

Digital Policy Hub – Working Paper

Digital Commons: Feminist Futures and Participatory Urban Governance

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The Digital Policy Hub working papers are the product of research related to the Hub's identified themes prepared by participants during their fellowship.

Partners

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Key Points

- Cities are now increasingly digitalized through a variety of processes including both physical infrastructure (sensors and cameras) and platforms (such as Uber, Airbnb and Google Maps). These technological developments represent the desire to see the city as an optimization and efficiency problem that can be addressed through increasing datafication and privatization. The increased role of private sector tech development in cities has led to significant harms, including data exploitation, surveillance and discrimination.
- As an alternative to top-down technocratic approaches, commons-based governance frameworks propose that resources can be collectively governed. Digital commons have emerged as ways to promote collective control and ownership of data, maintaining that decentralized rules in accordance with location, accountability, ownership and participation lead to ethical outcomes.
- However, commons-based approaches often fail to represent the intersectional impacts of digital governance. By combining commons-based governance with feminist principles, this working paper outlines the need for an approach to governing urban digital resources according to principles of justice and equity.
- To operationalize the feminist urban digital commons, two pillars are explored. First, meaningful participation offers sustained and committed engagement with impacted communities. Second, accountable ownership ensures that this participation results in meaningful outcomes for residents, disrupting exploitative practices of data extraction.
- This paper concludes by recommending that these pillars can be achieved through a tri-fold process of funding, thorough participation processes and ownership structures that are reinforced by local government resources.

The Modern City: Platforms and Smart Solutions

Optimizing the City

In the 1950s, cities began to be seen as problems to be solved with data (Mattern 2021, chapter 2), demonstrating how technology and control coalesce. This proliferation of what Rob Kitchin (2017) describes as data-driven urbanism represents how a city's success is now determined by its ability to collect and mobilize data according to a pragmatic framework that prioritizes efficiency. In order to achieve efficient solutions, technology was embedded into everyday interactions, often through sensors, cameras and dashboards (Andrejevic and Burdon 2015). Urban centres were infused with methods of mass data collection to fulfill a promise of endless optimization as a solution to key issues. However, with the rise of neoliberalism, the traditional model of state- or city-driven infrastructure development was disrupted, and the city began to be viewed as a business venture with interests to be purchased, analyzed and controlled (Frug 1999). As a result, tech-based data collection systems were provided by private

developers (Plantin et al. 2018), rendering smart city ideals as persistent private-driven partnerships.¹

Within the past two decades, platforms have played an increasingly important role in reshaping how residents interact with their environment (Rosenblat 2018). “Platform urbanism” represents both the discipline of digital geography that analyzes the changing relationship between cities and the technologies that sustain them, as well as a disciplinary shift that discusses the power that platforms hold (Sadowski 2020). In comparison to other “smart” city endeavours, platforms are as unique as they are “simultaneously embedded and disembedded from the space-times they mediate” (Graham 2020, 2). In the platformed city, investors, corporate actors and government agencies alike promote platform urbanism as innovative and progressive projects that provide universal benefits such as flexibility, accessibility and mobility (Bauriedl and Strüver 2020), making technology appear as both neutral and necessary to the urban landscape.

While acting as urban intermediaries, these platforms are simultaneously taking on the role of “regulatory entrepreneurs” (Tzur 2019), making policy changes integral to their business model. This enables platforms to grow their infrastructural power while extracting data that is marketed back to consumers and other businesses (Powell 2021, 54–79). The development of this platforms-as-infrastructure model of cities not only contributes to a lack of competition but also subjects marginalized residents to the biases of automated decision making on the basis of race, gender, class and ability (Bauriedl and Strüver 2020; Safransky 2020).

