Open data meets data justice

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Abstract:

Public administrations continue to adopt open data initiatives. These initiatives involve creating, releasing, and re-using data sets on political, social, and economic aspects, which are published in machine-readable, interoperable formats and under open licenses. Yet, many open data initiatives adhering to these 'techno-legal' characteristics do not live up to their promises of enabling 'vision' (i.e., ensuring transparency) and 'voice' (i.e., enabling participation) for citizens, especially when algorithms and AI tools are integrated into the workings of public administrations.

The conceptual framework of 'data justice' might help correct the direction. It addresses issues of 'vision' and 'voice,' focusing on who decides what data is generated, for what purposes, and for whose benefit. In this paper, we extend this framework to public administrations, given that public administrations already incorporate an orientation toward justice in practice, commonly referred to as social equity. Building on research from critical data studies and public administration, we present a conceptual framework called 'open data justice', and illustrate how this framework can be translated in practice by governments to promote justice in their open data initiatives. This contribution is intended to benefit researchers and practitioners seeking to operationalise justice in open data governance, thus reframing the study and practice of open data in public administration.

Keywords: Open Data, Governance, Data Justice, Social Equity, Public Administration

Introduction

The importance of open data for digital governance in public administration continues to take centre stage in academic and policy discourse, as evidenced also by the *Global Digital Compact*, a United Nations' effort to establish a global framework for digital cooperation (Global Digital Compact, 2024). Open data refers to initiatives that involve the creation, release, and (re)use of data sets capturing political, social, and economic information. These data sets are made publicly available in machine-readable, interoperable formats and under open licenses, ensuring accessibility and reusability without restrictions (Davies et al., 2019, p. 9). Typically, governments adopt open data to enhance transparency, foster participation in policy-making, and stimulate business growth (Krishnamurthy & Awazu, 2016). Yet, scholarship from both public administration as well as critical data studies has cautioned against the automatic valourisation of open data. In public administration scholarship, this critique has been neatly summarised by Meijer and colleagues who problematised the promises of open data to grant 'vision' (i.e., informational transparency about the functioning of public administration) and 'voice' (i.e., participation) (Meijer et al., 2012). In critical data studies, this critique is closely tied to the concept of power, emphasising that open data is both produced and utilised within specific power relations (Gray, 2014; Kitchin, 2014; van Maanen, 2023a). Rather than offering 'unmediated' transparency, open data initiatives create selective visibility into

public administrations, shaped by decisions on what data is made open and how (Birchall, 2015; Denis & Goëta, 2014; Hoyng, 2017; van Maanen, 2023a).

Moreover, open data enact selective legibility of populations to the state, reflecting the power dynamics inherent in practices of counting and representation (Milan & Treré, 2020; Stone, 2021). Not all stakeholders can equally influence the design or use of open data: private sector actors are increasingly involved in open data infrastructures (Bates, 2012; Broomfield, 2023), while citizens are left behind, partially due to skill gaps in the re-use of open data (Morelli et al., 2017). Against this backdrop, the integration of algorithmic decision-making and artificial intelligence (AI) into public administration introduces new forms of harm, including the marginalisation of citizens in data-driven reforms (van Zoonen, 2020) and the reinforcement of health disparities for minorities by AI models trained on open data (Röösli et al., 2022).

These issues become even more tangible when considering the ways in which open data practices are vulnerable to ideological reinterpretation. We see this underway in the United States of America, often considered the birthplace of open data (Chignard, 2013). Decisions by governments on what to release as open data, and conversely, what to delete from existing open data sets, are influenced by political ideologies. In the early days of the Trump administration, several open data sets, particularly those related to health and environment, were reportedly altered, suppressed, or removed (Scott, 2025). This included data sets referencing terms such as “diverse”, “LGBTQ”, or “women,” which were seen as politically contentious. Many observers described these actions as data “purges,” carried out in service of a broader ideological campaign against diversity, equity, and inclusion (DEI) initiatives. In response, researchers and advocacy groups raced to archive data sets, likening the effort to preserving a “burning library” (Lucas, 2025).

In this paper, we focus on open data produced and released by governments (also known as open government data)[1] to highlight how such initiatives may inadvertently reinforce exclusion, inequality, or opacity, and to offer a justice-oriented framework for correcting these trends. Two concepts can help us address the complexities involved in ensuring that open data grants both vision and voice: the notion of “data justice” as articulated in critical data studies and the notion of “social equity” that emerged within public administration scholarship. The conceptual framework of data justice has recognised the importance of visibility in data and the ability to shape one’s engagement with data-driven technologies (see Dencik et al., 2022; Taylor, 2017). Data justice frames data-driven harms as injustices, offering responses grounded in a normative commitment to collective human flourishing (Taylor, 2017), and in doing so, can be interpreted as an extension of vision and voice. Similarly, public administration scholarship emphasises justice by recommending the pursuit of fairness in public policies and grounding this pursuit in the

[1] We acknowledge that an increasing share of data relevant to the public interest is generated and controlled by private actors. Emerging efforts—both regulatory and voluntary—seek to promote openness in these domains as well, though they fall outside the core scope of our analysis.

public value of social equity, defined as the fair and just distribution of public resources, opportunities, and treatment (Frederickson, 2010). However, much of the research on the social equity implications of digitalisation – focusing on transparency and representation – has emerged in disciplines beyond public administration (Ruijer et al., 2023).

