

TRANSLATIONAL ARTICLE

Data collaborations at a local scale: Lessons learnt in Rennes (2010–2021)

Simon Chignard¹  and Marion Glatron²

¹Urban Innovative Actions, Lille, France

²Rennes Métropole, Rennes, France

Corresponding author: Simon Chignard; Email: simonchignard@mac.com

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Abstract

Data sharing is a requisite for developing data-driven innovation and collaboration at the local scale. This paper aims to identify key lessons and recommendations for building trustworthy data governance at the local scale, including the public and private sectors. Our research is based on the experience gained in Rennes Métropole since 2010 and focuses on two thematic use cases: culture and energy. For each one, we analyzed how the power relations between actors and the local public authority shape the modalities of data sharing and exploitation. The paper will elaborate on challenges and opportunities at the local level, in perspective with the national and European frameworks.

Policy Significance Statement

Local public authorities are pivotal to facilitating data collaborations at the local level. Our research—based on the experience gained in one territory during a decade in two sectors (energy and culture)—shows that data collaborations between public and private sector organizations are shaped by the power dynamics at the local level and the legal and regulatory data-sharing framework. It identifies five modalities of data collaborations and stresses the need for a better inclusion of local public authorities in the current discussion on data governance in Europe.

1. Introduction

Business data sharing is not a new phenomenon. Since the 1850s, credit bureaus have enabled banking and financial sector economic actors to reduce risks by sharing information on creditors (Lauer, 2017). Official statistics also partly rely on the provision of information by private sector actors (Kitchin, 2015). However, with the digitalization of business and the unprecedented increase in the volume of data produced, there has been a renewed interest in data sharing. The legal context, both at the European and national levels, has evolved considerably. Several texts aim to encourage data sharing between companies (B2B data sharing), private and public actors (B2G data sharing), or by opening up public data (G2B data sharing). At the European level, the European strategy for data (European Commission, 2020) delivers a definition of data for the public good and considers different configurations of data sharing benefiting the development of a data-driven economy and public services. In this perspective, the Data Governance Act

(European Union, 2022), the proposal for a Data Act (European Commission, 2022), and the Implementing Regulation on high-value datasets (European Commission, 2022) aim to provide a horizontal framework for data governance and to facilitate their reuse.

At the national level, France has had a legal framework in place since 2015 to facilitate this data sharing. The Digital Republic Bill (2016) established the principle of open data by default for public administrations and companies operating under public service delegation (e.g., in water, transport, or waste management).

Local authorities have been leading in developing open data in France (Courmont, 2019). Still, when it comes to data sharing, the role of local public authorities is sometimes overlooked in work being done at the legislative level. Most of the discussion focuses on national or regional governments and only partially addresses the specificities of local governments for data sharing. For example, the definition of data intermediaries in the Data Governance Act leaves some doubt as to whether local public authorities can be so designated. Similarly, the capacity of local authorities—cities, metropolises, and regions—to access and use data in the B2G data-sharing framework is also debated (Eurocities, 2022).

When it comes to data governance at the local level, the main challenge is the capacity of municipalities to develop coherent and comprehensive data governance at the local level, given that, by design, (a) cities are home to multiple activities, (b) local public authorities can play different roles in the data economy, and (c) sectoral data governance can be very different from one sector to another.

According to the Organisation for Economic Co-operation and Development (OECD, 2022), subnational expenditure in OECD countries represents 40% of total public expenditures. An extensive range of public services is provided by local public authorities, for instance, education, housing, environmental protection, or social protection. More concretely, a metropolis must simultaneously deal with many different sectors and activities.

The role that cities play in a data economy are multifold: first, local public authorities are producers and consumers of data for their own needs (to run local public services); second, they can act as providers of data as a resource for local and national actors, for instance when publishing open data on addresses. Third, cities can also regulate data use or collection locally using a soft law approach. Finally, cities can also support initiatives from other stakeholders at the local level, for instance, promoting data altruism or data donation.

Finally, sectoral data governance (and data cultures) can be very different from one industry to another. As Bates (2017) pointed out, “within the context of a single city, we can observe a multitude of interrelated data cultures across sites of data practice and governance located in public organizations, private enterprises, research settings and amongst citizens.” Furthermore, local public authorities need to articulate external forces on which they have no (or little) power—such as the strategy of national or international companies or the domestic and European legal framework. They also need to deal with an assemblage of public policy, legislation, and other factors that shape how ideas around data unfold (Kitchin, 2014).