The Perils of the Platform: A Technocratic Status Quo

The increased privatization of digital infrastructure within platformed cities has created significant consequences. In Canada, digital infrastructures have experienced numerous crossroads and questions, from the breaches of privacy related to the Royal Canadian Mounted Police’s use of Clearview AI, the telecommunications outage for millions of Rogers customers and the proposal of a smart neighbourhood for Toronto’s Waterfront.² Each of these cases demonstrated how using one-size-fits-all tools to “solve” urban issues often produces broader concerns. Beyond Canada, platforms are taking centre stage in cities as infrastructural intermediaries, service providers and employers, with significant consequences. Platforms, including Uber and Airbnb, have been criticized for their roles in facilitating gentrification (Wachsmuth and Weisler 2018); controlling workers through opaque algorithms (Eyert, Irgmaier and Ulbricht 2020); and lobbying international governments with deceptive and exploitative tactics (Freedberg et al. 2022). In 2022, reporters from *The Guardian* and the International Consortium of Investigative Journalists reported on a series of company communications from Uber,

1 Here, the term “private-driven” partnerships is used rather than “public-private” partnerships to reflect the ways in which private organizations hold a significant level of power and expertise in their systems. In this position, cities often procure the technology as clients, rendering them less powerful to understand the inner workings and outcomes of the tech.

2 In 2020, Sidewalk Labs announced that it would not pursue the Quayside Project in Toronto. This came after significant concerns from Torontonians regarding the lack of privacy and top-down, private-driven development approach being promoted by Sidewalk Labs (Jacobs 2022). In 2021, it was found that police services across Canada had used Clearview AI to scrape the images of millions of social media users without their consent (Office of the Privacy Commissioner of Canada 2021). In July 2022, a mass outage of Rogers’ telecommunications services left millions of individuals and businesses without connectivity (Saba 2024).

in which executives developed close relationships with government officials to engage in under-the-table lobbying while deploying technical tactics to hinder investigation into their activity (ibid.). These detrimental impacts of platforms highlight the risks of incorporating private sector technology into public spaces. The problem at hand not only involves the potential misuse of technology, but also the consequences of allowing the few who hold positions in the tech elite to define the solutions to be implemented in cities for the many. The following section discusses how approaches of commons-based digital governance are actively working to reshape and challenge this imbalance.

Reallocating Power: Commons-Based Urban Tech Governance

Elinor Ostrom: Navigating the Tragedy of the Commons

The idea of shared resources as “commons” has long been explored within public policy discourses. In 1968, Garret Hardin described the “tragedy of the commons,” in which a universally available resource is depleted as a result of self-interest, demonstrating the need for top-down regulation (Hardin 1968). This perspective of inevitable depletion, however, is countered in Elinor Ostrom’s work, which demonstrates how the tragedy does not reflect the practices of many self-sustaining groups that act not with consideration for short-term individual gain, but rather with a goal of maximizing long-term community output (Ostrom 1990). Ostrom’s research is based on eight central principles (see Figure 1) that provide the baseline agreements that groups must adhere to when governing common resources. While each of the principles contain different strategies and approaches, they are united in their understanding that collective governance is not an impossibility.

Figure 1: Ostrom’s Eight Principles

Ostrom’s Principles	
Clearly defined boundaries	Sanctions
Appropriate rules	Conflict-resolution mechanisms
Rulemaking processes	Right to self-governance
Monitoring	Nestedness/interoperability

Source: Author, based on Ostrom (1990).

Ostrom's Vision in the Digital Age: Data Commons

Many early discussions of commons-based governance focused on tangible resources. However, the emergence of data and artificial intelligence (AI) has renewed a focus on how collective governance structures might provide both benefits and barriers when applied to digital resources. This is emphasized by Bianca Wylie and Sean McDonald (2018), who argue that despite an increase in data governance, mechanisms for public participation have become stagnant, limiting the potential for those impacted by the rules to participate in modifying them. This becomes essential when discussing urban technology, as the infrastructure that makes up the platformed city — the cloud, data centres and networks — is dominated by a small monopoly of corporate actors with a substantial amount of political power (Luitse 2024; Benzina 2019). Focusing on the development of collective solutions to combat the corporate platformed city must, therefore, involve infrastructural control and accountability. Geographers regularly demonstrate that infrastructure is an interplay of power, social meaning and materiality (Collier, Mizes and von Schnitzler 2016). As such, infrastructures that are developed to facilitate everyday interactions within the city simultaneously define and redefine its meaning.