This theoretical paper argues that the disconnect between critical perspectives on justice in data governance and their practical implications is problematic, as public administration not only holds a normative mandate to pursue social equity but also possesses practical governance tools to address injustices resulting from open data initiatives. To bridge this gap, we seek to foster a dialogue between critical data studies and public administration studies. Building on this dialogue, we advance the concept of 'open data justice', offering both theoretical insights and concrete governance strategies to promote greater ‘vision’ and ‘voice’ in open data practices.

The paper is organised as follows: first, we introduce the concepts of *vision* and *voice* as they emerge in public administration literature. Then, drawing from grey literature as well as academic scholarship, we analyse the salient issues surrounding these two concepts, with a focus on the critical aspects of data generation and collection, data quality and interoperability, actor configurations, and the role of algorithms and AI. We then bridge the literature on data justice with social equity in public administration to create our conceptual framework on open data justice. Finally, we draw from Whetten (1989), to propose a conceptual dialogic framework between data justice and the role of public administrations to ensure social equity, in the context of open data, which can be used to both study open data initiatives as well as implement them. We argue that our framework suitably interprets vision and voice in the current policy landscape for open data, and we offer governance strategies for practitioners as well as future research directions.

Vision and voice as contested ideals in open government data

Transparency and participation are widely considered as two key dimensions of open government and, by extension, open government data (Tai, 2021), and what we can define as the *desiderata* of these initiatives. In public administration literature, these are often conceptualised as *vision* and *voice*, respectively, based on the foundational work by Meijer et al (2012). The vast literature in public administration studies that builds on this framework understands *vision* as information transparency, typically manifested through the open sharing of public sector data (Tai, 2021). *Voice*, in contrast, represents the interactive element of open government, enabling various forms of public participation, with its scope shaped by how democracy and civic engagement are conceptualised (Kempeneer & Wolswinkel, 2023; Tai, 2021). Participation, as a concept, spans a wide spectrum, from monitoring and consultation to decision-making, collaboration, and empowerment to challenge the status quo (Kitchin, 2024, p. 20; Ruijer & Martinius, 2017).

As first hypothesised by Meijer et al. (2012), the relationship between *vision* and *voice* is neither straightforward nor necessarily positive (Kempeneer & Wolswinkel, 2023). Information availability, thus *vision*, can enable more *voice*, as in the case of open government data sharing in the context of the Covid-19 pandemic (McBride et al., 2023). Yet the promise of open government data to grant *voice* through *vision* must be confronted with the realities of knowledge dissemination and cognitive capacity within democratic settings, as provocatively argued by van Maanen (2023b). In reality, not all citizens will be alerted and participate *even if* all public information is shared proactively. However, this has more to do with the functioning of democracy, which assumes unequal interest in *voice*, than with the rationale of open government data. Scholars adopting a different perspective question how to realise the promise of equal *voice*, since open government initiatives do allocate more power to big market players and marginalize vulnerable groups even in initiatives aimed at empowerment through open government data (Broomfield, 2023; Broomfield & Reutter, 2021). Public administration scholars have begun to address these concerns by studying how to make open government data initiatives more inclusive by involving vulnerable groups in decision-making through open government data (Ruijer et al., 2024) or explicitly focusing on the relevance of open government data sets for citizens (Schwoerer, 2022).

Taken together, this literature reflects a shift beyond the initial broad conceptualisations of *vision* and *voice*, as both individual and interconnected concepts. In other words, *vision* and *voice* do not inherently produce societally beneficial outcomes; rather, their promise is shaped by organisational decisions within public administration as well as by broader structural factors. Public administration scholarship, thus, questions whether and how the nature of public information shared and the possibility of participation are to be interpreted as broader democratic issues of power relationships. The question shifts from how open government data can enable vision and voice, to what kinds of vision and voice are possible within contemporary democratic settings, and, in this context, what public administrations ought to do. This nuanced perspective aligns with critical debates in participatory design, science and technology studies (STS), and critical data studies. In the following subsections, building on extant literature in public administration to identify key issues surrounding *vision* and *voice* as examined across these related fields. For the purposes of the discussion, we define *vision* as information transparency, and *voice* as the multi-faceted multi-faceted capacity to hold government accountable, influence decision-making, and collaborate with public institutions.

What does the government ‘see’? Open data generation and open data collection

Open data generation and collection are political in nature. As Scott (1999) argues, data collection is the logical antecedent for a state to shape and maintain authority and control over a population. Data sets then become digital representations of the lives and needs of people, i.e., what the state ‘sees’, which then determines what the state ‘does’ (Bates, 2013; Scott, 1999). Building on the work of Scott, Johnson (2014) developed a theory of information justice that questions the assumption that open government data is

‘universal’, both in the social realities it represents (which we interpret as a critique of *vision*), and in who benefits from it (which we read as a critique of *voice*). Privileged groups are overrepresented, access to data analysis is uneven, and data shape society normatively, setting standards of behaviour, thus impacting whose voices are heard in decision-making.