Regarding data governance and use, local public authorities face power asymmetries with these national actors. When an energy distributor discusses with a local public authority, it can rely on the experiences acquired in many different territories. On the other hand, a local public authority has to discuss with many different actors in various settings.

This paper addresses a series of issues relating to data sharing at the local level, focusing on the lessons learnt in a territory—Rennes Metropole—in the last decade: the modalities of data sharing and data collaborations, the role of local public authorities to foster G2B, B2B, and B2G data sharing at the local level.

Rennes Metropole is one of France’s open data pioneers. As early as 2010, the local public authority launched one of the first open data portals in collaboration with the public transport network operator (Keolis, a subsidiary of the national railway company). From 2016, the local authority designed a “metropolitan public data service” to “accompany the evolution of public services in an environment where data is becoming increasingly important.” Four thematics were investigated: water, energy, mobility, and sociodemographic data. In 2019, Rennes Metropole gained the financial support of the

European initiative “Urban Innovative Actions” to develop a data-sharing platform at the local level called Rudi (UIA, 2021).

This paper focuses on the energy and cultural sectors. Each one represents a contrastive setting of actors and practices. Local public authorities are in charge of a series of public policies (energy, mobility, education, economic development, culture, etc.). By selecting these specific sectors, this paper aims to illustrate the diversity of settings in which data collaborations and sharing practices succeed or sometimes fall short of expectations.

Both the energy and cultural sectors can be described as increasingly datafied, in the sense that data plays an increasing role in these sectors. One should note that the energy sector is much more data intensive (Mejias and Couldry, 2019) than the cultural sector, partly because the management of an energy distribution network both requires and produces large volumes of data, as detailed in Section 2.

The research question is how data sharing between private sector actors and the local public authority is shaped by the power dynamics at the local level, building on the existing literature on the influence of power (un)balances on data governance models (Micheli et al., 2020) and a typology of power dynamics between organizations (Avelino, 2021).

The paper explores the idea that data collaborations highly depend on three main features: the market structure of the sector (whether monopolistic or competitive, centralized and organized or more ecosystemic), the preexisting relationships of sectoral actors to the local authority (be it of mandate, cooperation, partnership or support type), and the role of data in the sector (central or not).

This research is based on a participative observation during a decade and a series of five in-depth interviews with key stakeholders in the energy and cultural sectors in Rennes in 2021 (C. Chanas, personal communication, 2021; H. Duval and N. Viel, personal communication, 2021; C. Poulain, personal communication, 2021; G. Rouan, personal communication, 2021). The respondents are project managers and key executives from the public and private sectors involved in data collaborations at the local level. All of them have a strong experience with data-related issues.

The coauthors have been closely associated with the design and implementation of the data policy at the local and national levels. One of the coauthors is a civil servant, now in charge of the data department at the local public authority Rennes Métropole. In that position, she oversees the Rennes Urban Data Interface (Rudi) project. She has a strong interest in defining the role of Rennes Métropole (and, more broadly, local public authorities) regarding the provision, sharing, and exploitation of data. The other coauthor has been involved in designing and implementing France’s national data policy as a Senior Policy Advisor for the French government from 2014 to 2021. In the early 2010 decade, he was an active member of the open data community in Rennes, giving him a first-hand account of the different data collaborations at the local level.

Sections 2 and 3 of this paper focus on a specific sector, namely the energy and cultural sector, with the same storyline: market structure and relations with the local public authority, the importance of data for each industry and initiatives of data collaborations since 2010. Section 4 answers the research question by discussing the power dynamics, commonalities, and differences between the two sectors, introducing five modalities of data collaboration at the local level and analyzing the factors underlying each modality. Section 5 gives recommendations related to the different roles of local public authorities in line with the ongoing European strategy for data.

2. Case Study: Energy

Relations between Rennes Métropole and the energy distributors, Enedis for electricity and GRDF for gas, are based on concession contracts. But as far as energy data is concerned, the relationship is more like a partnership, and a synergy scheme, according to Avelino’s (2021) classification. The energy consumption data held by the national distributors are precious for local policies such as urban planning and reducing greenhouse gas emissions. Symmetrically, these distributors need urban data for network management: urban development perspectives, forecasts of future energy needs, and renewable energy production capacities.