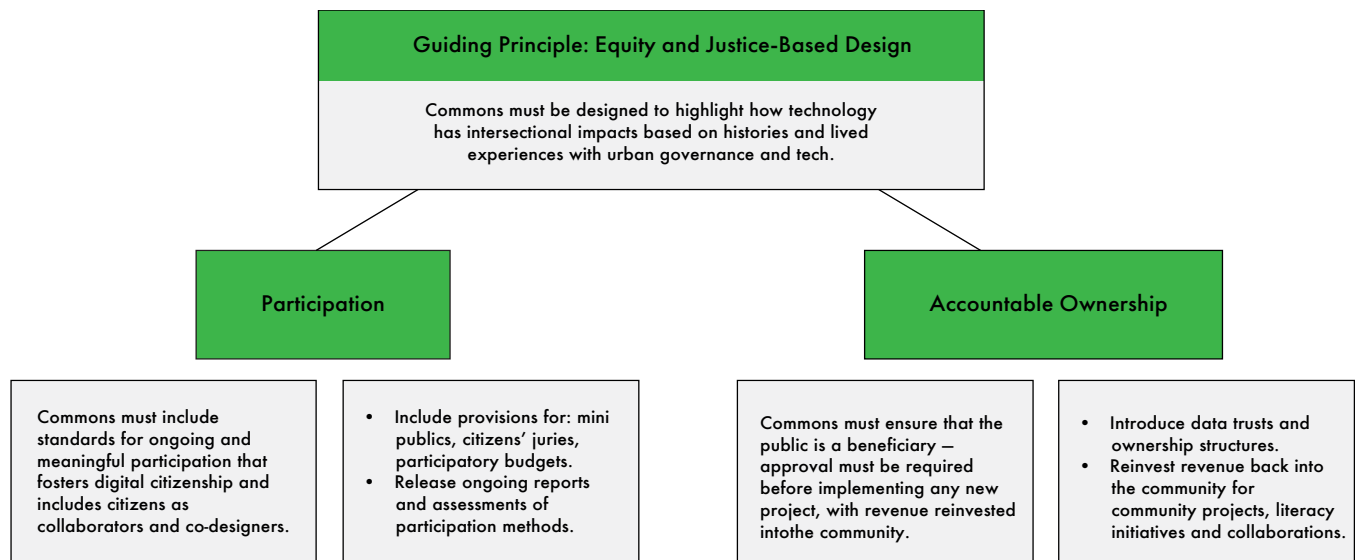
Commons-based digital governance therefore involves these questions of control, meaning and accountability. Work from the Mozilla Foundation identifies a data commons as “a system of stewardship through which data resources are managed involving processes of sustainable and ethical production, use, re-use, and redistribution — and governed through collaboration among stakeholding users and/or data producers” (Ruhaak et al. 2021). They position community data as a resource that is often exploited, demonstrating the value of Ostrom's principles as a guiding structure for community data stewardship that is based in self-governance. For Jan Krewer and Zuzanna Warso (2024), digital commons should adhere to three protocols: they must govern resources that can be broken down into source code; the resource must be collectively managed; and there must be established rules related to access and sharing. This notion has been extended into the AI space, as Joana Varon, Sasha Costanza-Chock and Timnit Gebru (2024) call for the development of an AI commons ecosystem based on community co-design, where task-specific models are developed by and for community needs. In addition to emphasizing the role of collaboration among practitioners, regulators and community members, they highlight how the development of common AI infrastructure requires significant and sustained funding and collaboration. These commons-based approaches emphasize the role of participation and agency, while disrupting big tech's “one-size-fits-all” model through specialized and decentralized rules.

Feminist Visions of Commons-Based Digital Governance

Many approaches to commons-based governance, however, do not acknowledge that formal equality does not necessarily lead to equitable outcomes. While they disrupt the bedrock of top-down technological innovation and governance, developing a commons-based system without consideration for the roles of power, history and justice will not limit the marginalization experienced by groups in cities. An intersectional, justice-based approach to commons-based digital governance can combat the platformed city by encouraging development with communities who will use them.

Leslie Kern (2021) argues that a feminist city prioritizes the needs of those often under-represented by design, as infrastructure has often acted to directly disadvantage those who are not cisgender, white heterosexual men. In order to utilize technology as a community tool, we must acknowledge that it is universally applicable. Rather, the historical desire to count, identify and control populations through the collection of data and deployment of AI systems (Mattern 2021, chapter 2; D'Ignazio and Klein 2020) demonstrates that technology is a political tool. A justice-based approach to constructing a feminist digital urban commons can combat the platformed city by encouraging technological development that is designed by and for the communities that will use them. The final section provides a potential framework that can be used to operationalize a feminist digital urban commons (see Figure 2). This framework draws from the strengths of local government while encouraging stronger resident-centred accountability measures using two pillars: participation and accountability.