Today, the political nature of data collection is reflected also in studies that elaborate on how some citizens, often those in a vulnerable position, are invisible, thus not legible to the state when formulating and enacting–public policies (Browne, 2015; Burrell et al., 2024; Giest & Samuels, 2020; Milan & Treré, 2020; Pelizza et al., 2021; Singh & Jackson, 2021). Reasons for invisibility include lack of access to the technology enabling data collection or the choice of escaping tracing by avoiding interaction with occasions of data collection (Ruijer et al., 2023). Milan (2024) notes that governance by data infrastructure supports the shift from traditional data collection methods to modern systems that introduce new forms of invisibility and inequality (see also Williams et al., 2024). One proposed solution to these challenges lies in initiatives that involve citizens in the co-creation of raw open data (Sieber & Johnson, 2015). However, this approach raises several concerns. For instance, do the data contributed by citizens truly reflect the broader citizenry and diverse voices? Are the viewpoints of all social groups (e.g., the elderly, undocumented migrants) considered (Jarke, 2019)? More generally, participation is also suspected to widen inequities between those who can actually contribute to improve services, and those who cannot (Cepiku & Mastrodascio, 2021).

Data collection involves not just the breadth and coverage of data sets but also their relevance to citizens, tying *vision* to societal priorities. As Schwoerer (2022) observed in her study on New York City's open data portal, much of the available data may not address the issues that matter most to the public. This becomes particularly problematic when critical data sets, such as those concerning ecological justice, are unavailable, limiting citizens' agency to engage with pressing social and environmental challenges (Fusi et al., 2023). Beyond mere access, citizens must also have the capabilities to interpret and make sense of open data–a challenge that shifts the focus from technical accessibility to issues of data literacy (Löfgren & Webster, 2020). Without both relevant data and the skills to interpret it, the promise of open government data to empower citizens and enhance transparency remains unfulfilled.

Various emerging governance strategies aim to provide meaningful access to open data, addressing challenges in data collection and access that extend beyond technical issues. One example is the hackathon, a portmanteau of ‘hacking’ and ‘marathon’, which refers to time-limited events where non-expert users, public administrators, and data specialists come together to address social issues through data (Robinson & Johnson, 2016). These events have been proposed as strategies to enhance data access, and sometimes use innovative approaches like gamification to encourage participation (Di Staso et al., 2024). Another approach to overcoming data access barriers is data physicalisation, which involves transforming data into physical objects or experiences (Huron et al., 2022, p.

16). This method also encourages designers to pay closer attention to underlying power dynamics (Cazacu et al., 2025). One example is *Chemicals in the Creek*, a project that visualised open government data on water regulation breaches in Massachusetts, US, through physical displays to make the data more visible and understandable to the public (Perovich et al., 2020). Together, these strategies underscore the social dimensions of open data, and the need for contextualisation to ensure that vision and voice are meaningfully granted to those who stand to benefit.

What does the data say about us? Data quality and interoperability

The utility of data as a tool of governance is closely linked to its quality and is assessed, often through standards like the FAIR principles (Findable, Accessible, Interoperable, Reusable). These principles emphasise technical accessibility by ensuring that data sets are interoperable, reusable, and accompanied by appropriate metadata and open formats (Wilkinson et al., 2016). In the open data context, this involves the use of non-proprietary open standards for data sets.

From the perspective of *vision*, such standards enhance transparency in a technical sense by making data more retrievable and usable across different systems. But STS scholars that have examined how open data sets are produced by public administration workers note that applying standards to data sets is neither a neutral nor an easy task. Rather than facilitating direct accountability between citizens and the state, these standards often enable what Goëta and Davies (Goëta & Davies, 2016, p. 24) call “machine-mediated transparency”. The particular affordances of open data formats and standards – with their emphasis on machine-readability – act as a filter, shaping what can and cannot be easily expressed as part of open government data transparency.

Moreover, from the perspective of how *vision* interacts with, and often undermine, *voice*, the FAIR principles have been criticised by advocates of indigenous data sovereignty for overlooking cultural, ethical, and contextual aspects of data production and access, due to their narrow focus on techno-legal mechanisms (Bezuidenhout, 2020; Carroll et al., 2020). In response, indigenous communities developed the CARE principles (Collective benefit, Authority to control, Responsibility, Ethics), which combine the focus on technical accessibility of data sets with the social and ethical dimensions of data stewardship. These principles emphasise the role of power dynamics, historical contexts, and inclusivity in data production (Carroll et al., 2021). Here, data quality encompasses both the ‘what’ (data set accuracy) and the ‘who’ (who is represented or excluded, and who gets to decide)--both of which are critical for the effective use of open data for governance and resource distribution. For example, in India, compensation for communities displaced by the construction of the Narmada dam from the 1980s onwards, was tied to land ownership records. This approach excluded many whose claims to land were based on community recognition rather than formal title deeds (Narula, 2008). Such practices highlight the need for data sets that do not standardise human experiences but instead represent diverse ways of knowing, being, and identifying.

Framed differently, for *vision* to enable and support *voice* (instead of undermining it), open data sets must include marginalised perspectives often ignored in open data initiatives, as highlighted by STS literature. For example, Bates et al. (2016) traced the "life" of meteorological data, revealing how local practices shape what becomes open data. This illustrates that vision in data quality extends beyond *intrinsic* technical attributes to the *extrinsic* social structures and decisions that define what counts as data and whose realities are reflected. Co-creation approaches address these challenges by engaging citizens in the data collection stage of the open data lifecycle. For example, local governments in Dublin invited citizens to contribute missing data, such as infrastructure repair needs, creating more inclusive and valuable open data sets (Khayyat & Bannister, 2017).