2.1. Market structure and relation to the local public authority: The energy network managers, from concessionaires to committed partners in local energy transition

For the Rennes area, as for all urban areas, climate and energy issues are at the heart of the political agenda, with a widely shared conscience of urgency. For a territory experiencing significant demographic growth, the challenge is even greater. As the coordinator of the energy transition on its territory (according to the 2015 law on energy transition and green growth), Rennes Métropole has to draw up and monitor a Sustainable Energy and Climate Action Plan (SECAP), defining quantified objectives to improve air quality and reduce greenhouse gas emissions and energy consumption at the local scale. For this plan in particular, and more generally for all actions in favor of the energy transition, data on energy (regarding consumption, renewable energy production, and networks) are crucial.

Whereas the landscape of energy actors has changed profoundly since the end of the 1990s, the stakeholders in charge of energy distribution, Enedis for electricity and GRDF for gas, still have a public service activity in France which they carry out as a monopoly on 95% of the national territory. The energy distributors are responsible for maintaining the networks and delivering the energy to the consumers, thus, for the quality, safety, and adequacy of the networks belonging to local authorities. They are acting as concessionaires, and as such, they hold strategic data on energy consumption and networks. These contractual relations place energy distributors and local authorities in a relationship of mutual dependence.

In recent years, structural changes in the energy market and the growing importance of energy transition issues have put data at the core of energy distribution. The implementation of smart meters from 2016 onwards has dramatically accelerated the entry of energy distributors into the world of IoT and Big Data. With Enedis' 35 million Linky meters and GRDF's 11 million Gazpar meters, operators now have vast amounts of data to manage. The two network operators have thus become not only energy distributors but also providers of extremely interesting data for the territory. At the same time, network managers switched from mere concessionaires to partners fully involved in the territory's energy transition: as members of the advisory committee in the SECAP preparation phase in 2016 or as partners of innovative projects, hackathons, or events.

2.2. The role of data in the energy sector: A basis for developing synergies

Cooperation on data between local authorities and energy distributors is based on a convergence of interests. The network operators have a crucial need for new data, which they do not produce, such as quantified and modeled data on urban development projects, forward looking-data on dwellings, the future growth of population, energy performance of homes, but also development of transportation networks and, more broadly, on mobility policies (H. Duval and N. Viel, personal communication, December 10, 2021). In Rennes, the project to gradually equip the entire bus network with electric buses and the resulting models, or the metropolis's incentives for using individual electric vehicles, holds critical information for Enedis. For GRDF, the project to switch the entire fleet of household waste collection vehicles to natural gas is also essential. In addition to these elements, network managers are also interested in data as diverse as vehicle registration data, meteorological data, precise cartographic data, or data produced by the construction and building renovation sector. All in all, the data useful for the future development of networks are numerous and are far from being held only by the managers of these networks.

Conversely, energy data is a crucial resource for public policies on energy transition, solidarity, mobility, or environmental and health policies, particularly air quality. Network data are also valuable for targeting incentives for the use of energies other than fuel oil, encouraging the development of renewable energy, or identifying priority beneficiaries for energy renovation of housing, one of the principal axes for improving the energy-climate trajectory of the area. This cooperation on data and the mutual interest of this synergy is well illustrated by the common work on finely mapping energy consumption at a local relevant scale—see [Box 1](#).

Box 1. *Focus on urban morphological blocks.*

In 2017, cooperation began aiming at combining the requirements of statistical confidentiality and personal data protection with the need for detailed knowledge of energy consumption according to the characteristics of the buildings. A partnership was formed between the urban planning agency (Audiar), Rennes Métropole, Enedis, and GRDF to test the projection of energy data on homogeneous urban blocks. Based on data from different sources, Audiar has created a typology of 20 urban morphological blocks (IMU) according to their primary use (residential, activity, public services, etc.) and their physical characteristics (volumes, height, semi-detached buildings, year of construction, etc.). Thus, a distinction is made between blocks made mainly of town center apartment blocks with shops, those with a majority of townhouses aligned with the street, individual housing in agricultural or natural areas, and office buildings, artisanal and industrial zones.