Figure 2: Framework to Implement a Feminist Digital Urban Commons



Source: Author.

Note: The framework identifies how the guiding principle of feminist digital commons governance relates to the two pillars for operationalizing it. The framework provides the descriptions of each pillar, as well as examples of actionable strategies that can be used to accomplish each pillar.

Participation

It is clear that the current strategies of data and AI governance are not working as intended. The two main influential pieces of Canadian digital legislation — the Privacy Act and the Personal Information Protection and Electronic Documents Act (PIPEDA) —

are not only outdated,³ but also reiterate individualized notions of privacy and digital rights that do not account for the collective rights of groups who are harmed by discriminatory practices in AI development. In cities, multitudes of residents coexist with one another; however, not all coexistence is made equal. Rather, marginalized residents of cities often face the first instances of experimental technology, making them significantly hit by associated harms. For example, Toronto Police Service's (TPS's) introduction of algorithmic policing technology has been critiqued for its potential to exacerbate existing racial biases within the TPS.⁴ Furthermore, the under-resourced structures of municipal bureaucracies often mean that those harmed by technologies are unable to learn about and access their digital rights. Thus, a more proactive, equity-based framework for urban governance is not only a novel alternative, but also a pivotal one that could combine citizen participation with a revitalized approach to municipal governance.

In theory, as residents of a city, we elect representatives who will work to protect our community's interests and foster solidarity and growth. Rather than expecting individuals to become experts on every aspect of their city, we encourage councillors and representatives to serve as experts within the governance realm. Within the digital rights sphere, no digital citizen can be realistically expected to become an expert on their own privacy (Solove 2013; Obar 2015). Rather, as Daniel J. Solove (2013) argues, we often rely on trusted experts to provide parameters for safety on a variety of products, including food and vehicles. Jonathan A. Obar (2015) presents representative data management as an alternative strategy that relies on expert-driven intermediaries, releasing individuals from the "unattainable ideal" of privacy self-management. However, in the most neutral case, the experts within the platformed city are tech executives who are not elected. In the worst-case scenario — as was seen with Sidewalk Labs' Quayside Project on Toronto's Waterfront — unelected experts often leverage their technical knowledge and desire for increased data and profit to steer governance in a way that does not represent these democratic ideals. Due to these risks, digital governance must still commit to fostering strong public participation protocols through literacy and sustained contribution.

Understanding meaningful engagement means distinctly integrating questions of power, timing, control and influence into conversations surrounding city building to combat the inequalities associated with tokenizing participation (Adu-Daako and Sieber 2022, 6–8). Engaging in meaningful participation therefore involves seeing solution building as a collaborative approach, where consent is an active process between communities and developers, rather than a single-instance approval or initial consultation. This bottom-up ongoing approach is exemplified by strategies such as grassroots digital urbanism, which sees participation as an ongoing phenomenon in which users are

3 Daniel Konikoff (2023) argues that both PIPEDA and Canada's Privacy Act, as well as new efforts to revitalize these legislations, do not account for the clear risks of facial recognition technology, and do not guarantee our rights in the digital age. Critiques of PIPEDA and the Privacy Act note that it is outdated. Similarly, Teresa Scassa (2020) argues that PIPEDA, which was developed in 2000, has not been developed to adequately represent the impacts of the data economy.

4 An Ontario Human Rights Commission (2020) report found that the TPS displayed significant instances of anti-Black biases. As the introduction of algorithmic policing can present several impacts that violate the Canadian Charter of Rights and Freedoms and associated human rights, the Montréal Society and Artificial Intelligence Collective released comments addressing the clear risks that the TPS's use of AI could result in marginalization for those who are Black, Indigenous and people of colour in Toronto (Brandusescu et al. 2021).

directly involved in the technologies that form the foundations of their lives (Vadiati 2022). Methods for integrating participation can go beyond the standard consultation model, and include approaches such as citizen juries, assemblies, permanent mini publics, community technology and participatory budgeting (Data Justice Lab 2021). Examining the “meaningfulness” of participatory governance involves working beyond consultation mechanisms and, instead, sees residents as active contributors and key partners, with recommendations being enacted within an accountable policy structure. A feminist digital urban commons must consider the histories and lived experiences of communities, as they are formative in shaping how communities engage with technologies. As such, there must be a precedent for ongoing civic participation in relation to how data is shared, which projects are taken on and how community members will benefit from these projects.

