GLOSSARY ENTRY

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Data commons

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Abstract: Data commons is an often-used but also ambiguous notion, and aspires to connect the complex notion of 'data' with that of the 'commons' — a concept with an equally variable and contested meaning. This entry collects and connects several recent contributions to discussions on data commons as a means to foreground several important community-related themes. We take this discursive move to be important because the adjective 'data' has the tendency to transform social, communal, and political problems into technological ones that result in confusions between means and ends that endanger the viability of the commons. We discuss four themes that help to re-prioritise community-related interests and problems over their technological solutions. We discuss a data commons relationship to itself (1), its relationship to other commons (2), to capitalism (3), and sustainability (4). We structure the literature on data commons to contextualise, historicise, and politicise data commons, and ultimately understand them as ways of living together (with data) rather than as instruments to manage data.

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Definition

Short version:
Data commons are communities that collectively and sustainably govern data and their relationships.

Expanded version: Data commons are communities that collectively and sustainably govern data and their relationships. This definition emphasises the relationships and interdependencies between groups, the data that are in some way related to the group, and the various types of activities involved. This implies that sustainability relates not only to the data but also to the community involved in their governance.

1. Introduction

Many technology and data scholars have been emphasising the importance of understanding data-related problems and solutions on more-than-individual levels, as exemplified by the growing interest in commons-based data governance models (e.g. Floridi, 2017).

Data commons can be conceptualised in various ways (Fia, 2021). Some data commons renderings draw from economics (e.g. Elinor Ostrom; Wong et al., 2022; Zygmuntowski et al., 2021). Others present legal and institutional interpretations of the data commons (Madison, 2020). Within urban studies, researchers concern themselves with 'urban data commons' (e.g. Calzada et al., 2023; De Lange, 2021). 'Critical' and Marxist scholars come up with anti-capitalist versions (Broumas, 2020; Lijster, 2022). The majority of the contributions to the debate are situated within EU policy discussions and presuppose that some form of collective management, and governance of goods like data and knowledge, will result in all sorts of societal benefits (e.g. Micheli et al., 2020; Zygmuntowski et al., 2021; Micheli et al., 2023).

This entry draws attention to several underlying themes that remain under-discussed in the data, policy, and tech-oriented data commons debates. By doing so, it helps to structure the literature and to contextualise, historicise and politicise the idea(l) of data commons. Subsequently, this entry aspires to clarify the extent to

which data commons could deliver on some of its associated hopes (Hicks, 2023). We cannot nor do we claim to be exhaustive here in our engagement with the data commons literature. We also do not discuss the relationship between data commons and the law.

We use the following working definition of data commons: data commons are communities that collectively and sustainably govern data and their relationships.[1] This definition emphasises the relationship and interdependencies between groups, the data that are in some way related to the group, and the various types of activities involved. This implies that sustainability relates not only to the data, but also to the community involved in their governance. This definition is sufficiently broad to capture both more economics-based understandings of the commons, and less resource-oriented ones to be found in other fields and disciplines. Furthermore, it allows for a specification of its key constitutive elements — 'community', 'sustainably' — and thus potentially excludes proposals from its scope when they appear to be unsustainable, such as those that focus primarily on the sharing of data for data's sake (Bodó, 2019).

2. Communities: From thin to thick...

The first theme to discuss is that of the kinds of community presupposed in data commons proposals. Following the different data commons debates, there are various ways to understand the communities that govern data. Economics-oriented theorists understand the commons as a group of individuals seeking to rationally solve collective-action problems, what we hereby refer to as a 'thin' conception of the commons (Dardot & Laval, 2015/2019, p. 92; Madison, 2020).[2] For example, the 'shared server model' proposal to govern in-vehicle data was prompted as a possible option to allow individual businesses to get access to the data they respectively need (Ducuing, 2020).

For others, the commons have to do with communities that are not only able to solve a problem, but also share languages, moral-political beliefs, cultural traits and understandings, and have a direct and unmediated relationship for a longer period of time. This illustrates a 'thicker' understanding of the commons.[3]For ex-

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1. We draw here from Dulong de Rosnay and Stalder's (2020) description of 'digital commons' that they borrowed from De Angelis (see De Angelis, 2017; Dulong de Rosnay & Stalder, 2020).