Such a typology offers a fine-tuned approach to the territory, combining “field” and statistical knowledge, used to project accurate data concerning phenomena such as soil sealing or the effects of urban heat islands. This partition allows energy distributors to deliver aggregated data compatible with their obligations and more relevant than standard data on territorial divisions that are not well adapted to the morphological characteristics of the urban fabric. These blocks also make it possible to project theoretical data calculated from consumption averages while respecting statistical confidentiality (personal data and commercially sensitive information). The resulting mapping provides more detailed data than the publication of standard data by energy distributors would allow and opens the way to targeted public policy interventions for the energy renovation of housing or the fight against energy poverty. The recognition of this mutual interest in data sharing was the basis for the development from 2016 to 2017 of close partnerships centered on data access with the network managers, Enedis and GRDF in a context of increasing cooperation evocated above.

2.3. Data collaborations in the energy sector at a local level

The data collaborations with energy network operators at the local level are characterized by a shared awareness of the challenge of making better use of data possibly produced by other actors and subsequently by voluntarism, commitment, and the ability to invest time and energy in experimenting. As an illustration of this mindset, several ad hoc agreements have been settled between the energy distributors and Rennes Métropole since 2016, and they have together undertaken the coconstruction of a common reference framework (cf. [Box 1](#)) as well as explored the elaboration of a data sharing structure, all of it under an experimental approach.

In November 2017, a framework agreement on data exchange was signed between Enedis and Rennes Métropole, aiming at making data transmission procedures more flexible and ensuring joint monitoring of data needs. This first agreement was followed in 2021 by experimental agreements on the communication of data on D + 2 and the delivery of data at the scale of urban morphological blocks.

Beyond the bilateral framework, in 2018, GRDF and Enedis both joined the partnership around the launch of a Metropolitan Public Data Service, an experimental project led by Rennes Métropole and financially supported by the government, which aims at testing the technical, economic, and legal and governance conditions for multi-stakeholder territorial data sharing, including energy data sharing. GRDF and Enedis are primarily interested in energy issues and mobility data (H. Duval and N. Viel, personal communication, December 10, 2021).

This first experience led them to take part, as active members, in the consortium initiated in 2020 to prototype a territorial data sharing portal, Rudi, a project supported by the European Union within the framework of the “Urban Innovative Action” initiative.

3. Case Study: Culture

Culture plays an important role in the Brittany Region, especially in its regional capital, Rennes. In 2017, there were more than 19,000 establishments in the cultural sector of Brittany, nearly 70% of which were primarily involved in artistic creation. The industry represents 22,000 jobs, of which more than a third are located in the Rennes area of employment.

Rennes Métropole—the local public authority—allocates an annual budget of €35 million (operating costs) to the cultural sector. €20 million are dedicated each year to the 11 cultural facilities and €15 million to support the actors of creation and diffusion (supporting the structures under agreement, accompanying the professionals, and providing premises and facilities).

3.1. Market structure and relations to the local public authority

The cultural sector brings together a wide variety of players, which differ in size, activity, and funding methods. However, each constitutes an element of a cultural ecosystem.

The public facilities (museums, cultural spaces, libraries, Opera) are the first direct beneficiaries of the budget devoted to culture by Rennes Métropole (€20 million). The “Champs Libres” equipment is the most emblematic cultural facility of the metropolitan cultural policy.

Rennes also hosts many festivals run by associations or private organizations. Some, such as the Transmusicales de Rennes (up to 50,000 participants each year), have a national or international reputation. These first two categories of actors should not mask the fact that the cultural scene is, above all, made up of many small-scale actors, especially in artistic creation.

The local public authority can intervene to support the actors of the cultural sector either directly (through the culture budget) or indirectly (for instance, by offering public spaces or supporting access to culture for underprivileged people). The local public authority does not act as a “principal” unlike other public policies—for example, transport or waste management. Delegation contracts or performance indicators do not govern relationships (C. Poulain, personal communication, December 14, 2021).

However, the local public authority has not abandoned all steering capacity. First of all, it intervenes in the appointment of the executives of public facilities under public control, which plays a significant role in driving the sector. Some of the actors interviewed prefer “negotiated piloting” or even “coconstruction” to define the relationship between the public authority and the ecosystem. The local authority does not impose esthetic criteria on the content produced and describes itself more readily as a “supporter” of local cultural life. Cultural policy is also linked to other issues, particularly influence and attractiveness.

3.2. The role of data for the local cultural sector

Traditionally, the cultural sector is not data intensive. Data collection and exploitation are not among the key success factors for many actors. Cultural activity generates limited data, compared to energy production and distribution, for example.