Accountable Ownership

In order to ensure that participation is meaningful, it must be accompanied with a commitment to structural change through accountable ownership. Participation is not a universal fix for marginalization, both within AI development (Birhane et al. 2022) and broader areas of public policy (Polletta 2002; Táíwò 2020; Freeman 1970). In the 1970s, Jo Freeman (1970) argued that without proper accountability structures, advocacy groups that promote decentralized participation through “structurelessness” emerge with hidden power structures on the basis of social power, influence and charisma. This is reiterated by Francesca Polletta (2002), who demonstrated that radical democracy is a double-edged sword when conducted without accountability structures and an acknowledgement of power imbalances. For Olúfemi O. Táíwò (2020), this manifests as “being in the room privilege,” where marginalized groups are invited to consult, but only if they conform to expected conditions of leadership. This does not result in the dismantling of power structures, but a form of elite capture in which the status quo is reaffirmed through symbolic gestures. Táíwò reiterates the need to move not just toward inclusion, but to actual disruption of power structures.

A focus on accountable ownership recognizes this need to disrupt power structures that are found in top-down solution-building frameworks. With big tech maintaining control over how these systems are developed, urban tech infrastructure therefore reflects a deeper set of politics and concentrated ownership (Star 1999). As a result of these infrastructural conditions, the focus has shifted not only to participation in development and deployment, but also to alternative models of ownership in revenue and data collection. Accountable ownership involves cultivating and strengthening what local government does well, while providing residents with the robust literacy programs and ownership structures to develop systems that truly benefit their communities. In this regard, the public — especially those harmed by urban AI — should not only be a central collaborator in project development, but also a main beneficiary. In controlling access to data rights and authorization over the implementation of new technology, as well as ensuring that revenue is reinvested into the community, a feminist digital urban commons can promote a mode of ownership that is sustainable. This concept is not

limited to AI and big data, as urban mesh networks⁵ and community land trusts govern infrastructure from the bottom up.

Data trusts provide one option for accountable ownership within a commons-based governance structure. Data trusts help to provide a legal architecture for data to be treated as a public utility, while promoting digital rights for those who are in control of the trust — in this case, community members (Digital Public 2020). While they can be adapted for a variety of purposes, a civic data trust could provide the structure for collective data to be treated as a public resource. Alongside (or alternative to) trusts, approaches that emphasize citizens as rights holders, such as participatory data stewardship (Ada Lovelace Institute 2021) and collective data rights (Tennison 2024), can reinforce accountable ownership.

In addition to developing new ownership structures, there is a need to ensure that these structures can be upheld within the broader urban environment. Bianca Wylie and Zahra Ebrahim (2021) argue that the evolution of local government involves learning from people's needs and developing ways to address these requests, a practice that has existed long before the advent of big data. Building from this pinnacle of municipal bureaucracy — its foundation in community needs — therefore provides the structures necessary to ensure that residents are given the rights and access needed to not only participate in development but also to hold a stake in its success. This may involve integrating collaborative funding opportunities, providing third-party mediators or assisting with the development of legal contracts and permit-seeking processes.

Conclusion

Amid new approaches to regulating emerging technologies and integrating these technologies into cities, there is a need for frameworks that challenge power structures and encourage agency. As demonstrated by the Torontonians who worked collaboratively to resist the unreliable and inequitable governance framework for the Sidewalk Labs Quayside Project, we are facing a pivotal moment where policy needs to adapt to protect the rights of residents. If corporate entities are given the power to establish new rules and regulatory frameworks, there is a risk that those who will be most impacted by these systems will be unable to participate. In developing a feminist digital urban commons, this research seeks to establish next steps for public policy that prioritize the interests and needs of community members.

Recommendations

- **Recommendation 1:** Public governing bodies must provide direct, sustained and multifaceted funding to support commons-based technological development. This funding must adhere to the need for substantial literacy, involvement and governance frameworks and associated costs, including infrastructure development, legal costs, meeting space and educational tools.