With regard to *voice*, another set of critical reflections have emerged in the context of interoperability. In the European Union (EU), for instance, data set interoperability focuses on removing technical and legal barriers to remix data sets (European Commission, 2014, 2017). Interoperability between platforms and systems aims to enable data sharing and has informed EU legal instruments such as the Interoperable Europe Act, the Digital Markets Act, and the Data Act. However, these initiatives often promote 'competitive interoperability,' prioritising market competition and consumer choice (Tarkowski et al., 2022). As Tkacz (2012, p. 398) notes, the historical link between open source and open government has shaped the liberal imagination of open government as "a competitive marketplace of ideas, modelled after bazaar-like virtual corporations that resemble Wikipedia and which promise to reinvigorate democracy on a scale unmatched since classical Greece". In this context, interoperability is the means by which open data delivers returns notably through the creation of "apps" for public services or to solve societal issues. In contrast, 'generative interoperability' emphasises fostering public participation. Extending this concept to open data quality involves addressing both technical interoperability (e.g., metadata and ontologies) and participatory dimensions, ensuring both the creation and use of open data amplifies diverse citizen voices.

Who owns the means for vision and voice? Actor configurations in open data

Actor configurations in public services represent another context in which both *vision* and *voice* may be constrained. To meet economies of scale and in the context of digital transformations like smart cities, private sector actors are increasingly involved in providing public services (Collier et al., 2016; March & Ribera-Fumaz, 2018). Data of public interest is therefore often generated and enclosed within the hands of the private sector. For instance, data generated through public services, such as citywide Wi-Fi, may become proprietary to private providers. Even where public sector information is released as open data sets, private actors are increasingly involved as intermediaries to improve technical data quality and data access and to offer tools in form of software and standards for realising value out of these data sets (Shaharudin et al., 2023; Ubaldi, 2013). Framed differently, private sector actors exercise infrastructural control over what becomes open data and what can be done with this data (Fisher & Streinz, 2022). One effort to counter

this is Barcelona's procurement contract with Vodafone which required all ICT-generated data be handed to the city and released as open data sets, drafted as a legal obligation for data sovereignty into the procurement contract (Monge et al., 2022).

Private sector involvement in both the production and use of open data risks prioritising market interests over citizen participation. This raises the related concern of neoliberal values being infused into public administration – an issue often examined through the lens of the New Public Management and its off-shot, New Public Governance (Bates, 2013; Crouch, 2011; Dickinson, 2016). O'Reilly's concept of "government-as-a-platform" reflects this shift, envisioning governments as providers of minimal infrastructure to enable third-party innovation (O'Reilly, 2011). Similarly, the introduction of a new category of 'high-value data sets' in the EU Open Data Directive has raised comparable concerns, since these data sets are defined primarily in economic terms, emphasising their worth as raw materials for data-driven innovation, especially for AI training, as opposed to their relevance for citizen participation (Broomfield, 2023; Davies, 2019).

The overall consequence is that the open government data ecosystem increasingly resembles a commercial innovation ecosystem, prioritising market-driven goals over democratic and civic aims (Van Loenen et al., 2021). This has important consequences for the circular relationship between *vision* and *voice*. Critical data scholars have conducted qualitative research on how commercial actors are the primary beneficiaries of openness in general (see, e.g., Lund & Zukerfeld, 2020), and open government data initiatives in particular – either by having the resources necessary to convert open government data sets into data-driven products that are then sold back to the public administrations, or by serving as open data intermediaries to profit from the lack of standardisation among open data sets (Bates, 2012; Birchall, 2015; Blok et al., 2017). As Broomfield (2023) notes, releasing and maintaining open government data sets is a costly endeavour. If decisions about the release of data sets prioritise commercial users (which is likely if commercial users have the means to exercise a "louder" *voice*), there is less incentive within public administrations to expend resources on releasing open data sets that have social value, such as data sets of public spending and public procurement contracts.

In the EU context, there is also growing concern of infrastructural dependencies on non-EU private actors for the digital technology supply chain. For instance, Draghi's 2024 report on European competitiveness highlights the challenges that European cloud companies face in competing with foreign 'hyperscalers', with such foreign entities virtually capturing the cloud market for both public institutions and private sector consumers within the EU (Draghi, 2024). This has resulted in growing calls by civil society to develop sovereign cloud infrastructures within the EU, particularly for public institutions (see for e.g., Krewer, 2024). And while the EU's digital sovereignty discourse – often framed around enhancing European competitiveness in response to perceived risks from the US and China – has drawn its own set of critiques (see for e.g., Monsees & Lambach, 2022; Musiani, 2021), these developments nonetheless illustrate how private sector

involvement in open data initiatives shapes the extent to which such initiatives can truly deliver vision and voice.

Are vision and voice even possible with algorithms and AI?

It also remains unclear whether both vision and voice can be meaningfully achieved in light of emergent socio-technical artifacts, such as the growing integration of intelligent systems in society. The heated discussions between the two giants of public administration Herbert Simon and Dwight Waldo in the 1950s and 1960s on rational (and machine-like) decision making (Frederickson et al., 2018) serves as a reminder that this topic is far from new. It is difficult to summarise in a few words the core of the debate without caricaturing key concepts (Roberts & Wernstedt, 2019). Yet, according to the mainstream interpretation of their work, for Simon, public administration was supposed to mimic a machinery-like approach to decision making, ensuring transparency of decisions, while Waldo contested this positivist approach to public administration, as this could not bring value to society as being insensitive to the obligation of advancing social equity to favor efficiency (Frederickson et al., 2018). Until today, their discussion brings to light some core tensions between transparency and participation in algorithms and AI in public administration.