2. See on the thin-thick distinction e.g. Dotson, 2017.

3. See this interesting debate between Ostrom and Singleton & Taylor (Ostrom, 1992; Singleton & Taylor, 1992). On the difference between economic and sociological understandings of the problem of the commons, see this short and very helpful contribution by Wright (2008).

ample, indigenous data sovereignty movements all over the globe are concerned with problems that have to do with them as communities rather than participants in a data-sharing ecosystem (Walter et al., 2020). The kind of community engaged in forms of data commoning, thus, interrelates with the identification of the specific problem at stake.

For this reason, it is important to reflect on what kind of community one presupposes when discussing data commons as governance solutions, although it bears mentioning that the "thin and thick" communities are not mutually exclusive categories.

First, thin conceptions of data commons may be tempted to be agnostic to the nature of individuals and communities in charge of data governance. This implies that such proposals and models can and should be implemented by everyone and everywhere. In contrast, 'thick' understandings of communities put pressure on the universalising tendencies of such data governance frameworks (Birhane, 2021; Hicks, 2023). It matters not only *what* kind of data commons model is implemented, but *how* the governance mechanisms are chosen and by *whom*. From a thicker understanding of community, the making of data commons necessitates recognising, acknowledging, and processing the sociopolitical tensions existing between top-down policy models and bottom-up governance practices (see Graeber, 2004, p. 9).

Second, and relatedly, thin conceptions of data commons may mis-recognise the character of the harms caused by certain data-related practices. Trying to satisfy the preferences of individual participants of a data governance initiative tackles, arguably, a different type of harm than the mitigation of data-related harms done to a community considered as a whole, which are more collective or societal in nature (Smuha, 2021).

Whether the community should be approached from a thin or thick perspective also impacts on the normative question of whether and under which conditions data commons should or should not scale up, and based on which criteria, as the following section shows.

3. ...And from inside to outside

The next set of questions deals with how data commons could relate to both themselves and other communities. This is under-addressed, with data commons being mainly discussed as isolated constructs and with little attention paid to how

they relate to other communities and, in particular, how it impacts their success. It is helpful here to distinguish between intra-community-related questions — e.g. what rules govern the community itself? — and inter-community-related questions — what rules govern the interactions between communities? For both sets of questions, it is important to consider the extent to which the concerned communities are autonomous or independent.

Intra-community issues relate to the degree of autonomy that communities have. Put differently, they serve as a benchmark to gauge the interactions of community members in a community. To illustrate, members of a data commons can be afforded more or less constraints as to how and whether they can relate to the data commons itself in terms of participation and collective governance. A recent interesting example in this respect is the Governing the Knowledge Commons (GKC) framework developed by institutionalist legal scholars (Frischmann et al., 2014). The GKC framework is relatively agnostic to the kind of norms a knowledge or data commons devises. Madison, for instance, writes that "the role of the collective is largely to define its own governance system relative to dilemmas associated with specified resources, producing a form of institutional governance in context" (Madison, 2020, p. 37). In other words, data commons should have a lot of freedom to determine their intra-community-related rules.

Inter-community matters pertain to rules affecting the relationships *between* different communities. A helpful contrast to GKC are the aforementioned indigenous data sovereignty movements. These explicitly connect themselves to one another in their decolonial struggles and use community-transcending frameworks to increase their independence from settler states. Similarly, critical, socialist, or Marxist (data) commons proposals explicate the mutual dependence of individual (data) commons initiatives. Everyone is implicated in the struggle against capitalism, and it is both ineffective and too self-centred to hide behind the rules that merely govern one's own data governance arrangement.[4]

How one draws the boundaries of the data commons is thus a contentious matter that deserves thorough reflection on the commoners' end. While commons are inherently 'local',[5] commoners may want to scale up to ensure the autonomy and sustainability of the commons vis-à-vis the outside world. The technological na-

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4. This is a common criticism on the 'liberal' character of Ostromian types of the commons (Dardot & Laval, 2015/2019, p. 102). Lijster claims that everyone who's exploited (should) belong to the common (Lijster, 2022, pp. 192–193).

5. The care that should be given to the local conditions constitutes one of the eight 'design principles' identified by Ostrom for commons (Ostrom, 1990, pp. 90–102).

ture of data implies that technology, mainly discussed in the field of blockchain, may be leveraged to that aim (Fritsch et al., 2021). However, in light of the above, questions about how commons should organise themselves and their relationship with other communities and actors will always be in need of sustainable answers.

