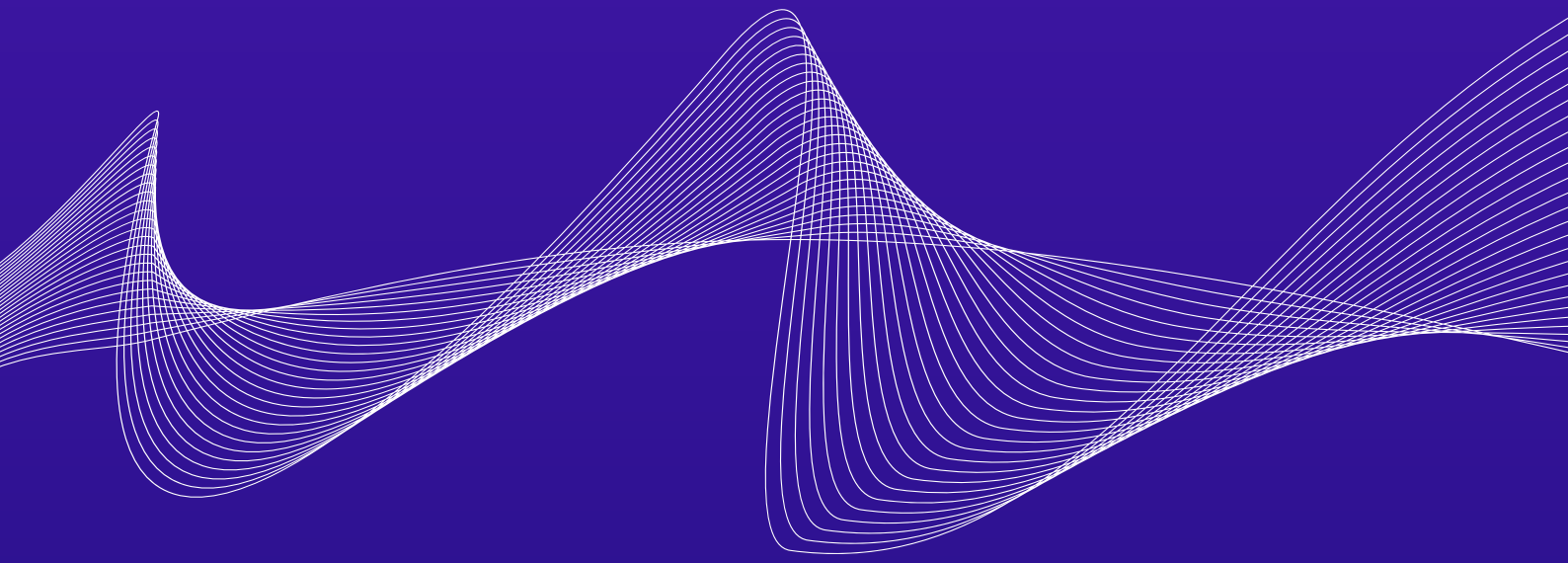
OBSERVATORY ON INFORMATION AND DEMOCRACY

TOWARDS DATA JUSTICE IN INFORMATION ECOSYSTEMS



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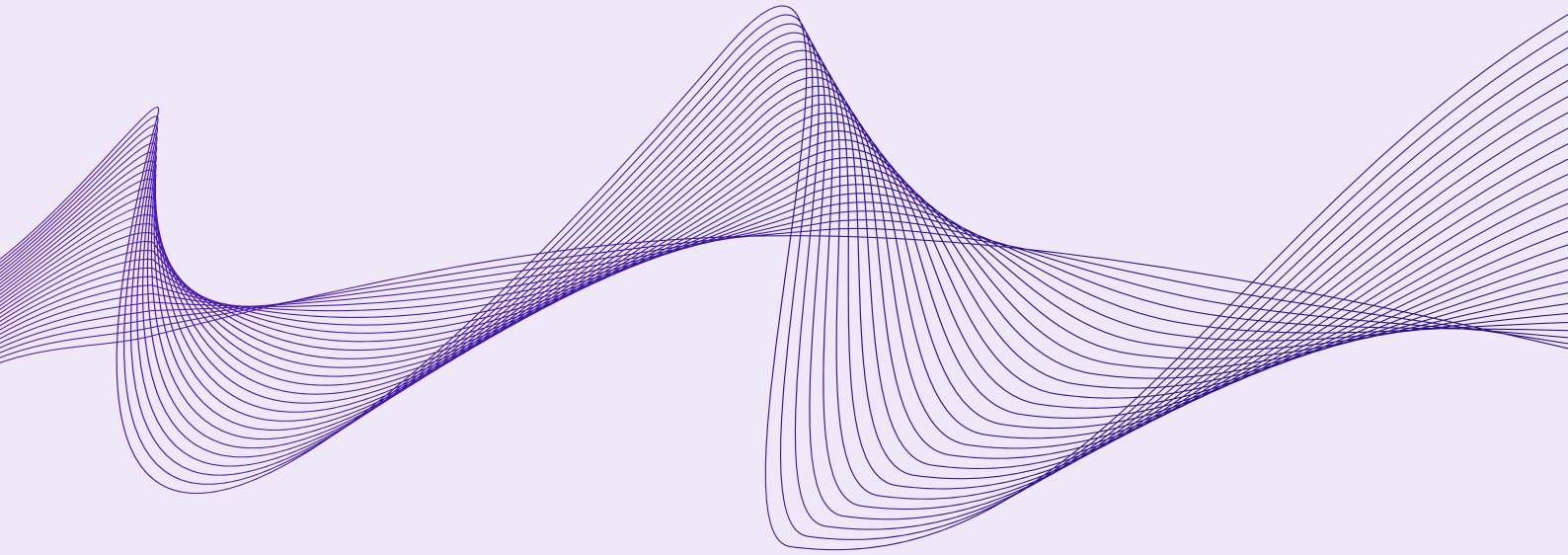

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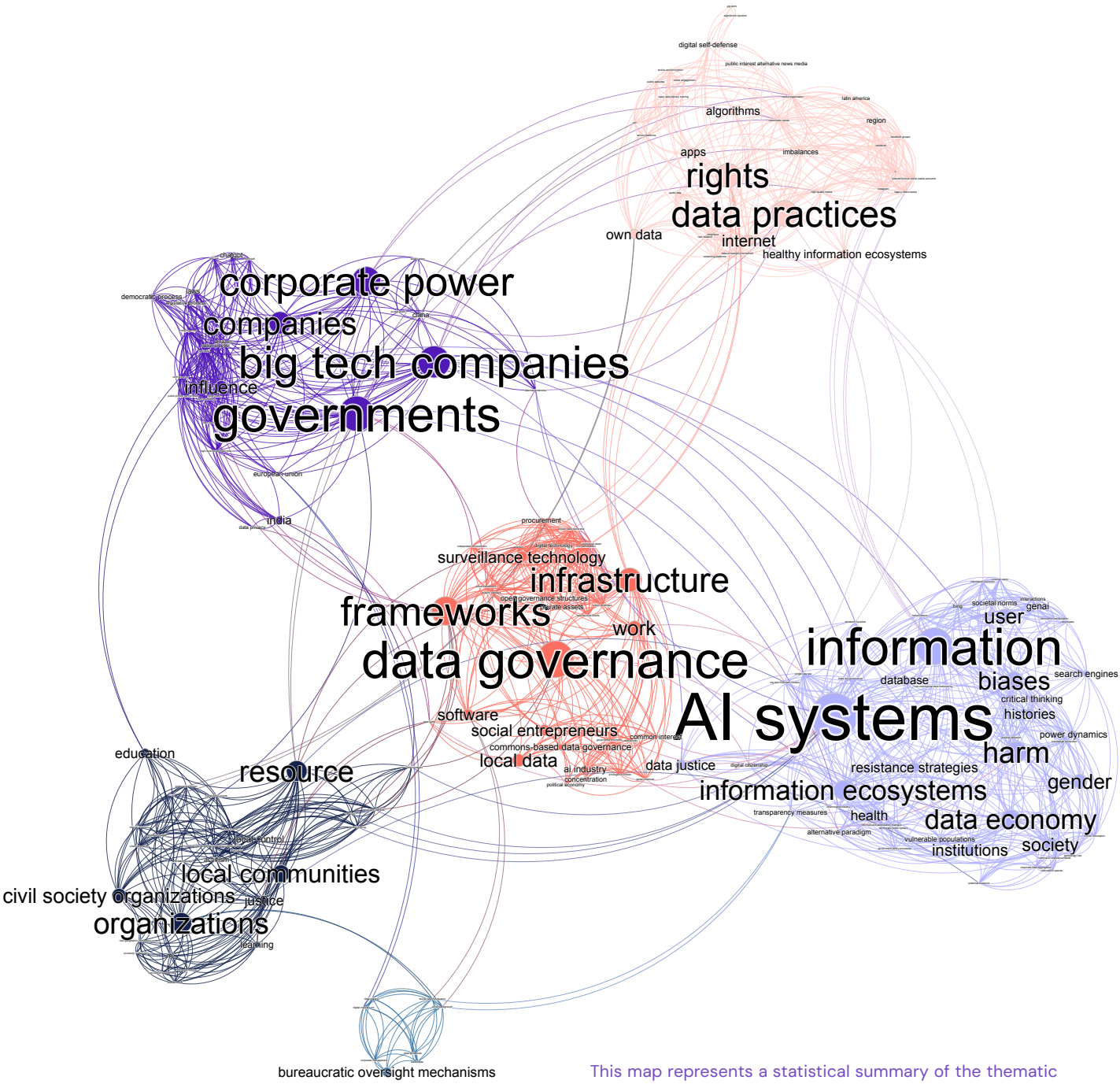


This map represents a statistical summary of the thematic content of this chapter. The network graph represents relations between the words in the chapter, placing them closer to each other the more they are related. The bigger the node, the more present the word is, signalling its role in defining what the report is about. The colors represent words that are closely related to each other and can be interpreted as a topic.

The map is generated by the OID on the basis of the chapter's text using GarganText – developed by the CNRS Institute of Complex Systems. Starting from a co-occurrence matrix generated from chapter's text, GarganText forms a network where words are connected if they are likely to occur together. Clustering is conducted based on the Louvain community detection method, and the visualization is generated using the Force Atlas 2 algorithm.

Link to the interactive map here

This chapter examines how the monopolistic power of big tech companies – permitted by state and co-regulatory measures and pursued by big tech companies – creates biases and harmful discrimination and exclusions, infringes on people's human rights in a data economy that thrives on data extraction and monetization, and diminishes the health of information ecosystems.[1]

The research synthesis in this chapter focuses on:

- **Why do corporate incentives, strategies and practices involved in designing, developing, selling and controlling data lead to epistemic injustice?** Recent histories of digital innovations and their impacts in the Global North and in the Global Majority World are critically examined. We explain how corporate practices create dependencies and restrict people's abilities to control how datafication impacts their lives, as well as the need for individual and community control, autonomy and authority if the struggle to achieve healthy information ecosystems is to succeed.
- **What strategies and tactics are individuals and communities developing to resist the extractive features of the data economy?** We discuss how individuals and groups are working to reimagine and implement data governance frameworks, practices and technical designs that could yield healthier information ecosystems, combat mis- and disinformation and improve prospects for democratic participation.

This chapter emphasizes the individual and collective dependencies and inequities that result from datafication, and how datafication practices can be reimagined to empower individuals and communities in the data economy and contribute to data justice.

Chapter 9 summarizes insights from the synthesis of research in this report. For key highlights, see the Executive Summary.

[1] For background reading, see Casati (2013); Couldry & Mejias (2019); Fuchs (2023); Hintz *et al.* (2019); Mejias & Couldry (2024); Papacharissi (2013); Powell (2021); Söderström & Datta (2023); Vaidhyanathan (2011, 2022); van Dijck *et al.* (2018a). See Appendix: Methodology for details of literature review process.

1 Introduction

We begin with a discussion of the phenomenon of epistemic privileging. How do knowledge, structures and practices combine with technological affordances to shape what counts as good knowledge and practice? Whose knowledge matters when it comes to governing information ecosystems?[2] Current information ecosystems and their data governance arrangements impact on the quality of information, on the risks and realities of reproducing or worsening socio-economic, gender, racial and other forms of discrimination, partly because of the biases in AI models. These developments lead to distortions in understanding and in decision-making, diminishing the health of information ecosystems, and especially the conduct of debate in the public sphere.

Epistemic privileging that is distinguished by class (caste), race, gender, political affiliation and economic status is not new.[3] The biases and exclusions in the histories of technological innovations and their impacts in the Global North and in the Global Majority World always need to be critiqued, and policies, regulations and practices revised when they marginalize populations.[4] This chapter examines the limitation of solutions designed to tackle problems such as discrimination and bias in the performance of AI systems. It does so by recognizing that information – however produced – is always interpreted in the light of power structures. Epistemic privileging of someone's knowledge is inevitable because information and knowledge are not neutral.[5]

The inequitable outcomes of epistemic privileging cannot be addressed merely by balancing priorities for investment in digital technology or by prohibiting specific applications, for example facial recognition technologies. Instead, a profoundly deeper understanding is needed of how historical and contemporary power dynamics shape technological development and deployment, reinforcing entrenched inequities that influence which voices are heard and which ones are silenced. Knowledge is inextricably linked to power, and the *control* over knowledge production and dissemination can reinforce existing hierarchies, as is acknowledged in critical research on how societies come to be governed.[6]

Critical examination of these power dynamics reveals that no configuration of technological affordances can be universally beneficial, and there are many ways these affordances can perpetuate disparities.[7] Global efforts to increase reliance on data drive perverse economic incentives when marketeers operate to capture people's attention in a data economy that thrives on data extraction and monetization.[8] It is essential to move away from perspectives emphasizing 'data universalism' and assuming a homogeneous experience of datafication across the world. A critical perspective on the extraction, accumulation and commodification of data and how this influences people's lives is a necessary step in understanding and resisting unjust power dynamics.[9] The history of 'data capitalism' is of a socio-technical system that results in a 'distribution of power that is asymmetrical and weighted toward actors who have access and the capability to make sense of data'.[10]

Digital divides — a term describing gaps between those who have access to and can benefit from modern digital technologies and those who do not and cannot — illustrates the material consequences

[2] Wihbey (2024); Wu (2017).
[3] Horowitz *et al.* (2024).
[4] Chambers (1997); Thakur & Madrigal (2022); Willems (2014b).
[5] Rouvroy & Berns (2013).
[6] Foucault (1980).
[7] This point is made consistently in relation to the consequences of illiberal regimes (Sodré, 2021), and in relation to the need for data activism to support counter-epistemic and alternative practices (Segura & Waisbord, 2019).
[8] Misra (2022).
[9] Milan & Treré (2019), supported by the European Research Council (ERC) and Horizon program; Cieslik & Margócsy (2022); Horst *et al.* (2024), supported in part by the Australian Research Council (ARC); Arriagada *et al.* (2023), supported in part by IDRC (International Development Research Center), Canada and by the Millennium Nucleus on the Evolution of Work. For a study of how people's everyday lives are affected, see Dunn *et al.* (2024), with case studies of resistance to 'algorithmic authority' in Argentina, Brazil, the Caribbean, China, Ghana, India, Jamaica, the Philippines, Russia, South Africa and Southern Africa and the United Kingdom (Domingos Cordeiro & Cozman, 2024).
[10] West (2019, p. 23).

of epistemic privileging in terms of outcomes for individuals and groups. Overcoming access divides and differences in capacities to interpret online information alone is insufficient, however, for achieving digital equity. What is required is attention to the social, cultural and political institutions that either hinder or facilitate meaningful and beneficial uses of technology. This necessitates policies and practices that address the socio-economic and cultural barriers that hinder equitable access and technology use.[11]

Algorithmic bias has been a feature of computational systems for decades, but its more recent manifestation in today's information ecosystems creates newer forms of epistemic privileging as new divides enabled by digital platforms, social media and search engines and a host of other AI applications reinforce racial and gender stereotypes, privileging certain perspectives over others.[12] This is not an incidental byproduct of the progressive innovation in and adoption of digital technologies, but a reflection of the socio-political contexts within which these technologies are developed and deployed.