First, open data is not only the output of the activity of data collection of governments, but also an important input for decision-making (Ubaldi, 2013). When used in algorithmic decision-making, we can argue that open data brings the same risks like other data-inputs at the expense of vulnerable groups. It becomes then important to check the accuracy of statistics, account for personal data protection and privacy concerns, and design algorithms integrating the perspective of different stakeholders at every stage of the design process (what it is often referenced as “keeping humans in the loop”), as well as designing algorithms that are sensitive to the values of those who are impacted by them (Ruijer et al., 2023). Second, recent efforts to convert open government data into a data supply chain for AI technologies run the risk of further diluting citizens' agency over data production (Chafetz et al., 2024; GPAI, 2023). For instance, open government data is sought to be used to train new socio-technical artefacts like general-purpose AI models, to inculcate more public trust in the use of these technologies (Publications Office of the European Union., 2024). The turn to algorithms and AI in public administration has generated a growing interest in automated decision-making (de Boer & Raaphorst, 2023; Young et al., 2019). This has led to discussions and concern over the scrutability of decisions and to the core meaning of the term transparency in this context. The logic of explanation of algorithms and AI does not per se substitute the call for full transparency, which also encompasses knowledge of the data at the basis of such decisions (Busuioc, 2021). One example of advancing transparency in algorithmic governance is the case of New York City, where both the data sets used in decision-making and the machine learning models applied to them are shared through the city’s open data portal (Davidson, 2024).

Thus, efforts to reduce biases and inequities in algorithms and AI that try to address the concerns raised by Simon and Waldo concerns, are not always satisfactory. Long-standing issues related to (open) data quality, data collection processes, and the complexities of human oversight remain unsolved. From Simon's perspective, this leaves public decision-making constrained by imperfect or biased information. From Waldo's perspective, the limitations of this approach suggest that algorithms and AI still lack the ethical foundation necessary to prevent social inequities.

Connecting data justice in theory and social equity in practice

In the previous section, we explored extant literature on how two key objectives of open government data, *vision* and *voice*, are shaped by power and structural factors. These objectives often come into tension with the reality that transparency and participation are ideals not equally accessible or applicable to all citizens. We also presented virtuous examples able to instead promote a more equitable approach to vision and voice.

The question of what kind of vision and voice open government data *should* promote is explored in two strands of literature, albeit not necessarily using the phrases *vision* and *voice*–data justice from critical data studies and social equity from public administration. We now review these two perspectives to show how, when connected, they offer a normative and practical framework for public administration to define and operationalise the meaning of vision and voice.

Data justice. A normative orientation towards enabling vision and voice

(Digital) data, unlike other resources, is not 'raw' or naturally occurring (Gitelman, 2013). Data comes into existence through processes of counting, categorisation, and digitisation. A growing body of critical scholarship has explored the constructed nature of data, to tease out the power relations and forms of injustice embedded in data practices. This literature seeks to orient the debate on datafication and data-driven decision-making towards a normative ideal - an ideal of 'justice'.

From 2016 onwards, a group of researchers under the header of the Data Justice Lab at Cardiff University have developed a theory of datafication oriented towards social justice – a framework that seeks to unite anti-surveillance activists and social justice activists, by drawing attention to the political economy and political agenda underpinning digital surveillance systems (Dencik et al., 2016, 2017, 2019; Dencik & Sanchez-Monedero, 2022). This conception of data justice traces back to "long-standing traditions of… social justice implications of the nature of information and communication systems" (Dencik & Sanchez-Monedero, 2022, p. 2). Similar to Johnson (2014), data justice scholars focus not only on the outcomes of data-driven decision-making, but also on critiquing the normative orientation underpinning data-driven systems that are more interested in the pursuit of 'efficiency' rather than social justice. The focus of this strand of research is not specifically on open data, but it does engage with the twin phenomena of digitisation of public services and the datafication of society.

From a governance perspective, Taylor (2017) has advanced another framework for data justice - again not specifically aimed at open data, but oriented generally towards big and linked data systems. Taylor frames the problem of data generation as occurring at the "public-private interface", a space where clear distinctions between types of data are increasingly blurred. For instance, it is no longer easy to separate 'volunteered' data, such as information collected through public administration surveys, from other forms of data. This argument applies to open data as well, which is no longer simply the secondary release of public sector information. Instead, decisions about data categories, formats, and technical modalities of access reflect particular values held by public administrations and actively shape who can access and use open data. Further, a large amount of data that is in public interest as well as data-driven services increasingly seen as necessary to make public administrations efficient are in the hands of private actors. This holds true also in the context of open data, with the integration of algorithms and AI into the functioning of public administrations. Against this backdrop, Taylor argues that an individual rights-based framework is no longer sufficient to guard against data-driven harms and must be supplemented with a more structural, justice-based approach. At the heart of this approach lies the effort to balance two key imperatives: the need to be accurately and adequately 'seen' and 'represented' in data sets and data-driven systems, and the autonomy to opt-out, resist, or contest the same systems. Taylor identifies three pillars – visibility (which deals with accurate representation in data, but also with informational privacy), engagement with technology (the freedom to control one's terms of engaging with data markets), and non-discrimination (the power to identify and challenge bias in data use, and the freedom not to be discriminated against).