⁵ Mesh networks are alternatives to corporate internet infrastructures. They are often locally managed and collaboratively governed through a set of access rules and restrictions. These networks exist in Toronto (<https://tomes.net/>), Berlin (<https://berlin.freifunk.net/en/>) and the Catalan region of Spain (<https://guifi.net/en>).

- **Recommendation 2:** The processes of procurement, deliberation and implementation of new technologies in urban areas must not proceed without thorough and meaningful participation from impacted communities. These processes should be made publicly available for those who are unable to participate and should extend beyond one-time consultation processes and formats.
- **Recommendation 3:** Any new urban innovation projects must ensure that the public is a majority beneficiary. This means that they have control over data rights and that revenue is reinvested into the community. This can be assisted by building from the strengths of local government, promoting a partnership between communities and local bureaucracy.

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Works Cited

- Ada Lovelace Institute. 2021. *Participatory data stewardship: A framework for involving people in the use of data*. September. www.adalovelaceinstitute.org/report/participatory-data-stewardship/.
- Adu-Daako, Abigail and Renée Sieber. 2022. "What Is Meaningful Engagement?" In *Artificial Intelligence in the City: Building Civic Engagement and Public Trust*, edited by Ana Brandusescu and Jess Reia. Centre for Interdisciplinary Research on Montréal, McGill University. www.mcgill.ca/centre-montreal/files/centre-montreal/brandusescu-reia_artificial_intelligence_in_the_city_2022.pdf.
- Andrejevic, Mark and Mark Burdon. 2015. "Defining the Sensor Society." *Television & New Media* 16 (1): 19–36. <https://doi.org/10.1177/1527476414541552>.
- Bauriedl, Sybille and Anke Strüver. 2020. "Platform Urbanism: Technocapitalist Production of Private and Public Spaces." *Urban Planning* 5 (4): 267–76. <https://doi.org/10.17645/up.v5i4.3414>.

- Benzina, Kamila. 2019. "Cloud Infrastructure-as-a-Service as an Essential Facility: Market Structure, Competition, and the Need for Industry and Regulatory Solutions." *Berkeley Technology Law Journal* 34 (1): 119–42. <https://doi.org/10.15779/Z38QV3C43D>.
- Birhane, Abeba, William Isaac, Vinodkumar Prabhakaran, Mark Díaz, Madeleine Clare Elish, Iason Gabriel and Shakir Mohamed. 2022. "Power to the People? Opportunities and Challenges for Participatory AI." Preprint, arXiv, September 15. <https://doi.org/10.48550/arxiv.2209.07572>.
- Brandusescu, Ana, Alan Chan, Fernando Diaz, Andrés Ferraro, Alex Ketchum, Fenwick McKelvey, Jimin Rhim et al. 2021. "Comments on the Toronto Police Services Board Proposed Policy on AI Technologies." Submission to the Toronto Police Services Board. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4712238.
- Collier, Stephen J., James Christopher Mizes and Antina von Schnitzler. 2016. "Preface: Public Infrastructures / 11 Infrastructural Publics." *Limn* (7). <https://limn.it/articles/preface-public-infrastructures-infrastructural-publics/>.
- Data Justice Lab. 2021. *Advancing civic participation in algorithmic decision-making: A guidebook for the public sector*. https://datajusticelab.org/wp-content/uploads/2021/06/PublicSectorToolkit_english.pdf.
- Digital Public. 2020. "Digital Content Governance and Data Trusts – Diversity of content in the digital age." February. Prepared for the Department of Canadian Heritage and the Canadian Commission for UNESCO. www.canada.ca/en/canadian-heritage/services/diversity-content-digital-age/digital-content-governance-data-trust.html.
- D'Ignazio, Catherine and Lauren F. Klein. 2020. *Data Feminism*. 1st ed. Cambridge, MA: The MIT Press. <https://doi.org/10.7551/mitpress/11805.001.0001>.
- Eyert, Florian, Florian Irgmaier and Lena Ulbricht. 2022. "Extending the framework of algorithmic regulation. The Uber case." *Regulation & Governance* 16 (1): 23–44. <https://doi.org/10.1111/rego.12371>.
- Freedberg, Sydney P., Nicole Sadek, Brenda Medina, Agustin Armendariz and Karrie Kehoe. 2022. "How Uber won access to world leaders, deceived investigators and exploited violence against its drivers in battle for global dominance." International Consortium of Investigative Journalists, October 10. www.icij.org/investigations/uber-files/uber-global-rise-lobbying-violence-technology/.
- Freeman, Jo. 2013. "The Tyranny of Structurelessness." *Women's Studies Quarterly* 41 (3/4): 231–46. <https://doi.org/10.1353/wsqr.2013.0072>.
- Frug, Gerald E. 1999. *City Making: Building Communities without Building Walls*. 1st ed. Princeton, NJ: Princeton University Press. <https://doi.org/10.1515/9781400823345>.
- Graham, Mark. 2020. "Regulate, replicate, and resist – the conjunctural geographies of platform urbanism." *Urban Geography* 41 (3): 453–57. <https://doi.org/10.1080/02723638.2020.1717028>.
- Hardin, Garrett. 1968. "The Tragedy of the Commons: The population problem has no technical solution; it requires a fundamental extension in morality." *Science* 162 (3859): 1243–48. <https://doi.org/10.1126/science.162.3859.1243>.
- Jacobs, Karrie. 2022. "Toronto wants to kill the smart city forever." *MIT Technology Review*, June 29. www.technologyreview.com/2022/06/29/1054005/toronto-kill-the-smart-city/.
- Kern, Leslie. 2021. *Feminist City: Claiming Space in a Man-Made World*. New York, NY: Verso Books.