Earlier chapters noted the dominance of scholarship on unhealthy information ecosystems, which is contextualized by the experience of those in the Global North.[13] In this chapter, we take a step towards decolonizing knowledge about information ecosystems so that the experience of those in the Global Majority World might inform choices about how information ecosystems should be governed. The aim is to reimagine information spaces that privilege fairness, justice and human rights, not just in principle, but in practice.[14]

2 Strengthening Deliberation and Democracy

The burdens of corporate data aggregation in today's data economy are disproportionately borne by those who are, or historically have been, subject to forms of social, economic, political and cultural inequality or oppression, and government policy making tends to exclude these same groups.[15] Even in local, national or regional contexts, where there are laws, policies and practices designed to promote participatory politics and democratic self-governance, explicit policy-making processes are typically top-down and controlled by powerful elites, even when they are structured to perform as 'representative' government.[16] Those who are most vulnerable to the potential exposure of their information and to injustices and inequalities that come with massive data aggregation are least well-positioned to seek and obtain remedies for individual harms or to participate in civil society advocacy on these issues.[17] The space available for political communities to push for legislative reforms that might limit or shift data practices in fundamental ways is diminished as industries and bureaucracies become more dependent on digital infrastructures and algorithmic products.[18]

2.1 CORPORATE POWER AND INTERESTS

Political processes involving government institutions relating to data governance are heavily influenced by corporate interests. This influence takes the form of lobbying, whereby powerful corporations engage highly paid professional lobbyists to meet with government officials and others who are well

[11] This report does not discuss the complexities of digital divides directly, but see Warschauer's (2004) early work in the United States and more recent studies on digital inclusion and outcomes, for example, Helsper (2021); Robinson *et al.* (2020), supported in part by FONDECYT (Fondo Nacional de Desarrollo Científico y Tecnológico [National Fund for Scientific and Technological Development]), Chile, the National Agency for Research and Innovation (ANII, Agencia Nacional de Investigación e Innovación), Uruguay, Social Science and Humanities Research Council (SSHRC) of Canada, and the Internet Society; see also Gillwald & Weleilakeba (2024); Heeks (2022); Ragnedda & Ruiu (2020); Schaake & Fukuyama (2023); Trappel (2019); Yates & Carmi (2024); Hargittai (2021).

[12] Noble (2018).

[13] Schoon *et al.* (2020).

[14] Alaimo & Kallinikos (2024); Gillwald *et al.* (2022); Gurumurthy & Chami (2024); Mejias & Couldry (2024); Santos & Ndlovu (2022).

[15] Glasberg & Shannon (2010); Glimmerveen *et al.* (2022); OHCHR (2014).

[16] Glimmerveen *et al.* (2022); Wike *et al.* (2024).

[17] Broomfield & Reutter (2022); Eubanks (2018); Georgiou (2023); O'Neil (2016); Ross Arguedas & Simon (2023); Trappel (2019).

[18] Mager & Katzenbach (2021); Papaevangelou (2023); Whittaker (2021).

positioned to shape law-making.[19] An example is the legislative process that resulted in the passage of the European Union's AI Act. In the lead-up to the March 2024 adoption of the Act, European AI startups, such as Aleph Alpha and Mistral, as well as American tech giants, including Google, Microsoft and OpenAI, lobbied aggressively for amendments to the draft legislation that would favor their own products and corporate practices.[20] European watchdog organizations reported that tech companies had 'privileged and disproportionate access to high-level European decision-makers'.[21] OpenAI, in particular, lobbied European Commission officials to ensure that 'general purpose' algorithmic models, such as the one underlying OpenAI's chatbot, ChatGPT, would not be treated as 'high risk' by default under the new legislation.[22] In the United States, the largest tech companies spent close to USD 70 million lobbying in both 2022 and 2023. Much of this went towards influencing United States federal policy, but tech companies also make considerable investments in lobbying to limit the scope of state-level privacy legislation, which, in the context of many years of congressional gridlock, has been active political terrain when it comes to data privacy.

Investigative reporters and civil society organizations uncovered what they characterized as 'a coordinated, nationwide campaign by Big Tech' to shape state-level privacy laws.[23] Of 14 state-level privacy laws, 'all but California's closely follow a model that was initially drafted by industry giants such as Amazon'.[24] Companies also have a long track record of exploiting public emergencies to engage in turbo-charged lobbying that evades the democratic process.[25] During the Covid-19 pandemic, Eric Schmidt, former CEO of Google, leveraged the panic of citizens and policy makers to campaign for massive public expenditure on Research & Development, and for the creation of dozens of 'public-private partnerships' to embed data-intensive, corporate-owned tech platforms across multiple sectors – notably healthcare and education.[26]

The lobbying arms of global tech firms also spend significantly to influence policy at the national level in countries outside Europe and North America, especially where emerging data markets promise to be very large. In *India*, for example, Meta, Google and Amazon lobbied aggressively against data localization provisions in the country's data protection bill.[27] When *Brazil* introduced legislation to combat 'fake news' in 2023, American-based tech companies campaigned against the bill. Google used its search engine home page to promote articles criticizing the legislation and urging Brazilians to act against it.[28]

Tech companies also seek to influence legal frameworks that do not specifically target digital products and services, but which impact on profit margins by lobbying policy makers on issues related to trade and the global economy. For example, during negotiations around the Indo-Pacific Economic Framework, big tech companies pushed for specialized 'digital trade' rules that would have limited the ability of 14 countries to enact their own regulations intended to restrain the activities of tech companies at the national level.[29]

Tech companies wield influence over policy-making processes through entrenched relationships with policy makers in another way. This takes the form of a 'revolving door' between government and industry, whereby people leave high-level government jobs for high-paying corporate jobs, and vice versa.[30]

[19] Bannerman *et al.* (2024); Popiel (2018); Rankin (2023); Ruohonen (2003); Tarrant & Cowen (2022), supported by the Social Sciences and Humanities Research Council (SSHRC) of Canada.
[20] Corporate Europe Observatory (2024b); Perrigo (2023).
[21] Corporate Europe Observatory (2024a).
[22] Perrigo (2023).
[23] Feathers & Ng (2022).
[24] Feathers & Ng (2022); Fitzgerald *et al.* (2024).
[25] Klein (2008).
[26] Klein (2020).
[27] Business Standard (2018); Sherman (2022).
[28] Boadle (2023); Harris (2023).
[29] Birnbaum & Martin (2023); James (2022); Lawder (2023).
[30] Alfonsi (2019); Popiel (2018).

These longstanding relationships become the context in which informal lobbying through socializing takes place, which can effect legislative and regulatory outcomes.[31] The porous boundary between government and industry also results in more pervasive and difficult-to-document forms of influence, such as 'corporate influence on regulators' systems of belief, policy preferences and ideological biases'.[32] This kind of influence can take years to manifest in concrete policy and is rarely discernible in any single legislative process.[33]

Another kind of industry–government relationship that tightens the corporate grip on policy making is when companies have a monopoly on a set of services that government requires. One example is the growing dependency of national security infrastructures on surveillance technology developed and maintained by major tech companies such as Palantir.[34] As whole sectors within state social, political and economic systems become dependent on the data-intensive products and infrastructures developed and sold by corporations (for which they claim both the rights of intellectual property and the protection of trade secrets), the kinds of limits that policy makers are willing to impose on corporate data practices become narrower.[35] These developments are politically charged and extend from services to infrastructure, including undersea cables that have enabled the *United States* to surveil other countries and are now facilitating countries like *China* and *Russia* to do the same, as struggles over the 'underground empires' ramp up.[36]

While much attention focuses on dependencies and inequalities associated with American or Chinese-owned big tech companies, regional companies also create dependencies and operate with extractive data economy models. For example, Mercado Libre is an Argentinian platform company (the fourth largest Latin American company) that engages in electronic commerce, fintech payments and credit assessment. It is dependent on the cloud services of Amazon and Google, but it also develops inhouse data services that exploit users in the Latin American region.[37] This highlights the multilayered and global nature of data dependencies and their complexities.

Data dependencies are also created in other ways that impact on how data is collected, stored, shared and used. An example is the procurement process through which government agencies acquire or license data-intensive products developed by companies that are then incorporated into public systems.[38] These processes can be opaque, and even when transparent, they do not usually include a mechanism for public comment or participation. Over the last 30 years, vast digital bureaucracies have been put in place through procurement processes without the knowledge of those whose lives are most affected by them, and often without even the knowledge of elected officials who are supposed to represent their constituents' interests. Procurement processes leading to the creation of digital bureaucracy profoundly change the way people relate to their government, in some cases imposing substantial hurdles on those trying to access services and benefits to which they are entitled.[39]

Treating data as an economic good, even a public good, that generates revenue and profits is hardwired into today's information ecosystems. It results in endless amounts of data monetization as data becomes a pivotal asset in the data economy, but it is widely criticized for failing to deliver other societal goals.[41] The AI industry that depends on data extractivism (the large-scale harvesting of data by private companies) to build its systems is

[31] Li (2023).
[32] Popiel (2018, p. 568) and see Caplan (2023); Pickard (2014); Teachout & Khan (2014).
[33] Popiel (2018).
[34] Ball & Snider (2013); Iliadis & Acker (2022, pp. 334-363); Popiel (2018); and as noted in Chapter 7.
[35] Singh & Gurumurthy (2021).
[36] Farrell & Newman (2023).
[37] Franco *et al.* (2024), funded in part by the National Scientific and Technical Research Council (CONICET, Consejo Nacional de Investigaciones Científicas y Técnicas), Argentina.
[38] Calo & Citron (2021); Crump (2016); Faife (2022).
[39] Crump (2016); Faife (2022); Hardy & Williams (2008).
[40] Luchs (2023).
[41] Purtova & van Maanen (2024).

dominated by a few powerful companies (mainly in China and the United States). This concentration of power is supported by disproportionate access to resources, including computing power, high-quality data and expert talent.[42] This dominance disadvantages smaller entities and independent innovators. The vast resource requirements for competitive AI systems development — such as advanced computing infrastructure and large-scale data sets — are often beyond the reach of smaller developers and firms, perpetuating the dominance of large tech companies. Talented AI professionals are drawn to large firms offering better financial and career incentives, resulting in talent consolidation and excluding smaller players and many academic institutions.[43] The high cost of entry and not having access to proprietary data sets disadvantages those seeking to develop supportive community data governance frameworks and practices.

2.2 DATA, AI SYSTEMS AND DISCRIMINATORY BIAS

Rapid advances in AI systems and their integration into search engines and conversational applications such as ChatGPT yield benefits and potential harms in terms of the quality of information.[44] Described as 'revolutionary', these technologies embody inherent risks related to algorithmic bias and information manipulation that impact on people's decisions and on societal norms.[45]

AI models, including those powering generative AI (GenAI), such as ChatGPT, incorporate biases from their training data, and can develop new biases through interactions with their users.[46] These biases manifest in several harmful ways. They can surface in the reproduction of existing biases and through their impact on user perceptions. Just as biases are present in human-generated content, large language models (LLMs) can inadvertently perpetuate these biases, leading to a skewed representation of facts and socially constructed biases in AI-generated content. These biases then can shape how individuals perceive reality, potentially reinforcing stereotypes or presenting a biased view of events and histories; they are an opaque form of epistemic privileging.[47]

2.2.1 Reproducing Bias in AI Models

AI models trained on data, including GenAI systems, reflect the biases present in data they are trained on, or biases developed through users' interactions with them. These can skew user behavior, potentially perpetuating stereotypes and generating mis- and disinformation. If an AI system is trained on historically biased data, it may generate responses that are subtly prejudiced, reinforcing harmful norms instead of challenging them.

Information discovery for internet users is conducted using search engines such as Google, Yahoo or Bing. Until recently these presented their results to users as a list of sources (ranked according to search engine-defined 'relevance' criteria, influenced by advertising expenditure). They have long since moved beyond simply counting the number of in-bound links to a webpage. Users can still choose which links to follow, but studies find a search engine manipulation effect (SEME). By altering search result rankings or manipulating result visibility, this may influence consumer choices, and even voting behavior.[48] Google and Bing use GenAI to create conversational search assistants that summarize search results instead of simply listing them.[49] This may reduce a user's ability to discover diverse viewpoints, potentially limiting exposure to multiple viewpoints, diminishing abilities for critical thinking and source evaluation skills, and decreasing agency over the information that is consumed.[50]

[42] Luchs (2023).
[43] MIT Technology Review Insights (2023).
[44] See Chapter 3 for a discussion of bias.
[45] Ferrara (2024b).
[46] Ferrara (2024a).
[47] Machill (2020).
[48] Epstein & Robertson (2015), supported by the American Institute for Behavioral Research and Technology (AIBRT), a non-profit organization, US.
[49] Microsoft has launched Copilot, which integrates ChatGPT into its Bing search engine. Google had added Gemini to its search tool at the time of writing.
[50] Hadi Mogavi *et al.* (2024).

