken as core questions for data cooperatives to address with their stakeholders.

While the BASIS system does not conform to the definition of a data cooperative laid out in this research, it is a collective, cross-jurisdictional effort to govern data across public and quasi-governmental entities who represent community stakeholders and are committed to working in the public interest. This model of organizational collaborative development of Data as a Service platforms can serve as an example for data cooperatives that seek to: a) fold into existing policy initiatives that require cross-jurisdictional data-sharing like Plan Bay Area 2050, b) leverage public resources to build collaborative data-sharing practices that deliver value to a range of public and private stakeholders, and c) create cooperatives that make best use of tools like GitHub and other forms of transparency that open doors for community participation in controlling the use of community data. Additionally, the DaaS model of collecting data from and delivering value to a variety of cross-sector partners can serve as an example for platform cooperatives seeking to move into the data cooperative space while going beyond more foundational and open-ended models of open data platforms or unbounded data commons that are currently more common in the civic space.

# 5.

# PROPOSED FRAMEWORKS FOR FUTURE RESEARCH

Future research using the San Francisco Bay Area's policy landscape as a guide, might explore specific metrics to assess the policy foundations for support of data cooperatives in state and local governments. While local governments could launch grant programs or open-ended calls for proposals for data projects that leverage cooperative governance to empower residents, there are no existing examples of such initiatives in the Bay Area or in other local governments in the US. Many local governments conduct collaborative data projects as state and local governments in California do, but these are built on policy initiatives that support the creation of collaborative data infrastructure with funding attached. Outside of these types of projects, there are only a few channels for data cooperatives to partner with local governments, and they are not necessarily tailored to cooperative data projects. Some potential channels include: a) business development programs that help entrepreneurs start small businesses which could include data cooperatives, b) procurement programs to purchase goods from data cooperatives, and c) public-private partnerships to share data through policy-specific initiatives. Each of these modes have potential benefits and drawbacks.

Business development programs exist to help small and local businesses grow in order to support local economies. But these programs are not often geared toward data and technology innovation efforts, though they do often provide start-up resources and sometimes access to capital that can help new founders. For example, San Francisco's Office of Housing and Community Development allocates funds to help tenants establish housing cooperatives and invites third parties to bid on the opportunity to help create these housing cooperatives. These programs could be transferred to other policy spaces to make business development programs more relevant for data cooperatives. However, while these programs might have minor benefits to new data cooperatives, they likely do not provide sustainable sources of revenue or support long-term development.

Procurement pathways, on the other hand, can become long-term sources of revenue for businesses that win contracts with local governments. As data providers, data cooperatives may benefit hugely from having multi-year agreements to share data with local governments, providing that data streams are consistent, high-quality, and easily usable by internal stakeholders. It's also likely that local governments need large quantities of data in order to effectively analyze it to make policy decisions. This pathway would also put more onus on data cooperatives to comply with widely interpretable privacy policies, as with the Privacy First Initiative. While operating under a cooperative data governance structure should mean that these risks are lessened by cooperative participation in decision-making around data privacy, compliance will likely still be an ongoing effort requiring staff time and resources to achieve.

Finally, public-private partnerships may allow data cooperatives to collaborate with public decision-makers to design data innovation partnerships that serve local governments' needs. By building relationships with public decision-makers, including those at the department level and focused on specific policy issues, data cooperatives may be able to help public officials explore data governance projects that both meet their goals and create opportunities for data cooperatives to showcase their work. But these types of partnerships are hard to establish without access to points of contact within government who can help identify the right city champions. Overall, none of these modes of collaboration with local governments are ideal for data cooperatives or particularly tailored to data innovation projects. But mapping them can provide local data cooperatives with the tools to understand where their local governments stand with regards to potential collaborations.