We argue that, in the context of open data, Taylor's framework can be understood as an extension of the vision and voice framework. In particular, Taylor's work allows us to engage with the structural aspects of vision and voice, recognising that mere access to both public sector information and knowledge of decision-making processes is a narrow framing of the objectives of open data. Visibility under her perspective on data justice can be interpreted as a more nuanced version of 'vision', where open government data facilitates not only access to data sets, but also to information about *who* is represented in these data sets, *how*, and *who is left out*. Engagement with technology (particularly the principle of sharing in data's benefits) and non-discrimination (particularly the ability to challenge bias), can be interpreted as an extension of voice, where individuals and communities are able to contest their representation in data sets as well as the use of data sets by both public and private actors that results in injustice.

The benefit of the data justice framework is that it accounts for structural factors in a contemporary democracy that act as both enablers as well as affordances to the pursuit of data justice (see also Britz et al., 2013). When it comes to open data however, there is a lesser degree of focus on structural factors and even where such focus exists, it is present in critical scholarship on the production of open data. But Taylor's data justice framework does not provide actionable guidance on operationalising its principles.

Specifically, it does not identify which actors should assume responsibility for ensuring data justice, nor does it delineate the roles and obligations of these actors in practice.

To address this gap, we turn to the literature on social equity in public administration. This body of work provides a foundation for understanding the responsibilities of public institutions in fostering equity and inclusion. By integrating insights from social equity scholarship, we aim to extend Taylor's framework to offer a comprehensive approach to operationalising data justice within the specific context of open government data.

Social equity in public administration

Dwight Waldo was a fervent proponent of social equity as a guiding principle of public administration (Wooldridge & Gooden, 2009). For him, and for the niche body of scholarship that followed in his footsteps (Gooden & Starke, 2021), public administrations were not only tasked to be efficient, effective and economical, but also with creating "public services that are accessible, procedurally fair, of high and equal quality for all groups, and that promote positive outcomes" (McCandless et al., 2022, p. 129).

Only a handful of studies have explicitly addressed the implications of open government data for social equity (Fusi et al., 2023; Ruijer et al., 2024; Schwoerer, 2022). These works generally highlight the need for further research to understand how open government data can serve not only the 'already empowered' but also amplify the voices of marginalised groups in democratic deliberation (Ruijer et al., 2024, p. 10). Key concerns include determining what and if some types of information facilitate different forms of participation, and identifying who is included or excluded in decision-making by current open government data practices (Schwoerer, 2022). While it is difficult to generalise findings from this still-nascent literature, these studies reject the early techno-optimism that assumed increased data openness would automatically empower vulnerable groups and include them in policy-making (Meng & DiSalvo, 2018). Instead, attention has shifted toward the *actual* conditions of empowerment, or in other words, the structural factors relevant for empowerment. These scholars emphasise that the relationship between government and marginalised communities is often asymmetrical, and that empowerment depends not just on data access or quality, but also on socio-organisational strategies, such as intermediation, to support meaningful participation in decision-making. Voice, in this view, is not automatic, but rather something that ought to be cultivated through diverse strategies. These strategies are often filed under the rubric of 'inclusion' of vulnerable groups in decision-making (Ruijer et al., 2024). It is important to note that the diffusion and application of the concept of social equity are also influenced by its origins as a US concept (Ruijer et al., 2023). While its application can be found in Europe (Cepiku & Mastrodascio, 2021), in the context of digital governance we see a tendency to frame the pursuit of just outcomes under the label of inclusion (Ruijer & Pietrowski, 2022). We hypothesise that this geographical divergence in conceptualisation carries both theoretical and normative implications.

Despite their resemblance, equity must be distinguished from equality. While equality is about sameness (as in equal policies for all), equity aims to address and rectify existing disparities in how social and political resources are distributed, leading to policies that tolerate differences across individuals and social groups to pursue fairness (Denhardt, 2004). Yet both the normative and practical orientation of social equity leave several questions unanswered. Social equity faces criticism for being agnostic regarding the different - and compound - forms of inequities, with some critics arguing that power imbalances are more critical than others. In the words of Stone,"[u]ltimately, equality of *voice* is the most important. To the (very large) extent that government policies determine the distribution of resources, privileges, and welfare, the distribution of political power shapes all other distributions" (2022, p. 59).

We therefore argue that, while public administration scholarship makes a commendable effort to challenge the promise of universal access underlying open government data, and places some responsibility on public administrations to address social equity, it remains largely focused on including vulnerable groups in deliberative processes, without fully considering broader strategies to redistribute power and agency in the context of open government data. In other words, while vulnerable groups are to be included in actual participation dynamics, concerns over the representativity of data sets remain on the sidelines.

For this reason, we argue that it is important to broaden the scope of public administration scholarship by engaging with critical perspectives on open government data that complement and deepen its current focus. Such a broadening responds to the imperative of social equity in public administration: to understand how public policies redistribute voices and, by extension, political power. We develop this argument further in the next section.