Why do data play a limited role? We put forward several hypotheses: the first is a lack of familiarity with data from cultural actors and a lack of internal skills. The second hypothesis is linked to the relative scarcity of the data produced. These two hypotheses are not mutually exclusive: because the data are not very present, they remain foreign to many actors. Finally, there is a reluctance to consider cultural activity from a purely quantitative angle. This approach does not allow for the inclusion of all the benefits linked to the vitality of cultural life (individual and collective well-being, contribution to democratic life).

The online presence development represents a rupture with previous practices, which were not very data-based. From now on, the managers of cultural facilities have a much more quantitative vision in the form of metrics related to website traffic and performance on social networks (G. Rouan, personal communication, December 7, 2021).

These metrics also accompany the development, since 2020, of a web strategy that takes up the ecosystemic approach mentioned above and includes a series of application programming interfaces (APIs). This revised strategy aims to disseminate information and content over many channels (institutional

websites, local press, social networks, etc.) and encourage conversation around this cultural content (C. Chanas, personal communication, December 14, 2021; [Box 2](#)).

3.3. *Data collaborations in the cultural field*

The structure and the relations shaping the cultural sector induce a particular type of data cooperation, less structured and more demanding on a coordinator acting as a data intermediary than in the energy sector. In this respect, the experience of cultural data sharing in Montreal highlights that a sector more coordinated (around the Montreal Quartier des spectacles Partnership,¹ gathering more than 80 members) and more aware of its common interests in cooperating can perhaps more easily engage in data-sharing practices, with the help of a data managing supplier, here Synapse C, a nonprofit organization acting as a sectoral data intermediary, proposing to “decrypt and add value to data.” In Rennes, the data collaborations in the cultural fields focus on open data and attempt to define a standard and aggregate data from multiple sources.

4. Discussion

Based on the analysis of data collaborations in the energy and cultural sectors, we aim to answer the research question by discussing the commonalities and differences between these two sectors, synthesizing five different modalities of data collaborations, and finally understanding how power dynamics shape data sharing at the local level.

4.1. *Commonalities and differences between the energy and cultural sectors*

4.1.1. *Market structures*

The energy market structure can be described as a monopoly or, at least, a duopoly. One actor, Enedis, is in charge of electricity distribution, GRDF being, in that respect, in charge of natural gas distribution. This market structure is generally observed in markets with strong network effects, and the energy distribution sector makes no exception.

On the contrary, the cultural sector brings together a wide variety of players, which differ in size, activity, and funding methods. However, each constitutes an element of a cultural ecosystem.

4.1.2. *Power dynamics*

The energy and culture sectors are very distinct from the point of view of the relations maintained between the local public actor and the private sector actors. The nature of these relationships is characterized by a set of factors including proximity, frequency, and intensity of exchanges, the level of dependence or interdependence, the time horizon of the relationship (more or less long term), or the number of actors involved in the relationship.

According to this analysis, the energy sector is characterized by high-intensity relations between a small number of (mostly national) major players and the local public authority. The time horizon is long (not less than a decade): investment decisions in energy distribution infrastructures are structuring for a territory and require significant capital resources. Similarly, the day-to-day management of these infrastructures requires strong and frequent interactions with the actors of the territory, and first and foremost the local authority.

In contrast, the relationship between the public authority and the cultural actors is very different. Compared to the energy sector, the exchanges between them and the local public authority are of much lower intensity. Except for the management of cultural facilities under direct public control, investment decisions are less structuring and concern shorter time horizons.

¹ <https://www.quartierdesspectacles.com/en/about/qds-partnership/>.

Box 2. *Focus on cultural events data.*

A proposal, a place, a date: reduced to their simplest expression, cultural events data (agenda data) can be described according to this triad. The proposal can be a concert, an exhibition, a play, or any other cultural event. The venue may be a public or private facility or even on a public highway. Finally, the date can be more or less precise (a specific time for a show, a period of a few weeks for temporary exhibitions). The cultural programme is widely communicated, both online and offline, primarily to attract audiences. It is also often one of the elements of the “signature” of a cultural venue or facility. Many actors are involved in the data value chain. The primary “producers” of the data are the venues, for example, the manager of a concert hall.