| Channel | Benefits | Drawbacks |
|---|---|---|
| Business Development | Participating in small business or local business development programs can provide helpful start-up resources and leverage public funds for start-up capital | While these programs can be helpful for start-ups or those seeking business guidance, they are not at all tailored to data cooperatives or other forms of data innovation |
| Procurement | Once data cooperatives enter contracts, they can leverage consistent revenue streams that support sustainable business models over years | Data acquisitions can be subject to widely interpretable privacy legislation at the state and local levels in the absence of sufficient regulation on privacy issues |
| Public-Private Partnerships | Leveraging relationships with public decision-makers allows data cooperatives to design partnerships that create customized opportunities for growth | Building relationships with public decision-makers is difficult to achieve without goodwill; especially in environments where local governments favor large or extractive platform tech companies |

Local governments can demonstrate varying maturity levels with their ability to implement policies tailored to data cooperatives through each of these modes. International examples of local government support for data cooperatives provide a helpful barometer of how local governments might behave if their priorities were to shift around data innovation.[64] Based on the fact that there are few to no data cooperatives operating in collaboration with the local government in San Francisco, we can place the state and local policy environment governing San Francisco's ecosystem on the low end of the maturity spectrum. Assessing the maturity of the state and local policy landscape in cities where data cooperatives plan to operate can help to set realistic expectations about the potential for sustainable business development with public support. Ranging from "Non-existing" to "Empowering," the following maturity levels provide a speculative view into what state and local policies might resemble in the future to enable the growth of new data cooperatives.

| Levels | Characteristics |
|---|---|
| Non-Existing | Policies do not address data projects or policies governing data governance, rights, or privacy |
| Existing | Policies allow existing data projects to partner with the city through the same channels as businesses with extractive business models |
| Enabling | Policies enable people to start their own data projects with opportunities for ad hoc funding or support, without any governance requirements |
| Engaging | Policies address the need for exploration into data governance projects that center community engagement and empowerment |
| Empowering | Policies directly address the need for data cooperatives or similar projects to combat the exploitation of community data at the local level |

Evaluating the channels of participation that are available to data cooperatives can help data cooperatives understand the level to which local governments are able to leverage these channels to support new data governance projects. These proposed frameworks are generalizable across places and can be improved upon by future research to explore concrete examples of data cooperatives partnering with local governments in other US local contexts.

# 6.

# CONCLUSION

Without more evidence regarding the actual experiences of data cooperatives operating at the local level in the US, it is difficult to speculate as to which policies contribute to a healthy ecosystem of support. Because local governments in the US are so internally-focused and are legislating personal data rights to varying degrees, it is safe to say that few local governments are intentionally intending to attract business enterprises like data cooperatives that could present alternatives to extractive data practices being used against their residents at the community level.

Despite this, San Francisco shows promise as a consistent leader in the data innovation space both inside and outside of government, and building on a history of cooperativism that could influence the development of new data cooperatives. By observing the state policies like the CCPA and CPRA which govern data collection practices among California companies including those operating at the local level, and by understanding local government policies that build on these initiatives and allow for different modes of collaboration, we can better understand the foundations of policy that might open doors for data cooperatives in the future. Using these examples of state and local policies to map the foundations of data policy affecting data cooperatives operating at the local level, we can begin to imagine a future where local governments decide to go further in enabling alternatives to extractive models of data governance.

Statewide privacy legislations like CCPA and CPRA are just the first step in establishing the guardrails for bad behavior in data governance, but state and local governments should start to ask themselves what good behavior looks like. Local governments should also prioritize community participation in the process of building legal templates and technological infrastructure for new cooperative data institutions. This would be the first step in building a diverse digital economy that incorporates a range of perspectives, including from people who are historically left out of decision-making about the governance of public assets like LGBTQ+ communities, indigenous communities, and people living in neighborhoods that have suffered from organized abandonment.[6566] Data cooperatives are uniquely poised to begin answering these questions in ways that could inspire and enable residents to reclaim the power to decide how their personal data is used and hold themselves and their governments accountable.  Ultimately, local governments must take more intentional steps to help data cooperatives thrive if cities are ever going to break the mold of community data extraction and begin to solve the challenges their residents face.

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Published by the Platform Cooperativism Consortium, March 2023.
Editor Aman Bardia.