GenAI systems may also unintentionally misinform users due to what are known as 'hallucinations' (plausible responses that have no basis in reality), and that scholars argue are either a natural consequence of the underlying technology or of errors due to bias in the training data.[51] This can lead to confusion and the spread of mis- or disinformation. When GenAI systems are used to target certain users with specific content, this has the potential to subtly influence opinions and behaviors, potentially unethically.[52] This poses a risk of deliberate or voluntary manipulation, and is said to require the introduction of guardrails.[53]

While AI technologies offer unprecedented access to information and the ability to analyze vast data sets, they also require careful management to mitigate risks associated with bias and manipulation. Moving forward, developers and policy makers must collaborate to implement robust ethical guidelines and transparency measures to ensure that advances in AI contribute positively to society without compromising the integrity of information. As emphasized in Chapter 3, all biases cannot be eliminated, and the potential for unfavorable treatment of individuals or groups remains.

2.2.2 Inaccuracies and Distortions in Decision-Making

Bias is an element of human cognition that can serve as a heuristic for faster decision-making in complex environments.[54] When embedded within AI systems, however, biases can perpetuate harm, especially when they inflict unfavorable outcomes on individuals or groups. The consequences of decision-making based on flawed or biased data are potentially substantial, and include financial loss, reputational damage and legal penalties. Bias can manifest as direct discrimination where AI systems provide less favorable results to users from certain demographic groups.[55] When these models are used as the decision-maker for social justice programs, for example, this can lead to the exclusion of marginalized groups, and they have been shown to worsen existing inequalities and diminish trust in data-driven systems.[56] Similarly, hiring algorithms can prefer candidates of a specific gender or racial background irrespective of their qualifications.[57]

To mitigate these risks accompanying datafication using AI, organizations need to implement comprehensive data governance frameworks with clear guidelines for data quality, usage and security.[58] This includes developing standardized procedures for data collection, validation and storage, and using software tools that manage data quality and can be used to correct inaccuracies in real time.[59] Regular bias audits and algorithm reviews are crucial. These can be facilitated by third-party auditors and the use of fairness tools in machine learning (ML) to adjust models.[60] Reforms to data governance frameworks and practices can help to improve data integration and address bias by adopting modern data architecture principles, and implementing enterprise data management platforms that can make it easier to handle large data sets. By understanding the sources and impacts of data analytics flaws and employing effective mitigation strategies, organizations can improve data integrity and decision-making accuracy. This is essential for ensuring that AI systems are used responsibly and ethically, promoting equity in automated environments.[61]

Bureaucratic oversight mechanisms like auditing and litigation have had a limited impact on the power wielded by big tech companies. In the European Union, the regulatory package (Digital

[51] Xu *et al.* (2024).
[52] Motlagh *et al.* (2023).
[53] Hao *et al.* (2024); Linehan *et al.* (2024), authors members of Object Management Group, an industry standards consortium, IBM and the Industry (IoT) Internet of Things Consortium.
[54] Kahneman *et al.* (2021).
[55] Angwin *et al.* (2016).
[56] Park & Humphry (2019).
[57] Raghavan *et al.* (2020).
[58] For a review of data governance frameworks, see Marcucci *et al.* (2023), supported by the World Health Organization.
[59] Veiga *et al.* (2017).
[60] Verhulst (2024).
[61] Mitchell *et al.* (2021).

Services Act and Digital Markets Act) has created new enforcement mechanisms that can be used to compel corporate transparency concerning corporate management of data, and to impose major penalties on companies that fail to comply with the legislation.[62] It is unclear whether actors will have the resources and political will to use these mechanisms in a way that substantially changes the big tech companies' monopolistic practices when it comes to their treatment of data in Europe or beyond. The European Commission's task force with responsibility to 'check whether some of the world's richest tech firms are complying with rules designed to make them cede some ground to their smaller competitors' is under-resourced compared to the big tech companies.[63] In the United States, while there is no federal legal framework regulating corporate data practices, there are legal frameworks relating to fair labor, anti-trust, intellectual property and contract law that could be used to challenge the dominance of the large tech companies. Until recently there has been little sign of significant enforcement activity against tech companies, and when cases are brought and even won, they involve very lengthy proceedings.[64]

Since the use of data is pervasive in the modern data economy, attention is being given to alternative data governance norms, architectures, institutions and practices to enable individuals and groups to gain greater control over data, potentially increasing information integrity and the health of information ecosystems.

3 Alternative Data Governance Practices

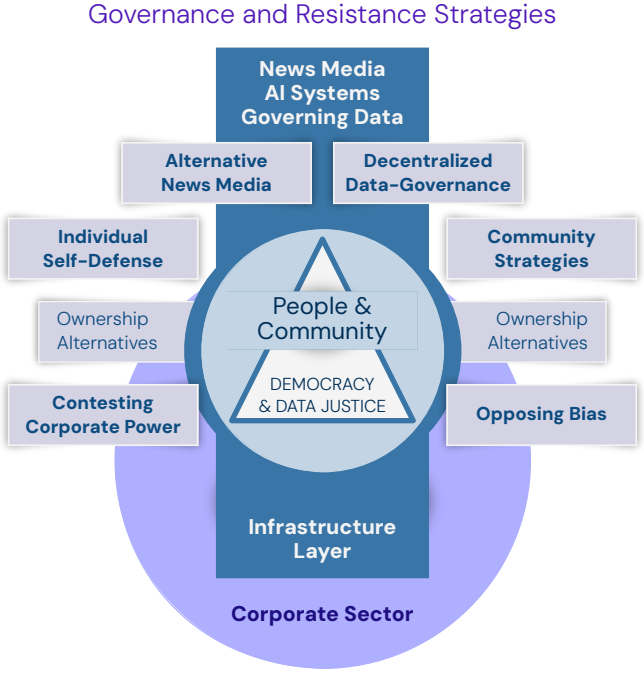
Political engagement that takes place in parallel to, in resistance against, or separately from, government policy processes and existing data governance legislation is especially important if data justice is to be achieved.[65] There are many examples globally of communities organizing to resist datafication, to develop alternative local data practices (including alternative governance principles specific to local practices), and to establish systems for creating and sharing knowledge and information (digital or otherwise) that do not depend on the digital products owned by large companies.[66] These do not necessarily represent (or aspire to be) scalable forms of resistance to big tech monopolization of digital infrastructures or dominance in information ecosystems. However, they offer models for how communities can engage in democratic contestation, responding to questions that arise about data and digital infrastructure in established forums offered by governments, and raising questions about whether such forums are asking the right questions. This section explores what 'digital democracy' and data justice might look like.[67]

Resistance strategies and practices try to embrace an obligation to consult marginalized and vulnerable populations, to devise solutions based on their judgments and to enable participatory action that lead to digital self-determination.[68] Figure 8.1 locates people and their communities aiming to strengthen data justice and to create the potential for inclusive, informed and participatory dialogue in a democratic public sphere at the center of

[62] For details of European Union regulatory package, see Chapters 6 and 7.
[63] Hancock (2024).
[64] Landau (2021).
[65] Data justice is addressed in work by Milan *et al.* (2021), funded by the Nuffield Foundation; Niklas & Dencik (2024), supported by the European Research Council (ERC).
[66] Examples are given by Bhat (2021); Carroll *et al.* (2019); Dutta & Pal (2020); Mejias & Couldry (2024); The Tierra Común Network (2023). A series of reports produced by the Institute of Development Studies (IDS), Sussex, provides profiles of the digital rights landscape in African countries (Cameroon, Egypt, Ethiopia, Kenya, Nigeria, South Africa, Sudan, Uganda, Zambia and Zimbabwe), as of 2021; see Roberts & Ali (2021).
[67] Ford (2019). Approaches to 'deepening democracy' through participatory governance have a long history of discussion in the literature; see Fung & Wright (2003).
[68] Medrado & Verdegem (2024); Zhang *et al.* (2023).

information ecosystems. This can be achieved by contesting corporate power, by opposing the biases created by the outputs of AI systems and moving towards collective or public ownership of data, depending on what alternative is most appropriate in the given country. Alternatives are available for the news media industry, for the development of AI systems and for governing data in the common interest rather than in the interests of big tech companies. The rest of this section discusses a variety of resistance strategies, ranging from individual measures for people to defend themselves from exploitative data practices to community (and sometimes national) strategies to change the way data is governed.

Figure 8.1
Information ecosystems – alternative data governance approaches and resistance strategies



Source: Authors of this report.

The challenge is to address a 'double helix' of extraction, whereby data is extracted from places and people in the Global Majority World by the technology industry, and knowledge about this process is extracted by researchers and their institutions in the Global North. Researchers in the Global North (or in positions of power in the Global Majority World) need to be sensitized to the voices of their research participants if alternative approaches to data governance are to be imagined and put into practice to represent the needs of marginalized people, instead of reproducing epistemic injustices through patterns of data and knowledge extraction.[69]

One aspect of such resistance strategies involves defining what empowering digital citizenship might involve. In the Global North, there is a robust literature on active citizenship and participation in society, demonstrating that it does not materialize in a vacuum.[70] In the Global Majority World, resistance to data extraction can mean unpacking what digital citizenship means if it is not skewed by the decisions of distant big tech companies or autocratic states.[71] However, 'one cannot simply brush away these new forms of dispossession and inequality with a single new law, a revolutionary technology or even a social revolution'.[72] Prospects for empowering data governance can be improved by confronting data extractivism.[73] This can occur through unionized worker resistance, or other means.[74] Other strategies include those developed by Indigenous communities to draw attention to how the predictive power of algorithms, such as Google Search's Autocomplete, treats gender and political keywords in languages such as Amharic, Kiswahili and Somali in ways that amplify power imbalances.[75] In the case of news media, resistance practices include building skills and developing ethical data practices or efforts to counter online 'mob censorship' when it threatens to silence journalists and puts their lives at risk.[76]

[69] Enghel & Noske-Turner (2018); Lehuedé (2022).
[70] Hintz *et al.* (2019); Isin & Ruppert (2020).
[71] Roberts & Bosch (2023b).
[72] Mejias & Couldry (2024, p. 206).
[73] Graham & Dittus (2022); Graham & Ferrari (2022).
[74] Graham & Dittus (2022); Graham & Ferrari (2022).
[75] Chonka *et al.* (2023).
[76] Nechushtai (2023); Waisbord (2023).

Innovative, non-commercial data frameworks and practices can profoundly transform how data is collected, processed, stored and used to meet local community and individual needs. They have the potential to alter information ecosystem landscapes, data-related operations, societal norms and the integrity of information within these systems. Table 8.1 summarizes a set of corporate datafication resistance strategies and tactics for the purpose of resisting data extractivism and mobilizing new ways of practicing data governance.

Table 8.1
Corporate datafication resistance strategies and tactics

Actor	Tactic	Purpose
Individual self-defense strategies	Adopt privacy-enhancing technologies such as virtual private networks (VPNs) and encrypted messaging applications.	Digital self-defense practices and digital dissent.
	Opt out of dominant social media platforms.	
	Remove personal information from public and private data sets.	
Public interest alternative news media	Investigate corporate data practices and concentrations of corporate power, with a focus on the impacts of practices on marginalized groups.	Enhance public awareness of the harms of poorly constrained commercial datafication.
		Hold technology companies accountable to limit expansion of corporate power.
Community collaborative strategies – Indigenous communities and municipal initiatives	Produce or collect data relevant to the needs of communities.	Establish a citizen-first, rather than technology-first, approach to data governance.
	Develop community-owned and run platforms for recording and sharing information.	
	Establish community principles for data with or about communities and municipalities.	Create alternative data norms. Model the creation of new data norms for other communities.
	Demand that policy around data responds to the needs of municipalities.	Democratize legislative processes around datafication, and fight for new ordinances.
Social entrepreneurs and community-controlled technologies and data practices	Partner with local communities to develop new technologies based on non-extractive data practices.	Provide alternatives for individuals and communities to avoid contracting with multinational companies.
	Develop open-source software applications.	Provide personalized tech support and digital literacy training.
	Develop public data sets with local data capturing local knowledge.	
New national-level decentralized data governance frameworks	Build networks and own and control data.	
	Develop new data governance frameworks that preserve local control of data.	Encourage community data hubs, decentralized data infrastructures, local data analytics, data lockers and cooperatives and public data infrastructures.
	Develop commons-based data governance.	

Actor	Tactic	Purpose
Civil society organizations, researchers and philanthropic organizations	Establish systems of social support for communities harmed by tech dominance and datafication.	Mitigate harms to individuals and communities, and remove barriers to organizing and other forms of democratic participation for those most negatively impacted by datafication.
	Engage with local, national and international human rights bodies to document impacts of massive data aggregation and algorithmic outputs, aiming for social and economic justice.	Develop global and intersectional analyses of how datafication and corporate monopolization impact justice and democracy and articulate the common good.
	Develop, facilitate and support participatory action research in collaboration with and within local communities.	Build tech literacy in local communities and their capacity to use data on their own behalf, or to resist its use against their interests.
	Undertake research to expose harms of data-intensive tools and infrastructure, and identify strategies for democratic data governance.	Add to knowledge about the political economy of data. Enhance public awareness of harms of poorly constrained datafication.
	Fund individuals, organizations and institutions engaged in the activities described in this table.	Redistribute power over data, and power in decision-making about data, away from big tech companies towards the political community.
	Engage in litigation to enforce existing data governance frameworks.	Engage in litigation to enforce novel data governance frameworks.

Source: Authors of this report

Ambitions for building healthy information ecosystems depend on the agency of individuals and groups to resist the power of technology companies. Studies of this 'contested battleground' often undertake ethnographic research to examine how people develop strategies and tactics to resist the way algorithms influence their lives. This work demonstrates that algorithms can be appropriated by users, with examples from gig work, the cultural industries and politics. It reveals how people invent practices that – even if temporarily – enable them to transgress algorithmic systems.[77] This research tradition supports experimentation and efforts to imagine alternatives to 'algorithmic injustice'.[78] It avoids a 'cybernetic ideology' that couples technology innovation with modernity and progress, assuming there is only one direction of change.[79] Research of this kind is needed to reveal novel ways of defending people's human rights, including their epistemic rights.[80]

3.1 INDIVIDUAL DIGITAL SELF-DEFENSE STRATEGIES

A basic practice of resistance available to individuals is digital self-defense, which is increasingly taught globally and practiced by activists as part of the work of political organizing. Community-based organizations are spreading digital self-defense resources to give everyone the means to protect themselves from some of the most acute consequences of data surveillance. Digital self-defense practices may include improving the security of passwords, accessing the internet through a VPN, using messaging apps employing end-to-end encryption, and removing one's own data from public websites and – where possible – from the custody of data brokers.