Venues are then required to “enter” this cultural agenda data for dissemination in multiple media to give their programming greater visibility. The data will be shared with different players: local authorities, local press, events guides, free magazines, and even specialized blogs. This multitude of distribution channels is also reflected in the absence of a standardized format for describing a cultural event. Taken individually, no cultural actor has the necessary weight to claim to impose its description, its standard.

The issue of the cultural agenda in Rennes has been the subject of several initiatives and collaborations between local actors since 2010 when Rennes Métropole decided to outsource the production of the events calendar to the leading regional press group Ouest-France. To manage this mass of information, the daily newspaper has designed a tool for collecting event data under the name Infocale. The terms of the agreement between Rennes Métropole and Ouest-France stipulate that organizers must enter their agenda data via Infocale if they want the information to be included in the local authority’s paper (and then digital) media, as well as in the newspaper Ouest-France. When Rennes Métropole set up the partnership, the local press was still an essential source of visibility for event organizers.

In 2013, several local cultural actors noted that culture was largely absent from the Rennes Métropole’s open data initiative, which had been launched nearly 2 years earlier. A working group, initiated by the Champs Libres team, then met to identify the data sets likely to be opened in open data. About 10 cultural structures took part in this discussion.

Participants paid particular attention to the agenda data: first, it is the “lowest common denominator” of all the participating structures, regardless of their respective fields of activity. The other element on which there was consensus was dissatisfaction with the need for multiple entries of the same information: on their site, on the Infocale tool, and in other media. The participants discussed creating a shared agenda, allowing more extensive dissemination of event data.

As early as 2014, the cultural actors raised the issue of the governance of calendar data. The project was gradually abandoned for two main reasons. The first is the difficulty in determining a standard for calendar data within the working group, that is, adopting a common and shared way of describing a cultural event. For example, “young audience”: most local cultural actors organize events for young people. However, the definition of a young audience varies significantly from one cultural player to another: under 6 years old, under 15 years old, and so forth. We can also assume that the actors who “produce” the data failed in adopting a common standard because none of them was in a position to impose it on the others (unlike the actors involved in the dissemination of information, primarily the local press) and that the local authority did not wish to act as referee or leader of the process.

The other reason for the gradual abandonment of the project is the change in the positioning of the Ouest-France Group itself. In 2015, Ouest-France decided to open up Infocale data. One of the complaints against the press group (the impossibility of recovering and reusing the data collected) is no longer relevant. The data on the cultural agenda of Rennes Métropole is published on several open data platforms. The availability of an open data stream also leads to new collaborations: the urban public transport network (managed by the operator Keolis) disseminates some of this data in the area by associating a bus stop with the cultural happenings nearby. In 2021, Rennes Métropole announced its wish to regain control of the agenda data and no longer depend on the technical, editorial, and organizational choices of the data intermediary Infocale.

Micheli et al., (2020) understand governance as “the power relations between all the actors affected by, or having an effect on, the way data is accessed, controlled, shared and used, the various socio-technical arrangements set in place to generate value from data, and how such value is redistributed between actors” (Micheli et al., 2020). In that respect, the energy sector is characterized by the role of energy distributors as gatekeepers to energy data, even though national and international legislation push for opening up energy consumption data. Beyond legally opened data, the local public authority is able to access more specific data through ad hoc agreements. Still, the energy distributors are the ones mastering how energy data is collected, transformed, anonymized, and aggregated. Value is derived from data at different levels: at a micro level, energy distributors are able to reduce costs, but at the macro-level, exchange of data between energy distributors and the local public authority contributes to piloting the ecological transition according to a reciprocity principle. By contrast, data sharing in the cultural sector is scarce and the governance goals differ between actors, depending on their status (public or private) and their size.

Avelino (2021) introduces a typology of power dynamics between organizations. This typology is based on the nature of power, declined in three modalities: power over, power to, and power with. “Power over” is the ability of organization A to exercise power on organization B. “Power to” describes the capabilities of an organization (independently of its relations to other organizations), and “power with” is related to the collaborative exercise of power. According to this typology, the power dynamics between the energy distributor (A) and the local public authority (B) can be qualified by mutual dependance: A depends on B but B also depends on A. In that sense, A and B have reciprocal power over each other (Avelino, 2021). The data collaborations between Enedis and Rennes Metropole are defined on a contractual basis. Still, the exchange of data—on multiple forms and for multiple purposes—can be seen as accompanying the shifting role of Enedis from a mere concessionaire to a committed partner when it comes to energy policy at the local level.