- Kitchin, Rob. 2017. "Data-driven urbanism." In *Data and the City*, edited by Rob Kitchin, Tracey P. Lauriault and Gavin McArdle. 1st ed. London, UK: Routledge. <https://doi.org/10.4324/9781315407388>.
- Konikoff, Daniel. 2023. "To guarantee our rights, Canada's privacy legislation must protect our biometric data." Commentary. Schwartz Reisman Institute for Technology and Society. October 24. <https://srinstitute.utoronto.ca/news/to-guarantee-our-rights-canadas-privacy-legislation-must-protect-our-biometric-data>.
- Krewer, Jan and Zuzanna Warso. 2024. "Digital Commons as Providers of Public Digital Infrastructure." Open Future. October. https://openfuture.eu/wp-content/uploads/2024/11/241113_Digital-Commons-as-Providers-of-Public-Digital-Infrastructures.pdf.
- Luitse, Dieuwertje. 2024. "Platform power in AI: The evolution of cloud infrastructures in the political economy of artificial intelligence." *Internet Policy Review* 13 (2): 1–44. <https://doi.org/10.14763/2024.2.1768>.
- Mattern, Shannon. 2021. *A City Is Not a Computer: Other Urban Intelligences*. Princeton, NJ: Princeton University Press. <https://doi.org/10.1515/9780691226750>.
- Obar, Jonathan A. 2015. "Big Data and *The Phantom Public*: Walter Lippmann and the fallacy of data privacy self-management." *Big Data & Society* 2 (2). <https://doi.org/10.1177/2053951715608876>.
- Office of the Privacy Commissioner of Canada. 2021. "Joint investigation of Clearview AI, Inc. by the Office of the Privacy Commissioner of Canada, the Commission d'accès à l'information du Québec, the Information and Privacy Commissioner for British Columbia, and the Information Privacy Commissioner of Alberta." PIPEDA Findings #2021-001. February 2. www.priv.gc.ca/en/opc-actions-and-decisions/investigations/investigations-into-businesses/2021/pipeda-2021-001/.
- Ontario Human Rights Commission. 2020. *A Disparate Impact: Second interim report on the inquiry into racial profiling and racial discrimination of Black persons by the Toronto Police Service*. Corrected and revised January 2023. www.ohrc.on.ca/en/disperate-impact-second-interim-report-inquiry-racial-profiling-and-racial-discrimination-black.
- Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge, UK: Cambridge University Press.
- Plantin, Jean-Christophe, Carl Lagoze, Paul N. Edwards and Christian Sandvig. 2018. "Infrastructure studies meet platform studies in the age of Google and Facebook." *New Media & Society* 20 (1): 293–310. <https://doi.org/10.1177/1461444816661553>.
- Polletta, Francesca. 2002. *Freedom Is an Endless Meeting: Democracy in American Social Movements*. 1st ed. Chicago, IL: University of Chicago Press.
- Powell, Allison B. 2021. "Data Cities and Visions of Optimization." In *Undoing Optimization: Civic Action in Smart Cities*. New Haven, CT: Yale University Press. <https://doi.org/10.12987/9780300258660>.
- Rosenblat, Alex. 2018. *Uberland: How Algorithms Are Rewriting the Rules of Work*. Oakland, CA: University of California Press.
- Ruhaak, Anouk, Greg Bloom, Angie Raymond, Willa Tavernier, Divya Siddarth, Gary Motz and Melanie Dulong de Rosnay. 2021. "A Practical Framework for Applying Ostrom's Principles to Data Commons Governance." Mozilla Foundation. December 6. www.mozilla.org/en/blog/a-practical-framework-for-applying-ostroms-principles-to-data-commons-governance/.