Some digital self-defense curricula encourage opting out of most social media, or they suggest more secure platforms for online engagement. Basic data literacy training is often a component of digital self-defense training. While digital self-defense focuses on the personal security of individuals,

[77] Bonini & Treré (2024, p. 3).
[78] Buolamwini (2023); Cammaerts & Mansell (2020); Mansell (2012); Mejias & Couldry (2024); Noble (2018).
[79] Caballero & Monje (2024).
[80] Horowitz *et al.* (2024).

and not on systemic change-making, creating the possibility for digital security is an important precondition for larger-scale political engagement.[81]

3.2 PUBLIC INTEREST ALTERNATIVE NEWS MEDIA

Alternative ways of providing news have the potential to operate as a resistance strategy that improves the health of information ecosystems, although this is not always the outcome.[82] Public interest alternative news media operates as a counter-public sphere to mainstream news media. When these media organizations are informed by respect for human rights and democratic values, they are better positioned to investigate corporate data practices, to support communities and to engage with local, national and international human rights bodies that aim to expose and resist the exploitative practices of big tech companies. When they produce content that enhances public awareness of digital platform datafication practices, and the fact that these practices are poorly constrained, these news media can help to mobilize people to seek ways of combating the harms of mis- and disinformation, thereby contributing to healthier information ecosystems.[83]

In *Latin America* the rise of alternative news media outlets is attributed partly to the necessity for democratic political communication to address imbalances in information and power. In this region, alternative news media played a role historically in countering dominant transnational communication patterns and cultural imperialism. These outlets often disseminate counter-information and express dissent against the establishment with the goal of facilitating political change. Digital native news sites are operated by professional journalists who generally follow the same professional standards and practices as mainstream media.[84]

The extent of the use of social media for political participation and as a form of alternative news media varies across Latin America.[85] In the 'Ibero-American' area between 2017 and 2020, three main channels for the dissemination of mis- and disinformation were identified: the legacy news media, open social networks (such as X, Facebook and Instagram) and closed social networks and messaging services (WhatsApp, Telegram and Facebook Groups). Research indicated that closed networks accounted for a large share of mis- and disinformation, while the presence of this content in the legacy news media was much lower.[86]

Alternative news media can also be hyper-partisan and disseminate mis- and disinformation.[87] In *sub-Saharan Africa*, for example:

> Media repression through the enactment of draconian pieces of legislation and the brazen capture of legacy media infrastructures by political and economic elites have been followed by the mushrooming of fake online news sites, faceless social media influencers, pseudonymous social media accounts, and coordinated circulation of false and misleading news information through mostly Twitter, Facebook and WhatsApp.[88]

As battles over the 'truth' intensify in the region, mainstream state-owned media have been branded as 'fake news' outlets because of their biased reporting, while private and independent (alternative) news media are often considered as bearers of 'truth'.[89]

[81] SSD EFF (2023).
[82] See Section 1, Chapter 2 for a discussion of definitions of news media including 'alternative media'.
[83] Reiter & Matthes (2023).
[84] Harlow (2022).
[85] Mitchelstein *et al.* (2020).
[86] Guallar *et al.* (2022), supported in part by the Ministry of Science, Innovation and Universities (Ministerio de Ciencia, Innovación y Universidades), Spain.
[87] Recuero *et al.* (2022).
[88] Mare *et al.* (2019, pp. 5-6).
[89] Mare *et al.* (2019).

Alternative Social Media Platforms: In India, the position of alternative news media in opposition to legacy news media is striking because the latter support the right-wing politics of the ruling Hindu nationalist Bharatiya Janata Party (BJP), instead of the opposition.[90] However, the BJP-led government also embraces the use of alternative social media platforms in response to the removal of accounts of prominent right-wing leaders from mainstream social media, for violating platform policies.[91]

Whether a strong presence of alternative news media contributes to a healthy information ecosystem depends on the context. A distinction needs to be drawn between alt-right sites (intensely engaged in spreading mis- or disinformation) and those practicing journalism with a partisan bias.[92] A rethinking of the legal foundations of news media is called for in the *United States*. A positive approach to press freedom could create a foundation for news media reform such that government would have an obligation to provide access to high-quality media, because democracy requires this.[93]

3.3 COMMUNITY COLLABORATIVE STRATEGIES

Community collaborative strategies aim to produce or collect data that is responsive to community needs. They include initiatives by a wide range of communities, from the very local to the municipality. They aim to take a citizen-first, not technology-first, approach to data governance.

3.3.1 Indigenous Communities and the Data Sovereignty Movement

Indigenous communities are establishing alternative data practices through the Data Sovereignty Movement. To maintain control and autonomy over their own data, they are building their own physical infrastructures for telephone and the internet, and developing apps, browsers, streaming platforms and messaging services to serve communities in their own languages. Māori activists in *New Zealand* have used audio data from recordings of people in te reo Māori, the Māori language. They hope to use these digital tools to preserve knowledge of te reo Māori for future generations. Community members spearheading the project have rejected multiple offers from tech companies to incorporate te reo Māori audio data into mainstream apps, for example DuoLingo and Google Translate. Explaining resistance to these offers, Peter-Lucas Jones, one of the leaders of the project, said: 'our data would be used by the very people that beat that language out of our mouths to sell it back to us as a service… It's just like taking our land and selling it back to us'.[94]

These and other tactics by Indigenous communities draw attention to how algorithms are used to amplify power imbalances.[95]

3.3.2 Municipal Initiatives

In some ways, municipal-level community strategies for data governance go beyond regional- or national-level efforts. These often emerge, for example, in direct opposition to the imposition of so-called 'smart city' initiatives that involve building digital surveillance technologies into the public landscape to collect data for a variety of purposes – from policing to development planning.[96] 'Smart city' initiatives are often driven by multinational technology companies that stand to profit significantly from the embedding of their intellectual property in municipal infrastructures.[97]

[90] Chadha & Bhat (2022).
[91] Bhat (2021).
[92] Bennett & Livingston (2018).
[93] Pickard (2024).
[94] See Carroll *et al.* (2019); Dibenedetto (2021); Hao (2022); see also Our Data Indigenous: https://ourdataindigenous.ca.
[95] Chonka *et al.* (2023).
[96] Galič (2022); Rosol & Blue (2022), supported by the Social Sciences and Humanities Research Council (SSHRC) of Canada; see also Purandare & Parkar (2020).
[97] Cooke (2020).

A global coalition called Cities for Digital Rights was formed in 2018 with the purpose of 'promoting and defending digital rights in urban context through city action, to resolve common digital challenges and work towards legal, ethical and operational frameworks to advance human rights in digital environments'.[98] Many of the coalition's 60 member cities have introduced new policies and practices designed to shape the way that data is produced and used within the city, and to involve citizens directly in decisions about what digital life in the city will look like.

Barcelona as a case study. This is a city that successfully pivoted from a corporate-centric to citizen-centric 'smart city' model.[99] In 2015, after the election of housing and human rights activist Ada Colau as mayor, the city embarked on a process of re-envisaging policy making about data and digital technology as participatory democracy. Barcelona City Council developed the Barcelona Digital Plan as guidance to implement this new approach.[100] Under this framework, the city has developed a set of policies and practices around data and digital infrastructure.

These include, among other things: opening up the digital architecture of the city by developing open standards and prioritizing open-source technology over proprietary systems; integrating local providers into procurement; treating data as a shared resource (owned and controlled by citizens rather than as a commercial asset) by including provisions to preserve citizen data ownership in city contracts with digital providers; and using technology to foster and facilitate civic participation in municipal policy making.

In 2021, Barcelona introduced its AI Municipal Strategy, which identified four key principles: (1) AI may be used in the generation of automated recommendations, but may not be integrated into decision-making systems; (2) algorithmic models and digital databases should be transparent and auditable; (3) robust accountability and liability regimes apply when the use of AI tools results in harm or loss; and (4) strict procurement clauses that protect municipal control of any private or externally provided AI product.[101]

Municipal policies to improve digital privacy, limit surveillance technology or place guardrails around the acquisition and use of GenAI are increasingly common in the *United States*. Seattle was one of the first cities to enact a 'Surveillance Ordinance' in 2013, which required city departments to submit guidelines for how they planned to use these technologies, and what types of data would be produced.[102] Four years later it was amended to remedy the fact that city departments had failed to include analytic software within the language of the original ordinance. The revised ordinance included provisions for holding community meetings prior to city council approval of departmental surveillance technology (hardware and software) acquisitions.

New York City's Public Oversight of Surveillance Technology (or POST) Act in 2020 was more narrowly focused on the police department, requiring it to produce impact reports and use policies for its surveillance technologies that include various algorithmic tools.[103] The POST Act has been criticized as ineffective by many of the groups that advocated for its adoption, largely because it entrenches a bureaucracy within the police department that legitimizes surveillance technology without imposing any real mechanisms for independent enforcement.[104]

[98] Cities for Digital Rights: https://citiesfordigitalrights.org/thecoalition.
[99] Fernandez-Monge *et al.* (2024).
[100] Bria (2018).
[101] Ajuntament de Barcelona (2023).
[102] Stevenson (2016).
[103] NYPD (2024).
[104] Dyson (2023).

In the United States there is also a growing movement to limit specific surveillance technologies at municipal level.[105] For example, 21 municipalities now have ordinances banning or restricting the use of facial recognition technology by certain actors or in certain contexts.[106]

3.3.3 Social Entrepreneurs and Community-Controlled Technologies and Data Practices

Digital resistance can involve the creation of technologies that are owned and controlled by local communities, usually for limited purposes specific to the needs of those communities. This often involves social entrepreneurs that partner with local communities to develop new technological applications based on non-extractive data practices. These initiatives challenge the dominance of corporate data governance models, offering alternatives for individuals and communities.

- An example is Alt (Alternativa Laboral Trans), a worker cooperative in *Argentina* owned by trans and non-binary people. It offers digital design and development services using a non-data extractive business model that relies on open-source software, allowing clients to maintain as much control as possible over the digital afterlives of their work.[107] It also provides support for the development of digital tools for the protection and education of its own community members.

- In the *United States*, the National Digital Inclusion Alliance (NDIA) works with local community organizations to promote digital equity, inclusion and literacy, especially in areas underserved by corporate broadband providers. The NDIA's initiatives aim to empower local community actors to take an active role in pursuing digital equity. Through programs like the National Digital Navigator Corps, it provides personalized tech support and digital literacy training to underserved communities, helping bridge the 'digital divide'.[108]

Another example comes from a community in inner city Milwaukee, Wisconsin, which undertook a partnership with university researchers to create their own geographic information system (GIS) that would enable community members to engage politically on questions of greatest concern to them. The aim was to create a database that would, among other things, help them to identify property sales in their neighborhood, absentee landlords who had abandoned properties in the neighborhood, leaving them to deteriorate, and to identify tax delinquency and building code violations.[109] Relying on a combination of public data sets, local data and the knowledge of local community members, the project members built a database with a neighborhood map interface, allowing users to retrieve the data necessary to inform their participation in neighborhood planning processes.[110]

Alternative principles for data use.
A growing number of communities and organizations is articulating alternative principles around data use and enacting these in practice as they create their own digital tools or resources. The Distributed Artificial Intelligence Research (DAIR) Institute was established to undertake research that benefits 'communities which are typically not served by AI and to create pathways to refuse, interrogate, and reshape AI systems together'.[111] Other initiatives include a tool using computer vision and satellite imagery to visualize the impacts of spatial apartheid in South Africa,[112] machine learning (ML) to analyze the history of racial justice protests

[105] Tate-Mosely (2023).
[106] McConvey (2024).
[107] ALT Cooperative: https://altcooperativa.com; Mejias & Couldry (2024).
[108] Menon (2024); NDIA (2023).
[109] Ghose (2001).
[110] Ghose (2001).
[111] DAIR Institute (n.d.).
[112] Tsanni (2024).

in the United States,[113] and a wage theft calculator that estimates how many people's wages are lost (stolen) by a surveillance technology called Mentor.[114]

In the Global Majority World, social entrepreneurs and NGOs are working with local communities to build digital information networks that serve the specific needs of, and are at least to some extent controlled by, communities seeking to avoid participating in data extractivism.

Building community-controlled networks. Uganda Flying Labs (which is part of a larger humanitarian organization with similar projects in 32 countries) uses drone technology for disaster relief, services planning for refugees and agricultural monitoring and community development. Its data was used to identify evacuation access points during the 2019 Bushika landslides, to coordinate Covid-19 responses in local refugee settlements, and to help coffee farmers respond to extreme and unpredictable weather patterns resulting from climate change. Flying Labs coordinates with local government to implement projects based on the data it collects, but the local government does not own the data. 'Because the use of drones for development-oriented initiatives requires private sector investment, data from the initiatives designed for public goods ultimately is returned to the organizations, company, or entities that funded the request; data are owned by the people who commission research rather than the Flying Labs or the broader community.' This, along with the lack of resources available to establish servers for storing and managing data, means the data that Flying Labs collects cannot be co-opted for other purposes.[115]

In Cape Town, *South Africa*, a non-profit organization – Violence Prevention Through Urban Upgrading (VPUU) – has developed its own data infrastructure, including a licensed community wireless network serving over 65,000 people for free.[116] Called V-NET, it is 'composed of nodes established around community sites', which function as a 'mesh network'. This network was developed to provide internet access to local people and to support the organization's other community development projects, which include educational and social programs, public works projects to improve local infrastructure, and advocacy with the government for better service delivery. VPUU develops its own apps to collect data collection in support of its projects, and trains community members to use those apps. VPUU's CitySpec app allows community members to track the maintenance of public facilities, such as water taps, toilets and streetlights, using the data to analyze community needs; the community then uses that data as evidence to advocate with local government actors to have those needs met.[117]

Another example is the non-profit organization Majal, founded in 2006 by Bahraini social entrepreneur Esra'a Al Shafei, which operates in the *Middle East* and *North Africa*.