Towards open data justice

The data justice literature reviewed above emerges from qualitative explorations of data generation and use at the public-private interface. Similarly, open data operates in a grey area that bridges public administration and private sector dynamics. However, as discussed, the data justice framework does not explicitly engage with open government data, nor does it offer a direct approach to operationalising its principles in this context. Conversely, the public administration literature on social equity tends to be more practice-oriented, yet often lacks a clear normative grounding. With most efforts focused on including voices within existing power structures, it remains unclear how public administrations might transition from equality to equity – re-distributing voice through the empowerment of structurally disadvantaged groups. This conceptual ambiguity constrains the realisation of vision and voice, which we, alongside existing literature, identify as central goals of open government data initiatives. Yet this disconnection is largely theoretical. As we have discussed, there are several practical cases where public governance addresses both vision and voice, and their evolving relationship, through

socio-technical interventions. These initiatives include, for example, efforts to redefine data quality based on principles beyond FAIR, or the strategic use of procurement clauses to mandate open data practices, as seen in the case of Barcelona. Although such examples are inspiring, they tend to be discussed outside the core public administration literature, where differences in terminology and framing hinder their integration into the open government data discourse.

Other notable examples include the Italian Anti-Corruption Authority, which issued operational instructions for the publication of open government data that explicitly reference data quality principles, including that data should be easily accessible and understandable (Paseri, 2025, p. 165). In doing so, the Italian public administration exercises interpretive authority in defining the meaning of information transparency. In Paraguay, an observatory on education was established to improve both access to and dissemination of data concerning the quality, equity, and scope of education policies (STP & Open Government Executive Committee, 2022). Participation here was framed as a way to "contributing to the collectivisation of social understandings and actions in favor of the necessary transformations" (STP & Open Government Executive Committee, 2022, p. 72).

We do not claim that the examples presented in previous sections and here fully epitomise a reorientation of open government data toward justice-based principles. Rather, we argue that they illustrate how public administrations can act not just as data brokers, but as active agents shaping transparency and participation. They can do so through legal instruments (e.g., public procurement), decisions about data set definitions, interpretations of transparency principles, and the establishment of institutions that oversee or re-purpose open data, as in the case of Paraguay.

To encapsulate an orientation toward vision and voice reflective of the politics of open government data discussed in previous sections, we advance the conceptual framework of open data justice. This framework brings together the normative insights of data justice with the practice-oriented principles of social equity. We argue that these perspectives help articulate what vision and voice might mean in the context of open government data, and how we might confront persistent and emerging challenges that hinder the equitable participation and empowerment of all citizens through and with open government data. In so doing we also aim to promote a dialogue between the concept of social equity as it is understood in the US, focused on power dynamics, and its European interpretation, oriented towards inclusion.

Our conceptual framework is visualised as a jigsaw puzzle, representing the 5W+H of open data justice – *who*, *what*, *when*, *where*, *why*, and *how* (Whetten, 1989). Each of these dimensions is crucial for studying as well as implementing *vision* and *voice* with regard to open data. The core four-piece puzzle represents the *what*, *who*, *why* and *how* of vision and voice, while the surrounding rings reflect the *when* and *where,* i.e., contextual permutations of these elements shaped by context.

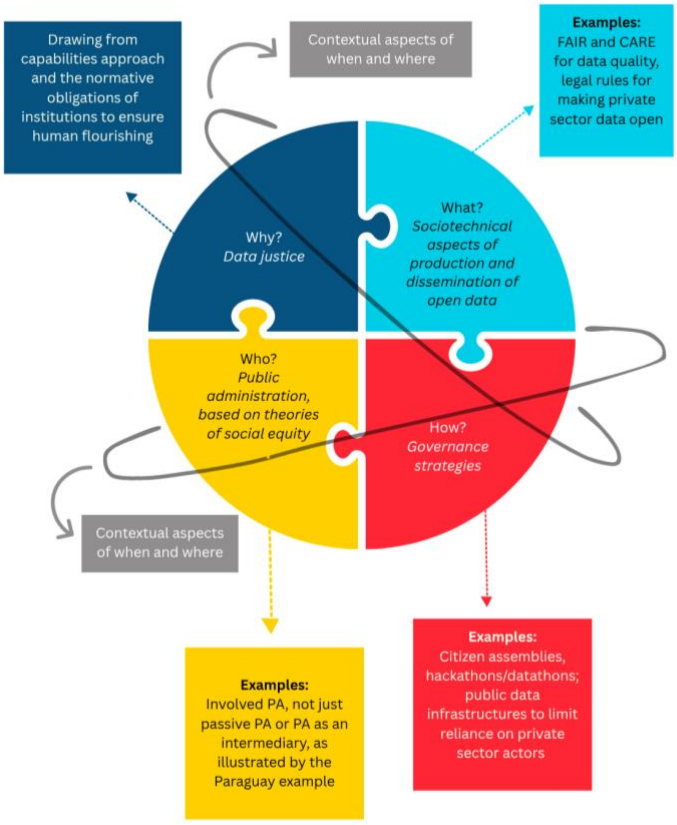

Figure 1: Visual representation of the conceptual framework of open data justice. Source: by the authors.

We use this visual metaphor to convey two key points. First, that a dialogue between public administration scholarship and critical data studies is essential, as both fields are necessary to meaningfully address *vision* and *voice*. Second, that study and practice of open data must consider both endogenous factors specific to the production and release of open data, as well as exogenous, structural conditions (such as capabilities necessary for human flourishing) that ultimately shape how vision and voice are realised in open government data schemes. Next, we see this concept in action.

From theory to practice: Operationalising our open data justice framework

We offer the notion of open data justice as a tool to support both the theoretical study and practical implementation of transparency and participation in open government data initiatives. Importantly, the governance strategies we identify are not intended as a compliance checklist for public administrations. Rather, they are meant to serve as an explanatory heuristic – one that enhances understanding of how issues of data justice emerge and operate within the context of open government data. Further, the open data justice framework comes with certain caveats.