- Saba, Rosa. 2024. "Rogers lacked protections, redundancies that may have prevented 2022 outage: report." *Global News*, July 5. <https://globalnews.ca/news/10607346/rogers-outage-independent-report-crtc/>.
- Sadowski, Jathan. 2020. "Cyberspace and cityscapes: on the emergence of platform urbanism." *Urban Geography* 41 (3): 448–52. <https://doi.org/10.1080/02723638.2020.1721055>.
- Safransky, Sara. 2020. "Geographies of Algorithmic Violence: Redlining the Smart City." *International Journal of Urban and Regional Research* 44 (2): 20–218. <https://doi.org/10.1111/1468-2427.12833>.
- Scassa, Teresa. 2020. "Replacing Canada's 20-Year-Old Data Protection Law." Opinion, Centre for International Governance Innovation, December 23. www.cigionline.org/articles/replacing-canadas-20-year-old-data-protection-law/.
- Solove, Daniel J. 2013. "Introduction: Privacy Self-Management and the Consent Dilemma." *Harvard Law Review* 126 (7): 1880–1903. <https://harvardlawreview.org/print/vol-126/introduction-privacy-self-management-and-the-consent-dilemma/>.
- Star, Susan Leigh. 1999. "The Ethnography of Infrastructure." *American Behavioral Scientist* 43 (3): 377–91. <https://doi.org/10.1177/00027649921955326>.
- Táiwò, Olúfémí O. 2020. "Being-in-the-Room Privilege: Elite Capture and Epistemic Deference." *The Philosopher* 108 (4). www.thephilosopher1923.org/post/being-in-the-room-privilege-elite-capture-and-epistemic-deference.
- Tennison, Jeni. 2024. *Developing a Framework for Collective Data Rights*. Special Report. Waterloo, ON: CIGI. www.cigionline.org/publications/developing-a-framework-for-collective-data-rights/.
- Tzur, Amit. 2019. "Uber Über regulation? Regulatory change following the emergence of new technologies in the taxi market." *Regulation & Governance* 13 (3): 340–61. <https://doi.org/10.1111/rego.12170>.
- Vadiati, Niloufar. 2022. "Alternatives to smart cities: A call for consideration of grassroots digital urbanism." *Digital Geography and Society* 3 (100030). <https://doi.org/10.1016/j.diggeo.2022.100030>.
- Varon, Joana, Sasha Costanza-Chock and Timnit Gebru. 2024. "Fostering a Federated AI Commons Ecosystem." Policy brief submitted to the T20 Task Force 05. www.t20brasil.org/media/documentos/arquivos/TF05_ST_05_Fostering_a_Federat66ec26fe83f5d.pdf.
- Wachsmuth, David and Alexander Weisler. 2018. "Airbnb and the rent gap: Gentrification through the sharing economy." *Environment and Planning A: Economy and Space* 50 (6): 1147–70. <https://doi.org/10.1177/0308518X18778038>.
- Wylie, Bianca and Zahra Ebrahim. 2021. "Shared Governance: A Democratic Future for Public Spaces." *Azure*, February 3. www.azuremagazine.com/article/bianca-wylie-zahra-ebrahim-shared-governance-public-space/.
- Wylie, Bianca and Sean Martin McDonald. 2018. "What Is a Data Trust?" Opinion, Centre for International Governance Innovation, October 9. www.cigionline.org/articles/what-data-trust/.