Spaces for safe expression online. Majal develops digital spaces to foster safe and accessible expression, association and communication for underserved and underrepresented communities in the Middle East and North Africa. One of its platforms, CrowdVoice.org, has collected, curated and contextualized crowdsourced data about global protest and social justice movements. The platform serves as a resource for activists and journalists to document, research and communicate about events on the ground. Majal is also a co-founder of the Numun Fund, which aims to 'seed, resource and sustain feminist and women/trans led groups who engage with technology in their activism'.[118]

[113] Oliver *et al.* (2022).
[114] Williams (2023).
[115] Horst *et al.* (2024, p. 137), supported in part by the Australian Research Council (ARC).
[116] Blake *et al.* (2023).
[117] Blake *et al.* (2023); VPUU (2019).
[118] Majal (2024a, b); Skalli (2023).

All these initiatives underscore the importance of local control and community-specific solutions in addressing digital inequalities and injustice. Unlike governance measures that merely seek to balance investment priorities or ban certain applications, these initiatives emphasize building local capacity and agency. They demonstrate that empowering communities using tailored digital solutions can effectively address their unique challenges, ensuring that technological advancements do not perpetuate existing inequities, but instead promote inclusive growth and empowerment.

3.3.4 New National-Level Decentralized Data Governance Frameworks

Even when formal institutional policy processes are captured by industry interests or dependencies to varying degrees, communities can engage in organized resistance. Globally, there is great variety and creativity in the resistance strategies that communities have adopted in dissent from both corporate-controlled datafication and from the institutionally controlled political processes of datafication. Most documented examples of organized resistance are small scale and local, but they demonstrate the possibility of, and provide inspiration for, meaningful collective action in contexts where it is difficult or impossible for most people, let alone the vulnerable, to access formal political processes.

New data governance models offer promising alternatives to traditional centralized systems by promoting local ownership, control and benefit-sharing of data. The principles outlined in *India*'s Non-Personal Data Governance Framework and the digital citizenship initiatives in *Latin America* provide a solid foundation for developing these models. By implementing such frameworks, communities can ensure that they are the primary beneficiaries of the data they generate, potentially leading to more equitable and sustainable development outcomes. These models not only foster a sense of ownership and empowerment among community members; they also help build trust and cooperation in the increasingly digital global landscape.

Rethinking data governance. India's draft Non-Personal Data Governance Framework is a pioneering effort to rethink data governance focusing on non-personal data generated in rural and urban areas. The framework proposes that data generated by rural *gram panchayats* (village councils) and urban municipalities be owned by local bodies, referred to as data stewards. This is intended to ensure that the benefits of data exploitation are democratized, and local communities have a say in how their data is used. Data stewards or trustees serve as data guardians, responsible for managing and regulating access to this data. They are tasked with ensuring data privacy, securing data rights and fostering a transparent environment where community members are informed and engaged in decision-making related to their data.[119]

These kinds of data governance frameworks can support a variety of community-based products and services:[120]

- *Community data hubs* are localized data centers where community data is stored, processed and managed, with oversight from local data stewards. These hubs could serve as centers for innovation and learning, offering training programs on data literacy and data rights.
- *Decentralized data infrastructures* use blockchain or other decentralized technologies such as IPFS (InterPlanetary File System), decentralized identity systems and smart contracts to ensure that data transactions are secure, transparent and accountable to the local community.
- *Local data analytics services* are developed within the community to analyze local data and provide insights that directly benefit the community. These might include agricultural advisories in rural areas using local climate and

[119] Bailey *et al.* (2020); Jindal & Nigam (2020); see also data trusts in the African context (Olorunju & Adams, 2024).
[120] Kumar *et al.* (2023); Lanier & Weyl (2018); Micheli *et al.* (2020); Singh (2020); Verdegem (2021)..

soil data, or urban planning tools in cities using mobility data to improve public transportation systems.

- *Data lockers* and intermediaries enable people to control their own data. However, this presumes that people have the time and knowledge to make judgments about when to release their data and to whom.

- *Data cooperatives* governed by community rights frameworks so, for example, women, farmers and others can retain control of their data and the rewards that flow from its use.

- *Public data infrastructures* are being developed in *India* in sectors such as commerce, finance, health, education and agriculture, and these may become more common globally.

Commons-based approaches to data governance offer an alternative paradigm to proprietary models. These typically leverage cloud-based software platforms with open governance structures, allowing data to be managed, analyzed, accessed and shared within a community.

Commons-based data governance. Collaborative models are rooted in principles of open access and collective benefit, drawing on practices in free and open-source software (FOSS) communities. These have limitations when data is treated as a common-pool resource (due to its characteristics of non-excludable and non-rivalrous characteristics, and challenges in excluding beneficiaries). In the context of alternatives to mainstream governance models, collective management of data to support the political claims of communities can mean that communities classify data as a commons. This means data is stored and actively managed and analyzed using shared tools, significantly reducing redundancy and enhancing the quality of data analysis. A 'data commons' democratizes data by breaking down barriers that hinder collaborative research and innovation. Commons-based models offer a promising alternative to prevailing models of data management as well as AI development. Achieving these outcomes requires careful implementation of governance structures, privacy protections and a technical infrastructure.[121]

All these approaches can facilitate data sharing within and between communities, promoting collaborative projects.[122] They may be resource-intensive and some have limited scalability. Local systems require periodic updates and hardware and software maintenance, which is often costly. They may also lag in adopting the latest global technical advances due to their isolation, and the focus may be on local data processing. In Global Majority World countries, research is examining frameworks for the collective realization of the social value of data, 'meaningful data transparency' in data access in the case of African stakeholders, and other efforts to stop large technology companies from being the 'privileged providers of *social solutions*'.[123] A commons approach is proposed as a way of dismantling the concentration of power in the AI industry sector, extending beyond a data commons to include the infrastructure of computing power to create a 'communal utility', and ambitions that clearly involve a rethinking of ownership.[124]

3.3.5 Civil Society Organizations, Researchers and Philanthropic Organizations

Civil society organizations can work to establish systems of social support for communities harmed by tech dominance and datafication. They often collaborate with researchers to mitigate harms to

[121] Berdou (2011); Birkinbine (2018); Dalle & David (2007); Powell (2015); Zygmuntowski *et al.* (2021). It should be noted that commons-based strategies can become conflictual when they intersect with commercial and state efforts to appropriate their resources.

[122] Menon (2024).

[123] See Magalhães & Couldry (2021, p. 354; emphasis in original); see also Adel *et al.* (2023); Gurumurthy & Chami (2022); Nyaletey *et al.* (2019); Omar (2023); Page *et al.* (2023); Vayadande *et al.* (2024).

[124] Verdegem (2022).

individuals and communities, and remove barriers to organizing for those who are most negatively impacted by datafication. They help to build literacies in local communities and the capacity of local communities to use data on their own terms or to resist its use against their interests.[125] They undertake critical research to expose harms of data-intensive tools and infrastructure, and identify strategies for data governance that is democratic in practice, not just in stated policy. They add knowledge about the political economy of data, enhancing public awareness of the epistemic and material harms of poorly constrained datafication.

Researchers and civil society organizations that focus on data justice and engage in data activism are critical of technology-centered approaches.[126] Their work can help to amplify the reach of social movements supporting democracy and people's capacities to control the uses of data and technology, including AI, in line with human rights commitments and reducing inequalities.[127] With funding from philanthropic organizations, by crowdsourcing funds or drawing on (scarce) university funding, they contribute to local initiatives (and sometimes global initiatives) to redistribute power over data, and over decision-making about data, away from the big tech companies. Research in this critical tradition identifies how concentrations of power in the hands of large companies and states leads to intrusive datafication and surveillance.[128] It focuses on 'the absences, the silences and the forgotten and ignored people and regions of the world',[129] contributing to resistance to corporate datafication, as outlined in Table 8.1, by developing, facilitating and supporting participatory action research in collaboration with and within local communities.

'Good' or positive outcomes occur ideally when initiatives are established within and by communities, and when outcomes are not assumed to be driven by technology but by actor choices about the design and operation of technology. This notion of technology for the 'public good' differs from the way 'digital public goods' are often discussed by United Nations agencies and others. These discussions tend to assume that 'the good' is embodied in technology and in data. In such discussions it follows that technology and data only need to be made available to those without affordable access for them to reap the benefits.[130] For example, a digital public goods alliance of governments and the private sector is working to deliver 'digital public goods' for the Global Majority World. Its mission is to fight against mis- and disinformation, and it promotes creative uses of technologies and data. Some of its projects are open source, but few seem to push for the step-change in data governance frameworks that would empower local communities to control and own their data; they do not fundamentally question that big tech's datafication practices lead to harms, including discrimination.[131]

4 Chapter Summary

This chapter has demonstrated that commercial datafication supported by AI systems (data aggregation and ML technologies) disadvantage and discriminate among people in the data economy by sustaining comprehensive surveillance to enable computerized data production and services. These surveillance practices are designed to monopolize data resources. The monopolization of information (i.e., organized as usable insight or knowledge), as practiced, converts data into private assets. Big tech business models incentivize turning a blind eye

[125] See Chapter 5 for a discussion of literacy.

[126] Crawford *et al.* (2014); Dencik *et al.* (2016); Hepp *et al.* (2022); Milan & van der Velden (2016).

[127] Cammaerts (2018, 2024); Dencik & Leistert (2015); Ó Siochrú *et al.* (2024); Timcke & Hlomani (2024).

[128] On surveillance using biometrics, see Munoriyarwa & Mare (2022); on the use of facial recognition technologies in Brazil, see Ramiro & Cruz (2023); on surveillance in African countries and the use of technologies exported from the Global North, see Sheombar & Skelton (2023); on the 'new aesthetics of surveillance' using digital images and the systematic collection of data, see Beiguelman (2021); on the impact of AI systems-enabled surveillance and data collection on migrants and refugees, see Napolitano (2023); and for the use of surveillance or 'smart spying' by the United States, see Moran *et al.* (2023); in the European Union, see Calderaro & Blumfelde (2022), supported by the Economic and Social Research Council (ESRC), UK.

[129] Gillwald & Wavre (2024, p. 34); RIA (2023a).

[130] UN (2020). Digital public goods in this context refer to open-source software, open data, open AI models, open standards and open content.

[131] DPGA (2023).

to mis- and disinformation because this content is key to attracting attention and traffic to platform services, which boosts their financial viability and profits.

Corporate incentives, strategies and practices involved in designing, developing, selling and controlling data are at the heart of information ecosystems. These lead to epistemic injustice, the privileging of information and knowledge that are neither representative nor inclusive. Individual and collective dependencies and inequities resulting from datafication are being experienced around the world. They are manifested in the form of biased and discriminatory decisions in the treatment of people by gender, race, ethnicity, disability, class (caste) and language community. To progress towards healthy information ecosystems, capacities for thinking critically about how to govern massive amounts of digitized data need to be strengthened.

The synthesis of research in this chapter shows that:

- Biased outputs of AI systems are often the consequence of biases in the data on which they are trained. This leads to distortions and unfair discrimination, inflicting harm by causing unfavorable outcomes for groups by gender, race, ethnicity, disability, class (caste) and language community.

- Improving data diversity by enforcing transparency and conducting regular bias audits and algorithmic reviews is essential because bureaucratic oversight mechanisms mandated by state-led governance have had limited impact on the power wielded by big tech companies. These audits should be facilitated by third-party auditors, using fairness tools to adjust AI models to ensure they are free of known biases.

- Individuals and community groups are developing strategies to resist the extractive features of the data economy. There are strong pressures from within civil society to treat data governance as a lever for restructuring data markets, to protect against infringements of human rights and to tackle concentrations of power and wealth that jeopardize democracy.

- Confronting data extractivism through resistance strategies requires scaling up digital self-defense training. Other strategies include the development of public interest alternative news media, promoting community collaborative strategies with Indigenous communities and municipalities, working with social entrepreneurs to develop community-controlled technologies and data practices, and decentralized data governance frameworks. These require working with civil society organizations, researchers and philanthropic organizations to counter big tech datafication practices and to achieve data justice.

Research is needed:

- To advance work on decolonizing research so that epistemic knowledge about and experiences of the data economy in the Global Majority World can be understood and inform data governance policy and practice.

- To examine the impacts of data production and processing in people's daily lives, focusing on discriminatory outcomes by gender, race, ethnicity, disability, class (caste) or language community; this means extending research to capture instances of these outcomes in countries around the world.

- To expose how dependencies created by the power of big tech companies in other sectors, for example healthcare, education, transportation and the news media, pose significant risks to democracy when sectors become dependent on the data-intensive products and infrastructures developed and sold by big tech companies.

- To investigate how people are imagining resistance strategies to challenge biased algorithmic systems and injustices associated with data governance frameworks, and to systematically identify knowledge about practices and local solutions that may be sustainably scaled up.

- To map new digital divides that are emerging with the spread of AI systems (data aggregation and ML technologies), and to investigate how to prevent replicating and further entrenching problems with data-intensive economies that are present in the Global North and the Global Majority World.

- To understand how a paradigm shift can be achieved such that the Global Majority World is not positioned as a passive recipient of Western ideas about how to govern data, but as an equal stakeholder in dialogue about information ecosystems governance.