First, identifying practices aligned with reimagined notions of vision, voice, and justice does not in itself resolve the question of *why* public administrations should adopt them—

especially in the absence of a regulatory mandate. Data justice, as a normative framework, cannot directly impose obligations on public bodies. Nonetheless, many countries, including the 75 signatories of the Open Government Partnership (OGP), have committed to promoting transparency and participation through open data practices (Lee-Geiller & Ali, 2025). Membership in the OGP requires the co-creation of action plans that define challenges, propose solutions, and localise principles of open government and open data (Open Government Partnership, n.d.).

We argue that this ongoing dialogue between governments and citizens presents a valuable opportunity to identify practices of transparency and participation that public administration can adopt to further align with principles of open data justice. Our goal is to equip those public administrations that are already exploring data stewardship or public value-oriented data governance with practical tools and guidance. This is particularly relevant for countries like Peru, which explicitly approaches open government data from an equity angle, defining an open state “giving citizens, especially the population facing a vulnerability situation (women, indigenous peoples, Afro-Peruvian people, rural population, people with disabilities, etc.), greater instruments to exercise their right to be part of the design process and delivery of goods, services, and regulations” (Secretariat of Public Management, Peru, 2023, p. 9).

Second, our framework assumes that open government data embed not only a collaborative relationship between citizens and state, but also an adversarial-activist relationship. As such, we consider that governments do not offer exclusively a platform for innovation and collaboration, but also the tools for political contestation, aligning with the view of (Meng & DiSalvo, 2018), as well as earlier work on proactive data activism (Milan & Velden, 2016; Torres, 2025).

In this regard, we also discussed that an important gap exists between the imagined and actual users of open data. Further, not all ‘types’ of citizens may be equally interested in using open data (van Maanen, 2023b). Our framework allows for a nuanced inquiry into these gaps as also inquiry into how certain users of open data are rearticulating notions of democracy (e.g., Baack, 2015). But more importantly, our framework also allows for inquiry into structural factors influencing such differential use, i.e., what kinds of voice are even possible in contemporary democracies, but does not serve as an argument to abandon open data because of graduated use of open data by different types of users.

Third, our approach stems from recognising that, under current conditions, market actors can effectively ‘cannibalise’ open government data, leading to significant power imbalances and inequities (Broomfield, 2023; Johnson, 2014; Valli Buttow & Weerts, 2022). This concern is reflected in the concrete examples that we offer aimed at curbing private sector dependencies leading to lock-ins, such as mandating data sharing obligations in procurement contracts between public authorities and private companies or investing in public data infrastructures for data analysis.

Finally, the current design of the framework might appear to reflect an underlying belief that the challenges associated with open government data, many of which are intrinsic to

the technology itself, can be resolved through technical fixes. While we recognise that open government data, as a policy tool, cannot address all of its inherent limitations, we argue that if investment in this area continues, as current trends suggest, it should be redirected in a more equitable direction. A related but distinct question concerns the effectiveness of open government data in enabling public vision and voice. Though this issue lies beyond the scope of this paper, it warrants serious consideration, especially given our argument throughout this study that the politics fostered by these initiatives are, at best, neutral, and at worst, disproportionately scalable by private actors.

Conclusions

Open data initiatives face both longstanding and emerging challenges related to vision (transparency) and voice (participation). Achieving the vision of open data requires engaging with the 'politics of counting', which involves active participation in the open data from their generation. This participation must account for the power dynamics introduced by new actor configurations and the adoption of emerging technologies. Ensuring voice depends on the understanding of the stages in which scrutiny and contestation are permitted. The ability to critically engage with data, from its generation to its use, varies significantly based on the actions taken by, *inter alia*, public administrations and the normative understanding of what are the ethical pathways in this direction. As governments may restrict both vision and voice in certain instances, it is crucial to approach open data critically and question which governance strategies public administrations adopted already or can adopt to challenge power imbalances that limit both transparency and participation. In this contribution, we propose a conceptual framework that we term 'open data justice', grounded in an evolving normative and empirical debate, aimed at translating a focus on data justice in open data initiatives of public administration. Ultimately, our conceptual framework is an instrument for inquiry, in theory and in practice, of issues of participation and transparency in open data initiatives.

Our approach is not without limitations, which points to directions for future research. First, we discussed the context in which criticalities of vision and voice emerge as salient issues. Yet, these criticalities are embedded in longstanding legal and governance traditions, making it difficult to disentangle them. For instance, the distinction between data generation and data quality may not be entirely clear-cut, as the two are closely connected. Nevertheless, our conceptual framework should be understood as an explanatory heuristic, designed to enhance understanding of issues related to data justice in the context of open data. Empirical applications of this framework to existing open data practices can further validate its usefulness. Second, the examples of governance strategies that public administration can adopt are not exhaustive. A future extension of our framework would involve systematically identifying additional governance mechanisms that promote open data justice, ideally in dialogue with a broad range of stakeholders, including civil society organisations, academia, the private sector, and governments. Third, our framework is primarily built on literature rooted in the European

tradition. It is essential to expand the framework to incorporate perspectives from other regions, including the Majority World. This will ensure greater alignment with the universal spirit of the data justice framework, which was intended to be more globally inclusive rather than geographically limited.

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