The power dynamics between cultural actors and with the local public authority can be defined as coexistence: Rennes Metropole acts as a facilitator rather than a leader, as such the local public authority exercises more power than most of the smaller size cultural actors, still they have independent coexisting goals (Avelino, 2021).

Energy and culture are only two of a large set of policies that a local public authority has to deal with. This paper does not detail the collaborations in other sectors, such as mobility, water supply, education, or social services that happened during this decade. Still, one should note that the energy and culture sectors can be seen as archetypes of two very different settings. The first one (energy) is representative of both the market structure and power dynamics of what are usually named utilities (public transportation, waste management, water, and energy distribution). The second one (culture) is representative of many public policies (such as social services) where numbers of actors can act and deliver services.

4.2. Five modalities of data collaborations

How do these different power dynamics shape data sharing and collaboration at the local level? In this paper, we identify five main types of data collaborations experimented in the past 10 years in Rennes, each of which has proved to be more appropriate to one or other of the two sectors studied here:

- a. open data, on the basis of legal obligations or voluntary,
 - b. data sharing and provisioning ad hoc agreements,
 - c. the coconstruction of a common reference framework,
 - d. the collaborative design of a data standard, and
 - e. the aggregation and distribution by a single actor of data from multiple sources.
- a. The territory of Rennes is one of France’s pioneers of open data. This has clearly been a driving force in the development of local collaborations around data, especially in the first years of the

period (2010–2016). It also greatly contributed to fostering a shared culture on the importance of data for the territory. But open data, as a mode of governance, is relatively agnostic of the preexisting relationship between the actors. Open data is freely reusable by any actor, independently of its size, its activity, or its localization on the territory. Data producers, for instance in the energy sectors, are obliged by the French law to open consumption data at an aggregated level similar for every territory in the country. As such, open data can be characterized as a “one-to-many” relationship, where the reusers of the data are not clearly and individually named or even defined.

- b. Conversely, we observed a growing interest for data sharing and provisioning agreements between private sector actors and the local authority (Micheli, 2020). These agreements are used to deal with data protected by industrial and commercial secrets. Our hypothesis is that this form of collaboration is typical of high-intensity and long-term relationships between actors, as seen in the energy sector. Ad hoc agreements are relatively costly and time-consuming to set up, especially when the subject itself is perceived as new by the parties and that the legal framework gives plenty of room for discussion and interpretation. As such these agreements are designed as part of experimentation and must be seen more as prototypes than definitive agreements. These agreements can foster reciprocity, a characteristic of mutual data governance (Micheli et al., 2020).
- c. The coconstruction of a common reference framework, such as the Morphological Urban Blocks (Îlots Morphologiques Urbains) entails a high level of collaboration between the local authority and the private sector actors. They must share a strong incentive to invest time and money into the design of such a new data product. This goes beyond sharing data (as in the two previous modes of collaboration). It also implies a good knowledge of the constraints of each stakeholder and sharing a common goal. To be manageable, the coconstruction of a common reference framework should only involve a small number of actors. Unsurprisingly, this modality took place in Rennes between actors that are mutually dependent.
- d. Designing a data standard is a key activity in the data economy, as illustrated in many different industries—see for instance the importance of the General Transit Feed Specification in the mobility sector (Google, 2023). As we observed in 2013–2014, local cultural actors failed to design a data standard to describe cultural events listings and were obliged to use the standard defined by the local media Ouest-France. Our research shows that building a common reference framework, or designing a data standard requires a strong coordination between actors and/or a leadership from an incumbent. It also mandates a shared and mutually agreed governance goal (Micheli et al., 2020). In the cultural sector, the local public authority lacked the incentive to invest time and money in defining its own standard or to coordinate the initiative by the local actors. Furthermore, one can argue that the local level may not be the most appropriate level to design a data standard, at least compared to the national or international level, one key factor of the success of a data standard being its adoption at a larger scale.
- e. The aggregation (and distribution) of data from multiple sources is the fifth mode of data collaboration we identified, in line with the concept of data-sharing pools (Micheli et al., 2020). From 2014 to 2021, the local media Ouest-France was de facto the cultural listings data aggregator and main distributor. It acted as a data intermediary. The (relatively) high number of cultural actors, their coexistence, and their low level of coordination favored the local media in this position. This also raises the question of the neutrality of data intermediaries: Ouest-France is not a neutral actor in a sense that it directly uses some of the data collected to fuel its own print and online publications. Therefore it can be tempting to reduce the likelihood of competition by other publishers, for instance by introducing time-limited exclusivity or specific data licenses which forbid commercial reuses of the data. This raises the question of potential conflict of interest and reinforces the need for neutral actors, as expressed in the Data governance act (European Union, 2022).