References

- Adel, K., Elhakeem, A., & Marzouk, M. (2023). Decentralized system for construction projects data management using blockchain and IPFS. *Journal of Civil and Engineering Management*, 29(4), 342-359. https://doi.org/10.3846/jcem.2023.18646
- Ajuntament de Barcelona [Barcelona City Council]. (2023). *Definició de metodologies de treball i protocols per a la implementació de sistemes algorítmics*.
- Alaimo, C., & Kallinikos, J. (2024). *Data Rules: Reinventing the Market Economy*. MIT Press.
- Alfonsi, C. (2019). Taming tech giants requires fixing the revolving door. *Kennedy School Review*, 19(2019), 166-170. www.proquest.com/openview/cea84d87b730c1e8e8db055e84b5c9c1/1?pq-origsite=gscholar&cbl=436382
- Angwin, J., Larson, J., Mattu, S., & Kirchner, L. (2016). Machine Bias. ProPublica, 23 May. www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing
- Arriagada, A., Bonhomme, M., Ibanez, F., & Leyton, J. (2023). The gig economy in Chile: Examining labor conditions and the nature of gig work in a Global South country. *Digital Geography and Society*, 5(2023), 1-6. https://doi.org/10.1016/j.diggeo.2023.100063
- Bailey, R., Parsheera, S., & Sane, R. (2020). Comments on the 'Report by the Committee of Experts on Non-Personal Data Governance Framework' to Ministry of Electronics and IT, Government of India. https://doi.org/10.2139/ssrn.3724184
- Ball, K., & Snider, L. (2013). *The Surveillance-Industrial Complex: A Political Economy of Surveillance*. Routledge.
- Bannerman, S., McNeil, B., Wyndham-West, K., & Beny, H. (2024). *2023 TechLobby Annual Report*. The Tech Lobby. https://thetechlobby.ca/2023-techlobby-annual-report-interactive-graphics
- Beiguelman, G. (2021). *Políticas da imagem: vigilância e resistência na dadosfera*. Ubu Editora.
- Bennett, W. L., & Livingston, S. (2018). The disinformation order: Disruptive communication and the decline of democratic institutions. *European Journal of Communication*, 33(2), 122-139. https://doi.org/10.1177/0267323118760317
- Berdou, E. (2011). *Organization in Open Source Communities: At the Crossroads of the Gift and Market Economies*. Routledge.
- Bhat, P. (2021). Platform politics: The emergence of alternative social media in India. *Asia Pacific Media Educator*, 31(2), 269-276. https://doi.org/10.1177/1326365X211056699
- Birkinbine, B. J. (2018). Commons praxis: Towards a critical political economy of the digital commons. *tripleC*, 16(1), 290-305. https://doi.org/10.31269/triplec.v16i1.929
- Birnbaum, E., & Martin, E. (2023). Critics slam big tech lobbying in US Indo-Pacific talks. *TIME*, 10 July. https://time.com/6293489/tech-firms-us-indo-pacific-trade-talks
- Blake, E., Odendaal, N., & Söderström, O. (2023). Beyond 'Data Positivism': Civil Society Organizations' Data and Knowledge Tactics in South Africa. In O. Söderström & A. Datta (Eds), *Data Power in Action* (pp. 204-226). Bristol University Press.
- Boadle, A. (2023). Brazil pushes back on big tech firms' campaign against 'fake news law'. Reuters, 3 May. www.reuters.com/world/americas/brazil-lawmakers-vote-controversial-bill-clean-up-social-media-2023-05-02
- Bonini, T., & Treré, E. (2024). *Algorithms of Resistance: The Everyday Fight Against Platform Power*. MIT Press.
- Bria, F. (2018). *Barcelona City Council Digital Plan: Government Measure Concerning Ethical Management and Accountable Data: Barcelona Data Commons*. Open Digitalisation Programme, Barcelona City Council Office for Technology and Digital Innovation.
- Broomfield, H., & Reutter, L. (2022). In search of the citizen in the datafication of public administration. *Big Data & Society*, 9(1), 1-14. https://doi.org/10.1177/20539517221089302
- Buolamwini, J. (2023). *Unmasking AI: My Mission to Protect What Is Human in a World of Machines*. Random House.
- Business Standard. (2018). US tech firms to boost lobbying against India's push to store data locally. 18 August. www.business-standard.com/article/international/us-tech-firms-to-boost-lobbying-against-india-s-push-to-store-data-locally-118081800348_1.html
- Caballero, F. S., & Monje, D. I. (2024). Artificial Intelligence and Technological Accelerationism: A Critique of Cybernetic Ideology. In J. Pedro-Caranana, R. Gómez, T. F. Corrigan, & F. S. Caballero (Eds), *Political Economy of Media and Communication: Methodological Approaches* (pp. 328-365). Routledge.
- Calderaro, A., & Blumfelde, S. (2022). Artificial intelligence and EU security: The false promise of digital sovereignty. *European Security*, 31(3), 415-434. https://doi.org/10.1080/09662839.2022.2101885
- Calo, R., & Citron, D. K. (2021). The automated administrative state: A crisis of legitimacy. *Emory Law Journal*, 70(4), 799-844. https://scholarlycommons.law.emory.edu/elj/vol70/iss4/1
- Cammaerts, B. (2018). *The Circulation of Anti-Austerity Protest*. Palgrave Macmillan.
- Cammaerts, B. (2024). Defending democracy against populist neo-fascist attacks: The role and problems of public sphere theory. Javnost – *The Public*, 31(1), 26-45. https://doi.org/10.1080/13183222.2024.2310983
- Cammaerts, B., & Mansell, R. (2020). Digital platform policy and regulation: Toward a radical democratic turn. *International Journal of Communication*, 14(2020), 135-154. https://ijoc.org/index.php/ijoc/article/view/11182/2901

- Caplan, R. (2023). Networked platform governance: The construction of the democratic platform. *International Journal of Communication*, 17(2023), 3541-3472. https://ijoc.org/index.php/ijoc/article/view/20035
- Carroll, S. R., Rodriguez-Lonebear, D., & Martinez, A. (2019). Indigenous data governance: Strategies from the United States' Native nations. *Data Science Journal*, 18(31), 1-15. https://doi.org/doi:10.5334/dsj-2019-031
- Casati, R. (2013). *Contro Il Colonialismo Digitale*. Laterza.
- Chadha, K., & Bhat, P. (2022). Alternative news media and critique of mainstream journalism in India: The case of OpIndia. *Digital Journalism*, 10(8), 1283-1301. https://doi.org/10.1080/21670811.2022.2118143
- Chambers, R. (1997). *Whose Reality Counts? Putting the First Last*. Practical Action Publishing.
- Chonka, P., Diepeveen, S., & Haile, Y. (2023). Algorithmic power and African indigenous languages: Search engine autocomplete and the global multilingual Internet. *Media, Culture & Society*, 45(2), 246-265. https://doi.org/10.1177/01634437221104705
- Cieslik, K., & Margócsy, D. (2022). Datafication, power and control in development: A historical perspective on the perils and longevity of data. *Progress in Development Studies*, 22(4), 352-373. https://doi.org/10.1177/14649934221076580
- Cooke, P. (2020). Silicon Valley imperialists create new model villages as smart cities in their own image. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(24), 1-18. https://doi.org/10.3390/joitmc6020024
- Corporate Europe Observatory. (2024a). Don't let corporate lobbying further water down the AI Act, lobby watchdogs warn MEPs. 12 March. https://corporateeurope.org/en/2024/03/dont-let-corporate-lobbying-further-water-down-ai-act-lobby-watchdogs-warn-meps
- Corporate Europe Observatory. (2024b). Trojan horses: How European startups teamed up with Big Tech to gut the AI Act. 11 March. www.corporateeurope.org/en/2024/03/trojan-horses-how-european-startups-teamed-big-tech-gut-ai-act
- Couldry, N., & Mejias, U. A. (2019). Data colonialism: Rethinking big data's relation to the contemporary subject. *Television & New Media*, 20(4), 336-349. https://doi.org/10.1177/1527476418796632
- Crawford, K., Gray, M. L., & Miltner, K. (2014). Critiquing big data: Politics, ethics, epistemology. *International Journal of Communication*, 8(2014), 1663-1672. https://ijoc.org/index.php/ijoc/article/view/2167
- Crump, C. (2016). Surveillance policy making by procurement. *Washington Law Review*, 91(4), 1595-1662. https://doi.org/10.2139/ssrn.2737006
- DAIR (Distributed Artificial Intelligence Research) Institute. (no date). Our research is intended to benefit communities. www.dair-institute.org/research-philosophy
- Dalle, J.-M., & David, P. A. (2007). Simulating Code Growth in Libre (Open Source) Mode. In E. Brousseau & N. Curien (Eds), *Internet and Digital Economics: Principles, Methods and Applications* (pp. 391-422). Cambridge University Press.
- Dencik, L., & Leistert, O. (Eds) (2015). *Critical Perspectives on Social Media and Protest: Between Control and Emancipation*. Rowman & Littlefield.
- Dencik, L., Hintz, A., & Cable, J. (2016). Towards data justice? The ambiguity of anti-surveillance resistance in political activism. *Big Data & Society*, Jul-Dec, 1-12. https://journals.sagepub.com/doi/pdf/10.1177/2053951716679678
- Dibenedetto, C. (2021). Faced with limited resources, Indigenous communities built their own internet. Here's how. Indigenous Peoples Major Group for Sustainable Development. https://indigenouspeoples-sdg.org/index.php/english/ttt/1549-faced-with-limited-resources-indigenous-communities-built-their-own-internet-here-s-how
- Domingos Cordeiro, V., & Cozman, F. (2024). Artificial Intelligence and Everyday Knowledge. In H. S. Dunn, M. Ragnedda, M. L. Ruiu, & L. Robinson (Eds), *The Palgrave Handbook of Everyday Digital Life* (pp. 23-35). Springer Link.
- DPGA (Digital Public Goods Alliance). (2023). *Collaborative Momentum: The 2023 State of the Digital Public Goods Ecosystem Report*.
- Dunn, H. S., Ragnedda, M., Ruiu, M. L., & Robinson, L. (Eds) (2024). *The Palgrave Handbook of Everyday Digital Life*. Palgrave Macmillan.
- Dutta, M. J., & Pal, M. (2020). Theorizing From the Global South: Dismantling, resisting, and transforming communication theory. *Communication Theory*, 30(4), 349-369. https://doi.org/10.1093/ct/qtaa010
- Dyson, I. (2023). New York City must strengthen police transparency law. Brennan Center for Justice, 15 December. www.brennancenter.org/our-work/analysis-opinion/new-york-city-must-strengthen-police-transparency-law
- Enghel, F., & Noske-Turner, J. (Eds) (2018). *Communication in International Development: Doing Good or Looking Good?* Routledge.
- Epstein, R., & Robertson, R. E. (2015). The search engine manipulation effect (SEME) and its possible impact on the outcomes of elections. *Proceedings of the National Academy of Sciences of the United States of America*, 112(33), E4512-4521. doi: 10.1073/pnas.1419828112.
- Eubanks, V. (2018). *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. St Martin's Publishing Group.
- Faife, C. (2022). Feds are still using ID.me to scan your face — and human reviewers can't keep up. *The Verge*, 11 February. www.theverge.com/2022/2/11/22928082/id-me-irs-facial-recognition-overworked-employees
- Farrell, H., & Newman, A. (2023). *Underground Empire: How America Weaponized the World Economy*. Allen Lane.
- Feathers, T., & Ng, A. (2022). Tech industry groups are watering down attempts at privacy regulation, one state at a time. The Markup, 26 May. https://themarkup.org/privacy/2022/05/26/tech-industry-groups-are-watering-down-attempts-at-privacy-regulation-one-state-at-a-time

- Fernandez-Monge, F., Barns, S., Bria, F., & Kattel, R. (2024). Reclaiming data for improved city governance: Barcelona's New Data Deal. *Urban Studies*, 61(7), 1291-1307. https://journals.sagepub.com/doi/abs/10.1177/00420980231204835
- Ferrara, E. (2024a). Fairness and bias in artificial intelligence: A brief survey of sources, impacts, and mitigation strategies. *Sci*, 6(1), 1-15. https://doi.org/10.3390/sci6010003
- Ferrara, E. (2024b). GenAI against humanity: Nefarious applications of generative artificial intelligence and large language models. *Journal of Computational Social Science*, 7, 549-569. https://doi.org/10.1007/s42001-024-00250-1
- Fitzgerald, C., Williams, K., & Cross, R. J. (2024). *The State of Privacy: How State 'Privacy' Laws Fail to Protect Privacy and How They Can Do Better*. Electronic Privacy Information Center & Public Interest Research Group (PIRG), Education Fund, US.
- Ford, E. (2019). *El Reto de la Democracia Digital: Hacia una Ciudadania Interconnectada*. KAS, JNE, ONPE, D&D Internacional.
- Foucault, M. (1980). *Power/Knowledge: Selected Interviews and Other Writings*, 1972-1977. Knopf Doubleday Publishing Group.
- Franco, S. F., Graña, J. M., & Rikap, C. (2024). Dependency in the digital age? The experience of Mercado Libre in Latin America. *Development and Change*, 55(3), 429-464. https://ideas.repec.org//a/bla/devchg/v55y2024i3p429-464.html
- Fuchs, C. (2023). *Digital Democracy and the Digital Public Sphere: Media Communication and Society, Volume Six*. Taylor & Francis.
- Fung, A., & Wright, E. O. (Eds) (2003). *Deepening Democracy: Institutional Innovations in Empowered Participatory Governance*. Verso.
- Galič, M. (2022). Smart cities as 'Big Brother only to the masses': The limits of personal privacy and personal surveillance. *Surveillance & Society*, 20(3), 306-311. https://doi.org/10.2139/ssrn.4228444
- Georgiou, M. (2023). *Being Human in Digital Cities*. Polity Press.
- Ghose, R. (2001). Use of information technology for community empowerment: Transforming geographic information systems into community information systems. *Transactions in GIS*, 5(2), 141-163. https://doi.org/10.1111/1467-9671.00073
- Gillwald, A., & Wavre, V. (2024). Rerouting Geopolitics: Narratives and the Political Power of Communication. In C. Padovani, V. Wavre, A. Hintz, G. Goggin, & P. Iosifidis (Eds), *Global Communication Governance at the Crossroads* (pp. 21-35). Palgrave Macmillan.
- Gillwald, A., & Weleilakeba, S. (2024). From the Digital Inequality Paradox to Marginalisation through Digitalisation: *GISWatch 2024 Special Edition reports*. Association for Progressive Communications.
- Gillwald, A., Murkick, D., Leslie, D., Katell, M., *et al.* (2022). *Data Justice in Practice: A Guide for Impacted Communities*. Global Partnership on Artificial Intelligence.
- Glasberg, D. S., & Shannon, D. (2010). *Political Sociology: Oppression, Resistance, and the State*. SAGE Publications.
- Glimmerveen, L., Ybema, S., & Nies, H. (2022). Who participates in public participation? The exclusionary effects of inclusionary efforts. *Administration & Society*, 54(4), 543-574. https://doi.org/10.1177/00953997211034137
- Graham, M., & Dittus, M. (2022). *Geographies of Digital Exclusion: Data and Inequality*. Pluto Press.
- Graham, M., & Ferrari, F. (Eds) (2022). *Digital Work in the Planetary Market*. MIT Press.
- Guallar, J., Codina, L., Freixa, P., & Pérez-Montoro, M. (2022). Disinformation, hoaxes, curation and verification: Review of studies in Ibero-America 2017-2020. *Online Media and Global Communication*, 1(3), 648-668. https://doi.org/10.1515/omgc-2022-0055
- Gurumurthy, A., & Chami, N. (2022). *Governing the Resource of Data: To What End and for Whom? Conceptual Building Blocks of a Semi-Commons Approach*. IDFC Institute Working Paper No. 23. Data Governance Network, International Development Finance Club.
- Gurumurthy, A., & Chami, N. (2024). Justice in the Post-Public Sphere: The New Challenge for Global Governance. In C. Padovani, V. Wavre, A. Hintz, G. Goggin, & P. Iosifidis (Eds), *Global Communication Governance at the Crossroads* (pp. 111-127). Palgrave Macmillan.
- Hadi Mogavi, R., Deng, C., Juho Kim, J., Zhou, P., *et al.* (2024). ChatGPT in education: A blessing or a curse? A qualitative study exploring early adopters' utilization and perceptions. *Computers in Human Behavior: Artificial Humans*, 2(1), 1-20. https://doi.org/10.1016/j.chbah.2023.100027
- Hancock, E. (2024). The EU's uphill battle against Big Tech power. *POLITICO*, 6 March. www.politico.eu/article/the-eus-uphill-battle-against-big-tech-power
- Hao, K. (2022). A new vision of artificial intelligence for the people. *MIT Technology Review*, 22 April. www.technologyreview.com/2022/04/22/1050394/artificial-intelligence-for-the-people
- Hao, X., Demir, E., & Eyers, D. (2024). Exploring collaborative decision-making: A quasi-experimental study of human and Generative AI interaction. *Technology in Society*, 78(2024), 1-22. https://doi.org/10.1016/j.techsoc.2024.102662
- Hardy, C., & Williams, S. (2008). E-government policy and practice: A theoretical and empirical exploration of public e-procurement. *Government Information Quarterly*, 25(2), 155-180. https://doi.org/10.1016/j.giq.2007.02.003
- Hargittai, E. (Ed.) (2021). *Handbook of Digital Inequality*. Edward Elgar Publishing.
- Harlow, S. (2022). A new people's press? Understanding digital-native news sites in Latin America as alternative media. *Digital Journalism*, 10(8), 1322-1341. https://doi.org/10.1080/21670811.2021.1907204