4. Data commons and capitalism

Although not always explicitly acknowledged in the literature, the relationship between commons and more structural problems such as capitalism is complicated, which warrants its inclusion into this glossary as the third theme to discuss.

Data capitalism is "a system in which the commoditization of our data enables a redistribution of power in the information age" (West, 2019, p. 23) through the transforming of relationships into objects (Graeber, 2001, pp. 8–9; Lijster, 2022, p. 108). This data commodification process enables, then, data relocation and (re)use by a large and diffuse number of actors. Since data commons are often depicted as alternatives to how power relations are distributed in digital economies, it is worth reflecting on what it would mean to treat data in such a way that one does not contribute to and reinforce the problems one tries to solve. In this light, we take the distinction between use-value and exchange-value to be a helpful tool to evaluate types of data commons.[6]

Exchange-value refers to the evaluation of (in this case) data primarily based on the (most of the time, monetary) price someone wants to pay for them in exchange relationships. Relationships of exchange are about 'equivalence' and commensurability: two (or more) parties have an interest in a particular good or commodity (e.g. data) and negotiate about who is willing to give the best price for the concerned good (Graeber, 2011). In short, we can grasp exchange-value in terms of its quantitative salience (Hermann, 2021, p. 123). In exchange relationships, both parties are assumed to be equal, and rarely does it matter who does the buying, or respectively the selling — exchange relationships are impersonal (Graeber, 2011, p. 103). The impersonal character of exchanges is reinforced by the fact that exchanges end: afterward, "both parties can walk away and have nothing further to do with each other" (Graeber, 2011, p. 122). The exchange, and in particular the price paid in exchange for the thing (i.e. the data) exhausts and thus determines the character of the relationship.

6. We are aware that the use/exchange-value distinction reduces the problem to be dealt with to a potentially reductionist binary one. See the work of Tamar Sharon for a more 'pluralistic' approach towards these problems (Sharon, 2021).

The emphasis placed on the quantitative salience is visible with the promotion, by the Organization for Economic Co-operation and Development (OECD), of data commons as 'open data', with the expectation that more data exchange will generate more economic value. Such data sharing is thus geared towards the 'domination' of the exchange-value (i.e. increased GDP as a result of 'more data' available) over the use-value of data, namely to a significant extent irrespective of the purpose of the use (OECD, 2015, 2019). Another example of more exchange-oriented forms of data governance are data cooperatives that operate as enablers for Internet of Things (IoT) data sharing between small and medium-sized enterprises (SMEs) (Baars et al., 2021).

Use-value refers to how things, such as data, can be of use for the projects people themselves are involved in. The acquisition of a use-value of data is accompanied by different types of relationships for which "it is impossible to tell if one use value is greater than another" (Hermann, 2021, p. 123). For Graeber, for instance, non-exchange based relationships can be characterised as forms of 'baseline communism' (Graeber, 2011, p. 98) where those involved take the following principles as the minimal moral baseline: "from each according to their abilities, to each according to their needs" (Graeber, 2011, p. 94). In such relationships, people work together not because they expect something in return (i.e. a 'price') but because of their involvement in a common project for which it is important that it does not come to an end. The commons as the "collective administration of common resources" are listed as exemplary (Graeber, 2011, p. 100). Think, for example, of forms of data activism (D'Ignazio & Klein, 2020) or, once more, indigenous data sovereignty movements, where data is instrumental to the existence of indigenous communities. A last example here are (informal) urban data communities that form around problems associated with the lack of sufficient data sharing to address specific societal issues. To address them, they engage in *commoning* practices to collect and use data for the purposes that citizens deem important to the collective interest of the community (de Lange, pp. 77-79).

Transporting the use/exchange-value distinction and the associated relationships to the context of data governance sheds a different light on data commons. If, for instance, a data commons initiative is primarily couched into the logics of data sharing and exchange, it is worth asking if this way of relating and valuing data can address data capitalist practices. By contrast, data commons initiatives premised on the direct use of data sets for a concrete community-related goal could potentially slow down, and perhaps even reduce the problematic implications of data commodification.

It becomes, in other words, important to pay special attention to *how* certain uses of data interrelate with certain relationships and communities, as a means to make sure that one does not merely replicate the commodification-premised status quo.