4.3. *The influence of the European and national legislative frameworks on data collaboration at the local level*

The data practices are intertwined with the regulatory frameworks in which they exist (Micheli et al., 2020). Appropriate legal frameworks can sustain data initiatives such as the ones detailed in this paper.

France has adopted a legal framework to facilitate data sharing in the past 7 years. For instance, since the adoption of the law on Energy Transition and Green Growth in 2015, it has been mandatory for energy distributors to publish local energy consumption data in open data. The law for a Digital Republic (2016) also introduces the ability for a public authority to get access to data needed to evaluate the performance of a contract awarded to a private actor. Still, Rennes Métropole's experience demonstrates that this legal framework needs to be translated operationally at the local level in a redefined urban governance (Courmont and Le Galès, 2019).

The European Strategy for Data (European Commission, 2020) and its implementation give a legal basis to a series of concepts that could be highly relevant for a local public authority. The introduction of a B2G data-sharing mechanism in the Data governance act (European Union, 2022) could facilitate the negotiation on access to privately held data. Still, it is unclear how this mechanism would have been concretely and directly applied in the situations described in this paper. Our hypothesis is that the mere existence of a legal framework for B2G data sharing would reduce the time needed to reach an agreement with the energy providers. The data intermediaries mentioned in the Data Governance Act offer a new perspective on the role that local public authorities could play. But, once again, there are still uncertainties about how municipalities could practically use this framework and what it really takes to be legally considered as a data intermediary.

The experience of Rennes Métropole shows that a legal framework is necessary for actors to open up datasets, broaden their scope, and improve the quality and accessibility of data, in cooperation with final users. At the same time, it stresses that this framework is insufficient to give rise to operational translations and practical data sharing useful for all stakeholders. When it exists, it is a definite help, which, by providing obligations, brings the stakeholders right into the subject of data sharing and obliges everyone to experiment, test, give feedback, and thus progress in the understanding and use of the available data, under the scrutiny and observation of the national or international players (regulatory authorities, State representatives, companies national corporate governance, European regulations). Where there is no sector-specific legal framework, as with cultural data, it leaves local actors to define ad hoc data sharing frameworks, which is more costly in coordination and resources invested.

In both cases, working together on the data, and scrutinizing how it is produced and used by third parties, is essential. Without these local collaborations on data, data sharing may remain wishful thinking and data-driven innovations a dead letter.

5. Conclusions and Recommendations for Data Collaborations at the Local Level

Following the analysis of challenges and lessons learnt, we propose the following overarching conclusions.

The territory is the point of convergence of several different and sometimes contradictory dynamics. Local public authorities have to deal with a wide range of public policies, from energy to housing, education, health, and mobility, to name a few. Each of these sectors has its market structure and power dynamics. Hence the need for public actors to adapt their data governance and sharing approach to each industry. As such, one should see data governance at the local level as the articulation of different sectoral data governance.

Local public authorities have a role to play. They can contribute to setting up the infrastructure and institutions enabling data sharing among local actors, including inhabitants, as illustrated by the development of the Rudi (Rennes Urban Data Interface) project, cofinanced by the European program UIA. There is a growing interest among local governments in the role of "local data intermediary" (UK Centre for Data Ethics and Innovation, 2022). Still, the role of "data intermediary," as defined in the Data governance act (European Union, 2022), mandates a high level of neutrality, which is not always the case for the public actor in several different sectors where its public interventions are direct. Moreover, the local public authority could be a direct beneficiary of the use and the data it helps share and can also be

seen as a provider and producer of some of the data. Our research suggests that there is room for defining a new kind of data intermediary locally and with a nonprofit focus.

The key success factors for data collaborations at the local level are the strategic alignment between actors, an incitative legal and regulatory framework, and a willingness to engage in the process of experimentation and trial and error. As such, data collaborations also depend on the overall level of trust, which is gradually built up over the long term through successive experiences and projects and can be underpinned by bilateral or multilateral agreements.

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