- Harris, B. (2023). Google draws backlash from Brazil with lobbying against 'fake news' bill. *The Financial Times*, 2 May. www.ft.com/content/8a4bb131-e792-491d-a348-9dee4de41ce2
- Heeks, R. (2022). Digital inequality beyond the digital divide: Conceptualizing adverse digital incorporation in the global South. *Information Technology for Development*, 28(4), 688-704. https://doi.org/10.1080/02681102.2022.2068492
- Helsper, E. J. (2021). *The Digital Disconnect: The Social Causes and Consequences of Digital Inequalities*. SAGE Publications.
- Hepp, A., Jarke, J., & Kramp, L. (2022). *New Perspectives in Critical Data Studies: The Ambivalences of Data Power* – An Introduction. In A. Hepp, J. Jarke, & L. Kramp (Eds), *New Perspectives in Critical Data Studies: The Ambivalences of Data Power* (pp. 1-23). Springer International Publishing.
- Hintz, A., Dencik, L., & Wahl-Jorgensen, K. (2019). *Digital Citizenship in a Datafied Society*. Polity Press.
- Horowitz, M., Nieminen, H., Lehtisaari, K., & D'Arma, A. (Eds) (2024). *Epistemic Rights in the Era of Digital Disruption*. Springer International Publishing.
- Horst, H. A., Sargent, A., & Gaspard, I. (2024). Beyond extraction: Data strategies from the Global South. *New Media & Society*, 26(3), 1366-1383. https://doi.org/10.1177/14614448231201651
- Iliadis, A., & Acker, A. (2022). The seer and the seen: Surveying Palantir's surveillance platform. *The Information Society*, 38(5), 334-363. www.tandfonline.com/doi/epdf/10.1080/01972243.2022.2100851?needAccess=true
- Isin, E., & Ruppert, E. (2020). *Being Digital Citizens*. Rowman & Littlefield.
- James, D. (2022). Rigging the rules: How big tech uses stealth 'trade' agreements and how we can stop them. State of Big Tech. https://projects.itforchange.net/state-of-big-tech/rigging-the-rules-how-big-tech-uses-stealth-trade-agreements-to-undermine-and-prevent-digitalization-in-public-interest-and-how-we-can-stop-them
- Jindal, T., & Nigam, A. (2020). *Data Stewardship for Non-Personal Data in India: A Position Paper on Data Trusts*. Vidhi Centre for Legal Policy, Indraprastha Institute of Information Technology, Cyril Amarch and Mangaldas and Omidyar Network India.
- Kahneman, D., Sibony, O., & Sunstein, C. R. (2021). *Noise: A Flaw in Human Judgment*. William Collins.
- Klein, N. (2008). *The Shock Doctrine: The Rise of Disaster Capitalism*. Picador.
- Klein, N. (2020). Naomi Klein: How big tech plans to profit from the pandemic. *The Guardian*, 13 May. www.theguardian.com/news/2020/may/13/naomi-klein-how-big-tech-plans-to-profit-from-coronavirus-pandemic
- Kumar, R., Desai, V. S., & Koshy, N. S. (2023). *Creating Sustainable Data Cooperatives in the Global South: Frameworks for Institutional Support: Research Brief*. IT for Change, India.
- Landau, M. (2021). The Astounding Growth of 'Big Tech' and the Lack of Enforcement of the Intellectual Property, Antitrust and Contract Laws. In K. B. Tripp (Ed.), *Entertainment, Publishing and the Arts Handbook*. Clark Boardman Callaghan.
- Lanier, J., & Weyl, E. G. (2018). A blueprint for a better digital society. *Harvard Business Review*, 26 September, 2-19. https://hbr.org/2018/09/a-blueprint-for-a-better-digital-society
- Lawder, D. (2023, 2023/11/08/). US suspends Indo-Pacific talks on key aspects of digital trade – lawmakers. Reuters, 8 November. www.reuters.com/business/finance/us-suspends-indo-pacific-talks-key-aspects-digital-trade-lawmakers-2023-11-08
- Lehuedé, S. (2022). Territories of data: Ontological divergences in the growth of data infrastructure. *Tapuya: Latin American Science, Technology and Society*, 5(1), 1-18. https://doi.org/10.1080/25729861.2022.2035936
- Li, W. Y. (2023). Regulatory capture's third face of power. *Socio-Economic Review*, 21(2), 1217-1245. https://academic.oup.com/ser/article/21/2/1217/7030814?login=false
- Linehan, M., Byers, C., Brooks, N. N., & Freeman, L. (2024). *Responsible Generative AI: An Examination of Ongoing Efforts to Tame This Powerful Technology*. OMG and IBM.
- Luchs, I. (2023). AI for all? Challenging the democratization of machine learning. *Minor Tech: A Peer-Reviewed Journal About AI*, 12(1), 135-145. https://doi.org/10.7146/aprja.v12i1.140445
- Machill, S. A. (2020). *Biased Artificial Intelligence: Algorithmic Fairness and Human Perception of Biased AI*. NOVA Information Management School, Universidade Nova de Lisboa.
- Magalhães, J. C., & Couldry, N. (2021). Giving by taking away: Big tech, data colonialism, and the reconfiguration of social good. *International Journal of Communication*, 15(2021), 343-362. https://ijoc.org/index.php/ijoc/article/view/15995
- Mager, A., & Katzenbach, C. (2021). Future imaginaries in the making and governing of digital technology: Multiple, contested, commodified. *New Media & Society*, 23(2), 223-236. https://doi.org/10.1177/1461444820929321
- Majal (2024a). About us. https://majal.org/about-us
- Majal (2024b). Numun Fund: Supporting feminist tech infrastructure. https://majal.org/numun-fund
- Mansell, R. (2012). *Imagining the Internet: Communication, Innovation and Governance*. Oxford University Press.
- Marcucci, S., Alarcón, N. G., Verhulst, S. G., & Wüllhorst, E. (2023). Informing the global data future: Benchmarking data governance frameworks. *Data & Policy*, 5(e30), 1-25. https://doi.org/10.1017/dap.2023.24
- Mare, A., Mabweazara, H. M., & Moyo, D. (2019). 'Fake news' and cyber-propaganda in sub-Saharan Africa: Recentering the research agenda. *African Journalism Studies*, 40(4), 1-12. https://doi.org/10.1080/23743670.2020.1788295
- McConvey, J. R. (2024). Police in US cities that ban facial recognition asking others to do it for them. Biometric Update, 22 May. www.biometricupdate.com/202405/police-in-us-cities-that-ban-facial-recognition-asking-others-to-do-it-for-them

- Medrado, A., & Verdegem, P. (2024). Participatory action research in critical data studies: Interrogating AI from a South–North approach. *Big Data & Society*, 11(1), 1-14. https://doi.org/10.1177/20539517241235869
- Mejias, U. A., & Couldry, N. (2024). *Data Grab: The New Colonialism of Big Tech and How to Fight Back*. W.H. Allen.
- Menon, S. (2024). The digital navigator programme in the time of COVID-19: A case study on Philadelphia's programme. *Journal of Digital Media & Policy*, Online First, 1-26. https://doi.org/10.1386/jdmp_00140_1
- Micheli, M., Ponti, M., Craglia, M., & Berti Suman, A. (2020). Emerging models of data governance in the age of datafication. *Big Data & Society*, 7(2), 1-15. https://doi.org/10.1177/2053951720948087
- Milan, S., Treré, E., & Masiero, S. (Eds) (2021). *COVID-19 from the Margins: Pandemic Invisibilities, Policies and Resistance in the Datafied Society*. Institute of Network Cultures, Amsterdam University.
- Milan, S., & Treré, E. (2019). Big data from the South(s): Beyond data universalism. *Television & New Media*, 20(4), 319-335. https://doi.org/10.1177/1527476419837739
- Milan, S., & van der Velden, L. (2016). The alternative epistemologies of data activism. *Digital Culture & Society*, 2(2), 57-74. https://doi.org/10.14361/dcs-2016-0205
- Misra, S. (2022). The overnment wants to sell your data | #SaveOurPrivacy. Internet Freedom Foundation, 5 March. https://internetfreedom.in/the-government-wants-to-sell-your-data
- MIT Technology Review Insights. (2023). Finding value in generative AI for financial services. *MIT Technology Review* and UBS. www.technologyreview.com/2023/11/26/1083841/finding-value-in-generative-ai-for-financial-services
- Mitchell, S., Potash, E., Barocas, S., D'Amour, A., & Lum, K. (2021). Algorithmic fairness: Choices, assumptions, and definitions. *Annual Review of Statistics and Its Application*, 8(2021), 141-163. https://doi.org/10.1146/annurev-statistics-042720-125902
- Mitchelstein, E., Matassi, M., & Boczkowski, P. J. (2020). Minimal effects, maximum panic: Social media and democracy in Latin America. *Social Media + Society*, 6(4), 1-11. https://doi.org/10.1177/2056305120984452
- Moran, C. R., Burton, J., & Christou. (2023). The US intelligence community, global security and AI: From secret intelligence to smart spying. *Journal of Global Security Studies*, 8(2), 1-18. https://academic.oup.com/jogss/article/8/2/ogad005/7128314
- Motlagh, N. Y., Khajavi, M., Sharifi, A., & Ahmadi, M. (2023). The impact of artificial intelligence on the evolution of digital education: A comparative study of OpenAI text generation tools including ChatGPT, Bing Chat, Bard, and Ernie. *ArXiv*. https://arxiv.org/abs/2309.02029
- Munoriyarwa, A., & Mare, A. (2022). Mainstreaming Surveillance Through the Biometrification of Everyday Life. In A. Munoriyarwa & A. Mare (Eds), *Digital Surveillance in Southern Africa: Policies, Politics and Practices* (pp. 141-156). Springer International Publishing.
- Napolitano, A. (2023). *Artificial Intelligence: The New Frontier of the EU's Border Externalisation Strategy*. EuroMed Rights.
- NDIA (National Digital Inclusion Alliance). (2023). About NDIA. www.digitalinclusion.org/about-ndia
- Nechushtai, E. (2023). Resisting the individualization of risk: Strategies of engagement and caution in journalists' responses to online mobs in the United States and Germany. *Digital Journalism*, 11(10), 1906-1923. https://doi.org/10.1080/21670811.2022.2153710
- Niklas, J., & Dencik, L. (2024). Data justice in the 'twin objective' of market and risk: How discrimination is formulated in EU's AI policy. *Policy & Internet*, 16(3), 509-522. https://doi.org/10.1002/poi3.392
- Noble, S. U. (2018). *Algorithms of Oppression: How Search Engines Reinforce Racism*. NYU Press.
- Nyaletey, E., Parizi, R. M., Zhang, Q., & Choo, K. K. R. (2019). BlockIPFS – Blockchain-enabled InterPlanetary File System for Forensic and Trusted Data Traceability. 2019 IEEE International Conference on Blockchain, 1 July. doi: 10.1109/Blockchain.2019.00012.
- NYPD (New York City Police Department). (2024). Public Oversight of Surveillance Technology (POST) Act impact and use policies. www.nyc.gov/site/nypd/about/about-nypd/policy/post-act.page
- Ó Siochrú, S., Singh, P. J., & Burch, S. (2024). Just Net Coalition: Seeking Anchors of Equity and Social Justice in a Digital World. In C. Padovani, V. Wavre, A. Hintz, G. Goggin, & P. Iosifidis (Eds), *Global Communication Governance at the Crossroads* (pp. 239-257). Palgrave Macmillan.
- O'Neil, C. (2016). *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. Harvard University Press.
- OHCHR (Office of the United Nations High Commissioner for Human Rights). (2014). *Factors that Impede Equal Political Participation and Steps to Overcome those Challenges*. www.ohchr.org/en/documents/thematic-reports/ahrc2729-factors-impede-equal-political-participation-and-steps-overcome
- Oliver, P., Lim, C., Matthews, M., & Hanna, A. (2022). Black protests in the United States, 1994 to 2010. *Sociological Science*, 9, 275-312. https://doi.org/10.15195/v9.a12
- Olorunju, N., & Adams, R. (2024). African data trusts: New tools towards collective data governance? *Information & Communications Technology Law*, 33(1), 85-98. https://doi.org/10.1080/13600834.2023.2260678
- Omar, N. (2023). Data, AI and elections in Africa: Working towards a collaborative African response. Research ICT Africa, South Africa, 22 November. https://researchictafrica.net/2023/11/22/data-ai-and-elections-in-africa-working-towards-a-collaborative-african-response
- Page, P., Knowles, P., & Mitwicki, R. (2023). Distributed governance: A principal-agent approach to data governance – Part 1. Background & core definitions. *ArXiv*. http://arxiv.org/abs/2308.07280