5. Data commons and sustainability

The fourth theme to discuss — that of sustainability — is an issue brought up in many discussions on the commons, but it has surprisingly played a minor role concerning data commons, and when it does, its meanings remain ambiguous.

A first form of sustainability present in both old and more recent writings on commons concerns the sustainable provision of resources. Translated to data, so-called 'naturalist' interpretations focus on the sustainable provision of data as a means to further societal goals (Purtova & Van Maanen, 2023).[7] A limitation of this understanding of sustainability, however, is that it ignores the infrastructures and ecosystems on which those data depend. In their discussion of scientific commons, Hess and Ostrom sketch the 'ecological makeup of scholarly information', which back then consisted of books, libraries, ideas, and readers, but which became prone to loss of quality after the emergence of scientific publishers and their paywalls (Hess & Ostrom, 2006). The sustainability of the commons, in other words, depends on more than the mere availability of a resource 'unit' (such as data), and has to do with the characteristics of the resource system in which it can be found. The identification and analysis of these systems is thus a key characteristic of such a 'broader' understanding of sustainability. This has, for instance, been discussed in the context of data hoarding by online platforms whereby individuals constitute the human livestock (Purtova, 2017), and in the context of 'smart farming' whereby the resource, seemingly encapsulated with 'data', is actually also the farm, the soils, the seeds, etc. to which data relate (Baarbé et al., 2019). In the data realm, sustainability is thus not only a question of proper provision and access but concerns the broader data ecosystem, and as such is more in line with Ostrom's focus on resource *systems*.

Secondly, questions of sustainability are also connected to community questions (see section 2). For example, in which conditions can the community sustain itself in a context of pervasive data commodification driven by large data players? A dimension to reflect on, among many others, is whether the 'mono-purpose' character of many digital and data commons supplies communities with sufficient rea-

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7. At times, Ostrom herself can be read as advocating for such an approach though she makes clear CPR's are concerned with resource systems rather than mere resources.

sons to work together for a longer period of time (De Moor, 2019).

Lastly, sustainability can be approached from an explicitly ecological and environmental concern of data-production and processing in general (Brodie, 2023), and data commons specifically (e.g. Bollier & Helfrich, 2019). One possible way of approaching this issue is through the application of the use/exchange-value distinction. On the macro level, prioritising the exchange value contributes to the 'more data' motto in unsustainable ways. By contrast, prioritising use value in view of local needs may, at least, limit data to actual needs and purposes. This raises the question of whether the sustainability of resource-provision is proportional to the last ecology-focused dimension of sustainability. The importance of this inquiry requires every data commons initiative to reflect on their own inter-community relationships and impact, which subsequently reinforces the findings that (data) commons may hardly be approached as isolated constructs (see Section 2), and that one cannot and should not 'common' alone.

6. Conclusion

The very first sentence of Mathias Risse's *Political theory of the digital age* states the following: "Political thought explores how we should live together" (Risse, 2023). Throughout this entry, we address various questions concerned with how communities (should) live together in times when data has become, for better or worse, the focus of attention of economic agents, governments, and the public. Questions on data governance are political theoretical questions going far beyond the still too prevalent tendency to presume that it foremost has to do with the moving of data from location A to B and from B to C. It is key to not only think through the different ways in which collective data governance can have good or bad results. More pressing than such 'optimisation' issues, and also more complicated, are analyses of how specific data-related practices change how we go about and understand key concepts on which our communities are built, e.g. community, law, legitimacy, governance, justice, and democracy. Or, in other words: how data-related practices transform how we live together (e.g. Februari, 2023; Hildebrandt, 2021; Maanen, 2023). Data commons, when understood as ways of living together (with data) rather than as instruments to manage data, are well suited to incorporate these questions. Two fundamental questions, however, need to be continuously asked. First, are we interested in the provision of data or the flourishing of our societies? Or what is the 'good' we are actually interested in (Purtova & Maanen, 2023)? Second, for what kind of governance problems are data commons the most appropriate solution, and when is public regulation more appropriate? Not all da-

ta-related problems are best solved 'in common', and it would be a shame if the commons are transformed into the bandaids burdened with the task of fixing public regulation for which others are responsible (cf. Mazzucato, 2023).

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