- Papacharissi, Z. A. (2013). *A Private Sphere: Democracy in a Digital Age*. John Wiley & Sons.
- Papaevangelou, C. (2023). Funding Intermediaries: Google and Facebook's strategy to capture journalism. *Digital Journalism*, 12(2), 234-255. https://doi.org/10.1080/21670811.2022.2155206
- Park, S., & Humphry, J. (2019). Exclusion by design: Intersections of social, digital and data exclusion. Information, *Communication & Society*, 22(9), 934-944. https://doi.org/10.1080/1369118X.2019.1606266
- Perrigo, B. (2023). Exclusive: OpenAI lobbied EU to water down AI regulation. *TIME*, 20 June. https://time.com/6288245/openai-eu-lobbying-ai-act
- Pickard, V. (2014). *America's Battle for Media Democracy: The Triumph of Corporate Libertarianism and the Future of Media Reform*. Cambridge University Press.
- Pickard, V. (2024). Legal foundations for non-reformist media reforms. Knight First Amendment Institute, Columbia University, 16 July. http://knightcolumbia.org/content/legal-foundations-for-non-reformist-media-reforms
- Popiel, P. (2018). The Tech Lobby: Tracing the contours of new media elite lobbying power. *Communication, Culture and Critique*, 11(4), 566-585. https://doi.org/10.1093/ccc/tcy027
- Powell, A. B. (2015). Open culture and innovation: Integrating knowledge across boundaries. *Media, Culture & Society*, 37(3), 376-393. https://doi.org/10.1177/0163443714567169
- Powell, A. B. (2021). *Undoing Optimization: Civic Action in Smart Cities*. Yale University Press.
- Purandare, U., & Parkar, K. (2020). 'Eyes and Ears': Surveillance in the Indian Smart City. In J. C. Augusto (Ed.), *Handbook of Smart Cities* (pp. 1-32). Springer International Publishing.
- Purtova, N., & van Maanen, G. (2024). Data as an economic good, data as a commons, and data governance. *Law, Innovation and Technology*, 16(1), 1-42. https://doi.org/10.1080/17579961.2023.2265270
- Raghavan, M., Barocas, S., Kleinberg, J., & Levy, K. (2020). Mitigating bias in algorithmic hiring: Evaluating claims and practices. *ACM Conference on Fairness, Accountability, and Transparency (FAT*) 2020*, 469-481). http://dx.doi.org/10.2139/ssrn.3408010
- Ragnedda, M., & Ruiu, M. L. (2020). *Digital Capital: A Bourdieusian Perspective on the Digital Divide*. Emerald Group Publishing.
- Ramiro, A., & Cruz, L. (2023). The grey-zones of public-private surveillance: Policy tendencies of facial recognition for public security in Brazilian cities. *Internet Policy Review*, 12(1), 1-28. https://policyreview.info/articles/analysis/grey-zones-public-private-surveillance-policy-tendencies-facial-recognition
- Rankin, J. (2023). MEPs launch site for EU officials to report 'shady lobbying' by big tech. *The Guardian*, 2 February. www.theguardian.com/world/2023/feb/02/meps-launch-site-for-eu-officials-to-report-shady-lobbying
- Recuero, R., Soares, F. B., Vinhas, O., Volcan, T., Hüttner, L. R. G., & Silva, V. (2022). Bolsonaro and the far right: How disinformation about COVID-19 circulates on Facebook in Brazil. *International Journal of Communication*, 16(2022), 148–171. https://ijoc.org/index.php/ijoc/article/viewFile/17724/3631
- Reiter, F., & Matthes, J. (2023). Correctives of the mainstream media? A panel study on mainstream media use, alternative digital media use, and the erosion of political interest as well as political knowledge. *Digital Journalism*, 11(5), 813-832. https://doi.org/10.1080/21670811.2021.1974916
- RIA (Research ICT Africa). (2023a). *Data for Democracy Action: Countering Disinformation in African Elections through Open Access to Data and Journalism as a Public Good*. Workshop Outcome Report. Research ICT Africa, South Africa.
- Roberts, T., & Ali, A. M. (2021). *Opening and Closing Online Civic Space in Africa: An Introduction to the Ten Digital Rights Landscape Reports*. Institute for Development Studies, Sussex.
- Roberts, T., & Bosch, T. (Eds) (2023b). *Digital Citizenship in Africa: Technologies of Agency and Repression*. Zed Books.
- Robinson, L., Schulz, J., Dodel, M., Correa, T., *et al.* (2020). Digital inclusion across the Americas and Caribbean. *Social Inclusion*, 8(2), 244-259. https://doi.org/10.17645/si.v8i2.2632
- Rosol, M., & Blue, G. (2022). From the smart city to urban justice in a digital age. *City*, 26(4), 684-705. https://doi.org/10.1080/13604813.2022.2079881
- Ross Arguedas, A., & Simon, F. M. (2023). *Automating Democracy: Generative AI, Journalism, and the Future of Democracy*. Balliol College, Oxford Internet Institute and Institute for Ethics in AI.
- Rouvroy, A., & Berns, T. (2013). Algorithmic governmentality and prospects of emancipation. *Reseaux*, 177(1), 163-196. www.cairn-int.info/article-E_RES_177_0163--algorithmic-governmentality-and-prospect.htm?contenu=plan
- Ruohonen, J. (2003). David and Goliath: Privacy Lobbying in the European Union. In J. Greenwood (Ed.), *The Challenge of Change in EU Business Associations* (pp. 139-149). Palgrave Macmillan.
- Santos, P., & Ndlovu, K. (2022). Towards a journalism for justice: A normative overture. *African Journalism Studies*, 43(1), 70-88. https://doi.org/10.1080/23743670.2021.2009533
- Schaake, M., & Fukuyama, F. (Eds) (2023). *Digital Technologies in Emerging Countries*. Stanford Cyber Policy Center.
- Schoon, A., Mabweazara, H. M., Bosch, T., & Dugmore, H. (2020). Decolonising digital media research methods: Positioning African digital experiences as epistemic sites of knowledge production. *African Journalism Studies*, 41(4), 1-15. doi: 10.1080/23743670.2020.1865645.
- Segura, M. S., & Waisbord, S. (2019). Between data capitalism and data citizenship. *Television & New Media*, 20(4), 412-419. https://doi.org/10.1177/1527476419834519

- Sheombar, A., & Skelton, S. K. (2023). Follow the Surveillance: A Breadcrumb Trail of Surveillance Technology Exports to Africa. In M. R. Jones, A. S. Mukherjee, D. Thapa, & Y. Zheng (Eds), *After Latour: Globalisation, Inequity and Climate Change* (pp. 241-261). Springer Nature.
- Sherman, J. (2022). India's sudden reversal on privacy will affect the global internet. *Slate*, 5 September. https://slate.com/technology/2022/09/india-data-protection-bill-fourth-way.html
- Singh, P. J. (2020). *Economic Rights in a Data-Based Society: Collective Data Ownership, Workers' Rights, and the Role of the Public Sector*. Public Services International, Friedrich Ebert Foundation and IT for Change, India.
- Singh, P. J., & Gurumurthy, A. (2021). *Economic Governance of Data: Balancing Individualist-Property Approaches with a Community Rights Framework*. IT for Change, India.
- Skalli, L. H. (2023). Disruptive Social Entrepreneurship from Bahrain: The Case of Esra'a Al Shafei. In L. H. Skalli & N. Eltantawy (Eds), *The Palgrave Handbook of Gender, Media and Communication in the Middle East and North Africa* (pp. 567-583). Springer International Publishing.
- Söderström, O., & Datta, A. (Eds) (2023). *Data Power in Action: Urban Data Politics in Times of Crisis*. Bristol University Press.
- Sodré, M. (2021). *A sociedade incivil: Mídia, iliberalismo e finanças*. Editora Vozes.
- SSD EFF (Surveillance Self-Defense, Electronic Frontier Foundation) (2023). Surveillance Self-Defense. https://ssd.eff.org
- Stevenson, C. (2016). Seattle Surveillance Ordinance Memo. Technology Law and Public Policy Clinic, 6 December. https://digitalcommons.law.uw.edu/cgi/viewcontent.cgi?article=1002&context=techclinic
- Tarrant, A., & Cowen, T. (2022). Big tech lobbying in the EU. *The Political Quarterly*, 93(2), 218-226. https://doi.org/10.1111/1467-923X.13127
- Tate-Mosely, R. (2023). The movement to limit face recognition tech might finally get a win. *MIT Technology Review*, 20 June. www.technologyreview.com/2023/07/20/1076539/face-recognition-massachusetts-test-police
- Teachout, Z., & Khan, L. (2014). Market structure and political law: A taxonomy of power. *Duke Journal of Constitutional Law & Public Policy*, 9, 37-74. https://doi.org/10.2139/ssrn.2490525
- Thakur, D., & Madrigal, D. H. (2022). *An Unrepresentative Democracy: How Disinformation and Online Abuse Hinder Women of Color Political Candidates in the United States*. Center for Democracy & Technology, US & Belgium.
- The Tierra Común Network (Ed.) (2023). *Resisting Data Colonialism: A Practical Intervention*. Institute of Network Cultures, Amsterdam University. https://networkcultures.org/wp-content/uploads/2023/12/ResistingDataColonialism_INC2023_TOD50.pdf
- Timcke, S., & Hlomani, H. (2024). *How Might AI Reshape Democracy on the African Continent?* Research ICT Africa, South Africa.
- Trappel, J. (Ed.) (2019). *Digital Media Inequalities: Policies against Divides, Distrust and Discrimination*. Nordicom.
- Tsanni, A. (2024). How satellite images and AI could help fight spatial apartheid in South Africa. *MIT Technology Review*, 19 January. www.technologyreview.com/2024/01/19/1086837/satellite-images-ai-spatial-apartheid-south-africa
- UN (United Nations). (2020). *Promoting Digital Public Goods*. United Nations Office of the Secretary General's Envoy on Technology.
- Vaidhyanathan, S. (2011). *The Googlization of Everything: How One Company is Transforming Culture, Commerce, and Community – And Why We Should Worry*. University of California Press.
- Vaidhyanathan, S. (2022). *Anti-Social Media: How Facebook Disconnects Us and Undermines Democracy*. Oxford University Press.
- van Dijck, J., de Waal, M., & Poell, T. (2018a). *The Platform Society: Public Values in a Connective World*. Oxford University Press.
- Vayadande, K., Singh, V., Sultanpure, K., Deshpande, D., *et al.* (2024). Empowering data sovereignty: Decentralized image sharing through blockchain and InterPlanetary File System. *International Journal of Intelligent Systems and Applications in Engineering*, 12(14S), 223-235. https://ijisae.org/index.php/IJISAE/article/view/4660
- Veiga, A. K., Saraiva, A. M., Chapman, A. D., Morris, P. J., *et al.* (2017). A conceptual framework for quality assessment and management of biodiversity data. *PLOS ONE*, 12(6), e0178731. https://doi.org/10.1371/journal.pone.0178731
- Verdegem, P. (2021). Tim Berners-Lee's plan to save the internet: Give us back control of our data. *The Conversation*, 5 February. https://theconversation.com/tim-berners-lees-plan-to-save-the-internet-give-us-back-control-of-our-data-154130
- Verdegem, P. (2022). Dismantling AI capitalism: The commons as an alternative to the power concentration of Big Tech. *AI & Society*, 39, 727-737. https://doi.org/10.1007/s00146-022-01437-8
- Verhulst, S. G. (2024). Governing Mediation in the Data Ecosystem: Lessons from Media Governance for Overcoming Data Asymmetries. In M. Puppis, R. Mansell, & H. Van den Bulck (Eds), *Handbook of Media and Communication Governance* (pp. 372–383). Edward Elgar Publishing.
- VPUU (Violence Prevention thorugh Urban Upgrading). (2019). CitySpec: A mobile inspection tool improving service delivery. http://vpuu.org.za/safe-node-area/cityspec-service-delivery
- Waisbord, S. (2023). Mob censorship revisited: Questions, findings, and challenges. *Digital Journalism*, 11(10), 1761-1768. https://doi.org/10.1080/21670811.2023.2214905

- Warschauer, M. (2004). *Technology and Social Inclusion: Rethinking the Digital Divide*. MIT Press.
- West, S. M. (2019). Data capitalism: Redefining the logics of surveillance and privacy. *Business & Society*, 58(1), 20-41. https://doi.org/10.1177/0007650317718185
- Whittaker, M. (2021). The steep cost of capture. *Interactions*, 28(6), 50-55. https://doi.org/10.1145/3488666
- Wihbey, J. (2024). AI and epistemic risk for democracy: A coming crisis of public knowledge? https://doi.org/10.2139/ssrn.4805026
- Wike, R., Fetterolf, J., Smerkovich, M., Austin, S., Gubbala, S., & Lippert, J. (2024). Representative democracy remains a popular ideal, but people around the world are critical of how it's working. Pew Research Center Press Release, 28 February. www.pewresearch.org/global/wp-content/uploads/sites/2/2024/02/gap_2024.02.28_democracy-closed-end_report.pdf
- Willems, W. (2014b). Provincializing hegemonic histories of media and communication studies: Toward a genealogy of epistemic resistance in Africa. *Communication Theory*, 24(4), 415-434. https://onlinelibrary.wiley.com/doi/abs/10.1111/comt.12043
- Williams, A. (2023). *Surveillance Nation: The Real Cost of Amazon's Customer Obsession*. https://peertube.dair-institute.org/w/oAWnan9PXTvS3CyutatQcg
- Wu, T. (2017). *The Attention Merchants: The Epic Struggle to Get Inside Our Heads*. Atlantic Books.
- Xu, Z., Jain, S., & Kankanhalli, M. (2024). Hallucination is inevitable: An innate limitation of large language models. *ArXiv*. https://doi.org/10.48550/arXiv.2401.11817
- Yates, S., & Carmi, E. (Eds) (2024). *Digital Inclusion: International Policy and Research*. Springer International Publishing.
- Zhang, W., Ong, L. M., & Findlay, M. (2023). Digital Self-Determination: An Alternative Paradigm for Emerging Economies. In M. Findlay, L. M. Ong, & W. Zhang (Eds), *Elgar Companion to Regulating AI and Big Data in Emerging Economies* (pp. 158-179). Edward Elgar Publishing.
- Zygmuntowski, J. J., Zoboli, L., & Nemitz, P. F. (2021). Embedding European values in data governance: A case for public data commons. *Internet Policy Review*, 10(3), 1-29. https://doi.org/10.14763/2021.3.1572